Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Chap 1-3	1.8.2 ANNEX	See Annex for full text	"Given the purpose of the document as discussed in item 1.2 of this Preface, the Agency will be especially interested in addressing problems identified by those in government and industry who are responsible for implementing the MAHC." Though the government, specifically the CDC, has a mission with a concern for public health, parts of the industry (specifically, corporations) have primarily a fiduciary responsibility to their shareholders to maximize profit and do not necessarily have incentive to maximize public safety or health. Since it is the swimming public who are most affected by the quality of this standard in terms of it being unbiased by profit motives, I believe it is important for the Agency to consider scientifically-sound input from any source, including the public, as being at least as valuable as potentially biased input from profit-motivated parts of industry. After all, it is the swimming public that bears the greatest impact from WBDOs. Suggested wording change: Delete the quoted sentence shown in the comments area above for Section 1.7.2.1 and the word "also" from the subsequent sentence.	We agree and the intent was not to intimate that the public could not give input. Section 1.8.2 of the ANNEX makes this clearer	1.8.2 Annex	Given the vision, mission, and goals of the MAHC as discussed in item Section 1.3 of this Preface, the MAHC governing body will be especially interested in addressing any problems identified. CDC will also be especially responsive to those needed policy and technical changes raised by the general public or an organization that uses a democratic process for addressing problems and concerns. Included are organizations that provide a process that encourages representative participation in deliberations by government, industry, academic, and consumer interests, followed by public health ratification such as a state-by-state vote by officially designated delegates.
Risk Management (RM)	3.0 Acronyms	N/A	ORP Oxidation-Reduction Potential	Agree. Changed as suggested.	3.0 Acronyms	ORP Oxidation reduction potential
Risk Management (RM)	3.0 Acronyms	N/A	SVRS Safety Vacuum Release System – Reference: http://www.poolsafely.gov/pool-spa-safety/safety-issues/drain-entrapments/additional-prevention/	Agree. Changed as suggested.	3.0 Acronyms	SVRS Safety Vacuum Release System
Design & Construction (D&C)	3.0 Glossary	"Sprayground Treatment Tank" means the vessel used to collect the water that has been sprayed on the spray pad and returned through the spray pad drains.	Term "Sprayground Treatment Tank". Suggest changing the term itself to "Sprayground Holding/Collection Tank" or "Sprayground Surge Tank" as there is no treatment taking place within the tank.	Recommendation implemented. Changed to "Collection" tank.	3.0 Glossary	"Interactive Water Play Collection Tank" means the vessel used to collect the water that has been sprayed on the interactive water play area and returned through the interactive water play drains.
Design & Construction (D&C)	3.0 Glossary	"Accessible Route" means access/egress standards as defined by current Americans with Disabilities Accessibility Guidelines (ADAAG), published by the U.S. Access Board.	*These standards are the law, not the guidelines* -- Accessible Route means ingress/egress standards as defined by the 2010 ADA Standards adopted by the Department of Justice	Recommendations implemented.	3.0 Glossary	"Accessible Route" means access/egress standards as defined by current Americans with Disabilities Accessibility Guidelines (ADAAG), published by the U.S. Access Board.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Aquatic Facility Safety Team" means any employee of the aquatic venue that has job responsibilities related to the aquatic venue's emergency action plan.	*Lifeguards do not work for the venue but rather the facility. There is further confusion as the regulations refer to an "Aquatic Safety Team" that seems to be more focused on venues than the entire facility.* -- Means any employee of the aquatic facility that has job responsibilities related to the aquatic facilities' emergency action plan	Agree. Changed to "facility" instead of "venue".	3.0 Glossary	"Safety Team" means any employee of the aquatic facility that has job responsibilities related to the aquatic facility's emergency action plan.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Aquatic Facility Safety Team" means any employee of the aquatic venue that has job responsibilities related to the aquatic venue's emergency action plan.	*This definition should be called the Aquatic Facility Emergency Response Team. Current Definition is for a broader group that is part of an overall Risk Management Process.* -- Redefine/Rename… Aquatic Safety Team.	Disagree. Defined in glossary.	3.0 Glossary	"Safety Team" means any employee of the aquatic facility that has job responsibilities related to the aquatic facility's emergency action plan.
Ventilation (VEN)	3.0 Glossary	"Aquatic Facility" means a physical place that contains one or more aquatic venues and support infrastructure under a single management structure. From a ventilation standpoint this refers to an indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	The term "AQUATIC FACILITY" includes spaces that may be properly ventilated independently from the ventilation and humidity control system(s) designed to serve the Aquatic Venue(s). Clarity of communication will be enhanced by using two different terms (AQUATIC FACILITY and NATATORIUM). Several requirements through this module apply to a Natatorium but are not appropriate for other rooms in an Aquatic Facility; for example, a complete ventilation purge (4.6.2.5.1) is not required for the mechanical and electrical rooms, Environmental separation by an engineered air flow systems allow the natatorium boundary to end at a hallway or room (such as an open life guard office) that is positively pressurized by DBP free makeup air that flows into the natatorium. -- Add the term "NATATORIUM" defined as follows: "NATATORIUM" means a defined area within an AQUATIC FACILITY that encloses one or more Aquatic Venue and is environmentally separated from other spaces in the AQUATIC FACILITY by walls, doors, windows or an engineered air flow control system. Reviewer comment: Another word could be substituted for "Natatorium" as long as the same concept is conveyed.	Partially Agree. New definition added for "Indoor Aquatic Facility".	3.0 Glossary	"Indoor Aquatic Facility" means a physical place that contains one or more aquatic venues and the surrounding bather and spectator/stadium seating areas within a structure that meets the definition of "Building" per the 2012 International Building Code. It does not include equipment, chemical storage, or bather hygiene rooms or any other rooms with a direct opening to the aquatic facility.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	3.0 Glossary	"Aquatic Facility" means a physical place that contains one or more aquatic venues and support infrastructure under a single management structure. From a ventilation standpoint this refers to an indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	The term "AQUATIC FACILITY" as written is confusing and limiting. What does " a single management structure" mean? Is a spectator area with an independent ventilation system and separated by a glass wall still part of the "AQUATIC FACILITY"? If a locker room opens to a hall that opens to the venue space with no intervening doors, is it still a direct opening to the AQUATIC FACILITY? If the pool equipment room is separated from the venue area without direct openings, is it still part of the "AQUATIC FACILITY"? -- Revise the term "AQUATIC FACILITY" as follows: "AQUATIC FACILITY" means a building or a subpart of a larger building that encloses AQUATIC VENUE and its bather and spectator areas, toilets, showers, lockets rooms, pool offices, public lobbies, ticketing, pool equipment rooms, storage rooms, mechanical and electrical rooms and other directly related spaces.	Disagree. Definition is common to all other modules within the MAHC.	3.0 Glossary	"Aquatic Facility" means a physical place that contains one or more aquatic venues and support infrastructure.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Aquatic Supervisor" means an individual that meets all requirements in MAHC section 6.3.1.2 to 6.3.1.6.	*This is inappropriate as it does not define a supervisor and references a part of the code that is at best controversial.* -- Delete the definition of Aquatic Supervisor.	Partially agree. Definition revised.	3.0 Glossary	"Qualified Lifeguard Supervisor" means an individual that is responsible for the oversight of lifeguard performance and emergency response at an aquatic facility. A qualified lifeguard supervisor is an individual who has successfully completed a lifeguard supervisor training course and holds an unexpired certificate for such training; and who has met the pre-service and continuing in-service requirements of the aquatic facility according to this code.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Aquatic Supervisor" means an individual that meets all requirements in MAHC section 6.3.1.2 to 6.3.1.6.	*Unnecessary and does not define a supervisor.* -- Delete.	Partially agree. Definition revised.	3.0 Glossary	"Qualified Lifeguard Supervisor" means an individual that is responsible for the oversight of lifeguard performance and emergency response at an aquatic facility. A qualified lifeguard supervisor is an individual who has successfully completed a lifeguard supervisor training course and holds an unexpired certificate for such training; and who has met the pre-service and continuing in-service requirements of the aquatic facility according to this code.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Aquatic Venue" means an artificially constructed or modified natural structure where the general public is exposed to water intended for recreational or therapeutic purpose. Such structures do not necessarily contain standing water, so water exposure may occur via contact, ingestion, or aerosolization. Examples include swimming pools, wave pool, river, spas (including spa pools and hot tubs), interactive fountains, therapeutic pools, and spray pads.	*The definition should be clear which type venues this applies to. By including "river" it's not clear we don't mean a waterfront river area. Also, most lakefront water areas managed by an agency & intended for water recreation are "modified natural structures" so it is confusing whether this section is intended for those type facilities or not. Specifically indicating waterfront facilities are not included after the examples is necessary.* -- Aquatic Venue means and artificially constructed structure where the general public is exposed to water intended for recreational or therapeutic purpose. Such structures do not necessarily contain standing water, so water exposure may occur via contact, ingestion, or aerosolization. Examples include swimming pools, wave pool, "lazy river", spas (including spa pools and hot tubs), interactive fountains, therapeutic pools, and spray pads. It does not include modified natural waterfront areas using untreated water for recreational purposes	Agree. Definition revised	3.0 Glossary	"Aquatic Venue" means an artificially constructed or modified natural structure where the general public is exposed to water intended for recreational or therapeutic purpose. Such structures do not necessarily contain standing water, so water exposure may occur via contact, ingestion, or aerosolization. Examples include swimming pools, wave pool, lazy rivers, spas (including spa pools and hot tubs), therapy pools, spray pads and other interactive water venues.
Chap 1-3	3.0 Glossary	"Aquatic Venue" means an artificially constructed or modified natural structure where the general public is exposed to water intended for recreational or therapeutic purpose. Such structures do not necessarily contain standing water, so water exposure may occur via contact, ingestion, or aerosolization. Examples include swimming pools, wave pool, rivers, spas (including spa pools and hot tubs), interactive fountains, therapeutic pools, and spray pads.	This definition specifically includes "fountains," meaning the Scope could be stretched to include for a fountain that is designed and purposed solely for decorative purposes. In order to avoid any confusion, exclusionary language should be provided for decorative fountains.	The MAHC has modified language to put "interactive" in front of the language. We think it inadvisable to put exclusionary language in the MAHC related to fountains versus letting plan review specialists determine the likelihood of exposure. Many outbreaks have occurred from interactive fountains, which in many circumstances were initially called decorative fountains and were not "intended" for human interaction. The MAHC will focus on the reality of likely human exposure since "intent" may not be enough to prevent human use and exposure.	3.0 Glossary	"Aquatic Venue" means an artificially constructed or modified natural structure where the general public is exposed to water intended for recreational or therapeutic purpose. Such structures do not necessarily contain standing water, so water exposure may occur via contact, ingestion, or aerosolization. Examples include swimming pools, wave pool, lazy rivers, spas (including spa pools and hot tubs), therapy pools, spray pads and other interactive water venues.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	*The role of the AHJ is specific to this Code – no reason for some general dictionary definition here.* -- Means any agency, organization, office or individual responsible for enforcing the requirements of this Code…	Disagree. The term is used throughout the MAHC and may not always be specific to enforcing the requirements of the MAHC.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	• Concerns exist due to how current codes used in many states consider AHJ. -- No specific recommended change, but rather specific concerns: 1. "Authority Having Jurisdiction" definition is too broad. It creates overlap of areas of responsibility of agencies, departments, and organizations. This leaves room for much confusion and mistakes. It also is assuming that the AHJ is all-knowing and all-powerful, not recognizing how the AHJ may include both building and health departments.	The AHJ definition is general by design. In some cases the code sections may be adopted and enforced by the local building department in other cases it may be the health department or other agency.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	Also it is not clear where Building Departments fit in, couldn't they be an AHJ in certain situations? In many instances a building department can also function in the capacity of an AHJ.	Yes. It is a general definition to fit all circumstances.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	One would think Section 4.0 would be more under the building department (an AHJ) and Section 5.0 would be more under a health department (an AHJ). The problem is the definition set out is not clear on what an AHJ is or what type of AHJ is over different aspects of the module code – REFRENCE: International Codes (I-Codes), State codes such as the FL Building Code, etc	That is the most common division of jurisdiction, but there are many other types of shared jurisdiction, including other agencies other than the health and building departments. The MAHC is a model so cannot provide specifics about all the different types of jurisdiction that occur across the U.S. Pool codes from health departments routinely include elements found in 4.0 that can have direct impact on swimmer or staff health and safety since those officials have purview over ensuring health and safety for the life of the facility.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	The definition of an AHJ says it is "responsible for enforcing the requirements of a code or standard…" Should it not say "this code". Further, if it is meant to include building officials it should state this. One possibility is including a statement that says "building officials or others having statutory authority.	The definition is generic so does not mean just this code (the MAHC is a model so must first be adopted). We prefer to keep it broad by not singling out specific groups such as building officials. of this code.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	Upon reviewing the entire document, it is clear in certain sections of the document that the building official is different from the AHJ, see section 5.1.1.3.1 for example or section 5.2.2.3. However, most states consider an AHJ as including a building department.	AHJ can include building officials since this model code may be adopted by any agency that has appropriate jurisdiction. 5.1.1.3.1 has been modified to say AHJ and 5.2.2.3 was deleted as unnecessary	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Regulatory (REG)	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, and/or for approving equipment, materials, an installation, or a procedure.	I would request changing the word "Authority" to "Authorities". There are sections in the MAHC that could overlap with other agencies responsibilities. Water slides and water attractions are examples, as certain states require different agencies to regulate these structures and attractions. Changing Authority to Authorities will provide the code to be enforced by multiple organizations. – REFERENCE: Florida Dept. of Fairs & Rides	The Authority Having Jurisdiction can be more that one agency for different sections of the code. No change.	3.0 Glossary	"Authority Having Jurisdiction" (AHJ) means an agency, organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
Design & Construction (D&C)	3.0 Glossary	"Barrier" means an obstacle prevents direct access from one point to another. The term "Enclosure Barrier" refers to a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to a swimming pool, wading pool, or spa. An "enclosure barrier" shall be designed to resist climbing and to prevent passage through it and under it. The term "Separation Barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. A separation barrier may be permanently installed or moveable.	Term "Barrier". "Aquatic Facility/Venue" should be used as opposed to pool to broaden the scope of the intention. These are terms clearly established by the Code and the Code should address facility construction, not just "pool" construction. Not enough effort was put forth to consider all types of venues, and this is necessary throughout for the Code to be complete. Code appears to be written only with "pools" in mind, with all other venues as an afterthought. Not acceptable. Suggest: "… unfettered access (by children) to an aquatic facility or individual aquatic venue such as a swimming pool, wading pool, spa, among others…" also "…access from one area to another area within a facility/venue enclosure."	Agreed. Wording altered	3.0 Glossary	"Barrier" means an obstacle preventing direct access from one point to another. • "Enclosure barrier" means a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to an aquatic facility or aquatic venue such as a swimming pool, wading pool, or spa. It is designed to resist climbing and to prevent passage through it and under it. • "Separation barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. It may be permanently installed or moveable.
Design & Construction (D&C)	3.0 Glossary	"Barrier" means an obstacle prevents direct access from one point to another. The term "Enclosure Barrier" refers to a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to a swimming pool, wading pool, or spa. An "enclosure barrier" shall be designed to resist climbing and to prevent passage through it and under it. The term "Separation Barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. A separation barrier may be permanently installed or moveable.	*These terms require separate definitions. The revised definition of "Barrier 'Enclosure'" will bring this definition into conformity with the Virginia Graemme Baker Pool and Spa Safety Act (VGB. 15 U.S.C. 8001 et seq.* -- "Barrier" means an obstacle prevents direct access from one point to another. ~~The term "Enclosure Barrier"~~ Barrier "Enclosure" ~~refers to~~ is a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to a swimming pool, wading pool, or spa. ~~An "enclosure barrier" shall be~~ It is designed to resist climbing and to prevent passage through it and under it. ~~The term "Separation Barrier"~~ Barrier "Separation" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. ~~A separation barrier~~ It may be permanently installed or moveable. – REFERENCE: Virginia Graeme Baker Pool and Spa Safety Act (VGB. 15 U.S.C. 8001 et seq See 2012 ISPSC definition of Barrier.	Recommendation implemented.	3.0 Glossary	"Barrier" means an obstacle preventing direct access from one point to another. • "Enclosure barrier" means a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to an aquatic facility or aquatic venue such as a swimming pool, wading pool, or spa. It is designed to resist climbing and to prevent passage through it and under it. • "Separation barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. It may be permanently installed or moveable.
Design & Construction (D&C)	3.0 Glossary	"Barrier" means an obstacle prevents direct access from one point to another. The term "Enclosure Barrier" refers to a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to a swimming pool, wading pool, or spa. An "enclosure barrier" shall be designed to resist climbing and to prevent passage through it and under it. The term "Separation Barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. A separation barrier may be permanently installed or moveable.	*Typo* -- Change "prevent" to "preventing"	Recommendations implemented.	3.0 Glossary	"Barrier" means an obstacle preventing direct access from one point to another. • "Enclosure barrier" means a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to an aquatic facility or aquatic venue such as a swimming pool, wading pool, or spa. It is designed to resist climbing and to prevent passage through it and under it. • "Separation barrier" means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. It may be permanently installed or moveable.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. Bathers can be exposed to contaminated water as well as potentially contaminate the water.	*Recommend removing last sentence because it reads like commentary.* – Bather: Means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. ~~Bathers can be exposed to contaminated water as well as potentially contaminate the water.~~	Recommendation implemented.	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. The term bather as defined, also includes staff members, and refers to those users who can be exposed to contaminated water as well as potentially contaminate the water.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. Bathers, which include staff members, can be exposed to contaminated water as well as potentially contaminate the water.	Designation between "bather" and "aquatic activity participant (or the like)". Bather implies immersion in water on an undefined path (e.g. wading/swimming in a pool or playing on a splash pad/play structure) v. participant in a water ride with a defined path of travel and designated starting/stopping points.	Disagree. " Bather" is defined in the MAHC.	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. The term bather as defined, also includes staff members, and refers to those users who can be exposed to contaminated water as well as potentially contaminate the water.
Hygiene (HYG)	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. Bathers, which includes staff members, can be exposed to contaminated water as well as potentially contaminate the water.	Define bather load, and reference to Section where it is tabulated. This is critically important and should also be put forward for public comment.	Agreed. Bather Load and Occupant Load have been defined.	3.0 Glossary	"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. The term bather as defined, also includes staff members, and refers to those users who can be exposed to contaminated water as well as potentially contaminate the water.
Design & Construction (D&C)	3.0 Glossary	"Body of Water" (per NEC, q.v.) means any swimming pool, wading pool, kiddie pool, therapeutic pool, decorative pool, immersion pool, fountain, hot tub, spa, or hydro massage tub, whether permanent or storable.	Term "Body of Water". Again aquatic venue should be used. Suggest: "…means any aquatic venue holding standing water, whether permanent or storable."	Agreed. Wording changed.	3.0 Glossary	"Body of Water" (per NEC, q.v.) means any aquatic venue holding standing water, whether permanent or storable.
Design & Construction (D&C)	3.0 Glossary	"Catch Pool" (also known as waterslide landing pool) means a pool or designated section of a pool located at the exit of one or more waterslide flumes.	*The additional explanation, found in the ISPSC, goes a step further and better defines and explains this term.* -- "Catch Pool" ~~(also known as waterslide landing pool) means a~~ A pool or designated section of a pool located at the exit of one or more waterslide flumes. The body of water is provided for the purpose of terminating the slide action and providing a means for exit to a deck or walkway area. Waterslide Landing Pool. See Catch Pool. – REFERENCE: See ISPSC definitions.	Recommendation implemented.	3.0 Glossary	"Catch Pool" means a pool or designated section of a pool located at the exit of one or more waterslide flumes. The body of water is provided for the purpose of terminating the slide action and providing a means of exit to a deck or walkway area.
Design & Construction (D&C)	3.0 Glossary	"Chemical Storage Space" means an interior space of a building intended for human or animal occupation, used for the storage of pool chemicals, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.	Term "Chemical Storage Space". Why is this being limited to chemicals listed? Should be a blanket term covering all chemicals as defined by "Right to Know	Agreed. Wording altered.	3.0 Glossary	"Chemical Storage Space" means an interior space of a building used for the storage of pool chemicals including, at a minimum, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.
Design & Construction (D&C)	3.0 Glossary	"Chemical Storage Space" means an interior space of a building intended for human or animal occupation, used for the storage of pool chemicals, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.	*The definition should include the possibility of a storage building that is not intended for human or animal occupation.* -- "Chemical Storage Space" means an interior space of a building ~~intended for human or animal occupation~~, used for the storage of pool chemicals, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.	Recommendation implemented.	3.0 Glossary	"Chemical Storage Space" means an interior space of a building used for the storage of pool chemicals including, at a minimum, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.
Risk Management (RM)	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks, but most aquatic venues now add other chlorine compounds (e.g. hypochlorite) that similar to the liquid form release hypochlorous acid when dissolved in water. Chlorinating agents are the most commonly used disinfectants for aquatic venues.	…and is ~~extremely~~ irritating and toxic…" [With a gas LC50, rat, 4-hour >100 PPM (USDHHS, 2010) the Hodge & Sterner scale (CCOHS, 2005) would classify chlorine as "moderately toxic". To be called extremely toxic the LC 50 would need to be 10 or less. The US Dept. of Health & Human Services reports chlorine LC50 values for a range of exposure times, from various sources. Included is an LC50 of 293 PPM for 1-hour exposure, rats, (Vernot, 1977), which GHS criteria would translate to half as many PPM for a 1-hour exposure (147 PPM). Also listed are an LC50 of 1000 PPM for 53 minutes and 250 PPM for 440 minutes. (Weedon, 1940) Linear interpolation to 4 hours (240 minutes) would place the LC50 for rats at ~640 PPM. A third set of listings (Zwart, 1988), give 5486 PPM for 5 minutes,1926 PPM for 10 minutes, 688 PPM for 30 minutes and 447 PPM for 1 hour. A non-linear extrapolation of this data to 4 hours gives ~98 PPM (model: $y = 23{,}074.554317x^{-0.997272}$). A GHS (see ref. at right) conversion of the 1-hour value to 4 hours would give 447/2 = 223 PPM. This range of projected LC50, rat, 4-hour values: 98, 147, 223, 638 PPM is not consistent with a description of *extremely toxic* even if chlorine gas is more toxic than most commonly used pool treatment chemical.] – Reference: U.S. Dept. Health & Human Svcs, Publ. Health Svc., Agency for Toxic Substances & Disease Registry, "Chlorine", 2010, Table 3-1, p. 30, (http://www.atsdr.cdc.gov/toxprofiles/tp172-c3.pdf, downloaded 11/4/2011); Canadian Centre for Occupational Health and Safety, "What is an LD50 and LC50", Table 1 "Toxicity Classses: Hodge and Sterner Scale", Hamilton Ontario, 2005, (http://www.ccohs.ca/oshanswers/chemicals/ld50.html?print, 11/4/2011); see also "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)", 3rd rev.	Definition was changed to read, "'Chlorine' means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks to be used as a swimming pool disinfectant, but most pools now add other chlorine compounds (e.g. calcium hypochlorite or sodium hypochlorite) as disinfectants. Chlorine and chlorine-based disinfectants release hypochlorous acid and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid. Chlorinating agents are the most commonly used disinfectants for pools."	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks. Chlorine and chlorine-based disinfectants release hypochlorous acid, the primary disinfecting agent, and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid in an aqueous solution.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks, but most aquatic venues now add other chlorine compounds (e.g. hypochlorite) that similar to the liquid form release hypochlorous acid when dissolved in water. Chlorinating agents are the most commonly used disinfectants for aquatic venues.	...is a heavy greenish yellow gas – Reference: http://dictionary.reference.com/browse/chlorine	Definition was changed to read, "'Chlorine' means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks to be used as a swimming pool disinfectant, but most pools now add other chlorine compounds (e.g. calcium hypochlorite or sodium hypochlorite) as disinfectants. Chlorine and chlorine-based disinfectants release hypochlorous acid and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid. Chlorinating agents are the most commonly used disinfectants for pools."	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks. Chlorine and chlorine-based disinfectants release hypochlorous acid, the primary disinfecting agent, and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid in an aqueous solution.
Risk Management (RM)	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks, but most aquatic venues now add other chlorine compounds (e.g. hypochlorite) that similar to the liquid form release hypochlorous acid when dissolved in water. Chlorinating agents are the most commonly used disinfectants for aquatic venues.	...with characteristic pungent odor… Reference: http://dictionary.reference.com/browse/chlorine	Definition was changed to read, "'Chlorine' means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks to be used as a swimming pool disinfectant, but most pools now add other chlorine compounds (e.g. calcium hypochlorite or sodium hypochlorite) as disinfectants. Chlorine and chlorine-based disinfectants release hypochlorous acid and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid. Chlorinating agents are the most commonly used disinfectants for pools."	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks. Chlorine and chlorine-based disinfectants release hypochlorous acid, the primary disinfecting agent, and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid in an aqueous solution.
Contamination Burden (CB)	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks, but most pools now add other chlorine compounds (e.g. hypochlorite) that similar to the liquid form release hypochlorous acid when dissolved in water. Chlorinating agents are the most commonly used disinfectants for pools.	Vague description of chlorine; original language did not indicate the reasons for widespread use of chlorine as a swimming pool disinfectant -- "Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed to liquid form and stored in heavy steel tanks to be used as a swimming pool disinfectant, but most pools now use other chlorine-based compounds (e.g. calcium hypochlorite or sodium hypochlorite) as disinfectants. Chlorine and chlorine-based disinfectants release hypochlorous acid and hypochlorite ion when dissolved in water; together these are known as "free chlorine," which helps destroy a wide range of waterborne pathogens and also oxidizes small bits of organic debris and impurities. Chlorine provides a residual level of protection that continues to disinfect the water long after it's applied. Chlorinating agents are the most commonly used disinfectants for pools. – REFERENCE: Agency for Toxic Substances & Disease Registry; ToxFAQs for Chlorine (online, accessed Sept. 30, 2012) National Swimming Pool Foundation Aquatic Management Series, Vol. 4: Recreational Water Illnesses	Agreed to change 2nd sentence to include "to be used as a swimming pool disinfectant," but most pools now use other chlorine-based compounds (e.g. "calcium" hypochlorite or "sodium hypochlorite) as disinfectants. Chlorine and chlorine-based disinfectants" release hypochlorous acid and "hypochlorite ion" when dissolved in water. Did not include the last sentence because there is a definition of free chlorine in the water quality module. Agreed and added ToxFaQs reference.	3.0 Glossary	"Chlorine" means an element that at room temperature and pressure is a heavy green gas with characteristic odor and is extremely toxic. It can be compressed in liquid form and stored in heavy steel tanks. Chlorine and chlorine-based disinfectants release hypochlorous acid, the primary disinfecting agent, and hypochlorite ion when dissolved in water. Chlorine is a general term used in the MAHC which refers to hypochlorous acid in an aqueous solution.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Code" means a systematic statement of a body of law, especially one given statutory force.	*Makes no sense to give a dictionary definition of code here when all of the references in the body of the regs are to the MAHC* -- Means the Aquatic Health Code	Disagree. The term is used throughout the MAHC and may not always be specific to the MAHC.	3.0 Glossary	"Code" means a systematic statement of a body of law, especially one given statutory force.
Design & Construction (D&C)	3.0 Glossary	"Code" means a systematic statement of a body of law, especially one given statutory force.	*No need to provide a dictionary definition of code.* -- Either reference the MHAC or delete	Recommendations implemented.	3.0 Glossary	"Code" means a systematic statement of a body of law, especially one given statutory force.
Design & Construction (D&C)	3.0 Glossary	"Cracking" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel. Cracks exhibiting any of the following qualities should be evaluated by a structural engineer: • Cracks with vertical displacement; • Cracks of varying width; • Cracks concentrated to a specific area; • Cracks exposing any reinforcement; • Cracks obviously recurring from previous patches; • Cracks in corners; • Cracks drawing a defined line; and • Surface cracking over 1/8 inch in width.	*Delete "Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel." Definitions typically don't have action statements* . -- "Cracking" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel. Cracks exhibiting any of the following qualities should be evaluated by a structural engineer:	Recommendation implemented. Only the first sentence remains in the glossary and the remainder is only in the body of the code.	3.0 Glossary	"Crack" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	3.0 Glossary	"Cracking" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel. Cracks exhibiting any of the following qualities should be evaluated by a structural engineer: • Cracks with vertical displacement; • Cracks of varying width; • Cracks concentrated to a specific area; • Cracks exposing any reinforcement; • Cracks obviously recurring from previous patches; • Cracks in corners; • Cracks drawing a defined line; and • Surface cracking over 1/8 inch in width.	*This is not a definition.* -- Delete everything after the first sentence	Recommendations implemented.	3.0 Glossary	"Crack" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel.
Facility Maintenance and Operation (FMO)	3.0 Glossary	"Deck" means surface areas serving the pool, beyond perimeter deck, which is expected to be regularly trafficked and made wet by pool users.	*The proposed definition should be expanded to include all areas where bathers may be expected to walk barefoot. This would include bathrooms, dressing rooms, shower areas, etc.* -- Deck: Change to: Walking Surface: means any surface used as a direct access surface for a pool area and the walking surface's change room facilities where the user is barefoot. – REFERENCE: WAC 246-260-010(3)	Disagree; That would mean the "deck" is in bathrooms, parking lot.	3.0 Glossary	"Deck" means surface areas serving the aquatic venue, including the perimeter/wet deck, pool deck, and dry deck. • "Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic. (Not perimeter deck or pool deck) which connect the pool to adjacent amenities, entrances, and exits. Landscape areas are not included in this definition. • "Perimeter Deck" means the hardscape surface area immediately adjacent to and within 4 feet (1.22 m) of the edge of the swimming pool also known as the "wet deck" area. • "Pool Deck" means surface areas serving the aquatic venue, beyond perimeter deck, which is expected to be regularly trafficked and made wet by bathers.
Recirculation and Filtration	3.0 Glossary	"Deck" means surface areas serving the pool, beyond perimeter deck, which is expected to be regularly trafficked and made wet by pool users.	"Deck" means surface areas serving the pool, beyond perimeter deck, which is expected to be regularly trafficked and made wet by pool users. GENERAL COMMENT: the definition for "Deck" is somewhat confusing and misleading. It indicates that the area immediately surrounding the pool wall is not part of the deck. It says the area "beyond the perimeter deck" is the deck. And how wide is the perimeter deck?	Terms have been defined in different modules. Terminology/definitions will be reconciled in the complete "knitted" version of the MAHC.	3.0 Glossary	"Deck" means surface areas serving the aquatic venue, including the perimeter/wet deck, pool deck, and dry deck. • "Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic. (Not perimeter deck or pool deck) which connect the pool to adjacent amenities, entrances, and exits. Landscape areas are not included in this definition. • "Perimeter Deck" means the hardscape surface area immediately adjacent to and within 4 feet (1.22 m) of the edge of the swimming pool also known as the "wet deck" area. • "Pool Deck" means surface areas serving the aquatic venue, beyond perimeter deck, which is expected to be regularly trafficked and made wet by bathers.
Contamination Burden (CB)	3.0 Glossary	"Disinfection By-Product" means a chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).	"Disinfection By-Product" means ~~a~~ an undesired chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).	These references have been added to the research agenda for future review	3.0 Glossary	"Disinfection By-Product" means a chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).
Contamination Burden (CB)	3.0 Glossary	"Disinfection By-Product" means a chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).	*As written, all products of the reaction are DBPs, which is not the intent. The intent is to define and discuss the undesired products.* -- "Disinfection By-Product" means ~~a~~ an undesired chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).	Agree. Changed as suggested.	3.0 Glossary	"Disinfection By-Product" means a chemical compound formed by the reaction of a disinfectant (e.g. chlorine) with a precursor (e.g. natural organic matter, nitrogenous waste from bathers) in a water system (pool, water supply).
Design & Construction (D&C)	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.	*Should include a reference to EPA registration for substances that require registration (all chemicals that are not generated on site that make any claims to mitigate pests including bacteria, etc., and some devices such as ionizers) and all devices that require an EPA establishment number.* -- "Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used. See General Comment	Defer to Disinfection and Water Quality module of the MAHC.	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.	*UV only inactivates needs to be added after the eg. for UV-C.* -- Disinfection…"kills micro-organisms"	Comment noted. Definition will be changed as follows: "Disinfection" means a treatment that kills or irreversibly inactivates microorganisms.	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.
Contamination Burden (CB)	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.	Viruses are not "alive" and therefore cannot be "killed". Suggest to also include the word "inactivate" in this definition. -- "Disinfection" means a treatment that kills or inactivates microorganisms (e.g., bacteria, viruses, and parasites – REFERENCE-- National Swimming Pool Foundation (2011). Pool and Spa Operator Handbook. p. 48	Agree; changed as suggested.	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.	*EPA Manual. The EPA definition for a disinfectant is "a substance, or mixture of substances, that destroys or irreversibly inactivates bacteria, fungi and viruses, but not necessarily bacterial spores, in the inanimate environment."* -- "Disinfection" means a treatment that kills or irreversibly inactivates microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used. – REFERENCE: EPA Pesticide Registration Manual. Chapter 4 – Additional Considerations for Antimicrobial Products. Types of Antimicrobial Pesticides.	Comment noted. Definition changed as follows: "Disinfection" means a treatment that kills or irreversibly inactivates microorganisms	3.0 Glossary	"Disinfection" means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used.
Design & Construction (D&C)	3.0 Glossary	"Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic. Landscape areas are not included in this definition.	*In waterparks, many pools do not have any enclosure other than that around the entire facility.* -- As there is no definition of "Pool Enclosure" this definition is problematic	Refer to the definition of "enclosure."	3.0 Glossary	"Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic (not perimeter deck or pool deck) which connect the pool to adjacent amenities, entrances, and exits. Landscape areas are not included in this definition.
Design & Construction (D&C)	3.0 Glossary	"Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic. Landscape areas are not included in this definition.	Term "Dry Deck". Again use Facility/Venue" as there is a Dry Deck component to non-pool attractions. Suggest: "…surface areas within the aquatic facility/venue enclosure…"	Agreed. Wording altered	3.0 Glossary	"Dry Deck" means all pedestrian surface areas within the pool enclosure not subject to frequent splashing or constant wet foot traffic (not perimeter deck or pool deck) which connect the pool to adjacent amenities, entrances, and exits. Landscape areas are not included in this definition.
Design & Construction (D&C)	3.0 Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing a pool facility.	Delete "pool facility" and replace with either aquatic facility or aquatic venue	Recommendations implemented. "Pool facility" changed to "aquatic facility."	3.0 Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.
Design & Construction (D&C)	3.0 Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing a pool facility.	Term "Enclosure". Again use Facility/Venue" as enclosures apply to all aquatic facilities. Suggest: "…surrounding and securing an aquatic facility"	Agreed. Wording altered	3.0 Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.
Design & Construction (D&C)	3.0 Glossary	"Expansion Joint" means a watertight joint provided in a pool vessel used to relieve flexural stresses due to movement caused by thermal expansion/contraction.	Term "Expansion Joint". Again use Venue" as expansion Joints apply to all aquatic venues. Suggest: "…provided as part of an aquatic venue's construction, used to relieve…"	Agreed. Wording altered.	3.0 Glossary	"Expansion Joint" means a watertight joint provided in a pool vessel used to relieve flexural stresses due to movement caused by thermal expansion/contraction.
Design & Construction (D&C)	3.0 Glossary	"Flume Slide" means slides of various configurations that are characterized by having deep riding channels, vertical and lateral curves, high water flows, and accommodates riders using or not using mats, tubes, rafts, and other transport vehicles. Included but not limited to family raft rides, inner-tube rides, body slides, and speed slides.	*Delete definition of either flume slide or water slide* -- What is the difference between a flume slide and a waterslide	Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".	3.0 Glossary	"Flume" means the deep riding channels and vertical / lateral curves of a waterslide with high water flows that accommodates riders using or not using mats, tubes, rafts, and other transport vehicles.
Design & Construction (D&C)	3.0 Glossary	"Flume Slide" means slides of various configurations that are characterized by having deep riding channels, vertical and lateral curves, high water flows, and accommodates riders using or not using mats, tubes, rafts, and other transport vehicles. Included but not limited to family raft rides, inner-tube rides, body slides, and speed slides.	Term "Flume Slide". What is a "high water flow"? Suggest: …water flow of more than 100 GPM, & which do not exceed 10 feet in height…" This language is consistent with language found in definition of "Pool Slide".	Assume "Pool Slide" is being referenced. Pool slides are intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure.	3.0 Glossary	"Flume" means the deep riding channels and vertical / lateral curves of a waterslide with high water flows that accommodates riders using or not using mats, tubes, rafts, and other transport vehicles.
Design & Construction (D&C)	3.0 Glossary	"Flume Slide" means slides of various configurations that are characterized by having deep riding channels, vertical and lateral curves, high water flows, and accommodates riders using or not using mats, tubes, rafts, and other transport vehicles. Included but not limited to family raft rides, inner-tube rides, body slides, and speed slides.	Term "Flume Slide". Why the need to differentiate between slide types? Why not refer to them all as waterslides as defined?	Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".	3.0 Glossary	"Flume" means the deep riding channels and vertical / lateral curves of a waterslide with high water flows that accommodates riders using or not using mats, tubes, rafts, and other transport vehicles.
Design & Construction (D&C)	3.0 Glossary	"Flume Valleys or Dips" means water attractions that are designed to create an external force to propel the rider to a higher elevation prior to continuing down the flume.	Term "Flume Valleys or Dips". Suggest changing from "water attractions" to "…a specific part of a waterslide..." as these only apply to slides and no other feature/venue by definition.	Recommendation implemented.	3.0 Glossary	"Flume Valleys or Dips" means a specific part of a waterslide that are designed to create an external force to propel the rider to a higher elevation prior to continuing down the flume.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Free Available Chlorine" means the available disinfectant in the water. It is the portion of total chlorine that is not combined chlorine and is available as effective disinfectant. When chlorine is added to water, hypochlorous acid is produced in either the molecular state (HOCl) or the ionized state (hypochlorite ion (OCl^-) plus hydrogen ion (H+)), and a by-product specific to the type of chlorine is produced. The pH of the water determines the amount of hypochlorous acid in each state. HOCl is a very effective bactericide and is the active available chlorine disinfectant in the water. OCl^- is also a bactericide, but acts more slowly than HOCl. Thus chlorine is a much less effective bactericide at high pH. The sum of HOCl and OCl^- is referred to as "free chlorine" in pool water. The hypochlorous acid that remains in pool water uncombined with ammonia is called "free available chlorine". A free available chlorine residual must be maintained for adequate disinfection.	Published scientific studies. I wrote about this in my comments on 12/01/08 regarding section 3.2.1.1.2 and they still apply here. The Free Chlorine (FC) test measures not only the HOCl and OCl- concentrations, but also that of the chlorinated cyanurates because chlorine is released quickly from them in the time of the test (i.e. in seconds). The hydrolysis half-life is 4.08 seconds for HClCY- and 0.25 seconds for ClCY2-. (where "CY" is the CYA core ring). Though the dominant chlorinated cyanurate species is HClCY-, deprotonation reactions are extraordinarily fast so conversion to ClCY2- is extremely fast so in practice the net half-life of the chlorinated cyanurates when hypochlorous acid gets depleted (such as during the FC test) is 0.25 seconds. Cyanuric Acid (CYA) acts as a hypochlorous acid buffer due primarily to the equilibrium: HClCY- + H2O <<<---> H2CY- + HOCl …… The chlorinated isocyanurates should be seen as a reservoir for chlorine that can be quickly released, similar to hypochlorite ion. This buffer means that changes in pH do not change the HOCl concentration nearly as much when CYA is present. When the pH drops from 8.0 to 7.5, then HOCl drops roughly in half if there is no CYA in the water, but it only drops around 15% if CYA is present. Of course, the active chlorine concentration is so much higher when there is no CYA (at the same FC level) that the drop in 50% is a bit of a moot point. -- "Free Available Chlorine" means the available disinfectant reservoir or reserve of chlorine in the water. It is the portion of total chlorine that is not combined chlorine, is measured in standardized tests often referred to as "Free Chlorine" (FC) and is the chlorine capacity that can be quickly converted to become a available as effective disinfectant. When chlorine is added to water, hypochlorous acid is produced in either the molecular state (HOCl) or the ionized state (hypochlorite ion	The use of the term "reserve" is not a standard one and without user definition its use is not warranted. Comment appears to be based on information provided in a 40-year old reference. This is a definition, and does not need to be an in-depth, page-long article. Current code language is preferred.	3.0 Glossary	"Free Chlorine Residual" OR "Free Available Chlorine" means the available disinfectant in the water. It is the portion of total chlorine that is not combined chlorine and is available as disinfectant. When chlorine is added to water, hypochlorous acid is produced in either the molecular state (HOCl) or the ionized state (hypochlorite ion (OCl-) plus hydrogen ion (H+)), and a by-product specific to the type of chlorine is produced. The pH of the water determines the amount of hypochlorous acid in each state. HOCl is a very effective bactericide and is the active available chlorine disinfectant in the water. OCl- is also a bactericide, but acts more slowly than HOCl. Thus chlorine is a much less effective bactericide at high pH. The sum of HOCl and OCl- is referred to as "free chlorine" in pool water. The hypochlorous acid that remains in pool water uncombined with ammonia is called "free chlorine residual." Free chlorine residual must be maintained for adequate disinfection.
Chap 1-3	3.0 Glossary	"Free Chlorine Residual" means the available reservoir of chlorine in water (found as an aqueous mixture of hypochlorous acid and hypochlorite anion) that has not combined with other constituents; therefore, it is able to serve as an effective disinfectant (also referred to as free available chlorine or residual chlorine). It is measured as Free Chlorine (FC) in standardized tests and is the chlorine capacity that can be quickly converted to become an effective disinfectant. Measuring the free chlorine level is a common water quality test.	"means the available disinfectant in the water. It is the portion of total chlorine that is not combined chlorine and is available as disinfectant. When chlorine is added to water, hypochlorous acid is produced in either the molecular state (HOCl) or the ionized state (hypochlorite ion (OCl-) plus hydrogen ion (H+)), and a by-product specific to the type of chlorine is produced. The pH of the water determines the amount of hypochlorous acid in each state. HOCl is a very effective bactericide and is the active available chlorine disinfectant in the water. OCl- is also a bactericide, but acts more slowly than HOCl. Thus chlorine is a much less effective bactericide at high pH. The sum of HOCl and OCl- is referred to as "free chlorine" in pool water. The hypochlorous acid that remains in pool water uncombined with ammonia is called "free chlorine residual". A free chlorine residual must be maintained for adequate disinfection." (See Public Comments for Full Text)	Altered after reading suggestion. We do not feel it needs the detail specifying chlorinated cyanurates to define the term.	3.0 Glossary	"Free Chlorine Residual" OR "Free Available Chlorine" means the available disinfectant in the water. It is the portion of total chlorine that is not combined chlorine and is available as disinfectant. When chlorine is added to water, hypochlorous acid is produced in either the molecular state (HOCl) or the ionized state (hypochlorite ion (OCl-) plus hydrogen ion (H+)), and a by-product specific to the type of chlorine is produced. The pH of the water determines the amount of hypochlorous acid in each state. HOCl is a very effective bactericide and is the active available chlorine disinfectant in the water. OCl- is also a bactericide, but acts more slowly than HOCl. Thus chlorine is a much less effective bactericide at high pH. The sum of HOCl and OCl- is referred to as "free chlorine" in pool water. The hypochlorous acid that remains in pool water uncombined with ammonia is called "free chlorine residual." Free chlorine residual must be maintained for adequate disinfection.
Recirculation and Filtration	3.0 Glossary	"Hydraulically balanced" means both the relative difference between the water flow over the gutter or through the skimmers compared with the water flow through the main drain; and the even distribution of treated water returned to different areas of the pool through the inlets.	"Hydraulically Balanced" -- Delete reference to "main drain" in "hydraulically balanced" and "recirculation system" definitions and replace with the term "suction outlet." Suggest replacing ANY and ALL references to "main drain" in the MAHC with the term "suction outlet" and define "suction outlet" as follows: "SUCTION OUTLET" means a submerged fitting, fitting assembly, cover/grate, and related components that provide a localized low-pressure area for the transfer of water from a swimming pool, spa, or hot tub. Submerged suction outlets have also been referred to as main drains. -- The language being proposed as the definition for suction outlet comes directly from APSP-16 and since APSP-16 uses the term suction outlet and this standard is recognized as the successor standard in the VGB by the CPSC, this term should be used in all swimming pool codes rather than the outdated and incorrect term "main drain." By replacing all references to "main drain" with "suction outlet" and replacing any corresponding definition found in another MAHC module for "main drain" with the definition of "suction outlet" consistency is being achieved between all codes and standards. The term "suction outlet" is the recognized term by the CPSC (with VGB & APSP-16), the industry and code officials – it is used in the ISPSC and ANSI/APSP Standards. That being said, this recommendation does provide in the suction outlet definition that they have also been referred to as "main drains," following what was provided in the 2015 ISPSC – to ensure anyone using the outdated term makes the connection to this new and widely used and understood term. It is interesting to note that in 4.7.1.1.3 the term "suction outlets" is used instead of "main drain" and 4.7.1.6 is titled "submerged suction outlet." There may be additional sections in other modules that also use suction outlet – suggest making it consistent throughout	Partially agree. The appropriate and consistent use of terminology has been addressed.	3.0 Glossary	"Hydraulically apportioned" means both the relative difference between the water flow over the gutter or through the skimmers compared with the water flow through the main drain; and the even distribution of treated water returned to different areas of the pool through the inlets.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	3.0 Glossary	"Imminent Health Hazard" means a significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent injury based on the number of potential injuries and the nature, severity, and duration of the anticipated injury.	*Clarification to include illness for imminent health hazard* -- "Imminent Health Hazard" means a significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent injury *or illness* based on the number of potential injuries *or illness* and the nature, severity, and duration of the anticipated injury *or illness* . – REFERENCE: MMWR report surveillance for recreational waterborne illness (RWI) outbreaks demonstrate a continually increasing number of these RWI outbreaks every two years for at least the past decade.	Agreed. Included illness in definition as suggested.	3.0 Glossary	"Imminent Health Hazard" means a significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent injury based on the number of potential injuries and the nature, severity, and duration of the anticipated injury or illness.
Chap 1-3	3.0 Glossary	"Increased-risk Aquatic Venue" means a venue which due to its intrinsic characteristics including intended users (e.g., diaper-aged children, hospital patients), has a greater likelihood of contamination that could affect the health and safety of the patrons of that aquatic venue. Examples of high-risk aquatic venues include "kiddie" wading pools or splash pads and therapy pools.	The term "risk" is not recommended in this application, indicating that some level of risk may be acceptable. Suggest deleting this definition, or at least coming up with a term other than "risk."	We think that based on prevalence of disease, users, and outbreak investigations that different aquatic venues can and should be differentiated into relative risk groups. Based on the inherent "communal bathing" nature of swimming, all swimming has risk of injury and infectious disease transmission associated with the activity whether in a treated environment (pools) or natural environment (lakes/rivers/oceans). These higher risk venues (e.g., those intended for diaper-aged children) have a higher risk of contamination since diaper-aged children are incontinent and have higher rates of diarrheal illness than other age groups. However, the use of "high" has been changed to "increased" since "high" may be misinterpreted to mean we know the risk versus that the term is being used in a relational manner comparing between aquatic venues. This risk categorization is used in the MAHC to categorize which aquatic venues will require additional water treatment due to the increased potential for contamination.	3.0 Glossary	"Increased Risk Aquatic Venue" means an aquatic venue which due to its intrinsic characteristics and intended users has a greater likelihood of affecting the health and safety of the patrons of that venue by being at increased risk for contamination (e.g., by diaper-aged children/children aged <5 years old) or being used by people that may be more susceptible to infection (e.g., therapy patients with open wounds). Examples of increased-risk aquatic venues include spray pads, wading pools and other aquatic venues designed for diaper-aged children as well as therapy pools.
Design & Construction (D&C)	3.0 Glossary	"Leisure Rivers" means manufactured streams in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices.	Term "Leisure Rivers". Suggest changing from "water features" to "…that may include water aquatic features and play..." as features may be something other than water features.	Recommendation implemented.	3.0 Glossary	"Leisure Rivers" means manufactured streams in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices.
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily altered, inactivated, or removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	*Ozone is not a primary sanitizer, and potassium monopersulfate is not registered as a sanitizer or disinfectant for pools or spas.* -- "Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily altered, inactivated, or removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common sanitizers (e.g., chlorine, bromine) secondary disinfection systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate). ~~disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).~~ REFERENCE: APSP-11. See also comments below regarding use of the word "sanitizer" in place of "disinfectant".	Modified definition as proposed.	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily altered, inactivated, or removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	*Ozone is not a primary sanitizer, and potassium monopersulfate is not registered as a sanitizer or disinfectant for pools or spas.* -- Oxidation can be achieved by common disinfectants/sanitizers (e.g., chlorine, bromine),secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate). – REFERENCE: APSP-11; See also comments below regarding use of the word "sanitizer" in addition to "disinfectant".	Modified definition as proposed.	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Chap 1-3	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	"… which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g. chlorine, bromine, ozone, potassium monopersulfate). Though the above statement is true for some compounds such as ammonia and possibly urea, it is not true for other compounds. For many organics, they will not be fully oxidized to nitrogen gas, carbon dioxide, and water. Instead, they may be broken up into smaller chemical species and/or become more polar and therefore stay dissolved more readily in water. Potassium monopersulfate is not a disinfectant (at least not strong enough to be called such according to DIS/TSS-12) , but rather an oxidizer. Suggested wording change: Oxidation: "… which allows the contaminant to be either more readily removed from the water or to become more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g. chlorine, bromine, ozone) or by oxidizers (e.g. potassium monopersulfate).	Under consideration. The term is not referred to in these modules	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).
Contamination Burden (CB)	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	*Not all oxidizers used for pools are disinfectants. Potassium monopersulfate, is not registered for use as a disinfectant in pool water, it is just used as an oxidizer.* -- "Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common ~~disinfectants~~ oxidizers (e.g., chlorine, bromine, ozone, potassium monopersulfate).	Reworded definition; however, proposed definition is a circular reference.	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).
Contamination Burden (CB)	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	*Potassium monopersulfate is not a disinfectant - suggest that the wording be …be achieved by chlorine, bromine, ozone and potassium monopersulfate* -- "Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by ~~common disinfectants (e.g.,~~ chlorine, bromine, ozone, and potassium monopersulfate~~)~~.	Agreed; changed as suggested	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).
Contamination Burden (CB)	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone, potassium monopersulfate).	*Potassium monopersulfate is not registered with EPA as a disinfectant and should not be referenced as a "disinfectant".* -- "Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine, ozone) or other oxidizers (potassium monopersulfate). – REFERENCE: No potassium monopersulfate compounds are registered with the EPA as disinfectants.	Agreed, definition changed but proposed language is circular reference.	3.0 Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).
Design & Construction (D&C)	3.0 Glossary	"Peninsula or Wing Wall" means a structural projection into a pool intended to provide separation within the body of water. Wing walls are not considered deck unless they are at least four feet clear in width. Wing walls may be used for lifeguarding depending on size, location and configuration.	*Not part of a definition* -- Delete last sentence	Recommendations implemented.	3.0 Glossary	"Peninsula / Wing Wall" means a structural projection into a pool intended to provide separation within the body of water. Wing walls or peninsulas are not considered deck unless they are at least four feet clear in width. Wing walls or peninsulas may be used for lifeguarding depending on size, location and configuration.
Design & Construction (D&C)	3.0 Glossary	"Perimeter Deck" means the hardscape surface area immediately adjacent to and within 4 feet (1.22 m) of the edge of the swimming pool also known as the "wet deck" area.	Term "Perimeter Deck". Suggest changing from "swimming pool" to "…the edge of the aquatic venue also known as the wet deck..." as Code requires perimeter deck for non-swimming pool attractions as well.	Recommendation implemented.	3.0 Glossary	"Perimeter Deck" means the hardscape surface area immediately adjacent to and within 4 feet (1.22 m) of the edge of the swimming pool also known as the "wet deck" area.
Recirculation and Filtration	3.0 Glossary	"Perimeter Gutter System" means the alternative to skimmers as a method to remove water from the pool's surface for treatment. The gutter provides a level structure along the pool perimeter versus the intermittent skimmers.	"Perimeter Gutter System" ….. Perimeter system may be on pool sidewall or rimflow at the same level as deck -- Identify more than one system – REFERENCE: Calif Code of Regulations, Title 24.	Disagree. Delineation not necessary.	3.0 Glossary	"Perimeter Gutter System" means the alternative to skimmers as a method to remove water from the pool's surface for treatment. The gutter provides a level structure along the pool perimeter versus the intermittent skimmers.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	3.0 Glossary	"pH" means a symbol that expresses the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.	*Recommend change to H+ to H^+, and OH- to OH^-* -- "pH" means a symbol that expresses the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness. See Basis for Change for visual of recommended changes here.	Agree; changed as suggested.	3.0 Glossary	"pH" means the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.
Contamination Burden (CB)	3.0 Glossary	"pH" means a symbol that expresses the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.	*The last sentence should be deleted as it is beyond the scope of the simple definition of pH.* -- "pH" means a symbol that expresses the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. ~~As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.~~	Disagree, while this is a true statement, the MAHC prefers to leave it in this section because it is relevant to why pH is of such importance to chlorine disinfection in pool water.	3.0 Glossary	"pH" means the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.
Recirculation and Filtration	3.0 Glossary	"pH" means a symbol that expresses the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.	pH – delete the text "means a symbol" -- Unnecessary to define this as a symbol	Agree. Definition revised.	3.0 Glossary	"pH" means the negative log of the concentration of hydrogen ions. When water ionizes, it produces hydrogen ions (H+) and hydroxide ions (OH-). If there is an excess of hydrogen ions the water is acidic. If there is an excess of hydroxide ions the water is basic. pH ranges from 0 to 14. Pure water has a pH of 7.0. If pH is higher than 7.0, the water is said to be basic, or alkaline. If the water's pH is lower than 7.0, the water is acidic. As pH is raised, more ionization occurs and chlorine disinfectants decrease in effectiveness.
Design & Construction (D&C)	3.0 Glossary	"Plumbing Fixtures" means fixture or device for the distribution and use of water; for example, toilets, urinals, showers, and hose bibs.	*Definition out of date and does not address waterless urinals. Also conflicts with the ISPSC (Section 201.3) and IPC (International Plumbing Code), which are accepted nationally.* -- "Plumbing Fixtures" ~~means fixture or device for the distribution and use of water; for example, toilets, urinals, showers, and hose bibs.~~ A receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Such receptacles or devices require a supply of water; or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a drainage system. – REFERENCE: ISPSC and IPC code books.	Recommendation implemented.	3.0 Glossary	"Plumbing Fixture" means a receptacle, fixture, or device that is connected to a water supply system or discharges to a drainage system or both and may be used for the distribution and use of water; for example: toilets, urinals, showers, and hose bibs. Such receptacles, fixtures, or devices require a supply of water; or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a drainage system.
Design & Construction (D&C)	3.0 Glossary	"Pool Deck" means the hardscape surface areas beyond the perimeter deck within the pool enclosure, which is regularly trafficked and made wet by bathers.	Term "Pool Deck". Suggest changing from "Pool Deck" to "Venue Deck". Also change definition to read "…perimeter deck within the facility/venue enclosure..." as Code needs to address decking for non-swimming pool attractions as well.	Changed to aquatic facility. Pool Deck term left.	3.0 Glossary	"Pool Deck" means the hardscape surface areas beyond the perimeter deck within the aquatic facility enclosure, which is regularly trafficked and made wet by bathers.
Design & Construction (D&C)	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. Pool slides include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, do not exceed 10 feet in height, and terminate at or below the normal operating water level in the pool.	Reference to CFR is incomplete	Recommendations implemented. Added "Title 16."	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.
Design & Construction (D&C)	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. Pool slides include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, do not exceed 10 feet in height, and terminate at or below the normal operating water level in the pool.	Term "Pool Slide". "…within the basin of a public swimming pool…" should not be allowed unless this Code addresses barriers underneath the structure and specific design, installation, and safety criteria.	Recommendation implemented. A section requiring barriers to prevent access underneath pool slides where there are insufficient clearances has been added.	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.
Design & Construction (D&C)	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. Pool slides include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, do not exceed 10 feet in height, and terminate at or below the normal operating water level in the pool.	Term "Pool Slide". CFR Ch. II, part 1207 makes no distinction between slide types by definition and reads: "…types or classes of products that are subject to this standard are those swimming pool slides manufactured, constructed, or imported for use in connection with all swimming pools, whether in-ground, on-ground, or above-ground, regardless of the materials of manufacture or structural characteristics of the slides." Therefore the Code of Regulations should not be cited here and there is no need for distinction between slide types.	Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. Pool slides include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, do not exceed 10 feet in height, and terminate at or below the normal operating water level in the pool.	Term "Pool Slide". The defined term cannot be used as part of the definition. Delete it.	Recommendation implemented.	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.
Design & Construction (D&C)	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. Pool slides include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, do not exceed 10 feet in height, and terminate at or below the normal operating water level in the pool.	*The problem with the definitions and provisions in this module re Pool Slides is that the definition of Pool Slide includes a requirement that the exit must terminate at or below the normal operating water level of the pool. What is the purpose of this requirement? What is the purpose of making the distinction between a drop slide and a slide that terminates at the water level? Section 4.8.4.7 states that the water depth at the exit shall be determined by the manufacturer if the slide exits at or below the waterline. However, if it is a drop slide you are directed to another section 4.12, which says that the slide landing area must be in accordance with the manufacturer's recommendations. (**SEE PUBLIC COMMENT FOR FULL TEXT)*	Recommendation implemented. Defers to manufacturer for exit criteria.	3.0 Glossary	"Pool Slide" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.
Design & Construction (D&C)	3.0 Glossary	"Pool" means a subset of aquatic venue designed to have impounded/standing water for total or partial bather immersion.	*Confirm the definition of pool does not include catch pools, lazy rivers, wave pools, activity pools, etc.*	"Non-traditional" pools such as therapy pools, leisure rivers, wave pools, etc. are defined separately and are given relief or different regulations from the main body of the code where stated in section 4.12.	3.0 Glossary	"Pool" means a subset of aquatic venue designed to have impounded/standing water for total or partial bather immersion.
Chap 1-3	3.0 Glossary	"Pool" means a subset of aquatic venues designed to have captured water for total or partial bather immersion.	Replace the word "impounded / standing" with "captured."	Changed as suggested	3.0 Glossary	"Pool" means a subset of aquatic venue designed to have impounded/standing water for total or partial bather immersion.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed a lifeguard training course which was offered by a training agency and has met the pre-service and continuing in-service requirements of the aquatic venue according to this code.	The definition of "qualified lifeguard" is excellent, but there is no mention of the word "certified" within that definition. Suggest you change definition to: an individual who is certified as having successfully completed a lifeguard training course which was offered by a training agency and has met the site-specific pre-service training requirements of the aquatic venue according to this code, and who continues to participate in site-specific in-service training. The other issue is that according to the original definition, the individual would not be qualified until he participates in continuing in-service training. The individual needs to be "qualified" at the start of the season.	Agree. Definition revised.	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, holds a current certificate for such training, has met the pre-service requirements, and is participating in continuing in-service training requirements of the aquatic facility.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed a lifeguard training course which was offered by a training agency and has met the pre-service and continuing in-service requirements of the aquatic venue according to this code.	*Seems to be more confusion with aquatic facility v. aquatic venue. Proposed language acknowledges differing requirements based on particular aquatic venues served within the aquatic facility.* -- means an individual who has successfully completed a lifeguard training course offered by an approved training agency and has met the pre-service and continuing in-service requirements of the aquatic venue(s) to which the lifeguard will be assigned, according to the Code.	Agree. Definition revised.	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, holds a current certificate for such training, has met the pre-service requirements, and is participating in continuing in-service training requirements of the aquatic facility.
Lifeguard & Bather Supervision (LG)	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed a lifeguard training course which was offered by a training agency and has met the pre-service and continuing in-service requirements of the aquatic venue according to this code.	*This definition should better reflect the agencies requirements as they are more dynamic and are better suited to meet the needs of the Aquatic Industry. They will certainly make changes and adapt to the needs of their clients/members/service providers before this standard's committees will be able to reconvene and promulgate new standards that will address the challenges that would have already been addressed by the certifying agencies.* -- Delete last section of "Qualified Lifeguard" definition: (Delete)… according to this code. (Replace with)… according to the certifying agency.	Definition has been revised.	3.0 Glossary	"Qualified Lifeguard" means an individual who has successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, holds a current certificate for such training, has met the pre-service requirements, and is participating in continuing in-service training requirements of the aquatic facility.
Disinfection and Water Quality (DWQ)	3.0 Glossary	"Reduction Equivalent Dose (RED) bias" means a variable used in UV system validation to account for differences in UV sensitivity between the UV system challenge microbe (e.g., MS2 virus) and the actual microbe to be inactivated (e,g, *Cryptosporidium*).	*Why not use the US EPA guidance manual definition?*	Change to use EPA definition	3.0 Glossary	"Reduction Equivalent Dose (RED) bias" means a variable used in UV system validation to account for differences in UV sensitivity between the UV system challenge microbe (e.g., MS2 virus) and the actual microbe to be inactivated (e,g, *Cryptosporidium*).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	3.0 Glossary	"Spa" means a structure that is intended to be used for bathing or other recreational uses and is not drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.	*Scope of the MAHC does not provide any distinction between inground permanently installed spas versus portable spas or swims spas. Factory built portable electric spas are predominantly built for residential applications and therefore are not be held to the MAHC requirements; however, even public versions of portable spas and swim spas would have difficulty meeting these requirements. The scope of this module needs to be written to be more explicit in what the code covers and it is recommended that it clearly exempts portable spas and swim spas from this design & construction module. UL 1563 is a universally recognized standard addressing safety and design in portable electric spas. Portable spas that are listed under this Standard are exempt from any further requirements under the VGB, and should be exempt from any further requirements in this module as well.* – REFERENCE: See ISPSC Chapter 3, factory built portable spas were exempted from 90% of all construction related items. There were further public spa and residential spa sections.	Glossary definition of the term spa updated to reference permanent structures.	3.0 Glossary	"Spa" means a permanent structure intended for either warm or cold water where prolonged exposure is not intended. Spa structures are intended to be used for bathing or other recreational uses and are not usually drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.
Design & Construction (D&C)	3.0 Glossary	"Spa" means a structure that is intended to be used for bathing or other recreational uses and is not drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.	*Definition is so broad it includes anything holding water* -- Redo definition	Definition modified.	3.0 Glossary	"Spa" means a permanent structure intended for either warm or cold water where prolonged exposure is not intended. Spa structures are intended to be used for bathing or other recreational uses and are not usually drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.
Design & Construction (D&C)	3.0 Glossary	"Spa" means a structure that is intended to be used for bathing or other recreational uses and is not drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.	*Spa definition taken from NSF-50 and not consistent with the ISPSC definition. The definition needs to clearly differentiate between the different types of spas, i.e. inground permanently installed spas, portable spas and swim spas – recommend ISPSC definitions be used. "Pool" is referenced throughout the code. Pool by definition incorporates spas which is not correct.* -- "Spa" means a structure that is intended to be used for bathing or other recreational uses and is not drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation. See General Comment – REFERENCE: See ISPSC definitions.	Definition updated to address "permanent" spa structures.	3.0 Glossary	"Spa" means a permanent structure intended for either warm or cold water where prolonged exposure is not intended. Spa structures are intended to be used for bathing or other recreational uses and are not usually drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.
Recirculation and Filtration	3.0 Glossary	"Spray Pad" means no standing water, features included that spray bathers with recirculating water.	Change Spray "Pad" to Spray "Grounds" -- Commonly used including in other MAHC areas-not always a padded area. – REFERENCE: Other section of MAHC	Terms have been defined in different modules. Terminology/definitions will be reconciled in the complete "knitted" version of the MAHC.	3.0 Glossary	"Interactive Water Play Aquatic Venue" means any indoor or outdoor installation that includes sprayed, jetted or other water sources contacting patrons and not incorporating standing or captured water as part of the patron activity area. These aquatic venues are also known as splash pads, spray pads, wet decks. For the purposes of the MAHC, only those designed to recirculate water and intended for public use and recreation shall be regulated.
Design & Construction (D&C)	3.0 Glossary	"Spraygrounds" (also referred to commonly as spray pads or splash pads) means the specific areas consisting of the play surface, sprayground features, and drains, upon which the patrons stand and are sprayed with water.	Term "Spraygrounds". Suggest adding "…and where there is no standing water." to the end of the definition.	Recommendation implemented.	3.0 Glossary	"Interactive Water Play Aquatic Venue" means any indoor or outdoor installation that includes sprayed, jetted or other water sources contacting patrons and not incorporating standing or captured water as part of the patron activity area. These aquatic venues are also known as splash pads, spray pads, wet decks. For the purposes of the MAHC, only those designed to recirculate water and intended for public use and recreation shall be regulated.
Contamination Burden (CB)	3.0 Glossary	"Trihalomethanes" means a group of compounds formed as disinfection by-products when halogens such as chlorine or bromine react with organic material in the water. Many are known to be long-term carcinogens.	*Editorial and Scientific Studies. There are many different kinds of disinfection by-products. THMs are just one group of them, specifically one or more halogens bound to a single carbon. Partly because they are neutral small molecules, they have dermal absorption and are also volatile (see your section 4.2). Note that only the brominated THMs are mutagens/carcinogens while the chlorinated THM chloroform is not (see references). Unfortunately, Total THMs are often measured when it should really be brominated THMs that should be examined and policy regarding use of bromine and of water containing bromide should be reconsidered.* -- "Trihalomethanes" means a specific group of compounds formed as disinfection byproducts when halogens such as chlorine or bromine react with organic material in the water. ~~Many~~ The brominated THMs are known to be long-term carcinogens	Some trihalomethanes are known to be carcinogens. Added word "specific" and modified the last sentence in the definition.	3.0 Glossary	"Trihalomethanes or THM" means chemical compounds in which three of the four hydrogen atoms of methane (CH_4) are replaced by halogen atoms. THMs are also environmental pollutants, and many are considered carcinogenic.
Design & Construction (D&C)	3.0 Glossary	"Wading Pools" means a special purpose pool intended for use by children and depth does not exceed 2 feet (61 cm).	Term "Wading Pools". See comment above regarding combining with "Splash Pool" definition, as there is no need for separation of the two.	Recommendation implemented. Splash pools have been eliminated.	3.0 Glossary	"Wading Pool" means any pool used exclusively for wading and intended for use by children where the depth does not exceed 2 feet (0.6 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	3.0 Glossary	"Water Quality Testing Device" means a product designed to measure the level of a parameter. A WQTD includes a device or method to provide a visual indication of a parameter level, and may include one or more reagents and accessory items.	*"Water Quality Testing Device" means a product designed to measure the level of a water parameter. A WQTD includes a device or method to provide a visual indication of a parameter level, and may include one or more reagents and accessory items*. -- General comment re *visual indication*: this should not be limited to just a visual indication device or method, as this would then eliminate colorimeters, pH meters, conductivity meters, ORP meters, etc.	Added "in water" after "parameter". Disagree regarding comment on visual indicators. "Visual indication" encompasses observations of measurements reported by meters.	3.0 Glossary	"Water Quality Testing Device" means a product designed to measure the level of a parameter in water. A WQTD includes a device or method to provide a visual indication of a parameter level, and may include one or more reagents and accessory items.
Recirculation and Filtration	3.0 Glossary	"Water Replenishment System" means a way to remove water from the pool as needed and replace with make-up water to maintain water quality.	"Water Replenishing System" means a way to remove water from the pool as needed and replace with make-up water to maintain water quality. GENERAL COMMENT: why does this definition say a "water replenishment system" is a means of removing water from the pool?	Disagree. Water removal is part of the replenishment system.	3.0 Glossary	"Water Replenishment System" means a way to remove water from the pool as needed and replace with make-up water shall be provided to maintain water quality.
Design & Construction (D&C)	3.0 Glossary	"Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.	"waterslide" This term applied as you have noted, is identical to the term you have applied to a "pool slide", except that the slide can be used at any distance above the pool water level. This seems to be a misuse of the term in relation to our rules as it is more related to the flume slide terminology earlier in your glossary. It also runs counter to the industry standard which also uses the term "waterslide" used in ASTM F2376 and the World Waterpark Association (WWA). In fact WWA provides the following term for the CPSC (Part 1207) standard. Noting. Swimming pool sliding boards has a very specific and narrow application to sliding boards, which are commonly recognized as the type found at public and residential swimming pools and as defined dimensionally in the standard. They are valid for the type of device defined, but they are not applicable in any way to slides of the types found in waterparks." – REFERENCE: ASTM F2376-08; WWA Standard 1.2.4. The standard established for these was written by CPSC back in the 60's and was written in relation to the use for backyard residential uses. If you look closely at the comments in the CFR, there are warnings about use of these slides by adults in shallow water. Suggest that these smaller slides should recognize ASTM F2461-09 as it works with the smaller slides up to 6 feet in height.	Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.	3.0 Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	3.0 Glossary	"Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.	*First, reference to CFR is incomplete – no title – and reference Comment:should be to the ASTM standard. Also, what is the difference between flume slide and water slide. Why 2 separate definitions? -- "Waterslides" means an attraction as defined in ASTM F2376-08, Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide, 1.1.*	Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".	3.0 Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	3.0 Glossary	"Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.	Term "Waterslides". As currently defined by CFR reference and added language, slides with run-outs are not included in the definition. Suggest adding "… or deceleration area (run-out)." to the end.	Run-outs have been added to the expanded definition.	3.0 Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	3.0 Glossary	"Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.	*This definition is the same as "Pool Slide". Later in the module, "Waterslide" is defined differently. Verify these two definitions.* -- "Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.	Pool slide is intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure. Waterslides are more traditional 15-20 ft + tall permanent structures. Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.	3.0 Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	3.0 Glossary	N/A	"Natatorium" is not included in the glossary	Recommendation not implemented. Aquatic facility was determined a more consistent term with other modules and presumably more encompassing	3.0 Glossary	"Indoor Aquatic Facility" means a physical place that contains one or more aquatic venues and the surrounding bather and spectator/stadium seating areas within a structure that meets the definition of "Building" per the 2012 International Building Code. It does not include equipment, chemical storage, or bather hygiene rooms or any other rooms with a direct opening to the aquatic facility.
Contamination Burden (CB)	3.0 Glossary	N/A	*Trichloramine is not defined in the glossary, while dichloramine is defined. However, NCl_3 is of greater interest than $NHCl_2$ and thus should also be included in the glossary. $NHCl_2$ is generally found at very low concentrations, since it much less stable than NCl_3.* -- Add to Glossary: "Trichloramine" means a disinfection by-product formed when chlorine binds to nitrogenous waste in pool water to form an amine-containing compound with three chlorine atoms (NCl_3). It is a known acute respiratory and ocular irritant.	Agree. Changed as suggested.	3.0 Glossary	"Trichloramine" means a disinfection by-product formed when chlorine binds to nitrogenous waste in pool water to form an amine-containing compound with three chlorine atoms (NCl_3). It is a known acute respiratory and ocular irritant. It has low solubility in water and is rapidly released into the air above pools where it can accumulate, particularly in indoor settings.
Fecal, Vomit, Blood (FVB)	3.0 Glossary	N/A	This is a fairly broad definition that includes for pools. If it was not intended to be so broad, perhaps some examples would make it clearer.	Agreed. Term is actually now "Aquatic Features" and includes spray features and waterslides as examples in definition. Aquatic Feature means an individual component within an aquatic venue. Examples include mushrooms, slides, buckets, spray guns/nozzles, and other play features.	3.0 Glossary	"Aquatic Feature" means an individual component within an aquatic venue. Examples include slides, structures designed to be climbed or walked across, and structures that create falling or shooting water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	3.0 Glossary	N/A	Therapy pool -- Currently the term "therapy" pool is used ubiquitously throughout this and other modules. Here, they are defined as at risk venues due to the propensity of use by patrons who either have compromised immune systems or open sores. As a result, secondary disinfection is a requirement and turnover rates are not permitted to exceed 30 minutes, among other specific regulations. In current industry vernacular, the term "therapy pool" refers to warmer bodies of water (similar to leisure pools or a little warmer, perhaps in the 86-88 deg range) that are used for wellness or aqua aerobics. These are fitness classes that are attended primarily by adults and seniors. They are no more likely to have open sores or compromised immune systems than the general population. This is the quickest growing user group in our industry and to subject these pools, which are often 50,000+ gallons would mean that the required pumps and filtration systems would be comparable to what is required for a 50 meter competition pool. It's recommended that separate classifications be created to address the regulations of therapy or wellness pools and rehabilitation pools (which appears to be the target for most of these regulations) which are typically in a hospital or clinic environment.	Terms have been defined in different modules. Terminology/definitions will be reconciled in the complete "knitted" version of the MAHC.	3.0 Glossary	"Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.
Design & Construction (D&C)	3.0 Glossary	Glossary	-- The European Committee for Standardization has implemented standards for "Risk Assessment" analysis with all of their new policies. Essentially, they are putting the onus on the individual owners to complete a project specific analysis for any proposed facility features that do not agree with the standards put forth. This practice encourages innovation, but puts the responsibility on the owner and designers to fully evaluate the risks and submit to the governing agency for a concurrency review. It is essentially a more thorough and formal process for special exceptions. This process has been adopted throughout the European Union with great success and we would recommend its implementation in one form or the other for the US. – REFERENCE: EN Standards	We agree that this type of process may improve overall health and safety in the long run but feel this cannot be accomplished at this time. During regular revision of the MAHC, such ideas need to be brought forth in implementable ways to determine if they become feasible with improvements in pool construction, maintenance, and training.	3.0 Glossary	Glossary
Lifeguard & Bather Supervision (LG)	4.0 Annex	See Annex for text	*This entire annex should be deleted and rewritten as very little of it either explains the inclusion of code items or adds definition of code items. It seems the authors felt a compelling need to comment on every single item without any regard for the user of the annex. In addition, this annex did not receive sufficient review by the entire committee, and as such, represents in numerous places the opinions of special interest groups.* -- Delete: 4.0 Design and Construction Annex	Persuasive. Modifications have been made to keep content relevant to the current language in the code and remove all other non-supporting information.	4.0 Annex	See Annex for text
Regulatory (REG)	4.0.	Design Standards and Construction	• Design Standards & Construction: Recognize this module has yet to come out, but When there are conflicts between jurisdictional requirements, what code shall prevail? Further, not having all the details of this section and noting our concerns with how an AHJ is defined, the following questions/concerns arise: It appears the model code requires the AHJ to approve submittals, even routine ones.	Yes. Have added definitions for "Alter," "changes or additions," and substantial alteration."	4.0.	Design Standards and Construction
Regulatory (REG)	4.0.	Design Standards and Construction	It appears this code is laying requirements on the ordinance-making and permitting process, usurping the AHJ's authority.	This is a recommended model code. It is not mandatory for any jurisdiction unless adopted. Information pertaining to the AHJ directly has been moved to a separate document.	4.0.	Design Standards and Construction
Regulatory (REG)	4.0.	Design Standards and Construction	Requiring the AHJ to practice architecture and/or engineering by usurping the design professionals' prerogative as to the specific contents and format of the construction documents on any particular project are concerning. It appears to clearly define a process, in which an engineer/architect must be hired to design a pool, but then relieves them and gives complete responsibility of the operation and quality on the AHJ.	Most jurisdictions that require plan approval specify the format of the plans. The design professional can create any design they choose as long as it complies with the code. The AHJ reviews the plans to ensure code compliance.	4.0.	Design Standards and Construction

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	1.1.	The particle contamination burden determines the filtration flow rate for a given aquatic facility. It is not possible to predict the particle contamination burden for every individual pool because the sources will likely vary by significant amounts from one facility to another. However, it is important to understand the upper limit of particle contamination to provide information for filtration designs. If the upper limit of the particle contamination burden is known, then it will be possible for the designer to specify a filtration system that meets the maximum burden to ensure the water does not increase in turbidity to above an allowable or desirable level. Essentially, the recirculation system needs to be designed to remove particles at the same rate at which they are being added by the environment (e.g., windblown and settling dust), patrons (e.g., personal care products, body excretions), and other sources.	*Editorial. The recirculation system can, and usually is, designed to handle the maximum typical contaminant load, but may be designed with additional buffering. That is, it is not a problem for the system to be somewhat over-designed (though too much would waste energy).* -- Essentially, the recirculation system needs to be designed to remove particles at least at the same rate at which they are being added by the environment (e.g., windblown and settling dust), patrons (e.g., personal care products, body excretions), and other sources.	Agree, changed as suggested	4.0.1.1.1 ANNEX	The particle contamination burden determines the filtration flow rate for a given aquatic facility. It is not possible to predict the particle contamination burden for every individual pool because the sources will likely vary significantly from one aquatic facility to another. However, it is important to understand the upper limit of particle contamination to provide information for filtration designs. If the upper limit of the particle contamination burden is known, then it should be possible for the designer to specify a filtration system that can handle the maximum particle burden and ensure that water turbidity does not increase above an allowable or desirable level. Essentially, the recirculation system needs to be designed to remove particles at least at the same rate at which they are being added by the environment (e.g., windblown and settling dust), patrons (e.g., personal care products, body excretions), and other sources.
Contamination Burden (CB)	2.1.	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e. chlorine into hypochlorous acid, HOCl) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are lacking in the literature on all EPA-registered disinfectants (bromine, PHMB, and metal systems), but there are some data available for chlorine disinfectant demand.	*As written, the draft language seems to imply that bromine, PHMB, and metal systems comprise all EPA-registered disinfectants and that CHLORINE is not. The proposed changes improves the text.* -- Data on disinfectant demand are generally lacking in the literature on all EPA-registered disinfectants ~~(bromine, PHMB, and metal systems), but there are some data available for CHLORINE disinfectant demand~~. There are some data available for CHLORINE disinfectant demand, but there is very little data for bromine, PHMB, and metal systems.	Agree. Simplified the sentence.	4.0.1.2.1	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e., hypochlorous acid, HOCl or hypobromous acid, HOBr) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are generally lacking in the literature on all EPA-registered disinfectants. There are some data available for chlorine disinfectant demand, but there are very few for bromine, PHMB, and metal systems.
Contamination Burden (CB)	2.1.	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e. chlorine into hypochlorous acid, HOCl) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are lacking in the literature on all EPA-registered disinfectants (bromine, PHMB, and metal systems), but there are some data available for chlorine disinfectant demand.	*CHLORINE does not decompose into HOCl. HOBr decomposes into bromide. The draft language is thus incorrect or unclear. The proposed changes correct the draft language.* -- Disinfectant consumption can occur by the reaction of the disinfectant with BATHERs, BATHER waste, and other environmentally-introduced CONTAMINANTs, as well as simple decomposition of the active halides (i.e. ~~CHLORINE into~~ hypochlorous acid, HOCl or hypobromous acid, HOBr) into inactive halide ions (chloride or bromide).	Agree. Typo corrected.	4.0.1.2.1	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e., hypochlorous acid, HOCl or hypobromous acid, HOBr) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are generally lacking in the literature on all EPA-registered disinfectants. There are some data available for chlorine disinfectant demand, but there are very few for bromine, PHMB, and metal systems.
Contamination Burden (CB)	2.1.	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e. chlorine into hypochlorous acid, HOCl) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are lacking in the literature on all EPA-registered disinfectants (bromine, PHMB, and metal systems), but there are some data available for chlorine disinfectant demand.	*Recommend changing PH (where P is in SMALL CAP FORMAT) to pH.* -- Disinfectant consumption can occur by the reaction of the disinfectant with BATHERs, BATHER waste, and other environmentally-introduced CONTAMINANTs, as well as simple decomposition of the active halides (i.e. CHLORINE into hypochlorous acid, HOCl) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including ~~P~~pH, water temperature, ultraviolet light, and BATHER load. Data on disinfectant demand are lacking in the literature on all EPA-registered disinfectants (bromine, PHMB, and metal systems), but there are some data available for CHLORINE disinfectant demand.	Agree; changed as suggested.	4.0.1.2.1 ANNEX	Disinfectant consumption can occur by the reaction of the disinfectant with bathers, bather waste, and other environmentally-introduced contaminants, as well as simple decomposition of the active halides (i.e., hypochlorous acid, HOCl or hypobromous acid, HOBr) into inactive halide ions (chloride or bromide). Disinfectant decomposition rates will also vary depending on a variety of factors including pH, water temperature, ultraviolet light, and bather load. Data on disinfectant demand are generally lacking in the literature on all EPA-registered disinfectants. There are some data available for chlorine disinfectant demand, but there are very few for bromine, PHMB, and metal systems.
Contamination Burden (CB)	3.1.	Several studies have investigated bather load contribution to chlorine demand in pool water; however, there is a lack in consistency in how bather load was measured. Some studies report data as chlorine demand, others as potassium permanganate demand, dissolved organic carbon or total organic carbon.	*There are no references cited. The text should refer to the studies used.*	Agree added statement in 3.0 Chlorine Demand and references have been cited.	4.0.1.3.1 ANNEX	Several studies have investigated bather load contribution to chlorine demand in pool water; however, there is a lack of consistency in how bather load was measured. Some studies report data as chlorine demand, others as potassium permanganate demand, dissolved organic carbon or total organic carbon

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	3.2.	The available data for chlorine disinfectant demand indicates that that the chlorine demand from bathers can vary by over an order of magnitude, with the largest value measured being 10 g Cl_2/bather (or 2.2 lb/100 bathers).	*Editorial. I have tracked the chlorine demand in hot (104ºF) residential spas and for "clean" bathers it surprisingly comes to a fairly consistent 9 grams Cl2 per bather-hour independent of spa size. One can't readily detect the very low demand in a residential pool, but based on reports from commercial/public pool operators and chlorine injection pump manufacturers, the chlorine demand from bather load is on the order of 4 grams per bather-hour in well-managed pools. Obviously this isn't for competitive swimming, but for more typical mixed use pools (i.e. some swimmers, some waders).* -- The available data for CHLORINE disinfectant demand indicates that that the CHLORINE demand from BATHERs can vary by over an order of magnitude, with the largest value measured being 10 g Cl2/bather (or 2.2 lb/100 bathers). However, some portion of chlorine demand is a function of the length of time a bather remains in the water so should be based on bather-hours. Based on 3.1.5 above, the formula may be modeled by A*unique-bathers + B*bather-hours where A is a constant that depends on the cleanliness of the bather upon entry while B is a constant that depends primarily on the nature of activity of the bather.	Disagree with text addition to 3.2, since this bullet is a presentation of the variance of the data. We agree that this is worth investigating in the future as more data are collected. Data on chlorine demand should be rigorously collected and published in peer-reviewed journals to make it useful for future studies and modeling.	4.0.1.3.2 ANNEX	The available data for chlorine disinfectant demand indicates that that the chlorine demand from bathers can vary by over an order of magnitude, with the largest value measured being 10 g Cl_2/bather (or 2.2 lb/100 bathers
Contamination Burden (CB)	3.2.	The available data for chlorine disinfectant demand indicates that that the chlorine demand from bathers can vary by over an order of magnitude, with the largest value measured being 10 g Cl_2/bather (or 2.2 lb/100 bathers).	*There are no references cited. The text should refer to the studies used.*	Agree added statement in 3.0 Chlorine Demand and references have been cited.	4.0.1.3.2 ANNEX	The available data for chlorine disinfectant demand indicates that that the chlorine demand from bathers can vary by over an order of magnitude, with the largest value measured being 10 g Cl_2/bather (or 2.2 lb/100 bathers
Contamination Burden (CB)	3.3.	There are few published data on the chlorine demand that occurs in pools due to the simple decomposition of chlorine. It is well known that chlorine is not stable at high temperatures and in the presence of UV. Both of these factors will reduce active chlorine to inactive chloride, without any bather waste being present.	*Editorial. It is not true that dilute concentrations of chlorine are not stable at high temperatures. The stability of chlorine is a function of temperature and of concentration. You are mixing up the relative instability of chlorinating liquid as a function of temperature and comparing concentrations of 100,000 ppm against < 10 ppm. The breakdown of chlorine varies roughly as the square of the concentration so it is relatively stable in dilute concentrations. It does, of course, outgas more quickly at higher temperatures, but that is not decomposition. See the link to the table from Odyssey Manufacturing showing the rough concentration dependence on chlorine degradation rates. The degradation rate drops rapidly as concentration decreases. On the other hand, real pool water contains some heavy metals that act as catalysts to degradation. Nevertheless, Wojtowicz showed that tap water indoors in polyethylene containers at 90-105ºF loses 2%-4% per day which is fairly low. There is a higher loss rate in the presence of Cyanuric Acid (CYA) due to its slow oxidation by hypochlorite ion. In real pools, this appears to be a fairly low loss rate of around 3 ppm CYA per month giving a around 7.5 ppm FC per month chlorine demand. In residential spas, one sees CYA drop at around 5 ppm per month (with CYA at 30-40 ppm). The presence of CYA significantly reduces the rate of chlorine loss from outgassing since the active chlorine level is significantly reduced and the chlorinated isocyanurates are not volatile.* -- There are few published data on the CHLORINE demand that occurs in POOLs due to the simple decomposition of CHLORINE. It is well known that concentrated CHLORINE is not stable at high temperatures and any concentration is not stable in the presence of UV. Chlorine is also volatile and outgasses from	Disagree. The committee is not sure how much chlorine is lost due to outgassing of HOCl vs outgassing of Cl_2 vs decomposition, but most of the chlorine in the pool should be HOCl/OCl- rather than Cl_2, and the Henry's law constant for HOCl (730 M/atm) is much higher than that for Cl_2 (0.086 M/atm), indicating that HOCl is much more likely to stay in the water than Cl_2.	4.0.1.3.3 ANNEX	There are few published data on the chlorine demand that occurs in pools due to the simple decomposition of chlorine. It is well known that chlorine is not stable at high temperatures and in the presence of UV. Both of these factors will reduce active chlorine to inactive chloride, without any bather waste being present.
Contamination Burden (CB)	3.3.	There are few published data on the chlorine demand that occurs in pools due to the simple decomposition of chlorine. It is well known that chlorine is not stable at high temperatures and in the presence of UV. Both of these factors will reduce active chlorine to inactive chloride, without any bather waste being present.	*There are no references cited. The text should refer to the studies used.*	Agree added statement in 3.0 Chlorine Demand and references have been cited.	4.0.1.3.3 ANNEX	There are few published data on the chlorine demand that occurs in pools due to the simple decomposition of chlorine. It is well known that chlorine is not stable at high temperatures and in the presence of UV. Both of these factors will reduce active chlorine to inactive chloride, without any bather waste being present.
Contamination Burden (CB)	3.4.	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the amount of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in pools.	*Added text is self-explanatory.* -- Add to end of section: The rate of CHLORINE loss can be reduced by the use of other oxidizers, including potassium monopersulfate and ozone, or UV, which can destroy contaminants which would otherwise react with CHLORINE.	Agree, changed as suggested, but not in this section. Added to introductory statement under 3.5	4.0.1.3.4 ANNEX	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the concentration of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in specific pools.
Contamination Burden (CB)	3.4.	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the amount of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in pools.	*Concentration" is more precise than the vague term "amount".* -- It will also depend on the ~~amount~~ concentration of cyanuric acid present, since cyanuric acid can help prevent the decomposition of CHLORINE by UV.	Agree, changed as suggested.	4.0.1.3.4 ANNEX	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the concentration of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in specific pools.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	3.4.	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the amount of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in pools.	*Scientific Studies. It is not difficult to predict chlorine loss in the presence of sunlight even accounting for pool depth. I have put together a spreadsheet that calculates chlorine loss at peak overhead (summer) noontime sun accounting for pool depth. It shows that at the pool surface hypochlorous acid has a half-life of 2 hours 10 minutes while hypochlorite ion has a half-life of 20 minutes. At pH 7.5 with a near 50/50 mixture of the two, the half-life is around 35 minutes. At a pool depth of 4.5 to 10 feet, the half-life increases to about 1 hour at those depths (if FC is 3-6 ppm with no CYA). Essentially, some of the loss near the surface partially shields lower depths. Note that the breakdown of chlorine from UV results in chlorine and hydroxyl radicals with the latter being very short-lived but powerful non-selective oxidizers. This may explain the slower buildup an lower steady-state levels of some organic precursors in outdoor pools exposed to sunlight. I have also modeled chlorine loss in the presence of Cyanuric Acid (CYA) from residential pool data on pool forums and there is still a chlorine decomposition from chlorine bound to CYA though it is slower, but CYA itself shields lower depths in a non-linear fashion such that even maintaining the same hypochlorous acid and hypochlorite ion concentrations by roughly maintaining the same FC/CYA ratio, the absolute chlorine loss rate is lower at higher CYA levels. This effect will not be noticeable in high bather-load (e.g. commercial/public) pools above around 20-30 ppm CYA since the chlorine loss from bather load is much larger than the loss from sunlight.* -- The rate of CHLORINE loss (pounds of CHLORINE per hour) due to UV degradation will depend on a number of factors, including the size of the POOL, the depth of the water and the intensity of the sunshine. It will also depend	Disagree with suggested change, instead added the word 'specific'. As Mr. Falk points out, the chlorine loss can be measured, but it is difficult to generalize those measurements to predict the loss from specific pools under different conditions from those that were measured.	4.0.1.3.4 ANNEX	The rate of chlorine loss (pounds of chlorine per hour) due to UV degradation will depend on a number of factors, including the size of the pool, the depth of the water and the intensity of the sunshine. It will also depend on the concentration of cyanuric acid present, since cyanuric acid can help prevent the decomposition of chlorine by UV. Given the number of variables, it is difficult to predict chlorine decomposition rates in specific pools.
Contamination Burden (CB)	4.1.	Chlorination, using chlorine as the disinfectant, is the most common procedure for swimming pool water disinfection and inactivation of waterborne microbial pathogens. Swimmers' activity and environmentally-introduced material provides a broad range of precursors with which disinfectants can react (e.g., perspiration, urine, mucus, skin particles, hair, body lotions, fecal material, soil, etc.). When chlorine reacts with these precursors, a variety of chemical reactions take place, including the formation of disinfection by-products (DBPs).	*Add a space after the section ends, before 4.2* -- Chlorination, using CHLORINE as the disinfectant, is the most common procedure for swimming POOL water DISINFECTION and inactivation of waterborne microbial pathogens. Swimmers' activity and environmentally-introduced material provides a broad range of precursors with which disinfectants can react (e.g., perspiration, urine, mucus, skin particles, hair, body lotions, fecal material, soil, etc.). When CHLORINE reacts with these precursors, a variety of chemical reactions take place, including the formation of DISINFECTION BY-PRODUCTS (DBPs).	Agree; changed as suggested.	4.0.1.4.1 ANNEX	Chlorination, using chlorine as the disinfectant, is the most common procedure for swimming pool water disinfection and inactivation of waterborne microbial pathogens. Swimmers' activity and environmentally-introduced material provides a broad range of precursors with which disinfectants can react (e.g., perspiration, urine, mucus, skin particles, hair, body lotions, fecal material, soil, etc.). When chlorine reacts with these precursors, a variety of chemical reactions take place, including the formation of disinfection by-products (DBPs) DBPs may also be introduced into the pool via the water used to fill the pool depending on the supply water quality. Municipal fill water can also include chloramines as some municipal systems switch from chlorination to chloramination to meet EPA disinfection byproduct requirements. Chlorine gas, if used, is also extremely toxic.
Contamination Burden (CB)	4.1.	Chlorination, using chlorine as the disinfectant, is the most common procedure for swimming pool water disinfection and inactivation of waterborne microbial pathogens. Swimmers' activity and environmentally-introduced material provides a broad range of precursors with which disinfectants can react (e.g., perspiration, urine, mucus, skin particles, hair, body lotions, fecal material, soil, etc.). When chlorine reacts with these precursors, a variety of chemical reactions take place, including the formation of disinfection by-products (DBPs).	*Most pools use municipal water, which has been chlorinated and contains DBPs, for filling.* -- Add to end of this section: <u>DBPs can also be introduced into the POOL via the water used to fill the POOL.</u>	Agree. Revised to say, "DBPs may also be introduced into the pool via the water used to fill the pool depending on the supply water quality."	4.0.1.4.1 ANNEX	Chlorination, using chlorine as the disinfectant, is the most common procedure for swimming pool water disinfection and inactivation of waterborne microbial pathogens. Swimmers' activity and environmentally-introduced material provides a broad range of precursors with which disinfectants can react (e.g., perspiration, urine, mucus, skin particles, hair, body lotions, fecal material, soil, etc.). When chlorine reacts with these precursors, a variety of chemical reactions take place, including the formation of disinfection by-products (DBPs) DBPs may also be introduced into the pool via the water used to fill the pool depending on the supply water quality. Municipal fill water can also include chloramines as some municipal systems switch from chlorination to chloramination to meet EPA disinfection byproduct requirements. Chlorine gas, if used, is also extremely toxic.
Contamination Burden (CB)	4.2.	DBPs can be organic [e.g., trihalomethanes, chlorinated phenols, haloketones, haloacetic acids, and haloacetonitriles (HANs)] or inorganic (e.g. chloramines and cyanogen chloride). All inorganic chloramines, and particularly trichloramine, are very volatile and partition easily from water into air. The major by-products of disinfection using Hypobromous acid (HOBr) and Hypochlorous acid (HOCl) are bromoform ($CHBr_3$) and chloroform ($CHCl_3$), respectively. Chloroform and bromoform are highly volatile compounds that can be inhaled in swimming pool environments and also readily absorbed through the skin.	*Delete this sentence, which is redundant to section 4.5.* -- ~~All inorganic chloramines, and particularly trichloramine, are very volatile and partition easily from water into air.~~	Agree delete sentence.	4.0.1.4.2 ANNEX	DBPs can be organic [e.g., trihalomethanes, chlorinated phenols, haloketones, haloacetic acids, and haloacetonitriles (HANs)] or inorganic (e.g. chloramines and cyanogen chloride). The major by-products of disinfection using hypobromous acid (HOBr) and hypochlorous acid (HOCl) are bromoform ($CHBr_3$) and chloroform ($CHCl_3$), respectively. Chloroform and bromoform are highly volatile compounds that can be inhaled in swimming pool environments and also readily absorbed through the skin

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	4.3.	The main organic DBPs are: *trihalomethanes *(total trihalomethane is the sum of the concentrations of chloroform, bromoform, bromodichloromethane, and dibromochloromethane)* , * chlorinated phenols *(2-chloro-, 2,4-dichloro- and 2,4,6-trichlorophenol)* , haloketones *(1,1-dichloropropanone, 1,1,1-trichloropropanone)* , *haloacetic acids *(Total haloacetic acids include the sum of the concentrations of mono-, di-, and trichloroacetic acids and mono- and dibromoacetic acids)* ; haloacetonitriles (HANs) include (dichloro-, trichloro-, dibromo- and bromochloroacetonitrile), chloropicrin, chloral hydrate, 3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone, etc.	*Editorial and Scientific Studies. Fix the indent bullet points for the haloketones and haloacetonitriles. In the study I reference, over 100 DBPs were identified. In addition to the categories you described, there are also other haloalkanes other than trihalomethane, other haloacids, halo-di-acids, haloaldehydes, halonitromethanes, haloamides, haloalcohols, and other halogenated DBPs (benzenes, anilines, pyrazoles). I'm not sure identifying "main" components by concentration is as important as identifying them relative to their known effects.* – Some classes of organic DBPs are:	Agree. changed as suggested and with addition of reference.	4.0.1.4.3 ANNEX	Some classes of organic DBPs are: • TRIHALOMETHANES (total TRIHALOMETHANE is the sum of the concentrations of chloroform, bromoform, bromodichloromethane, and dibromochloromethane), • chlorinated phenols (2-chloro-, 2,4-dichloro- and 2,4,6-trichlorophenol), haloketones (1,1-dichloropropanone, 1,1,1-trichloropropanone), • haloketones (bromopropanone, 1,1-dichloropropanone, 1,1,1-trichloropropanone, etc.) • haloacetic acids (Total haloacetic acids include the sum of the concentrations of mono-, di-, and trichloroacetic acids and mono- and dibromoacetic acids); • haloacetonitriles (HANs) include (dichloro-, trichloro-, dibromo- and bromochloroacetonitrile), chloropicrin, chloral hydrate, 3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone, etc. • Organic Chloramines
Contamination Burden (CB)	4.4.	According to European Union regulations, the concentration of trihalomethanes in drinking water should not exceed one hundred micrograms per liter (100 µg/L) of water for consumption; while in the United States the Environmental Protection Agency (USEPA) has established a legal maximum of 80 µg/L.	*Provide a reference to the EU regulations cited. The abbreviation "US-EPA" is already defined on page 4. Provide a reference to the EPA regulation cited.* -- According to European Union regulations, the concentration of TRIHALOMETHANEs in drinking water should not exceed one hundred micrograms per liter (100 µg/L, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1998:330:0032:0054:EN:PDF) of water for consumption; while in the United States the ~~Environmental Protection Agency (USEPA)~~ US-EPA has established a legal maximum of 80 µg/L. (http://water.epa.gov/drink/contaminants/index.cfm)	Agree, Additional references added (see footnotes in CB Annex provisions). Also changed text to US EPA acronym.	4.0.1.4.4 ANNEX	According to European Union regulations, the concentration of trihalomethanes in drinking water should not exceed one hundred micrograms per liter (100 µg/L) of water for consumption; while in the United States the Environmental Protection Agency (US-EPA) has established a legal maximum of 80 µg/L. The DIN 19643 swimming pool standard specifies a standard maximum of 20 µg/L
Contamination Burden (CB)	4.5.	Inorganic DBPs include chloramines and cyanogen chloride. Chloramines include monochloramine (NH_2Cl), dichloramine ($NHCl_2$) and trichloramine (NCl_3) and are generated from the reaction of hypochlorite with ammonia and amino-compounds that originate from sweat and urine of the swimmers. All chloramines, and particularly trichloramine, are very volatile and partition easily from water into air.	*There are both inorganic and organic chloramines formed in pool water. This discussion is just about the inorganic chloramines, therefore the word "inorganic" has been added. See comment above on adding trichloramine to the Glossary.* -- Inorganic DBPs include inorganic chloramines and cyanogen chloride. Inorganic chloramines include monochloramine (NH_2Cl), DICHLORAMINE ($NHCl_2$) and ~~trichloramine~~ TRICHLORAMINE (NCl_3) and are generated from the reaction of hypochlorite with ammonia and amino-compounds that originate from sweat and urine of the swimmers. ~~All inorganic chloramines, and particularly trichloramine~~ TRICHLORAMINE, is relatively volatile and partitions easily from water into air.	Added "Organic Chloramines" to bulleted list in 4.3. Added "inorganic" to beginning of 4.5. Added a new last sentence in 4.5: removing" inorganics" from the sentence because dichloramine and monochloramine are fairly soluble in water where trichloramine is more likely to partition in air.	4.0.1.4.5 ANNEX	Inorganic DBPs include chloramines and cyanogen chloride. Inorganic chloramines include monochloramine (NH_2Cl), dichloramine ($NHCl_2$) and trichloramine (NCl_3) and are generated from the reaction of hypochlorite with ammonia and amino-compounds that originate from sweat and urine of the swimmers. Trichloramine is relatively volatile and partitions easily from water into air.
Contamination Burden (CB)	4.6.	The conditions that determine production and air levels of chloramines have been suggested to depend on several factors: (1) the number of swimmers in the pool, (2) the chlorine dose, (3) the bromide content, (4) the extent of out-gassing of volatile DBPs, (5) pH, and (6) the use of DBPs-containing water (mostly chlorine-treated surface water) for the pool water supply.	*Editorial. It is not the dose of chlorine that is relevant, but the concentration of the active species (e.g. hypochlorous acid or in some cases hypochlorite ion) that determines the rate of reactions with those species. This becomes important when considering the effects of Cyanuric Acid (CYA) since that significantly lowers the active chlorine concentration and therefore the rate of creation of disinfection by-products assuming the same precursor concentrations. So for reaction of chlorine with precursors that do not remain in the pool (i.e. skin, swimsuits, hair), a lower active chlorine level would produce proportionately lower quantities of disinfection by-products. For reaction with chemicals introduced into pool water, there will not be a reduction in disinfection by-product amount or rate if such precursors are allowed to build up, but if they are removed through coagulation/filtration, oxidation (e.g. ozone, AOX) or by water dilution, then the rate of their creation and amount present will be reduced.* -- the CHLORINE ~~dose~~ concentration	Agree; changed as suggested.	4.0.1.4.6 ANNEX	The conditions that determine production and air levels of DBPs have been suggested to depend on several factors: • Number of swimmers in the POOL, and their associated hygiene • CHLORINE concentration, • water temperature • concentration of organic precursors in the POOL water, • chemical structure of the organic precursors, • bromide content, • indoor air circulation, • the extent of out-gassing of volatile DBPs, • pH, • level of water agitation (undisturbed vs. being sprayed), and • concentration of inorganic chloramine from the fill water. Further research is needed to determine how much DBPs are being created in POOL water, including the production and retention rate.
Contamination Burden (CB)	4.6.	The conditions that determine production and air levels of chloramines have been suggested to depend on several factors: (1) the number of swimmers in the pool, (2) the chlorine dose, (3) the bromide content, (4) the extent of out-gassing of volatile DBPs, (5) pH, and (6) the use of DBPs-containing water (mostly chlorine-treated surface water) for the pool water supply.	*Same comment as 2.1 above* -- The conditions that determine production and air levels of chloramines have been suggested to depend on several factors: □ the number of swimmers in the POOL, □ the CHLORINE dose, □ the bromide content, □ the extent of out-gassing of volatile DBPs, □ ~~P~~pH, and □ the use of DBPs-containing water (mostly CHLORINE-treated surface water) for the POOL water supply.	Agree; changed as suggested	4.0.1.4.6 ANNEX	The conditions that determine production and air levels of DBPs have been suggested to depend on several factors: • Number of swimmers in the POOL, and their associated hygiene • CHLORINE concentration, • water temperature • concentration of organic precursors in the POOL water, • chemical structure of the organic precursors, • bromide content, • indoor air circulation, • the extent of out-gassing of volatile DBPs, • pH, • level of water agitation (undisturbed vs. being sprayed), and • concentration of inorganic chloramine from the fill water. Further research is needed to determine how much DBPs are being created in POOL water, including the production and retention rate.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	4.6.	The conditions that determine production and air levels of chloramines have been suggested to depend on several factors: (1) the number of swimmers in the pool, (2) the chlorine dose, (3) the bromide content, (4) the extent of out-gassing of volatile DBPs, (5) pH, and (6) the use of DBPs-containing water (mostly chlorine-treated surface water) for the pool water supply.	Swimmer contribution of nitrogen-based organic load to pool water can be related to hygiene; pool water temperature helps determine DBP formation (not just chloramines); good air circulation in indoor pools can help reduce indoor air DBP levels. -- The conditions that determine production and air levels of DBPs have been suggested to depend on several factors: the number of swimmers in the pool and their associated hygiene, the chlorine dose, the bromide content, the water temperature, the extent of out-gassing of volatile DBPs, pH, indoor air circulation and the use of DBP-containing water (mostly chlorine-treated surface water) for the pool water supply. – REFERENCE: LaKind et al. (2010), The Good, the Bad, and the Volatile: Can We Have Both Healthy Pools and Healthy People? Environ. Sci. Technol., 44, 3205-3210 Zwiener et al. (2007), Drowning in Disinfection Byproducts? Assessing Swimming Pool Water, Environ. Sci. Technol., 41, 363-372.	Agree; changed as suggested	4.0.1.4.6 ANNEX	The conditions that determine production and air levels of DBPs have been suggested to depend on several factors: • Number of swimmers in the POOL, and their associated hygiene • CHLORINE concentration, • water temperature • concentration of organic precursors in the POOL water, • chemical structure of the organic precursors, • bromide content, • indoor air circulation, • the extent of out-gassing of volatile DBPs, • pH, • level of water agitation (undisturbed vs. being sprayed), and • concentration of inorganic chloramine from the fill water. Further research is needed to determine how much DBPs are being created in POOL water, including the production and retention rate.
Contamination Burden (CB)	4.6.	The conditions that determine production and air levels of chloramines have been suggested to depend on several factors: (1) the number of swimmers in the pool, (2) the chlorine dose, (3) the bromide content, (4) the extent of out-gassing of volatile DBPs, (5) pH, and (6) the use of DBPs-containing water (mostly chlorine-treated surface water) for the pool water supply.	*This section discusses DBPs, not just chloramines. The amount and type of DBPs formed depend heavily on the amount and chemical structure of the organic precursors present. This in turn, depends on not just the number of swimmers, but how clean they are and how much they urinate in the pool, as well as what types of contaminants they introduce (lotions, makeup, personal care products, etc).* -- The conditions that determine production and air levels of ~~chloramines~~ DBPs have been suggested to depend on several factors: the number of swimmers in the POOL, the CHLORINE dose, the concentration of organic precursors in the pool water, the chemical structure of the organic precursors, the bromide content, the extent of out-gassing of volatile DBPs, pH, and ~~the use of DBPs containing water (mostly CHLORINE treated surface water) for the POOL water supply~~.	Changed "chloramines" to DBPs as suggested. Changed bulleted additions as suggested except for last bullet which was not included because DBPs from fill water are not a significant contributor unless chloramines are found in fill water. Also included a section about the need for further research on the formation and retention rate of DBP's in pool water.	4.0.1.4.6 ANNEX	The conditions that determine production and air levels of DBPs have been suggested to depend on several factors: • Number of swimmers in the POOL, and their associated hygiene • CHLORINE concentration, • water temperature • concentration of organic precursors in the POOL water, • chemical structure of the organic precursors, • bromide content, • indoor air circulation, • the extent of out-gassing of volatile DBPs, • pH, • level of water agitation (undisturbed vs. being sprayed), and • concentration of inorganic chloramine from the fill water. Further research is needed to determine how much DBPs are being created in POOL water, including the production and retention rate.
Contamination Burden (CB)	4.7.	Studies have documented potential links between respiratory ailments (e.g., asthma) and swimming, especially in indoor swimming pools. Air quality in indoor aquatic facilities has emerged as an area of concern with respect to human health. If there is poor ventilation in the buildings or swimming pool, it could be the cause of negative health effects for bathers from inhalation exposure to the chloramines.	*Studies have examined, but not conclusively documented links between respiratory ailments such as asthma and swimming. Swimming is deemed highly advisable for asthmatics under good hygienic conditions in well-managed swimming pools.*-- Studies have examined the link between air quality in indoor aquatic facilities and respiratory effects, including asthma. If there is poor ventilation in the buildings or swimming pool, it could be the cause of negative health effects for bathers from inhalation exposure to the chloramines. To date, however, research results are mixed and inconclusive. The one prospective study available (Font, Ribera, 2011) suggests swimming does not increase the risk of asthma. To the contrary, the study found swimming increased lung function and reduced the risk of asthma symptoms at age seven. The health benefits associated with swimming include improvement of asthma symptoms and cardiovascular fitness. Pediatricians have long recommended swimming for asthmatic children because of its lower asthmogenicity compared to other forms of exercise. The Belgian Superior Health Council reviewed the available science related to pool swimming and the development of childhood asthma. The Council, in its 2011 report No. 8748 (and reiterated in its 2012 report) concludes swimming remains highly advisable, even in the case of asthma. According to the Council, "For this target group, the advantages of swimming under good hygienic conditions in monitored pools outweigh the risk of toxicity linked to chlorine and its by-products." -- REFERENCE:	Agree, changed as suggested. Replaced existing paragraph with proposed language for better clarity. References have been reviewed and Lakind, Font and SUPERIOR HEALTH COUNCIL No 8748 references have been included in annex.	4.0.1.4.7 ANNEX	Studies have examined the link between air quality in indoor aquatic facilities and respiratory effects, including asthma. If there is poor ventilation in the building or aquatic venue area, it could be the cause of negative health effects for bathers from inhalation exposure to the chloramines. To date, however, research results on the link to asthma are mixed and inconclusive. The one prospective study available suggests swimming does not increase the risk of asthma. To the contrary, the study found swimming increased lung function and reduced the risk of asthma symptoms at age seven. The health benefits associated with swimming include improvement of asthma symptoms and cardiovascular fitness. Pediatricians have long recommended swimming for asthmatic children because of its lower asthmogenicity compared to other forms of exercise. The Belgian Superior Health Council reviewed the available science related to pool swimming and the development of childhood asthma. The Council, in its 2011 report No. 8748 (and reiterated in its 2012 report) concludes swimming remains highly advisable, even in the case of asthma. According to the Council, "For this target group, the advantages of swimming under good hygienic conditions in monitored pools outweigh the risk of toxicity linked to chlorine and its by-products."

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	4.7.	Studies have documented potential links between respiratory ailments (e.g., asthma) and swimming, especially in indoor swimming pools. Air quality in indoor aquatic facilities has emerged as an area of concern with respect to human health. If there is poor ventilation in the buildings or swimming pool, it could be the cause of negative health effects for bathers from inhalation exposure to the chloramines.	*The text should provide references to the studies used.*	Agree. References added in document as suggested.	4.0.1.4.7 ANNEX	Studies have examined the link between air quality in indoor aquatic facilities and respiratory effects, including asthma. If there is poor ventilation in the building or aquatic venue area, it could be the cause of negative health effects for bathers from inhalation exposure to the chloramines. To date, however, research results on the link to asthma are mixed and inconclusive. The one prospective study available suggests swimming does not increase the risk of asthma. To the contrary, the study found swimming increased lung function and reduced the risk of asthma symptoms at age seven. The health benefits associated with swimming include improvement of asthma symptoms and cardiovascular fitness. Pediatricians have long recommended swimming for asthmatic children because of its lower asthmogenicity compared to other forms of exercise. The Belgian Superior Health Council reviewed the available science related to pool swimming and the development of childhood asthma. The Council, in its 2011 report No. 8748 (and reiterated in its 2012 report) concludes swimming remains highly advisable, even in the case of asthma. According to the Council, "For this target group, the advantages of swimming under good hygienic conditions in monitored pools outweigh the risk of toxicity linked to chlorine and its by-products."
Contamination Burden (CB)	4.8.	It should be noted however, that despite the health risks of DBPs in general, the concentration of organic DBPs found in pools is generally low. Therefore, although research results have shown that disinfectant by-products do form in detectable concentrations in most pools, it appears that the benefits of disinfection far outweigh the risks posed by its by-products. This conclusion is shared by the World Health Organization, which states that "the risks from exposure to chlorination by-products in reasonably well-managed swimming pools would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of disinfection." Improved water quality management is recommended to minimize formation and accumulation of these compounds.	*General Comment: Should add a space after the section ends, before the "Note about Resources" section begins.* -- It should be noted however, that despite the health risks of DBPs in general, the concentration of organic DBPs found in POOLs is generally low. Therefore, although research results have shown that DISINFECTANT BYPRODUCTS do form in detectable concentrations in most POOLs, it appears that the benefits of DISINFECTION far outweigh the risks posed by its by-products. This conclusion is shared by the World Health Organization, which states that "the risks from exposure to chlorination by-products in reasonably well-managed swimming POOLs would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of DISINFECTION."[1] Improved water quality management is recommended to minimize formation and accumulation of these compounds.	Agree; changed as suggested.	4.0.1.4.8 ANNEX	Despite the health risks of disinfection by-products (DBPs) in general, the concentration of organic DBPs found in pools is generally low. Therefore, although research results have shown that DBPs do form in detectable concentrations in most pools and levels of exposure can be measured, it appears that the benefits of disinfection far outweigh the risks posed by its by-products. The World Health Organization, states that "the risks from exposure to chlorination by-products in reasonably well-managed swimming pools would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of disinfection." Improved water quality management is recommended to minimize formation and accumulation of these compounds.
Contamination Burden (CB)	4.8.	It should be noted however, that despite the health risks of DBPs in general, the concentration of organic DBPs found in pools is generally low. Therefore, although research results have shown that disinfectant by-products do form in detectable concentrations in most pools, it appears that the benefits of disinfection far outweigh the risks posed by its by-products. This conclusion is shared by the World Health Organization, which states that "the risks from exposure to chlorination by-products in reasonably well-managed swimming pools would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of disinfection." Improved water quality management is recommended to minimize formation and accumulation of these compounds.	Scientific Studies (summaries and references). -- (The following is with regard to chlorinated drinking water because there are far fewer epidemiological studies with regard to exposure to THMs in swimming pools). "Epidemiological studies have not identified an increased risk of cardiovascular disease associated with chlorinated or chloraminated drinking-water. Studies of other disinfectants have not been conducted." "The epidemiological evidence is insufficient to support a causal relationship between bladder cancer and long-term exposure to chlorinated drinking-water,THMs, chloroform or other THM species. The epidemiological evidence is inconclusive and equivocal for an association between colon cancer and long-term exposure to chlorinated drinking-water, THMs, chloroform or other THM species. The information is insufficient to allow an evaluation of the observed risks for rectal cancer and risks for other cancers observed in single analytical studies." "Studies have considered exposures to chlorinated drinking-water, THMs or THM species and various adverse outcomes of pregnancy. A scientific panel recently convened by the US Environmental Protection Agency reviewed the epidemiological studies and concluded that the results of currently published studies do not provide convincing evidence that chlorinated water or THMs cause adverse pregnancy outcomes." – REFERENCE: WHO (2000). Environmental Health Criteria 216 (including corrigenda from 11/30/2004). http://whqlibdoc.who.int/ehc/WHO_EHC_216.pdf	This reference has been added to the bibliography, but no change to document since the discussion refers to drinking water, it will not be included in the text of the annex.	4.0.1.4.8 ANNEX	Despite the health risks of disinfection by-products (DBPs) in general, the concentration of organic DBPs found in pools is generally low. Therefore, although research results have shown that DBPs do form in detectable concentrations in most pools and levels of exposure can be measured, it appears that the benefits of disinfection far outweigh the risks posed by its by-products. The World Health Organization, states that "the risks from exposure to chlorination by-products in reasonably well-managed swimming pools would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of disinfection." Improved water quality management is recommended to minimize formation and accumulation of these compounds.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	NEW SECTION 4.9	N/A	*The draft says very little about urea which is a major contaminant in pool water. Urea is a significant contributor to both the overall chlorine demand and the formation of chloramines. New suggested language is given.* -- Add the following new section: 4.9 A major contaminant in POOL water is urea. Urea is chiefly derived from swimmers urinating in pool water, but is also present in swimmer's sweat. It has been shown that urea reacts with hypochlorous acid to produce NCl_3 ~~directly~~. However, while breakpoint destruction of ammonia is very fast, reaction of hypochlorous acid with urea is very slow. Therefore, urea is difficult to remove quickly by shocking the pool water. There are no guidelines in the U.S. for monitoring the urea concentration in pool water or suggested levels of concern. Input of urea is most effectively minimized by changes in swimmers' behavior.	Removed the word "directly" as suggested.	4.0.1.4.9	A major contaminant in pool water is urea. Urea is chiefly derived from swimmers urinating in pool water, but is also present in swimmer's sweat. It has been shown that urea reacts with hypochlorous acid to produce trichloramine. However, while breakpoint destruction of ammonia is very fast, reaction of hypochlorous acid with urea is very slow. Therefore, urea is difficult to remove quickly by shocking the pool water. There are no guidelines in the U.S. for monitoring the urea concentration in pool water or suggested levels of concern. Input of urea is most effectively minimized by changes in swimmers' behavior and hygiene.
Regulatory (REG)	4.1.1.1	Aquatic facility construction plans shall be designed to protect the health and safety of the facility's bathers and patrons.	AQUATIC FACILITY construction plans shall be designed to provide sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the AHJ ~~protect the health and SAFETY of the facility's BATHERS and patrons~~.	Agreed, wording altered	4.1.1.2	Aquatic facility construction plans shall show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the AHJ and to protect the health and safety of the facility's bathers and patrons
Regulatory (REG)	4.1.1.2	No person shall begin to construct a new aquatic facility or shall alter or renovate an existing aquatic facility without first having the construction plans detailing the construction or renovation submitted to and approved by the AHJ.	Define "alter and renovate"	We have refined the definition of substantial alteration.	4.1.1.3	No person shall begin to construct a new aquatic facility or shall substantially alter an existing aquatic facility without first having the construction plans detailing the construction or substantial alteration submitted to and approved by the AHJ.
Regulatory (REG)	4.1.1.2	No person shall begin to construct a new aquatic facility or shall alter or renovate an existing aquatic facility without first having the construction plans detailing the construction or renovation submitted to and approved by the AHJ.	*I think we need to clearly define the words alter and renovate. We have seen this applied in very different ways across the country. The glossary and annex language on this does not seem to add much clarity. Cross reference exclusions in 4.1.3.3.1.*-- No person shall begin to construct a new AQUATIC FACILITY or shall alter or renovate an existing AQUATIC FACILITY without first having the construction plans detailing the construction or renovation submitted to and approved by thE AHJ. Refer to 4.1.3.3.1 for exemptions.	The word "renovate" has been removed due to a similar comment.	4.1.1.3	No person shall begin to construct a new aquatic facility or shall substantially alter an existing aquatic facility without first having the construction plans detailing the construction or substantial alteration submitted to and approved by the AHJ.
Regulatory (REG)	4.1.1.3	All plans shall be prepared by a licensed person and within their scope of practice as defined by the state or local laws governing professional practice within the jurisdiction.	All plans shall be prepared by a registered design professional who is registered or licensed to practice their respective design profession ~~person and within their scope of practice~~ as defined by ~~the~~ state or local laws governing professional practice within the jurisdiction in which the project is to be constructed	Agreed, added suggested text.	4.1.1.4	All plans shall be prepared by a design professional who is registered or licensed to practice their respective design profession as defined by the state or local laws governing professional practice within the jurisdiction in which the project is to be constructed.
Regulatory (REG)	4.1.1.4	All construction plans shall include the following statements: 1) "The proposed AQUATIC FACILITY and all equipment shall be constructed and installed in conformity with the approved plans and specifications or approved amendments," and 2) "No changes, additions, or equipment not specified in the approved plans can be made or added until the plans for such changes, additions, or equipment are submitted to and approved by the AHJ."	Define "changes and additions"	"Changes or Additions" means deviations from what is listed or shown on the approved plans. We have refined the definition of substantial alteration.	4.1.1.5	All construction plans shall include the following statements: 1) "The proposed AQUATIC FACILITY and all equipment shall be constructed and installed in conformity with the approved plans and specifications or approved amendments," and 2) "No SUBSTANTIAL ALTERATION, changes, additions, or equipment not specified in the approved plans or allowed in the CODE can be made or added until the plans for such SUBSTANTIAL ALTERATION, changes, additions, or equipment are submitted to and approved by the AHJ."
Regulatory (REG)	4.1.2.1.1	Aquatic facility plans shall include the name, address, and contact information for the owner, designer, and pool contractor.	*The inclusion of the Pool Contractor on the plans works for a design/build process, but not for a design/bid/build process. Contractor is usually not yet selected when plans are finalized for AHJ* -- AQUATIC FACILITY plans shall include the name, address, and contact information for the owner,and designer, ~~and POOL contractor.~~	Code section changed as suggested.	4.1.2.1.1	Aquatic facility plans shall include the name, address, and contact information for the owner, designer, and builder if available at the time of submission.
Regulatory (REG)	4.1.2.1.2	Aquatic facility plans shall include a map indicating the exact location of the aquatic facility with street address and geographic location information including the GPS coordinates.	AQUATIC FACILITY plans shall include a map indicating the exact location of the AQUATIC FACILITY with street address and geographic location information including the GPS coordinates. – REFERENCE: In our state we are not currently geared to track or record GPS coordinates. The industry and designers will balk on the added time to prepare this information if we aren't doing anything with it. Possibly putting this detail in the annex would be an option.	Agreed, section moved to annex.	4.1.2.1.2	Aquatic facility plans shall include site information indicating at a minimum the location of all utilities, wells, topography, natural water features, and potential sources of surface drainage and pollution which may affect the proposed aquatic facility

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	4.1.2.2.4	Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) Ventilation devices, 5) Heaters, 6) Surge tanks, including operating levels, 7) Cross-connection preventers, 8) Valves, 9) Piping, 10) Flow meters, 11) Gauges, 12) Thermometers, 13) Test cocks, 14) Sight glasses, and 15) Drainage system for the disposal of AQUATIC VENUE water and filter wastewater.	*Cross-connection preventer is not the appropriate term. Backflow prevention assemblies and airgaps is proper term required.* -- Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) Ventilation devices, 5) Heaters, 6) Surge tanks, including operating levels, 7) Backflow prevention assemblies and airgaps ~~Cross-connection preventers~~	Suggested text adopted and code section changed	4.1.2.2.4	Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) Ventilation devices or AIR HANDLING SYSTEMS, 5) Heaters, 6) Surge tanks, including operating levels, 7) BACKFLOW prevention assemblies and air gaps, 8) Valves, 9) Piping, 10) Flow meters, 11) Gauges, 12) Thermometers, 13) Test cocks, 14) Sight glasses, and 15) Drainage system for the disposal of AQUATIC VENUE water and filter wastewater.
Regulatory (REG)	4.1.2.2.4	Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) Ventilation devices, 5) Heaters, 6) Surge tanks, including operating levels, 7) Cross-connection preventers, 8) Valves, 9) Piping, 10) Flow meters, 11) Gauges, 12) Thermometers, 13) Test cocks, 14) Sight glasses, and 15) Drainage system for the disposal of AQUATIC VENUE water and filter wastewater.	*How and why is ventilation in the swimming pool health code. This seems like a building code issue. These inspectors will likely not have any idea what they are looking at. There is no training for the reviewer on ventilation mentioned in the annex. The inclusion of isometrics for piping and equipment should not be required if there is a "flow diagram" or schematic of the systems.* -- Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) ~~Ventilation devices,~~ 5) Heaters, 6) Surge tanks, including operating levels, 7) Cross-connection preventers, 8) Valves, 9) Piping, 10) Flow meters, 11) Gauges, 12) Thermometers, 13) Test cocks, 14) Sight glasses, and 15) Drainage system for the disposal of aquatic venue water and filter wastewater. Isometrics for piping and equipment are not required if there is a "flow diagram" provided or schematic of the systems.	Ventilation is extremely important for indoor pools and can directly impact health. The ventilations standards are defined elsewhere in this code. Flow diagrams do not always provide sufficient detail to show placement of valves and components.	4.1.2.2.4	Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a flow diagram showing the location, plan, elevation, and isometrics of: 1) Filters, 2) Pumps, 3) Chemical feeders, 4) Ventilation devices or AIR HANDLING SYSTEMS, 5) Heaters, 6) Surge tanks, including operating levels, 7) BACKFLOW prevention assemblies and air gaps, 8) Valves, 9) Piping, 10) Flow meters, 11) Gauges, 12) Thermometers, 13) Test cocks, 14) Sight glasses, and 15) Drainage system for the disposal of AQUATIC VENUE water and filter wastewater.
Regulatory (REG)	4.1.2.2.5	Detailed scaled and dimensional drawings for each individual aquatic venue shall contain a schematic layout of the aquatic venue equipment room showing accessibility for installation and maintenance.	Change "Equipment Room" to "Equipment Area". Many facilities have their equipment stored in outside areas instead of buildings.	Code language changed to give AHJ discretion to allow an equipment area.	4.1.2.2.5	Detailed scaled and dimensional drawings for each individual aquatic venue shall contain a schematic layout of the aquatic venue equipment room (or equipment area if permitted by the local AHJ) showing accessibility for installation and maintenance.
Regulatory (REG)	4.1.2.2.5	Detailed scaled and dimensional drawings for each individual aquatic venue shall contain a schematic layout of the aquatic venue equipment room showing accessibility for installation and maintenance.	*No current jurisdiction that I'm aware of currently requires schematics showing "accessibility for installation and maintenance."* -- ~~Detailed scaled and dimensional drawings for each individual AQUATIC VENUE shall contain a schematic layout of the AQUATIC VENUE equipment room showing accessibility for installation and maintenance.~~	The building of aquatic facilities with inadequate room for equipment maintenance is a widespread problem that needs to be addressed at the plan design stage.	4.1.2.2.5	Detailed scaled and dimensional drawings for each individual aquatic venue shall contain a schematic layout of the aquatic venue equipment room (or equipment area if permitted by the local AHJ) showing accessibility for installation and maintenance.
Regulatory (REG)	4.1.2.3.2	The technical specifications for each aquatic facility and each aquatic venue shall include all construction details not shown on the plans.	The wording is very vague. There are many construction details (particularly with large multifaceted facilities) that may not pertain to the aquatic facility plans and may not be included on pool plans. It needs to be more specific.	Code language clarified to include plans that relate to the aquatic facility.	4.1.2.3.2	The technical specifications for each aquatic facility and each aquatic venue shall include all construction details not shown on the plans that relate to the aquatic facility.
Design & Construction (D&C)	4.12.1.12, 4.12.2.5.4, 4.12.3.4.4, 4.12.4.8, and 4.12.9.6	Bather Load (Contamination Burden TC)	*There is no code section from the Contamination Burden TC, so the design committee, the burden committee or some other committee will need to draft some verbiage for bather load limits if they are not in another section already.*	Agreed. These were internal notes and maximum bather loads will be in the final MAHC.	4.1.2.3.5, 4.1.2.3.5.1, 6.4.2.1.2	See Code for full text
Regulatory (REG)	4.1.2.3.6	The technical specifications for each AQUATIC FACILITY and each AQUATIC VENUE shall include: 1) Detailed information on the type, size, operating characteristics, and rating of all mechanical and electrical equipment; 2) Hydraulic computations for head loss in all piping and recirculation equipment; and 3) Pump curves that demonstrate that the selected recirculation pump(s) are adequate for the calculated required flows.	*Head loss calculations and pump curves are appropriate to provide with the submission to the health department, but not in the project specifications.* -- The technical specifications and supplemental engineering data for each AQUATIC FACILITY and each AQUATIC VENUE shall include: 1) Detailed information on the type, size, operating characteristics, and rating of all mechanical and electrical equipment; 2) Hydraulic computations for head loss in all piping and recirculation equipment; and 3) Pump curves that demonstrate that the selected recirculation pump(s) are adequate for the calculated required flows.	Agreed. Changed as suggested	4.1.2.3.6	The technical specifications and supplemental engineering data for each AQUATIC FACILITY and each AQUATIC VENUE shall include: 1) Detailed information on the type, size, operating characteristics, and rating of all mechanical and electrical equipment; 2) Hydraulic computations for head loss in all piping and recirculation equipment; and 3) Pump curves that demonstrate that the selected recirculation pump(s) are adequate for the calculated required flows.
Regulatory (REG)	4.1.3.1.1	The AHJ shall clearly state on the plans the limitations of their approval.	*Health department procedure is not the purpose of this document. While I agree with the requirement, it does not belong in this code* -- Remove. Places requirements on the AHJ. Not delegated statutory authority to regulate our own department. Most Administrative Code reviewers will not allow agencies to write regulations regulating themselves. Suggest a special annex section listing the desirable procedures, but no code language. The purpose of this model code is for adoption by state and local health departments, not their regulation.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.1	The AHJ shall clearly state on the plans the limitations of their approval.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.	*Health department staff qualifications do not belong in a document to be adopted by the health department. Define "adequately trained." Inappropriate language for a set of rules or code. Health department procedure is not the purpose of this document.*-- Remove. Places requirements on the AHJ. Not delegated statutory authority to regulate our own department. Many jurisdictions may not have qualified staff to meet the annex recommendations. The annex list and process is good, but should not be part of the code requirements. Most Administrative Code reviewers will not allow agencies to write regulations regulating themselves. Suggest a special annex section listing the desirable competency of a plan reviewer, but no code language. The purpose of this model code is for adoption by state and local health departments, not their regulation.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.
Regulatory (REG)	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.	No specific recommended change, but rather a specific concern: What is adequately trained mean under this section? What are the guidelines? Either provide guidelines or remove.	Greater detail on this is provided in the AHJ recommendations now moved to a separate document.	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.
Regulatory (REG)	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.	*This language is very loose compared to what is required of the designer and operator. The annex section seems awfully loose as well requiring working with another trained professional. I think there is a need to develop a training course for much like the CPO or AFO for AHJ staff.* -- ~~The AHJ staff shall be adequately trained to conduct plan reviews.~~	Agreed. More information on training is provided in the AHJ recommendations. All sections relating to the AHJ were removed from the Code and placed in a separate document since the MAHC cannot regulate the regulators.	4.1.3.1.2	The AHJ staff shall be adequately trained to conduct plan reviews.
Regulatory (REG)	4.1.3.1.3	The owner shall have final responsibility for the accuracy and completeness of the plans and specifications, as well as for subsequent construction and installation.	*The responsibility is on the engineer and not the owner. Should be removed.* -- ~~The owner shall have final responsibility for the accuracy and completeness of the plans and specifications, as well as for subsequent construction and installation.~~	We don't agree. The owner is always ultimately responsible.	4.1.3.1.3	The owner shall have final responsibility for the accuracy and completeness of the plans and specifications, as well as for subsequent construction and installation.
Regulatory (REG)	4.1.3.1.4	The approval shall also state that it is contingent on all other required approvals such as Building, Zoning, Fire, Electrical, Structural and any other approvals as required by local or state law or code.	*Health department procedure is not the purpose of this document. While I agree with the requirement, it does not belong in this code.* -- Remove. Places requirements on the AHJ. 4.1.5.1 & 4.1.5.2 are more appropriate language. Most Administrative Code reviewers will not allow agencies to write regulations regulating themselves. Suggest a special annex section listing the desirable procedures, but no code language. The purpose of this model code is for adoption by state and local health departments, not their regulation.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.4	The approval shall also state that it is independent of all other required approvals such as Building, Zoning, Fire, Electrical, Structural and any other approvals as required by local or state law or code and the applicant must separately obtain all other required approvals and permits.
Regulatory (REG)	4.1.3.1.4	The approval shall also state that it is contingent on all other required approvals such as Building, Zoning, Fire, Electrical, Structural and any other approvals as required by local or state law or code.	The approval shall also state that other agencies have requirements that need to be addressed beyond these rules. It is the owner's responsibility to comply with those rules. These include approvals from agencies it is contingent on all other required approvals such as Building, Zoning, Fire, Electrical, Structural and any other approvals as required by local or state law or CODE. – REFERENCE: Having the AHJ make approvals contingent on meeting other agencies rules would exceed our enforcement authority. We may support the other rules, but making approvals contingent on other than other health rules our agency has responsibility for, it would be cumbersome and awkward. If we approved a set of plans for our needs and the AHJ was ready to issue an operating permit and find something like an imminent hazard associated with another agencies requirement (such as an electrical hazard), the AHJ may hold up issuing the operating permit until the other agency is satisfied.	Section modified accordingly for clarification.	4.1.3.1.4	The approval shall also state that it is independent of all other required approvals such as Building, Zoning, Fire, Electrical, Structural and any other approvals as required by local or state law or code and the applicant must separately obtain all other required approvals and permits.
Regulatory (REG)	4.1.3.1.5	The AHJ shall coordinate their aquatic facility plan review and communicate their approval with other agencies involved in the aquatic facility construction.	*Health department procedure is not the purpose of this document. While I agree with the requirement, it does not belong in this code.* -- Remove. Places requirements on the AHJ. Most Administrative Code reviewers will not allow agencies to write regulations regulating themselves. Suggest a special annex section listing the desirable procedures, but no code language.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.5	The AHJ shall coordinate their aquatic facility plan review and communicate their approval with other agencies involved in the aquatic facility construction.
Regulatory (REG)	4.1.3.1.6	The AHJ shall provide a plan submission compliance review list to the AQUATIC FACILITY owner with the following information: 1) Categorical items marked satisfactory, unsatisfactory, not applicable, or insufficient information; 2) A comment section keyed to the compliance review list shall detail unsatisfactory and insufficient; 3) Indication of the AHJ approval or disapproval of the AQUATIC FACILITY construction plans; 4) In the case of a disapproval, specific reasons for disapproval and procedure for resubmittal; and 5) Reviewer's name, signature and date of review.	*Health department procedure is not the purpose of this document. While I agree with the requirement, it does not belong in this code* – Remove… Most Administrative Code reviewers will not allow agencies to write regulations regulating themselves. Suggest a special annex section listing the desirable procedures, but no code language. The purpose of this model code is for adoption by state and local health departments, not their regulation.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.6	The AHJ shall provide a plan submission compliance review list to the AQUATIC FACILITY owner with the following information: 1) Categorical items marked satisfactory, unsatisfactory, not applicable, or insufficient information; 2) A comment section keyed to the compliance review list shall detail unsatisfactory and insufficient; 3) Indication of the AHJ approval or disapproval of the AQUATIC FACILITY construction plans; 4) In the case of a disapproval, specific reasons for disapproval and procedure for resubmittal; and 5) Reviewer's name, signature and date of review.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	4.1.3.1.6	The AHJ shall provide a plan submission compliance review list to the AQUATIC FACILITY owner with the following information: 1) Categorical items marked satisfactory, unsatisfactory, not applicable, or insufficient information; 2) A comment section keyed to the compliance review list shall detail unsatisfactory and insufficient; 3) Indication of the AHJ approval or disapproval of the AQUATIC FACILITY construction plans; 4) In the case of a disapproval, specific reasons for disapproval and procedure for resubmittal; and 5) Reviewer's name, signature and date of review.	*I would like to suggest a response time to the plan review. Regarding a variance appeal, the MAHC language only gives the owner 10 days. I would like to suggest a 45 day response requirement.* -- The AHJ shall provide a plan submission compliance review list to the AQUATIC FACILITY owner with the following information: 1) Categorical items marked satisfactory, unsatisfactory, not applicable, or insufficient information; 2) A comment section keyed to the compliance review list shall detail unsatisfactory and insufficient; 3) Indication of the AHJ approval or disapproval of the AQUATIC FACILITY construction plans; 4) In the case of a disapproval, specific reasons for disapproval and procedure for resubmittal; and 5) Reviewer's name, signature and date of review. <u>All reviews will be submitted to the owner within 45 days of receipt</u>.	The code is not meant to regulate AHJ's, therefore a 45 day response time has been added. All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.6	The AHJ shall provide a plan submission compliance review list to the AQUATIC FACILITY owner with the following information: 1) Categorical items marked satisfactory, unsatisfactory, not applicable, or insufficient information; 2) A comment section keyed to the compliance review list shall detail unsatisfactory and insufficient; 3) Indication of the AHJ approval or disapproval of the AQUATIC FACILITY construction plans; 4) In the case of a disapproval, specific reasons for disapproval and procedure for resubmittal; and 5) Reviewer's name, signature and date of review.
Regulatory (REG)	4.1.3.1.7	The AHJ and aquatic facility owner shall maintain at least one set of their own approved plans onsite for as long as the aquatic facility is in operation.	*Impractical with the frequent reorganizations and limits on storage. I should be up to the jurisdiction. I have over 20 years' worth of plans and have never needed them after about 5 years. Variances and conditional items are different and should be kept for the life of the aquatic venue.* -- Eliminate the AHJ from this requirement. I think the annex language is more appropriate for the code. "A copy of the approved plans, certificate of construction compliance and all related pool construction documents are (shall or must) to be maintained onsite by the permit holder and made available to health department or regulatory staff upon request."	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.1.7	The aquatic facility owner shall maintain at least one set of their own approved plans made available to AHJ on-site for as long as the aquatic facility is in operation
Regulatory (REG)	4.1.3.2.3	The AHJ will determine if the proposed changes will require the aquatic facility operator to submit a new or modified plan for review and approval in accordance with this code.	*Cannot self-direct the AHJ in their own rules* -- Reword to: "The AQUATIC FACILITY operator shall consult with the AHJ to determine if new or modified plans must be submitted for plan review and approval for the changes proposed."	Agreed. Changed as suggested	4.1.3.2.2	The aquatic facility operator shall consult with the AHJ to determine if new or modified plans must be submitted for plan review and approval for other non-substantial alterations proposed.
Regulatory (REG)	4.1.3.3.1	*The replacement of pumps, filters, chlorinators, skimmers, flow-meters, valves and other similar equipment with identical or substantially similar equipment may be done without submission of new or altered aquatic facility plans.*	No specific recommended change, but rather a specific concern: While replacement of pumps and other equipment with "identical" replacement is okay and clear enough, replacement with "substantially similar equipment" is NOT the same and could cause both interpretation and potential performance and/or safety issues. How do you determine if something is "substantially similar" to another? Other codes use a repair as like for like, an alteration as when something is not like for like. May need to consider how other codes address this issue for consistency or leave it to building codes.	Substantially similar allows the flexibility needed. Identical or like for like would be too restrictive. No Change.	4.1.3.3.1	The replacement of pumps, filters, feeders, controllers, skimmers, flow-meters, valves, or other similar equipment with identical or substantially similar equipment may be done without submission of new or altered aquatic facility plans.
Regulatory (REG)	4.1.3.3.2	The aquatic facility owner shall submit to the AHJ the replacement equipment technical specification that verifies the proposed replacement equipment's equivalency to the originally approved and installed equipment prior to equipment's replacement.	Double standard and too much red tape…if this is so important then why would only the emergency replacement require submission. Wouldn't the mere fact of the use of the word "emergency" indicate the need for swift action? Submissions do not equal swift action.	The Key Words for sections 4.1.3.3.2 and 4.1.3.3.3 were incorrectly reversed. Corrected	4.1.3.3.2	The aquatic facility owner shall submit to the AHJ the replacement equipment technical specification that verifies the proposed replacement equipment's equivalency to the originally approved and installed equipment prior to equipment's replacement.
Regulatory (REG)	4.1.3.3.3	*In emergencies, the replacement may be made prior to receiving the AHJ's approval, with the owner accepting responsibility for proper immediate replacement, if the equipment is not deemed equivalent by the AHJ .*	*Would recommend that the facility then needs to submit for AHJ's approval within a reasonable period of time (60 days?).* -- In emergencies, the replacement may be made prior to receiving the AHJ's approval, with the owner accepting responsibility for proper immediate replacement, if the equipment is not deemed equivalent by the AHJ. <u>The owner must submit to the AHJ for formal approval within 60 days of installation for review and approval</u>.	Code section amended to require plan submittal in 45 days.	4.1.3.3.3	*In emergencies, the replacement may be made prior to receiving the AHJ's approval, with the owner accepting responsibility for proper immediate replacement, if the equipment is not deemed equivalent by the AHJ*
Regulatory (REG)	4.1.3.3.4 & 4.1.3.3.5	4.1.3.3.4 The AHJ shall provide the AQUATIC FACILITY owner written approval or disapproval of the proposed replacement equipment's equivalency. 4.1.3.3.5 Documentation of proposed, approved, and disapproved replacements shall be maintained in the AHJ's AQUATIC FACILITY files.	*Cannot self-direct the AHJ in their own rules… Health department procedure is not the purpose of this document. While I agree with the requirements, it does not belong in this code.*— Remove… While I agree with the statement, it doesn't belong here. Not delegated statutory authority to regulate our own department.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.3.3.4 & 4.1.3.3.5	4.1.3.3.4 Replacement Record Maintenance The AHJ shall provide the AQUATIC FACILITY owner written approval or disapproval of the proposed replacement equipment's equivalency. 4.1.3.3.5 Documentation Documentation of proposed, approved, and disapproved replacements shall be maintained in the AHJ's AQUATIC FACILITY files.
Regulatory (REG)	4.1.4.1	A certificate of construction compliance shall be submitted to the regulatory authority for all aquatic facility plans for new construction and major alterations.	A certificate of construction compliance shall be submitted to the regulatory authority for all AQUATIC FACILITY plans for new construction and ~~major~~ alterations requiring AHJ approvals. – REFERENCE: Establishes when construction compliance certificates are required. ("major" is not defined).	Agreed Changed as suggested	4.1.4.1	A certificate of construction compliance shall be submitted to the regulatory authority for all aquatic facility plans for new construction and substantial alterations requiring AHJ approvals.
Regulatory (REG)	4.1.4.4	Commissioning or testing reports for systems such as aquatic facility lighting, ventilation, recirculation, filtration, disinfection, and bather safety shall be included in furnished documentation.	Define commissioning or testing of bather safety	Included in annex: "A test, evaluation, or demonstration that confirms that the pool, pool feature, or other equipment in question does not compromise the safety of the pool patrons."	4.1.4.4	Commissioning or testing reports for systems such as aquatic facility lighting, air handling, recirculation, filtration, disinfection, and bather safety shall be included in furnished documentation.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	4.1.4.4	Commissioning or testing reports for systems such as aquatic facility lighting, ventilation, recirculation, filtration, disinfection, and bather safety shall be included in furnished documentation.	*Ventilation and lighting are not within the traditional scope of the aquatic designer and will be outside the scope of the swimming pool contractor so the commissioning requirement of these could get pretty messy.* -- Commissioning or testing reports for systems such as AQUATIC FACILITY lighting, ventilation, recirculation, filtration, DISINFECTION, and BATHER SAFETY shall be included in furnished documentation.	Ventilation and lighting are very important to the health and safety of the public for indoor pools. Lighting is also important for outdoor pools that operate at night.	4.1.4.4	Commissioning or testing reports for systems such as aquatic facility lighting, air handling, recirculation, filtration, disinfection, and bather safety shall be included in furnished documentation.
Regulatory (REG)	4.1.4.5	Documentation of aquatic facility new construction and renovation plan compliance shall be maintained in the AHJ's aquatic facility files.	*Health department procedure is not the purpose of this document. While I agree with the requirements, it does not belong in this* -- Remove. Can't regulate myself.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.4.5	Documentation of aquatic facility new construction or substantial alteration plan compliance shall be maintained in the AHJ's aquatic facility files.
Regulatory (REG)	4.1.5	Permits	Construction Permits. – REFERENCE: Designates conditions for AHJ	Section modified accordingly by adding "construction".	4.1.5	Construction Permits
Regulatory (REG)	4.1.5.1	Building and other applicable permits shall be obtained before any aquatic facility may be constructed.	~~Building and other applicable~~ Construction permits shall be obtained before any AQUATIC FACILITY may be constructed. – REFERENCE: "Construction" permit more closely delineates authority of the AHJ. "Building" permit implies through local "building" authority. Confusing for most states where AHJ working with these rules is the health department.	Agreed, change as suggested.	4.1.5.1	Construction permits required in this code and all other applicable permits shall be obtained before any aquatic facility may be constructed.
Regulatory (REG)	4.1.5.2	A building permit or other applicable permits may be required from the appropriate regulatory authority before remodeling of an aquatic facility.	A ~~building~~ construction permit ~~or other applicable permits~~ may be required from the appropriate AHJ ~~regulatory authority~~ before remodeling of an AQUATIC FACILITY. -- "Construction" permit more closely delineates authority of the AHJ. "Building" permit implies through local "building" authority. Confusing for most states where AHJ working with these rules is the health department.	"Building" permits changed to "construction" permits.	4.1.5.2	A construction permit or other applicable permits may be required from the appropriate regulatory authority before remodeling of an aquatic facility.
Regulatory (REG)	4.1.5.3.1	The AHJ after verifying information submitted and when new construction, alterations, or annual renewal requirements of this code have been met shall issue a permit to operate the aquatic facility to the owner.	*Move to section 5.1.1.3.1 and modify as edited.:* -- The AHJ after receiving a certificate of completion from the design professional verifying information submitted and when new construction, alterations, or annual renewal requirements of this CODE have been met shall issue a permit to operate the AQUATIC FACILITY to the owner. -- This section is not in proper area, it is dealing with operating permit.	Section reworded to include above clause.	4.1.5.3	After receiving a certificate of completion from the design professional verifying information submitted and when new construction, substantial alterations, or annual renewal requirements of this code have been met, the AHJ shall issue a permit to the owner to operate the aquatic facility.
Regulatory (REG)	4.1.5.3.1	The AHJ after verifying information submitted and when new construction, alterations, or annual renewal requirements of this code have been met shall issue a permit to operate the aquatic facility to the owner.	*The code is supposed to provide the requirements for the operation of the pool, not the activities of the AHJ.* -- No person shall operate an AQUATIC FACILITY without a current operational permit (license). A new operational permit(license) or permit(license) renewal may be obtained by: …3.1 Making application for a license(permit) to operate the AQUATIC FACILITY to the AHJ; …3.2 Paying the license(permit) fee; …3.3 Showing the compliance of any new construction or alterations with this CODE or; …3.4 Showing compliance with any items cited on the last AHJ inspection; …3.5 Such operational license (permit) terminates and is renewable on (expiration date) of each year.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.5.3	After receiving a certificate of completion from the design professional verifying information submitted and when new construction, substantial alterations, or annual renewal requirements of this code have been met, the AHJ shall issue a permit to the owner to operate the aquatic facility.
Regulatory (REG)	4.1.5.3.2	The AHJ, if after reviewing the permit application information, new construction, alterations, or completion of the annual renewal requirements of this CODE and found the application or the AQUATIC FACILITY unsatisfactory shall deny the new or renewal application, provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.	*The annex appears to have some time lines in for appeal. I think we should have it in the MAHC.* -- The AHJ, if after reviewing the permit application information, new construction, alterations, or completion of the annual renewal requirements of this CODE and found the application or the AQUATIC FACILITY unsatisfactory shall deny the new or renewal application, provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.	The MAHC is not meant to regulate AHJ's. The Annex was amended to include a recommended 45 day time period to approve or reject permits applications. All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.5.4	The permit (license) to operate may be withheld, revoked or denied by the AHJ for noncompliance of the AQUATIC FACILITY with the requirements of this CODE, and the owner will be provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.
Regulatory (REG)	4.1.5.3.2	The AHJ, if after reviewing the permit application information, new construction, alterations, or completion of the annual renewal requirements of this CODE and found the application or the AQUATIC FACILITY unsatisfactory shall deny the new or renewal application, provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.	*The code is supposed to provide the requirements for the operation of the pool, not the activities of the AHJ.* -- Remove! Not delegated statutory authority to regulate our own department.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.5.4	The permit (license) to operate may be withheld, revoked or denied by the AHJ for noncompliance of the AQUATIC FACILITY with the requirements of this CODE, and the owner will be provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	4.1.5.3.2	The AHJ, if after reviewing the permit application information, new construction, alterations, or completion of the annual renewal requirements of this CODE and found the application or the AQUATIC FACILITY unsatisfactory shall deny the new or renewal application, provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.	*The code is supposed to provide the requirements for the operation of the pool, not the activities of the AHJ.* -- The permit (license) to operate may be withheld, revoked or denied by the AHJ for noncompliance of the AQUATIC FACILITY with the requirements of this CODE	All sections relating to the AHJ were removed from the Code and placed in a separate document.	4.1.5.4	The permit (license) to operate may be withheld, revoked or denied by the AHJ for noncompliance of the AQUATIC FACILITY with the requirements of this CODE, and the owner will be provided: 1) Specific reasons for disapproval and procedure for resubmittal; 2) Notice of the rights to appeal this denial and procedures for requesting an appeal; and 3) Reviewer's name, signature and date of review and denial.
Hygiene (HYG)	4.10.1.3	The number of hygiene facilities provided shall be in accordance with applicable state and local codes or as modified herein.	*Existing state or local codes – Section 3.21* -- The minimum number of PLUMBING FIXTURES, showers, toilets, and urinals, and other HYGIENE FIXTURES shall be based on maximum BATHER load of each AQUATIC VENUE. Is there a proposed ratio for this? -- Reference: COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT / Water Quality Control Division / 5 CCR 1003-5 / STATE BOARD OF HEALTH / REGULATIONS PERTAINING TO SWIMMING POOLS AND MINERAL BATHS	This section has been updated and provides specific shower counts based on bather load. Cleansing showers counts are based on the ratio of 1:40 found in many existing state codes.	4.10.1.3	Hygiene facilities shall be constructed in accordance with applicable state and local codes or as modified herein
Hygiene (HYG)	4.10.1.3.1	The minimum number of plumbing fixtures, showers, toilets, and urinals, and other hygiene fixtures shall be based on maximum bather load of each aquatic venue.	Suggest a reference here to location in MAHC for calculating bather load.	Agreed. The Bather load calculation is referenced from the ventilation section and the calculation is now explained in this section of Hygiene.	4.10.1.4	The minimum number of toilets, urinals, and other HYGIENE FIXTURES provided, excluding showers, shall be the greater of the following two options: 1) In accordance with applicable state and local CODES, or 2) Based upon maximum OCCUPANT LOAD of each AQUATIC VENUE.
Hygiene (HYG)	4.10.2.1	Except as required in 4.10.2.1.1, a drinking fountain, toilet, hand washing sink, and diaper-changing stations shall be located no greater than 300 feet (91m) walking distance from the nearest entry/exit of the most distant aquatic venue to the entry/exit of the hygiene facility.	Cost analysis is needed here. Not to mention that facilities may not even be able to obtain additional facilities for waste based upon local health codes. I would like to know what is the relevant issues that would require such?	The intent is to increase use of toilet, hand-washing, and drinking water facilities, and to reduce pool-side diapering in an effort to reduce the spread of illness and promote good hygiene. Cost analysis data are not available. While it may not always be possible to obtain approval for additional waste disposal in existing facilities this standard applies to new construction and not existing. The Cleveland Family Studies and Seattle Virus Watch studies both demonstrated that diaper-age children are the leading introducers of infectious diseases into their families.	4.10.2.1	Except as required in 4.10.2.2, a drinking fountain, toilet, hand wash station, and diaper-changing station shall be located no greater than 300 feet (91 m) walking distance from each aquatic venue.
Hygiene (HYG)	4.10.2.1	Except as required in 4.10.2.1.1, a drinking fountain, toilet, hand washing sink, and diaper-changing stations shall be located no greater than 300 feet (91m) walking distance from the nearest entry/exit of the most distant aquatic venue to the entry/exit of the hygiene facility.	*What qualifies it to be 300? For a multiple venue facility , patrons are very active and mobile and do not stay in one location* -- Change 300 feet to 450 or 500 feet -- Reference: What is the basis of the submitted language??	The code language includes walking distance(300 feet is the size of a football field) and is common language in OR, NY and WI. The shorter distance for pools used by diaper aged children is required because children can not hold their bowels as long and may need to be carried.	4.10.2.1	Except as required in 4.10.2.2, a drinking fountain, toilet, hand wash station, and diaper-changing station shall be located no greater than 300 feet (91 m) walking distance from each aquatic venue.
Hygiene (HYG)	4.10.2.1 and 4.10.2.2	4.10.2.1: Except as required in 4.10.2.1.1, a drinking fountain, toilet, hand washing sink, and diaper-changing stations shall be located no greater than 300 feet (91m) walking distance from the nearest entry/exit of the most distant aquatic venue to the entry/exit of the hygiene facility. 4.10.2.2: An AQUATIC VENUE intended designed primarily for DIAPER-AGED CHILDREN (children less than 5 years of age) shall have a drinking fountain, toilet, hand washing, and DIAPER-CHANGING STATIONS located no greater than 200 feet (61m) walking distance and in clear view from the nearest entry/exit of the AQUATIC VENUE.	*The section reference appears incorrect. There does not appear to be any support data (science-driven or otherwise) for the spacing of the toilet facilities. Most medium to large-sized municipal aquatic facilities would require multiple bathhouses which will likely come at an additional construction cost in the six figures. Also, the draft code does not stipulate whether the 200 or 300 ft separations are "as the crow flies" or along a deck path. I want to use our resources wisely and I'm concerned that we may be pricing ourselves out of building future facilities due to regulations like these. I understand the reason behind toilet facilities in close proximity to the pools; however, I'm concerned about potentially over-reaching when there is no supporting data.* -- Except as required in 4.10.2.2, a drinking fountain, toilet, hand washing sink, and DIAPER-CHANGING STATIONS shall be located no greater than 300 feet (91m) walking distance from the nearest entry/exit of the most distant AQUATIC VENUE to the entry/exit of the HYGIENE FACILITY. An AQUATIC VENUE intended designed primarily for DIAPER-AGED CHILDREN (children less than 5 years of age) shall have a drinking fountain, toilet, hand washing, and DIAPER-CHANGING STATIONS located no greater than 200 feet (61m) walking distance and in clear view from the nearest entry/exit of the AQUATIC VENUE.	The code language includes walking distance and is common language in OR, NY and WI. The shorter distance for pools used by diaper aged children is required because children can not hold their bowels as long and may need to be carried.	4.10.2.1 & 4.10.2.2	4.10.2.1 Distance Except as required in 4.10.2.2, a drinking fountain, toilet, HAND WASH STATION, and DIAPER-CHANGING STATION shall be located no greater than 300 feet (91 m) walking distance from each AQUATIC VENUE. 4.10.2.2 Diaper-Aged Children An AQUATIC VENUES designed primarily for use by DIAPER-AGED CHILDREN shall have a drinking fountain, toilet, HAND WASH STATION, and DIAPER-CHANGING STATION located no greater than 200 feet (61m) walking distance and in clear view from the nearest entry/exit of the AQUATIC VENUE.
Hygiene (HYG)	4.10.2.2	An aquatic venue intended designed primarily for diaper-aged children (children less than 5 years of age) shall have a drinking fountain, toilet, hand washing, and diaper-changing stations located no greater than 200 feet (61m) walking distance and in clear view from the nearest entry/exit of the aquatic venue.	Cost analysis is needed here. Not to mention that facilities may not even be able to obtain additional facilities for waste based upon local health codes. I would like to know what is the relevant issues that would require such?	The intent is to increase use of toilet, hand-washing, and drinking water facilities, and to reduce pool-side diapering in an effort to reduce the spread of illness and promote good hygiene. Cost analysis data are not available. While it may not always be possible to obtain approval for additional waste disposal in existing facilities this standard applies to new construction and not existing. The Cleveland Family Studies and Seattle Virus Watch studies both demonstrated that diaper-age children are the leading introducers of infectious diseases into their families.	4.10.2.2	An aquatic venues designed primarily for use by diaper-aged children shall have a drinking fountain, toilet, hand wash station, and diaper-changing station located no greater than 200 feet (61m) walking distance and in clear view from the nearest entry/exit of the aquatic venue.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Hygiene (HYG)	4.10.3.1 ANNEX	Slip resistant is usually considered to mean having a static coefficient of friction of 0.6 or better for both wet and dry conditions. Currently, this ASTM standard C1028 is under revision.	There is no industry standard for testing slip resistance in the field on wet surfaces. – Reference: Based on my extensive research in helping to author Decks section of MAHC FD&C Module	Agreed there is no industry standard for field testing, however, products purchased have a stated coefficient of friction on wet and dry surfaces. See Design and Construction for specific standards. No change.	4.10.3.1 ANNEX	"Slip resistant" is usually considered to mean having a static coefficient of friction of 0.6 or better for both wet and dry conditions. Currently, this ASTM standard C1028 is under revision.
Hygiene (HYG)	4.10.3.3.1	Floor drain opening grill covers shall be ½-inch (1cm) or less in width or diameter.	*Use common industry language* -- "Floor drain opening covers shall be heel-proof." -- Reference: Better serves the intent.	Heel proof is ambiguous. No change	4.10.3.3.1	Floor drain opening grill covers shall be ½-inch (1cm) or less in width or diameter.
Hygiene (HYG)	4.10.3.3.2	Floors shall be sloped to drain water or other liquids.	*Code – Accessibility* -- Add, "Slopes shall not exceed ¼" vertical in 12" horizontal in any direction." -- Reference: Federal ADAAG guideline	Included ADAAG reference in code language.	4.10.3.3.2	Floors shall be sloped to drain water or other liquids.
Hygiene (HYG)	4.10.3.3.2	Floors shall be sloped to drain water or other liquids.	Floors shall be sloped to drain water or other liquids. Is there a specific slope suggested?	AGAAG slope requirements have been included in the code. Design Section 4.8.1.3.1 has more detail on specific slopes.	4.10.3.3.2	Floors shall be sloped to drain water or other liquids.
Hygiene (HYG)	4.10.3.4	Partitions and enclosures adjacent to hygiene facilities shall have a smooth, hard, easy-to-clean, impervious surface.	*Requiring this to be a hard surface would be impractical in some situations.* -- Partitions and enclosures adjacent to HYGIENE FACILITIES shall have a smooth, ~~hard~~, easy-to-clean, impervious surface.	Agreed. Changed as suggested.	4.10.3.4	Partitions and enclosures adjacent to hygiene facilities shall have a smooth, easy-to-clean, impervious surface.
Hygiene (HYG)	4.10.3.5	At least one hose bibb shall be located in each hygiene facility.	*Allowing generic water sources* -- At least one hose bib or other water source to connect a hose shall be located in each hygiene facility.	Agreed. Changed section to read, "At least one hose bib or other potable water source capable of connecting a hose to shall be located in each hygiene facility to facilitate cleaning.	4.10.3.5	At least one hose bibb or other potable water source capable of connecting a hose shall be located in each hygiene facility to facilitate cleaning.
Hygiene (HYG)	4.10.3.5	At least one hose bibb shall be located in each hygiene facility.	*Requiring a hose bibb is each hygiene facility may be impractical if these aquatic venues are used seasonally or are exposed to extreme cold temperatures.* -- At least one hose bibb ~~shall~~ should be located in each HYGIENE FACILITY.	Outdoor facilities that are not used during the off season have the water turned off and drained so that there is no freeze damage to all the fixtures and piping (otherwise the buildings require heating like other buildings that are used year-round in parks). So, hose bibs are required but winterized during the off season. Outdoor hose bibs connected to a heated building should be the frost proof type that can operate all winter. A hose bib facilitates cleaning, so if a hose bib was not required, how would these areas be adequately cleaned? No change.	4.10.3.5	At least one hose bibb or other potable water source capable of connecting a hose shall be located in each hygiene facility to facilitate cleaning.
Hygiene (HYG)	4.10.4.1.1	Plumbing fixtures shall adequately protect the potable water supply from back siphonage or backflow.	PLUMBING FIXTURES shall be installed and operated in a manner to adequately protect the potable water supply from back siphonage or BACKFLOW as required by LAW. – Reference: FDA Food Code	Included " be installed and operated in a manner to" in 4.10.4.1.1. LAW is currently not defined so included," in accordance with local, state, or federal regulation."	4.10.4.1.1	Plumbing fixtures shall be installed and operated in a manner to adequately protect the potable water supply from back siphonage or backflow in accordance with local, state or federal regulation."
Hygiene (HYG)	4.10.4.3.1	Total male and female toilet or urinal counts shall be in accordance with applicable state and local codes or as modified herein.	*Code – Plumbing* -- Potential conflict with 4.10.1.3.1. In our experience, plumbing codes tend to require too many fixtures because they are based on egress occupancy rather than bather load. We have successfully designed fixture counts around bather loads many times. Recommend MAHC provide fixture count tabulation criteria based on bather load. – Reference: IBC Chapter 29	Agreed, added both fixture counts. Shower counts are based on bather load while the rest of the hygiene fixtures are based on occupant load.	4.10.4.1.3	Total toilet or urinal counts shall be in accordance with applicable state and local codes or as modified herein.
Hygiene (HYG)	4.10.4.2.1	Total male and female shower count shall be in accordance with applicable state and local codes or as modified herein. The total count will at a minimum, be equal to half of the total toilet count	*Professional experience* -- Except for existing heath codes (which presumably the MAHC is intended to replace), many local codes do not require showers or specific shower counts. I recommend that MAHC provide a required shower count methodology based on bather load and type of use. I agree with Annex note. In our practice, we encourage owners to provide additional showers at competitive venues due to the sudden loads of people in locker rooms.	Agreed. Rinse and Cleansing shower counts have been added based on bather load.	4.10.4.2.1	Total male and female CLEANSING SHOWER count shall be the greater of the following two options: 1) In accordance with applicable state and local CODES, or 2) Based on the BATHER LOAD of the AQUATIC VENUE.
Hygiene (HYG)	4.10.4.2.1	Total male and female shower count shall be in accordance with applicable state and local codes or as modified herein. The total count will at a minimum, be equal to half of the total toilet count	*What data supports this requirement?* -- Total male and female shower count shall be in accordance with applicable state and local CODES or as modified herein. The total count will at a minimum, be equal to half of the total toilet count	The section on showers has been changed. The original language has been removed and replaced by separating rinse and cleansing showers and requiring the minimum counts based on BATHER LOAD. New language was taken from current state requirements which are discussed in the annex.	4.10.4.2.1	Total male and female CLEANSING SHOWER count shall be the greater of the following two options: 1) In accordance with applicable state and local CODES, or 2) Based on the BATHER LOAD of the AQUATIC VENUE.
Hygiene (HYG)	4.10.4.2.1	Total male and female shower count shall be in accordance with applicable state and local codes or as modified herein. The total count will at a minimum, be equal to half of the total toilet count	Total male and female shower count shall be in accordance with applicable state and local CODES or as modified herein. The total count will at a minimum, be equal to half of the total toilet count This conflicts with 4.10.1.3.1	Agreed. This section has been changed.	4.10.4.2.1	Total male and female CLEANSING SHOWER count shall be the greater of the following two options: 1) In accordance with applicable state and local CODES, or 2) Based on the BATHER LOAD of the AQUATIC VENUE.
Hygiene (HYG)	4.10.4.2.2	Cleansing shower compartment entryways shall be enclosed by a door or curtain.	*Does that include group showers?* -- CLEANSING SHOWER compartment entryways shall be enclosed by a door or curtain.	Group showers are allowed and the language was changed to make this more clear. We encourage privacy since we think it will promote shower use.	4.10.4.2.6	Entryways to private or group cleansing shower areas shall be enclosed by a door or curtain.
Hygiene (HYG)	4.10.4.2.2	Cleansing shower compartment entryways shall be enclosed by a door or curtain.	Our facility has cleansing showers adjacent to the aquatic venue as well as hygiene facilities per the requirements that you are looking to require. With very little work we can bring our program into compliance with in regards to Diaper Changing stations as well. I very much see the purpose of this and since we are in compliance already it is easy. My question and comment has to do with the requirement of what appears to be individual shower stalls with curtains in the locker room. I believe this to be unnecessary to the requirement of a cleansing shower if an open area already exists and potentially a great burden to facilities required to retrofit locker rooms to comply.	Changed language to clearly explain group showers are ok, the entrance way to the showers need a door or curtain for privacy. Individual shower stalls are not required.	4.10.4.2.6	Entryways to private or group cleansing shower areas shall be enclosed by a door or curtain.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Hygiene (HYG)	4.10.4.2 ANNEX	Additional rinse showers can be provided at up to 300 feet (91m) walking distance from the nearest controlled entry/exit of the most distant aquatic feature. The purpose of the showers described in this section is to remove dead skin and perianal fecal material before bathers enter the pool. This is best done through nude showering using warm water and soap. The purpose of the showers described in MAHC 4.10.4.2 is to remove inorganic material such as sand or dirt. This can be done in open showers with ambient temperature water. For that reason, rinse showers should not figure into this requirement.	*From my experience, it's not a lack of showers that is the issue. It's enforcing bathers to use the showers. It seems focusing on using the showers should be the primary focus before more unused fixtures are required to be added.* --The purpose of the showers described in this section is to remove dead skin and perianal fecal material before BATHERS enter the pool. This is best done through nude showering using warm water and soap. The purpose of the showers described in MAHC 4.10.4.2 is to remove inorganic material such as sand or dirt. This can be done in open showers with ambient temperature water. For that reason, RINSE SHOWERS should not figure into this requirement.	The purpose of cleansing and rinse showers was clarified in the Annex. To increase flexibility for aquatic facilities, rinse and cleansing showers were also separated in the code with an allowance for larger facilities to be flexible in the amount of cleansing showers provided (i.e., make more of them rinse showers). The committee deemed it impossible at this time to enforce use of showers; however, current language focuses on location and availability of the showers to promote use.	4.10.4.3 ANNEX	The purpose of the rinse showers is to remove inorganic material such as sand or dirt that can bind with chlorine and reduce the amount for other pathogen inactivation. Rinsing with water also removes bather's contaminants such as sweat, hygiene products, deodorant, hair spray, etc. Rinsing off in the shower for 60 seconds and wearing bathing caps significantly decreases the amount of total organic carbon and total nitrogen. A rinsing shower can be taken on the deck in open showers by the aquatic venue using ambient temperature water so dirt and other contaminants are rinsed off before entering the water.
Hygiene (HYG)	4.10.4.2.3	Rinse showers shall be located adjacent to the aquatic venues to allow all bathers to rinse off prior to entering the aquatic venues.	*Requiring adjacent to all venues is presumptuous. We are a smaller waterpark and this would require at least 25 rinse shower locations* -- RINSE SHOWERS shall be located in the Aquatic Facility to allow all BATHERS to rinse off prior to entering the AQUATIC VENUES.	The TC believes this comment is referring to Section 4.10.4.2.3. One rinse shower is required per venue. However, this requirement affects only new construction or substantial renovation on existing facilities.	4.10.4.3.1	A minimum of 1 rinse shower shall be provided on the deck near an entry point to the aquatic venue.
Hygiene (HYG)	4.10.4.2.3	Rinse showers shall be located adjacent to the aquatic venues to allow all bathers to rinse off prior to entering the aquatic venues.	*Existing state or local codes – Section 3.22* -- RINSE SHOWERS shall be located adjacent to the AQUATIC VENUES to allow all BATHERS to rinse off prior to entering the AQUATIC VENUES. Will there be a specification as to the location of cleansing showers? -- Reference: COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT / Water Quality Control Division / 5 CCR 1003-5 / STATE BOARD OF HEALTH / REGULATIONS PERTAINING TO SWIMMING POOLS AND MINERAL BATHS	Yes, 4.10.4.2.5 states "CLEANSING SHOWERS shall be located in a HYGIENE FACILITY near the entrance and within clear view of the AQUATIC VENUE."	4.10.4.3.1	A minimum of 1 rinse shower shall be provided on the deck near an entry point to the aquatic venue.
Hygiene (HYG)	4.10.4.2.3	Rinse showers shall be located adjacent to the aquatic venues to allow all bathers to rinse off prior to entering the aquatic venues.	What does "adjacent to" mean? Within a certain distance of what?	Next to or adjoining. We want to give designers some discretion and not be too prescriptive. The intent is not to walk around touching things and contaminate other areas. No Change	4.10.4.3.1	A minimum of 1 rinse shower shall be provided on the deck near an entry point to the aquatic venue.
Hygiene (HYG)	4.10.4.2.3.1	Floors of rinse showers shall be sloped to drain wastewater away from the aquatic venue.	Floors of RINSE SHOWERS shall be sloped to drain wastewater away from the AQUATIC VENUE towards floor drains or landscaping	Removed term landscaping and referenced local codes. Landscaping was added to annex language for more explanation.	4.10.4.3.3	Floors of rinse showers shall be sloped to drain wastewater away from the aquatic venue and meet local applicable codes.
Hygiene (HYG)	4.10.4.2.1.1	*Rinse showers* adjacent to aquatic venues may be included in the count of available showers.	*CT DPH requires all showers to be counted for compliance to be Cleansing Showers* -- Rinse Showers adjacent to Aquatic Venues may NOT be included in the count of available showers. – Reference: Design Guide Section 21 and CT Public Health Code Section 19-13-B33b(b)(8).	This section was changed to address the differences between rinse and cleansing showers.	4.10.4.4.1	AQUATIC FACILITIES with 7500 square feet of water area or more may be flexible in the number of CLEANSING SHOWERS they provide based on their BATHER LOAD: 1) 25% of the required showers shall be CLEANSING SHOWERS, 2) 25% of the required showers shall be RINSE SHOWERS, and 3) the remaining 50% may be either cleansing or RINSE SHOWERS.
Hygiene (HYG)	4.10.4.2.1.2	The ratio for rinse showers to cleansing showers shall be up to 3:1.	*No requirement for Rinsing Showers in CT* -- (Eliminate this section).	The MAHC is model guidance and we recognize that some states may not be at that level. No Change.	4.10.4.4.1	AQUATIC FACILITIES with 7500 square feet of water area or more may be flexible in the number of CLEANSING SHOWERS they provide based on their BATHER LOAD: 1) 25% of the required showers shall be CLEANSING SHOWERS, 2) 25% of the required showers shall be RINSE SHOWERS, and 3) the remaining 50% may be either cleansing or RINSE SHOWERS.
Hygiene (HYG)	4.10.4.4	Diaper-Changing Stations	(Question – would this be for only new facilities? Financial hardship to retrofit existing facilities).	Changed code language to differentiate between what sections are required to be retrofitted. The SC understands financial hardship so anything substantial (for example, installation of a plumbed hand wash sink) has been given a recommended timeframe for compliance. State and local jurisdictions can ultimately decide an acceptable timeline for compliance of these sections once they adopt the MAHC.	4.10.4.5	Diaper-Changing Stations
Hygiene (HYG)	4.10.4.4.6	A hand-washing sink and soap dispenser shall be directly adjacent to the diaper-changing unit.	*Professional experience* -- Be aware that this requirement will greatly reduce design flexibility in laying out bathhouse plans. Existing facilities should be grandfathered, as retrofitting plumbing is often not feasible, or at the very least, unreasonably expensive. Recommend that providing sanitizer (already required by 4.10.4.4.1&8) at changing stations be treated as equal to providing an immediately adjacent sink. Also suggest changing "adjacent" to "near".	The MAHC determined the hand sink should be adjacent to the diaper-changing unit to facilitate use and prevent contamination of other items before cleaning hands. Sanitizer is for surface treatment. Using hand sanitizer in lieu of hand-washing is not as effective in inactivating all fecal pathogens. Hand sanitizers are intended for use with hands that do not have a high organic load and are not effective against common diarrheal pathogens such as norovirus and *Cryptosporidium*. Using EPA surface products for hands is not appropriate. No change.	4.10.4.5.2	The adjacent hand wash sink shall be installed and operational within 1 year from the date of the AHJ's adoption of the MAHC.
Hygiene (HYG)	4.10.4.4.6	A hand-washing sink and soap dispenser shall be directly adjacent to the diaper-changing unit.	*Too specific* -- Sink located in the same room as changing table	This applies to new construction. "In same room" is much too vague. The intent is to wash hands at the station not wander somewhere else in the room and likely lead to more contamination. No Change.	4.10.4.5.2	The adjacent hand wash sink shall be installed and operational within 1 year from the date of the AHJ's adoption of the MAHC.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Hygiene (HYG)	4.10.4.4.3	Diaper-changing units shall conform to ASTM standard F2285-04 "Consumer Performance Standards for Commercial Diaper-Changing Stations" or the standards for diapering-changing surfaces in the most current version of Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs.	*Limiting in scope* -- DIAPER-CHANGING UNITS shall conform to ASTM standard F2285-04 "Consumer Performance Standards for Commercial Diaper-Changing Stations" or the standards for diapering-changing surfaces in the most current version of Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs <u>or equivalent.</u>	To the best of our knowledge, these are the only two sets of standards for this equipment and we don't expect there to be an equivalent. No Change	4.10.4.5.4	DIAPER-CHANGING UNITS shall conform to either of the following STANDARDs: 1) ASTM standard F2285-04 "Consumer Performance Standards for Commercial Diaper-changing stations," or 2) The STANDARDs for diaper-changing surfaces in the most current version of Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs.
Hygiene (HYG)	4.10.4.4.7	A covered, hands-free, plastic-lined trash receptacle or diaper pail shall be located directly adjacent to the diaper-changing unit.	*Too specific* -- Garbage can-not covered-located in same room as changing table	The intent is to have a dedicated garbage disposal receptacle for waste associated with diaper changing. Hand-free covers are required to keep down pests, odors, and contamination of the lid. No Change.	4.10.4.5.6	A covered, hands-free, plastic-lined trash receptacle or diaper pail shall be located directly adjacent to the diaper-changing unit.
Hygiene (HYG)	4.10.4.5.1	All hygiene fixtures and appurtenances in the dressing area shall have a smooth, hard, easy-to-clean, impervious-to-water surface and be installed or raised above the floor to permit thorough cleaning.	*Professional experience* -- Floor-mounted toilets are often much more constructible than wall-mounted. Also, many of our clients (jurisdictions) require floor-mounted toilets to combat vandalism. Same goes for toilet partitions. Ceiling-hung partitions do not perform well in these environments and become maintenance headaches. Recommend deletion of this requirement.	Agreed. Changed as suggested.	4.10.4.6.1	All hygiene fixtures and appurtenances in the dressing area shall have a smooth, hard, easy-to-clean, impervious-to-water surface and be installed to permit thorough cleaning.
Hygiene (HYG)	4.10.4.5.3.2	Glass shall not be permitted in aquatic venues.	Is it the intent of this section to ban attractive mirrors? Not all Owners want their facilities to look like a prison restroom.	The intent was to prevent cuts from glass dispensers. Language was changed to "shatter resistant" and mirrors were specifically exempted.	4.10.4.6.2	Glass, excluding mirrors installed in the hygiene facility, shall not be permitted in hygiene facilities.
Lifeguard & Bather Supervision (LG)	4.10.4.5.6	All mirrors provided in HYGIENE FACILITIES or dressing areas shall be of shatterproof materials that can be readily and frequently cleaned.	*Mandating that all mirrors would need to be replaced places a financial burden on facilities* -- Remove item 4.10.4.5.6	Not relevant. This is related to a different module.	4.10.4.6.2	Glass, excluding mirrors installed in the hygiene facility, shall not be permitted in hygiene facilities.
Hygiene (HYG)	4.10.4.5.2	Lockers shall be set either on a solid base at least 6 inches (15cm) high or on legs at least 6 inches high and far enough apart to allow for drying and cleaning underneath the locker.	Entry indicates Lockers are required? Clarification…IF lockers are available…	Agreed. Changed as suggested.	4.10.4.6.4	If lockers are provided, they shall be set either on a solid base at least 6 inches (15cm) high or on legs at least 6 inches high and far enough apart to allow for cleaning and drying underneath the locker.
Hygiene (HYG)	4.10.4.5.4	Hand dryers or paper towel dispensers shall be provided and securely attached adjacent to hand-washing sinks.	Suggest changing "adjacent" to "near".	We want to give designers some discretion and not be too prescriptive. The intent is not to walk around and touching things and contaminate other areas. No Change	4.10.4.6.6	Hand dryers or paper towel dispensers shall be provided and securely attached adjacent to hand washing sinks.
Hygiene (HYG)	4.10.4.5.5.2	A minimum of one hands-free trash receptacle shall be provided in areas adjacent to hand-washing sinks.	Suggest changing "adjacent" to "near".	We want to give designers some discretion and not be too prescriptive. The intent is not to walk around and touching things and contaminate other areas. No Change.	4.10.4.6.9	A minimum of one hands-free trash receptacle shall be provided in areas adjacent to hand washing sinks.
Hygiene (HYG)	4.10.7.1	If razors or other sharps are provided by the facility an approved sharps container must be provided.	Approved by whom?	Added " approved by local, state or federal regulations."	4.10.7.1	If razors or other sharps are supplied by the aquatic facility, a sharps container approved by local, state or federal regulations shall be provided within the Hygiene facility.
Design & Construction (D&C)	4.11.1.1	Water serving a swimming pool shall be supplied from a public water system as defined by EPA.	Change "swimming pool" to Aquatic Facility/Venue"	Recommendation implemented.	4.11.1.1	Water serving an aquatic facility shall be supplied from a potable water source.
Design & Construction (D&C)	4.11.1.1	Water serving a swimming pool shall be supplied from a public water system as defined by EPA.	*Some small pools on well water may serve a population of less than 25 people and would not meet the definition of a public water system.* -- Water serving a swimming pool shall be supplied from ~~a public water system as defined by EPA~~ potable water source.	Recommendation implemented.	4.11.1.1	Water serving an aquatic facility shall be supplied from a potable water source.
Design & Construction (D&C)	4.11.1.2.1	The water supply shall have sufficient capacity and pressure to refill the swimming pool to the operating water level after backwashing filters and after any splashing or evaporative losses within one hour if the aquatic venue is operational at the time of the backwash.	Undue expense - and not reliable enough. Too Prescriptive and Overly Burdensome. Suggest: "A system must be in place to insure addition of make up water to allow for consistent skimming…"	Recommendation not implemented. A maximum time (one hour) was conservatively established due to the need to pools to return to surface skimming as soon as possible for sanitation purposes.	4.11.1.2.1	The water supply shall have sufficient capacity and pressure to refill the aquatic venue to the operating water level after backwashing filters and after any splashing or evaporative losses within one hour if the aquatic venue is operational at the time of the backwash.
Design & Construction (D&C)	4.11.4.1	If a fill spout is used at a pool, the fill spout shall be located so that it is not a safety hazard to bathers.	*Another inconsistency between the MAHC and ISPSC, the MAHC being subjective in nature where the requirements in the ISPSC for over-the-rim spouts are clear. Suggest referring to the ISPSC in order to provide consistency and not create another area where local building and health officials may differ.* -- 4.11.4.1 If a fill spout is used at a pool, the fill spout shall be located so that it is not a SAFETY hazard to BATHERS. – REFERENCE: See ISPSC Section 318.3 Over-the-rim spouts. Over-the-rim spouts shall be located under a diving board, adjacent to a ladder, or otherwise shielded so as not to create a hazard. The open end of such spouts shall not have sharp edges and shall not protrude more than 2 inches (51 mm) beyond the edge of the pool. The open end shall be separated from the water by an air gap of at least 1.5 pipe diameters measured from the pipe outlet to the rim.	Recommendation implemented. Language modified slightly.	4.11.2.1	If a fill spout is used at an aquatic venue, the fill spout shall be located so that it is not a safety hazard to bathers.
Design & Construction (D&C)	4.11.4.1	If a fill spout is used at a pool, the fill spout shall be located so that it is not a safety hazard to bathers.	This entry should be relocated with make-up water info.	Recommendation implemented. Moved to 4.11.2.1.	4.11.2.1	If a fill spout is used at an aquatic venue, the fill spout shall be located so that it is not a safety hazard to bathers.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.11.2.2	A swimming pool shall be protected against backflow from a wastewater disposal system consisting of an acceptable air gap unless the permitting agency approves the elimination of the air gap.	*Unless resolved this will be a conflict with local health authorities and building departments due to difference between MAHC and ISPSC sections.* -- A swimming POOL shall be protected against backflow from a wastewater disposal system consisting of an acceptable air gap unless the permitting agency approves the elimination of the air gap. See General Comment – REFERENCE: ISPSC Section 320.1 Backwash water or draining water. Backwash water and draining water shall be discharged to the sanitary or storm sewer, or into an approved disposal system on the premise, or shall be disposed of by other means approved by the state or local authority. Direct connections shall not be made between the end of the backwash line and the disposal system. Drains shall discharge through an air gap.	Recommendation implemented. Section modified to reflect potable water supply. Direct connections are allowed by some local jurisdictions for potable water supply with approved backflow preventers and this standard is not intended to contradict them.	4.11.3.1	The potable water supply serving an AQUATIC VENUE shall be protected against BACKFLOW consisting of either of the following: 1) An acceptable air gap consisting of a vertical distance of not less than 2 pipe diameters of the water supply pipe or 6 inches (150 mm), whichever is greater, over the lowest free-flowing discharge point of the receiving pipe, tank, or vessel. Splash guards that are open to the atmosphere may be used around the air gap, or Where permitted, an approved reduced pressure zone (RPZ) BACKFLOW preventer installed according to the plumbing CODE and the AHJ.
Design & Construction (D&C)	4.11.2.2.1	The air gap shall consist of a vertical distance of not less than 2 pipe diameters of the pool wastewater discharge pipe up to a maximum of 10 inches (25.4 cm) over the highest free-flowing discharge point of the receiving pipe, tank, or vessel.	*Why is the stopping point 10 inches? Why not 9 or 11? This conflicts with the IPC, which is accepted nationally. IPC Section 802.2.1 Air gap. The air gap between the indirect waste pipe and the flood level rim of the waste receptor shall be not less than twice the effective opening of the indirect waste pipe.* -- The air gap shall consist of a vertical distance of not less than 2 pipe diameters of the POOL wastewater discharge pipe up to a maximum of 10 inches (25.4 cm) over the highest free-flowing discharge point of the receiving pipe, tank, or vessel. – REFERENCE: See IPC Section 802.2.1	This paragraph and the preceding one have been deleted as they are redundant with the first section under Cross-Connection Control (4.11.3). The minimum air gap requirement is two pipe diameters or 6 inches, whichever is greater.	4.11.3.1	The potable water supply serving an AQUATIC VENUE shall be protected against BACKFLOW consisting of either of the following: 1) An acceptable air gap consisting of a vertical distance of not less than 2 pipe diameters of the water supply pipe or 6 inches (150 mm), whichever is greater, over the lowest free-flowing discharge point of the receiving pipe, tank, or vessel. Splash guards that are open to the atmosphere may be used around the air gap, or Where permitted, an approved reduced pressure zone (RPZ) BACKFLOW preventer installed according to the plumbing CODE and the AHJ.
Design & Construction (D&C)	4.11.3.2	If deck drains are provided, the drains shall discharge to the sanitary or storm sewer as allowed by the agency having jurisdiction and according to applicable plumbing codes.	*This does not cause a health hazard and is good practice in the face of the nationwide drought conditions.* -- Include discharge to filtration system	Not allowed to go to the pool filtration system. But minor modifications were made to try and clearly defer to the AHJ for review and approval of alternate ways to treat the deck drain water.	4.11.4.2	If deck drains are provided, the drains shall discharge to the sanitary or storm sewer or as otherwise allowed by the agency having jurisdiction and according to applicable plumbing codes.
Design & Construction (D&C)	4.11.3.3	Deck drains may be either area drains or linear drains. See subsection 4.8.1.2 for deck drain area, spacing, and other requirements.	*Should this reference 4.8.1.2 as written or 4.8.1.3? Neither section indicates any requirement for deck drain spacing.* -- Deck drains may be either area drains or linear drains. See subsection 4.8.1.2 for deck drain area, spacing, and other requirements.	Reference corrected.	4.11.4.3	Deck drains may be either area drains or linear drains. See MAHC Section 4.8.1.3 for deck drain area, and other requirements.
Design & Construction (D&C)	4.11.5.1	Wastewater from all plumbing fixtures in the entire swimming pool facility shall be discharged to a municipal sanitary sewer system if available.	Change "swimming pool" to Aquatic Facility/Venue"	Recommendation implemented.	4.11.5.1	Wastewater from all plumbing fixtures in the entire aquatic facility shall be discharged to a municipal sanitary sewer system if available.
Design & Construction (D&C)	4.11.6.1	Wastewater from a swimming pool, including filter backwash water, shall be discharged to a municipal sanitary sewer system if available.	*Editorial: Not all sewage systems are municipal. Not all sewage systems will accept the load.* -- Wastewater from a swimming pool, including filter backwash water, shall be discharged to a sanitary sewer system having sufficient capacity to collect and treat the wastewater OR to an on-site sewage disposal system designed for this purpose. Wastewater shall not be directed to storm water systems without appropriate permits from state agency and U.S. EPA.	Recommendation implemented.	4.11.6.1	Wastewater from an aquatic venue, including filter backwash water, shall be discharged to a sanitary sewer system having sufficient capacity to collect and treat wastewater or to an on-site sewage disposal system designed for this purpose.
Design & Construction (D&C)	4.11.6.1	Wastewater from a swimming pool, including filter backwash water, shall be discharged to a municipal sanitary sewer system if available.	*In some aquatic facilities as Water World, some drain lines and backwash water are discharged to an on-site water treatment facility and the water used for irrigation purposes.* -- Add "or to an approved water recovery system".	Recommendation implemented.	4.11.6.1	Wastewater from an aquatic venue, including filter backwash water, shall be discharged to a sanitary sewer system having sufficient capacity to collect and treat wastewater or to an on-site sewage disposal system designed for this purpose.
Design & Construction (D&C)	4.11.6.3	Wastewater discharged from a swimming pool to surface waters may be required to obtain a permit for disposal.	*The way it is currently written, it sounds like it is the wastewater that is required rather than the permit.* -- Wastewater discharged from a swimming POOL to surface waters may ~~be~~ required ~~to obtain~~ a permit for disposal.	Recommendation implemented.	4.11.6.2	If a municipal sanitary sewer system is not available, wastewater from an aquatic venue may be discharged to the ground surface at a suitable location as approved by the AHJ, as long as the wastewater does not cause erosion, and does not create a threat to public health or safety, a nuisance, or unlawful pollution of public waters.
Design & Construction (D&C)	4.11.6.5	A separation tank shall be provided prior to discharge for backwash water from filters using regenerative media, exceptions may be made by local AHJ.	*Module is currently titled "Separation Tank for Regenerative Media" This is misleading as the media is not regenerative, it is the design of the filter that regenerates the media. To include all precoat filters including vacuum and pressure the title should be changed to "Separation Tank for Precoat Media Filters"* -- A separation tank shall be provided prior to discharge for backwash water from precoat filters using diatomaceous earth (DE) as a filter medium. For precoat filters using perlite or cellulose as a filter medium, the backwash may be discharged to the sanitary sewer unless directed otherwise by the local AHJ.	Recommendation implemented.	4.11.6.4	A separation tank shall be provided prior to discharge for backwash water from precoat filters using diatomaceous earth (DE) as a filter medium.
Design & Construction (D&C)	4.11.6.5	A separation tank shall be provided prior to discharge for backwash water from filters using regenerative media, exceptions may be made by local AHJ.	*Would like to see a differentiation between DE and perlite so that perlite would not be subject to this requirement as it most often is not currently.* -- A separation tank shall be provided prior to discharge for backwash water from filters using diatomaceous earth (D.E.) ~~regenerative media~~, exceptions may be made by local AHJ.	Paragraph updated to distinguish between perlite / cellulose and DE	4.11.6.4	A separation tank shall be provided prior to discharge for backwash water from precoat filters using diatomaceous earth (DE) as a filter medium.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	6.3.4.1.8.3	N/A	Waterparks involve moving water and because of this fact there should be two separate 'MAHCs' for how flat pools are overseen versus waterparks	Moving water such as river, slides, wave pools, etc. are addressed in separate categories under 4.12 as it's recognized that certain requirements or relief from portions of traditional pool code is necessary.	4.12.	See Code for full text\
Design & Construction (D&C)	4.12.1.1	In addition to the general swimming pool requirements stated in this code, spas shall comply with the additional provisions of this section.	*Add "or reliefs" to indicate that this section governs when in conflict with the larger pool code preceding.* -- In addition to the general swimming POOL requirements stated in this CODE, SPAS shall comply with the additional provisions or reliefs of this section.	Recommendation implemented in 4.12.1.1, 4.12.2.1, 4.12.3.1, 4.12.4.1, 4.12.5.1, 4.12.6.1, 4.12.7.1, 4.12.8.1, and 4.12.9.1.	4.12.1.1	In addition to the general aquatic venue requirements stated in this code, spas shall comply with the additional provisions or reliefs of this section.
Design & Construction (D&C)	4.12.1.14	The agitation system shall be connected to a minute timer that does not exceed fifteen minutes located out of reach of a bather in the spa.	What is the reasoning? The objective should be to limit length of usage by patrons in one sitting. Make this entry objective and not add undue requirements as a method to accomplish this.	Recommendation not implemented. This is per NEC 680 requirements.	4.12.1.10	The agitation system shall be connected to a minute timer that does not exceed fifteen minutes located out of reach of a bather in the spa.
Design & Construction (D&C)	4.12.1.15	All spas shall have a clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the recirculation system and hydrotherapy or agitation system shall be installed readily accessible to the bathers, in accordance with section 680 of the NEC.	*Spa emergency shutoff switch should not be required because it is unnecessary and will result in disinfection failures.*	Recommendation not implemented. Required per NEC for spas.	4.12.1.11	All spas shall have a clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the recirculation system and hydrotherapy or agitation system shall be installed readily accessible to the bathers, in accordance with section 680 of the NEC.
Design & Construction (D&C)	4.12.1.15	All spas shall have a clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the recirculation system and hydrotherapy or agitation system shall be installed readily accessible to the bathers, in accordance with section 680 of the NEC.	*Where staff is actively supervising a spa, staff should be making the decision to engage the shut off – not bathers.* -- Add "Such bather accessibility is not required where the SPAS are actively supervised during all hours of operation".	Recommendation not implemented. This is per current NEC.	4.12.1.11	All spas shall have a clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the recirculation system and hydrotherapy or agitation system shall be installed readily accessible to the bathers, in accordance with section 680 of the NEC.
Design & Construction (D&C)	4.12.1.2	The maximum water depth in spas shall be 4 feet (1.22 m) measured from the water line.	*The recommended changes provide requirements for exercise spas and spas designed for a special purpose – areas covered in the ISPSC, Section 503.1, but missing here. Without this additional language the MAHC proposes to put all spas in a one size fits all category; limiting design and function.* -- The maximum water depth in spas shall be 4 feet (1.22 m) measured from the design water line~~.~~, except for spas that are designed for special purposes and approved by the authority having jurisdiction. The water depth for exercise spas shall not exceed 6 feet 6 inches (1981mm) measured from the design waterline. – REFERENCE: See ISPSC Section 503.1	Recommendation implemented	4.12.1.2	The maximum water depth in spas shall be 4 feet (1.22 m) measured from the designed static water line except for spas that are designed for special use and purposes and approved by the AHJ.
Design & Construction (D&C)	4.12.1.2.1	The maximum submerged depth of any seat or sitting bench shall be 24 inches (61 cm) measured from the water line	*Another inconsistency between the ISPSC and MAHC regarding spa design and construction.* -- The maximum submerged depth of any seat, ~~or~~ sitting bench, or multi-level seating shall be 28~~4~~ inches (711~~61 cm~~m) measured from the design water line to the lowest measureable point. – REFERENCE: See ISPSC Section 503.2	Recommendation implemented	4.12.1.2.2	The maximum submerged depth of any seat or sitting bench shall be 28 inches (0.7 m) measured from the water line.
Design & Construction (D&C)	4.12.1.3.1	The handhold(s) may consist of bull-nosed coping, ledges or decks along the immediate top edge of the spa; ladders, steps, or seat ledges; and ropes or railings.	Delete "ropes"	Recommendation implemented	4.12.1.3.1	The handhold(s) may consist of bull-nosed coping, ledges or decks along the immediate top edge of the spa; ladders, steps, or seat ledges; or railings.
Design & Construction (D&C)	4.12.1.4	Stairs shall be provided where spa depths are greater than 2 feet (61 cm).	*Editorial: clarification of interior steps. Refer to following item: --* Interior steps or stairs shall be installed in spas with water depths in excess of 24 inches.	Recommendation implemented.	4.12.1.4	Interior steps or stairs shall be provided where spa depths are greater than 24 inches (0.6 m).
Design & Construction (D&C)	4.12.1.4.2	Seats or benches may be provided as part of these steps.	*Editorial: Add requirement for exterior steps in some instances but allowing for seated entry.* -- Steps or benches may be used as part of these steps. Approach steps on the exterior of a spa wall extending above the deck shall also be required unless the raised spa wall is 19 inches or less in height above the deck and it is used as a transfer tier or pivot-seated entry.	Recommendation implemented.	4.12.1.4.2	Seats or benches may be provided as part of these steps.
Design & Construction (D&C)	4.12.1.5	A 4 foot (1.22 m) wide, continuous, unobstructed perimeter deck shall be provided on two consecutive or adjacent sides or fifty percent or more of the spa perimeter. The authority having jurisdiction could consider a lower ratio upon review of an appropriate safety plan that addresses adequate access.	Why would this requirement be less than that of a pool?	4 ft is required around pools, but only 50% of the perimeter is needed due to the size of the overwhelming majority of spas. This is consistent with many state and local codes currently.	4.12.1.5	A 4 foot (1.22 m) wide, continuous, unobstructed perimeter deck shall be provided on two consecutive or adjacent sides or fifty percent or more of the spa perimeter.
Design & Construction (D&C)	4.12.1.5.2	Spas may be located adjacent to other pools as long as they are recessed in the deck	*Editorial: No need to limit spas to recessed. Raised spas should be allowed.* -- Spas may be allowed adjacent to other pools.	Refer to 4.12.1.5 annex for rationale.	4.12.1.5.3	Spas may be located adjacent to other aquatic venues as long as they are recessed in the deck.
Design & Construction (D&C)	4.12.1.5.3	Elevated spas may be located adjacent to another pool as long as there is an effective barrier between the spa and the adjacent pool.	*Editorial: There is not necessarily a safety problem here in a properly designed pool. No need to restrict the designer or require barriers. Otherwise, the definition of barrier needs expansion. A separating wall not suitable for seating atop could be a barrier. It should not be limited to fencing.* -- Elevated spas may be located adjacent to other pools.	Refer to 4.12.1.5 annex for rationale.	4.12.1.5.4	Elevated spas may be located adjacent to another aquatic venue as long as there is an effective barrier between the spa and the adjacent aquatic venue.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.1.5.3	Elevated spas may be located adjacent to another pool as long as there is an effective barrier between the spa and the adjacent pool.	*Elevated spas are often constructed next to a pool having a weir that discharges water from the spa into the pool. Existing language appears to eliminate that type of construction or requires a fence between the spa and pool. By adding the definition of barrier to include the elevated portion of the spa wall in this subsection only, the need for a fence is eliminated* -- Elevated spas may be located adjacent to another pool as long as there is an effective barrier between the spa and the adjacent pool which can consist of the elevated portion of the wall and weir between the pool and spa.	Recommendation not implemented. That alone would not be classified as an effective barrier since the pool and spa would be adjacent to one another and the top of the spa could still be used for unintended access into the pool.	4.12.1.5.4	Elevated spas may be located adjacent to another aquatic venue as long as there is an effective barrier between the spa and the adjacent aquatic venue.
Design & Construction (D&C)	4.12.1.5.3	Elevated spas may be located adjacent to another pool as long as there is an effective barrier between the spa and the adjacent pool.	*This goes against common industry practice to-date.* -- ~~Elevated SPAS may be located adjacent to another POOL as long as there is an effective BARRIER between the SPA and the adjacent pool.~~	Recommendation not implemented. Refer to annex for rationale. There are several codes enforced today that require separation between pools and spas for safety purposes which is what 4.12.1.5.3 and 4.12.1.5.4 are addressing.	4.12.1.5.4	Elevated spas may be located adjacent to another aquatic venue as long as there is an effective barrier between the spa and the adjacent aquatic venue.
Design & Construction (D&C)	4.12.1.5.4	If an effective barrier is not provided, a minimum distance of 4 feet (1.22 m) between the pool and spa is required.	*This goes against common industry practice to-date.* -- ~~If an effective BARRIER is not provided, a minimum distance of 4 feet (1.22 m) between the POOL and SPA is required.~~	Recommendation not implemented. Refer to annex for rationale. There are several codes enforced today that require separation between pools and spas for safety purposes which is what 4.12.1.5.3 and 4.12.1.5.4 are addressing.	4.12.1.5.5	If an effective barrier is not provided, a minimum distance of 4 feet (1.2 m) between the aquatic venue and spa is required.
Design & Construction (D&C)	4.12.1.5.4	If an effective barrier is not provided, a minimum distance of 4 feet (1.22 m) between the pool and spa is required.	*What is considered an effective barrier? What is the intent of this requirement? Once again this is another subjective requirement in the MAHC that will be problematic for the AHJ and users of the code. It also is another example of inconsistency with the ISPSC (see Section 607 Barriers).* -- If an effective BARRIER is not provided, a minimum distance of 4 feet (1.22 m) between the POOL and SPA is required. SEE GENERAL COMMENT – REFERENCE: SECTION 607 – BARRIERS 607.1 Barriers. Multiple aquatic vessels within a single complex shall be permitted without barriers where a barrier separates the single complex from the surrounding property in accordance with Section 305.	Recommendation not implemented. Refer to the glossary and annex for clarification on intent.	4.12.1.5.5	If an effective barrier is not provided, a minimum distance of 4 feet (1.2 m) between the aquatic venue and spa is required.
Design & Construction (D&C)	4.12.1.6	A minimum of two depth markers shall be provided regardless of the shape or size of the spa.	Are depth markers required on both the vertical and horizontal walls for spas? This is not specified	Yes. Since it's not mentioned, requirements would default to the main body of the design regulations which require both horizontal and vertical markings.	4.12.1.6	A minimum of two depth markers shall be provided regardless of the shape or size of the spa.
Design & Construction (D&C)	4.12.1.7	Water temperatures shall not exceed 104°F (40°C).	*Clarifies it is the incoming makeup water that shall not exceed the maximum temperature. Consistent with ISPSC Section 507.1* -- Water temperature <u>entering the spa from the heat source</u> shall not exceed 104°F (40°C). – REFERENCE: See ISPSC Section 507.1	Recommendation not implemented.	4.12.1.7	Water temperatures shall not exceed 104°F (40°C).
Design & Construction (D&C)	4.12.2	Waterslides and Catch Pools	The term you have used for waterslides and the conditions, appear similar to what you have in the glossary for "flume slides" In the glossary, a water slide needs to meet the conditions of the CPSC standard . Is that what you are intending here?	Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".	4.12.2	Water Slides and Catch Pools
Design & Construction (D&C)	4.12.2.1	*Design and Construction [of Waterslides and Catch Pools]*	This should be governed by ASTM. No need for this specificity in this Code.	ASTM is limited in its scope. The MAHC is not intending to supercede ASTM. However, there are certain design aspects affiliated with waterslides and their plunge areas that requires it gets addressed in this standard.	4.12.2.1	Design and Construction
Design & Construction (D&C)	4.12.2.1.1	In addition to the general aquatic facility requirements stated in this code, waterslides and catch pools shall comply with the additional provisions of this section.	*Establishes current recognized standards for guiding owners, manufacturer's and AHJ's in review* -- Add this before the current 4.12.2.1.1. Owners and manufacturers shall ensure adherence to recognized design and construction standards including, but not limited to: ASTM F2376-08 Standard Practice for Classification, Design, Manufacture, Construction, and Operaton of Water Slide Systems: ASTM F2469-09 Standard Practice for Manufacturer, Construction, Operation, and Maintenance of Aquatic Play Equipment; World Water Park Considerations for Operating Safety. 2004. A handbook for Risk Management and Operating Safety at Waterparks. EN 1069-1:2010 Water Slides – Part 1 : Safety Requirements and test methods EN 1069 -2: 1020 Water Slides – Part 2: Operation and Risk Management	Recommendation implemented.	4.12.2.1.1	In addition to the general aquatic facility requirements stated in this code, water slides and catch pools shall comply with the additional provisions or reliefs of this section.
Design & Construction (D&C)	4.12.2.1.1	In addition to the general aquatic facility requirements stated in this code, waterslides and catch pools shall comply with the additional provisions of this section.	*"Waterslide", using this term in this section relates back to what is the definition of waterslide.* -- In addition to the general AQUATIC FACILITY requirements stated in this CODE, WATERSLIDES and CATCH POOLS shall comply with the additional provisions of this section.	Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.	4.12.2.1.1	In addition to the general aquatic facility requirements stated in this code, water slides and catch pools shall comply with the additional provisions or reliefs of this section.
Design & Construction (D&C)	4.8.4.3	Pool slides are to be assembled, arranged, and finished in a smooth and consistent manner to eliminate the possibility of injury.	It is not possible to eliminate the possibility of injury	Recommendation implemented. "Eliminate" changed to "inhibit." Section number changed to 4.12.2.10.2.	4.12.2.10.2	Pool slides are to be assembled, arranged, and finished in a smooth and consistent manner to inhibit the possibility of injury.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.4.4 (perhaps intended 4.8.3.3?)	Components used to construct a pool slide shall be non-toxic and compatible with the environment contacted under normal use.	*USAS-Swimming Rules and regulatons* -- Starting platforms shall be installed in a minimum water depth of 6 feet 7 inches (2.01 m). – REFERNCE: USA-Swimming falls under the US-Olympic Committee umbrella and is the leading organization in competitive swimming. Their rules and regulations have a depth of 4 feet or greater for competitions. 6'7" will eliminate an extraordinary number of competitive facilities across the country and many of the facilities will close without swim team support. Please reconsider the USAS depth levels for racing starts/platforms.	Agreed. (actually referring to section 4.8.3.3) Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.12.2.10.3	Components used to construct a pool slide shall be non-toxic and compatible with the environment contacted under normal use.
Design & Construction (D&C)	4.8.4.5	Access to the inclined sliding surface shall be gained by use of steps, ladders, stairs, or ramps. Treads are required to be slip resistant. Ladders must be constructed with treads not rungs.	Must define "rung" versus "tread"	Recommendation implemented. See section 4.12.2.10.4.	4.12.2.10.4	Access to the inclined sliding surface shall be gained by use of steps, ladders, stairs, or ramps.
Design & Construction (D&C)	4.8.4.6	Handrails shall be sturdy, 1"-1.9" outside diameter, extend no more than 18" above the slide entrance platform, and designed to prevent entrapment.	For ladders yes, for stairs and/or ramps this makes no sense and height should be standard handrail specifications.	Recommendation implemented. Changed to "Handrails for ladders…" Section number changed to 4.12.2.10.5	4.12.2.10.5	Handrails for ladders shall be sturdy, 1-1.9 inch outside diameter, extend no more than 18 inches above the slide entrance platform, and designed to prevent entrapment.
Design & Construction (D&C)	4.8.4.8.1	The terminus end of the slide shall be protected through the use of a float line, wing wall, or other similar impediment to prevent collisions with pool patrons.	*What is "sufficient"? Why have undefined requirements in the MAHC Is it really something that needs to be required? If it is, then "sufficient" is not enough.*	The word "Sufficient" has been removed and it reads that it shall be per manufacturer requirements.	4.12.2.10.7.1	The terminus end of the slide shall be protected through the use of a float line, wing wall, peninsula or other similar impediment to prevent collisions with other bathers.
Design & Construction (D&C)	4.12.2.2	Flumes	*Choose an item.* -- Should either call them waterslides or flumes but not both	Recommendation not implemented. Flumes are a component of the waterslide and have been independently defined in the glossary.	4.12.2.2	Flumes
Design & Construction (D&C)	4.12.2.2.2	All curves and turns in a FLUME shall be: 1) Designed so that the impact of users with the walls of the FLUME does not present a hazard; and 2) Banked so that the forces on the BATHERS keep them safely inside the FLUME under all foreseeable circumstances of operation. Riders must not become airborne.	Suggested addition (3) Assurance that the slider will not impact the slide itself in such a way to cause injury, such as from a rapid change in direction or becoming inverted in the slide.	Recommendation implemented.	4.12.2.2.2	All curves and turns in a FLUME shall be: 1) Designed so that the impact of users with the walls of the FLUME does not present a hazard; 2) Banked so that the forces on the BATHERS keep them safely inside the FLUME under all foreseeable circumstances of operation. Riders must not become airborne unless the waterslide manufacturer allows such activity; and 3) Designed so that user should not impact the FLUME itself in such a way that causes injury, such as from a rapid change in direction or becoming inverted in the FLUME.
Design & Construction (D&C)	4.12.2.2.2 #2	Banked so that the forces on the BATHERS keep them safely inside the FLUME under all foreseeable circumstances of operation. Riders must not become airborne.	*Some waterslides are designed for some airborne activity* -- Riders must not become airborne unless the waterslide manufacture and operation safely supports such activity.	Recommendation implemented. Defers to the waterslide manufacturer.	4.12.2.2.2	2) Banked so that the forces on the BATHERS keep them safely inside the FLUME under all foreseeable circumstances of operation. Riders must not become airborne unless the waterslide manufacturer allows such activity; and
Design & Construction (D&C)	4.12.2.4.1	Slides shall be designed to terminate at water level, except for drop slides.	Delete this entry… Let manufacturers decide this and do not limit it. Most do not meet your requirement anyway.	Added language allowing deferment to the manufacturer.	4.12.2.4.1	Water slides shall be designed to terminate at or below water level, except for drop slides or unless otherwise permitted by the water slide manufacturer.
Design & Construction (D&C)	4.12.2.4.1	Slides shall be designed to terminate at water level, except for drop slides.	Modify: Slides shall be designed to terminate at or below water level when stipulated by the AHJ, except for drop slides - REFERENCE: WAC 246-262-070	Below added to the paragraph.	4.12.2.4.1	Water slides shall be designed to terminate at or below water level, except for drop slides or unless otherwise permitted by the water slide manufacturer.
Design & Construction (D&C)	4.12.2.4.2	Slides shall be perpendicular to the wall of the pool at the point of exit.	Modify: Slides shall be straight viewed in plan for the last 8 feet of the water slide entering a pool. ~~perpendicular to the wall of the POOL at the point of exit.~~ – REFERENCE: ASTM F2376-08	Recommendation not implemented. The design of the waterslide itself and any preparation for entry into the pool or deceleration should be the responsibility of the waterslide manufacturer. It's believed that most require 10 feet.	4.12.2.4.2	Water slides shall be perpendicular to the wall of the aquatic venue at the point of exit unless otherwise permitted by the water slide manufacturer.
Design & Construction (D&C)	4.12.2.4.2	Slides shall be perpendicular to the wall of the pool at the point of exit.	*Not all slides are designed to be perpendicular. Need to find one term and stick to it.* -- "Except as otherwise designed by the manufacturer, … " Also, should be using either "waterslide" or "flume", not just "slide".	Recommendation implemented. Defers to the waterslide manufacturer.	4.12.2.4.2	Water slides shall be perpendicular to the wall of the aquatic venue at the point of exit unless otherwise permitted by the water slide manufacturer.
Design & Construction (D&C)	4.12.2.4.2	Slides shall be perpendicular to the wall of the pool at the point of exit.	*The only requirement should be that the lateral clearances required by the manufacturer are not infringed upon by the pool geometry.* -- ~~Slides shall be perpendicular to the wall of the POOL at the point of exit.~~	Paragraph modified to state that the slides shall be perpendicular to the wall of the pool at the point of exit unless otherwise permitted by the waterslide manufacturer	4.12.2.4.2	Water slides shall be perpendicular to the wall of the aquatic venue at the point of exit unless otherwise permitted by the water slide manufacturer.
Design & Construction (D&C)	4.12.2.4.3	Slides shall be designed with an exit system which provides for safe entry into the catch pool or slide runout. Present practices for safe entry include a water backup and a deceleration distance.	Delete this entry… Let manufacturers decide this and do not limit it.	Added language allowing deferment to the manufacturer.	4.12.2.4.3	Water slides shall be designed with an exit system which shall be in accordance with the water slide manufacturer's recommendations and provides for safe entry into the catch pool or water slide runout
Design & Construction (D&C)	4.12.2.5.5	If steps are provided instead of exit ladders or step holes with handrails, a handrail shall be provided at the steps opposite the point of exit from each flume.	*"Step holes" is not a defined term. Recessed steps is defined in the Definitions and 4.5.7.3 describes grab rails.* -- If steps are provided instead of exit ladders or recessed wall steps with grab rails, handrails shall be provided . . .	Refer to 4.12.1.5 annex for rationale.	4.12.2.5.5	If steps are provided instead of exit ladders or recessed steps with grab rails, a handrail shall be provided at the steps opposite the point of exit from each flume.
Design & Construction (D&C)	4.12.2.5.5	If steps are provided instead of exit ladders or step holes with handrails, a handrail shall be provided at the steps opposite the point of exit from each flume.	These handrails may present a hazard and are not really necessary in all cases. Let manufacturer decide this.	Recommendation not implemented. Proper pool ingress/egress should be regulated by this code.	4.12.2.5.5	If steps are provided instead of exit ladders or recessed steps with grab rails, a handrail shall be provided at the steps opposite the point of exit from each flume.
Design & Construction (D&C)	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic facility by a float line or as approved by the Department.	Replace Department with AHJ	Recommendation implemented.	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic venue by a float line or as approved by the AHJ.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic facility by a float line or as approved by the Department.	*Change "facility" to "venue" for consistency.* -- If the water slide FLUME shall end in a swimming pool, the landing area shall be divided from the rest of the AQUATIC VENUE ~~FACILITY~~ by a float line or as approved by the Department.	Recommendation implemented.	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic venue by a float line or as approved by the AHJ.
Design & Construction (D&C)	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic facility by a float line or as approved by the Department.	*Clarification* -- Change "Department" to "AHJ".	Recommendation implemented.	4.12.2.5.6	If the water slide flume shall end in a swimming pool, the landing area shall be divided from the rest of the aquatic venue by a float line or as approved by the AHJ.
Design & Construction (D&C)	4.12.2.6.1	A perimeter deck shall be provided along the exit side of the catch pool.	*This is an exception to 4.5.4.1 and to 4.8.1.5.1.2* -- <Add> "Perimeter deck is not required on the catch pool sides where there is no egress."	No change made. Section 4.12 is intended to provide relief or a different set of requirements from the main body of the code for specialty pools.	4.12.2.6	A perimeter deck shall be provided along the exit side of the catch pool.
Design & Construction (D&C)	4.12.2.6.1	A perimeter deck shall be provided along the exit side of the catch pool.	Conflicts with earlier requirement for all pools on all sides	4.12 exists for non-traditional pools and is intended to provide additional requirements or relief from the main body of this standard. In this case, relief is provided for catch pools regarding perimeter deck requirements.	4.12.2.6	A perimeter deck shall be provided along the exit side of the catch pool.
Design & Construction (D&C)	4.12.2.7.1	A walkway, steps, stairway or ramp shall be provided between the catch pool and the top of the flume. Refer to section 4.8.1.	No kidding… this really needs to be included?	Just reinforcing that a proper deck needs to be provided from point A to point B, discouraging paths cutting through landscaping, etc.	4.12.2.7	A walkway, steps, stairway or ramp shall be provided between the catch pool and the top of the flume. Refer to MAHC Section 4.8.1.
Design & Construction (D&C)	4.12.2.8	*Slide Run-outs and Drops*	*Did I miss something? The code was discussing slide run-outs, then it seemed we were suddenly dealing with drop slides. This section needs a little bit of work to transition the topics easily and understandably. Until I read it for about the fourth or fifth time, I didn't realize you were talking about three types of slides here, in disconnected requirements.* -- Needs a little more indication that the topic changed from slide "run-outs," to "landing areas," to "drop zones:" then back to "landing areas;" "steps;" then back to "drop zones." Add something to make it easier to follow from one type of slide to the next. What you want to say is there, it is hard to shift gears without some transition	Recommendation implemented. The runout section has been split from the dropout section for better clarification.	4.12.2.8	Slide Run-outs
Design & Construction (D&C)	4.12.2.8.1	Slide run-outs, if used, shall have a planned means of egress, unless one or both of the walls of the run-out are not more than 12 inches (30.5 cm) in height.	How will this be measured?	From the bottom of the runout flume to the top of the runout side wall (perpendicularly, not circumferentially).	4.12.2.8.1	Water slide run-outs, if used, shall have a planned means of egress, unless one or both of the walls of the run-out are not more than 12 inches (0.3 m) in height.
Design & Construction (D&C)	4.12.2.8.3	There shall be a slide landing area in accordance with the slide manufacturer's recommendations. An exception may be made for drop sldies.	*No exception for drop slide.* -- There shall be a slide landing area in accordance with the slide manufacturer's recommendations.	Recommendation implemented.	4.12.2.9.1	There shall be a slide landing area in accordance with the slide manufacturer's recommendations.
Design & Construction (D&C)	4.12.2.8.3	There shall be a slide landing area in accordance with the slide manufacturer's recommendations. An exception may be made for drop sldies.	Drop slides still need a defined landing area… I don't get it?	This exception has been deleted.	4.12.2.9.1	There shall be a slide landing area in accordance with the slide manufacturer's recommendations.
Design & Construction (D&C)	4.12.2.8.3	There shall be a slide landing area in accordance with the slide manufacturer's recommendations. An exception may be made for drop sldies.	*Why would an exemption be made for drop slides? The annex does not explain. There is liability and risk to not following manufacturer's recommendations.* -- There shall be a slide landing area in accordance with the slide manufacturer's recommendations.	Recommendation implemented. Exemption for drop slides deleted	4.12.2.9.1	There shall be a slide landing area in accordance with the slide manufacturer's recommendations.
Design & Construction (D&C)	4.12.3.2.1	Bathers must gain access to the wave pool at the shallow or beach end.	*cite exception to two entries, one in deep end.* -- Bathers must gain access to the wave pool at the shallow or beach end the provisions of 4.5.4.1.2 notwithstanding.	No changes made. Ingress for wave pools should only take place at the beach entry.	4.12.3.2.1	Bathers must gain access to the wave pool at the shallow or beach end.
Design & Construction (D&C)	4.12.3.2.2	Wave pools shall be provided with handholds at the static water level or not more than 6 inches above the static water level.	*Do not believe hand holds are safe in wave pools. Do not want swimmers hanging on to walls*	They are required by this standard and the majority of others currently in place for safety purposes.	4.12.3.2.2	Wave pools shall be provided with handholds at the static water level or not more than 6 inches above the static water level.
Design & Construction (D&C)	4.12.3.2.2	Wave pools shall be provided with handholds at the static water level or not more than 6 inches above the static water level.	*What is the rationale for this requirement, which appears to be an unnecessary expense and once again conflicts with the ISPSC, Section 605.1* -- ~~WAVE POOLS shall be provided with handholds at the static water level or not more than 6 inches above the static water level.~~ – REFERENCE: See Section 605.1	Recommendation not implemented	4.12.3.2.2	Wave pools shall be provided with handholds at the static water level or not more than 6 inches above the static water level.
Design & Construction (D&C)	4.12.3.2.2.1	These handholds should be continuous around the pool's perimeter with the exception of at the zero beach entry.	Add: "…and the deep end wave generating wall (caisson wall)"	Recommendation implemented.	4.12.3.2.2.1	These handholds shall be continuous around the wave pool's perimeter with the exception of at the zero depth beach entry, water depths less than 24 inches (0.6 m), if this area is roped off not allowed for bather access.
Design & Construction (D&C)	4.12.3.2.2.1	These handholds should be continuous around the pool's perimeter with the exception of at the zero beach entry.	*Shall is mandatory. Should is not. Is a handhold in water less than 42" functional?* -- These handholds shall be continuous around the perimeter of the pool where the water depth exceeds 42 inches at the wall.	Recommendation implemented. However, the minimum water depth was changed to 24 inches for consistency.	4.12.3.2.2.1	These handholds shall be continuous around the wave pool's perimeter with the exception of at the zero depth beach entry, water depths less than 24 inches (0.6 m), if this area is roped off not allowed for bather access.
Design & Construction (D&C)	4.12.3.2.2.1	These handholds should be continuous around the pool's perimeter with the exception of at the zero beach entry.	*This would require handholds in areas of very shallow water along the wave pool side walls. Absolutely not necessary. Should have a minimum depth before handholds are required.* – Delete	This section has been modified to require handholds starting at a water depth of 24 inches.	4.12.3.2.2.1	These handholds shall be continuous around the wave pool's perimeter with the exception of at the zero depth beach entry, water depths less than 24 inches (0.6 m), if this area is roped off not allowed for bather access.
Design & Construction (D&C)	4.12.3.2.3	Recessed steps and handrails shall not be allowed along the walls of the wave pool due to the entrapment potential.	*prohibit ladders or grab rails for similar reasons.* -- Ladders, recessed steps and grab rails shall not be allowed along the walls of a wave pool due to the entrapment potential. Handrails as required by ADA for accessible entries are acceptable in the beach entry. – REFERENCE: ADA 2010 Section 1009.3.3 and Exceptions 1 and 2 of this paragraph.	A new paragraph added (4.12.3.2.1.2) to address the necessity of handrails for ADA entry.	4.12.3.2.3	Recessed steps shall not be allowed along the walls of the wave pool due to the entrapment potential.
Design & Construction (D&C)	4.12.3.2.3	Recessed steps and handrails shall not be allowed along the walls of the wave pool due to the entrapment potential.	These must be allowed as emergency exit for guests. Properly designed/constructed recessed steps should pose no entrapment hazard.	That's the intent. They need to be provided, but at the same time should be safely designed. The intent was that alcoves in the walls would be provided (consistent with many existing wave pools) where the ladder comes flush with the pool wall. Refer to 4.12.3.2.4.	4.12.3.2.3	Recessed steps shall not be allowed along the walls of the wave pool due to the entrapment potential.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.	*conflicts with 4.12.3.2.1 (Entry only at shallow or beach end)* -- <delete>	No changes made. 4.12.3.2.1 speaks to entry or ingress. The referenced section states that these means shall only be used for egress.	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.
Design & Construction (D&C)	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.	*How can you have side wall ladders that do not project out?* -- ???	Many wave pools have recesses in the wall for ladders.	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.
Design & Construction (D&C)	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.	Does this not make them recessed by definition?	Recessed steps, as defined in this standard, are pockets in the pool wall that require deck anchored grab rails. These are not practical for most wave pools due to the freeboard requirements. Therefore ladders are and have been most practical for wave pools.	4.12.3.2.4	Side wall ladders shall be utilized for egress only and shall be placed so they do not project beyond the plane of the wall surface.
Design & Construction (D&C)	4.12.3.2.5	The egress requirements in section 4.5.4.3 do not apply to wave pools.	*add two additional exceptions* -- The egress requirements in 4.5.4.1 (two entries required), 4.5.4.1.2 (egress required from deep end), and 4.5.4.3 (egress each side of wide pools) do not apply to wave pools	Recommendations implemented.	4.12.3.2.5	The egress requirements in MAHC Sections 4.5.4.1, 4.5.4.1.2, and 4.5.4.3 do not apply to wave pools
Design & Construction (D&C)	4.12.3.2.6	Wave pools shall be fitted with a float line located to restrict access to the caisson wall.	*Not all wave pool models require a float line and float lines may be improperly used by bathers.* -- Add "if required by the manufacturer".	Recommendation implemented.	4.12.3.2.6	Wave pools shall be fitted with a float line located to restrict access to the caisson wall if required by the wave pool equipment manufacturer
Design & Construction (D&C)	4.12.3.3.4	Warning signs stating "NO DIVING" shall be provided around the perimeter of the wave pool regardless of the water depth at minimum twenty-five (25) foot spacing.	*Already covered in 4.5.19 Also, no need for such signage where a barrier or enclosure prevents bather access to the wave pool and in zero depth or shallow areas.* – Delete	This is a deviation from 4.5.19 which is why it's mentioned here. No diving is permitted in wave pools regardless of the water depth. While barriers would exist along the deeper portion of wave pools, there would still be emergency egress ladders as stipulated in the code so the majority of the perimeter could be accessed by bathers. No diving signage is not required at the zero beach entry (similar to other zero beaches) and this exception was added to this section for clarification.	4.12.3.3.3	Safety rope and float lines typically required at shallow to deep water transitions shall not apply to wave pools.
Design & Construction (D&C)	4.12.3.3.4	Warning signs stating "NO DIVING" shall be provided around the perimeter of the wave pool regardless of the water depth at minimum twenty-five (25) foot spacing.	Not necessary at zero depth edge and on caisson wall where there is no bather access. Truthfully, this is not needed anywhere as code requires no side access without barrier.	Not required at the zero beach entry or caisson wall. Required even along the sides of the pool because they may be accessible to patrons who use the egress ladders.	4.12.3.3.3	Safety rope and float lines typically required at shallow to deep water transitions shall not apply to wave pools.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	*Access to leisure rivers or similar current channels is often restricted to one location where tubes are provided. There should be no requirement to permit access or egress every 150 feet! Conflicts with 4.12.5.2.2* -- <delete>	This is not requiring that each point of access or egress be provided with tube supplies. This can still take place at one or two locations around a river, however a facility and the designer feels it would operate best. But it was felt that only a single point of access for a river of any distance is not a safe design approach. Upon review, it was not felt that there was a conflict between 4.12.5.2.1 and 4.12.5.2.2. Refer also to the annex.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	*Unnecessary and impractical* – Delete	Additional spacing between points of access / egress allowed for rivers, however, they should be regulated for safety.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	– Add "(45.7 m)"	Recommendation implemented.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	*Many facilities control entry/exit into a Leisure River in order to control the numbers in the river and to control the number of inner tubes and other aquatic play devices in the river. Requiring one every 150 ft. would necessitate a facility to put more staff at entry/exits and less staff on the deck as lifeguards.* -- Means of access/egress shall be located at intervals around the Leisure River in sufficient numbers to provide adequate entry/exit and as needed to control access into the Leisure River.	This is not requiring that each point of access or egress be provided with tube supplies. This can still take place at one or two locations around a river, however a facility and the designer feels it would operate best. But it was felt that only a single point of access for a river of any distance is not a safe design approach. A ladder or set of recessed steps would suffice. This should not have an impact on the quantity of lifeguards around the river. The overall quantity should still be determined by viewing angles and their ability to observe 100% of the surface area of the river. Each point of egress would not need to be staffed necessarily by a lifeguard. Refer also to the annex.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	*Not necessary and not directly related to safety. Should be according to the approved design.* – Delete	Recommendation not implemented. The quantity / frequency of available points of access / egress are directly related to safety. Refer to annex for rationale.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the leisure river.	Way to many points, too close together … No need for this, as most of these attractions do not want for there to be access/egress at that many locations. This access must be controlled and that will be lost.	It's not necessary for access to be controlled as most are not envisioned to be large tube supply locations. But additional means of access should be provided for safety purposes, whether is just using a small stair alcove, recessed steps with grab rails, ladder, or other means. This shouldn't impact the total number of guards for a river as they should still be provided in such a way that one can view all portions of the river from their positions.	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the lazy river.
Design & Construction (D&C)	4.12.5.2.3	A handhold in compliance with MAHC section 4.5.6 shall be required on at least one side of the leisure river.	*incorrect MAHC citation; handholds should be on both walls. Not one. Leisure rivers are typically 36" or less in depth.* -- Continuous hand holds in accordance with MAHC 4.5.14 shall be provided in rivers or other current channels where water depths exceed 42 inches at the channel wall. The top of channel or coping may meet this requirement if within 9 inches of the water surface.	Section 4.12 provides additional requirements or relief from the main body of the design portion of the MAHC for specialty bodies of water such as rivers. Since rivers are narrow bodies of water (compared to general pools), a handhold on only one side is required.	4.12.5.2.2	A handhold in compliance with MAHC Section 4.5.6 shall be required on at least one side of the lazy river.
Design & Construction (D&C)	4.12.5.2.3	A handhold in compliance with MAHC section 4.5.6 shall be required on at least one side of the leisure river.	*Unnecessary and impractical* – Delete	Required for safety purposes and by the overwhelming majority of current state and local codes.	4.12.5.2.2	A handhold in compliance with MAHC Section 4.5.6 shall be required on at least one side of the lazy river.
Design & Construction (D&C)	4.12.5.2.4	A deck shall be provided along the entire length of the leisure river.	*No reason for decking on either side. Water World has a leisure river with no decking and it has operated safely for over 20 years.* – Delete	Recommendation not implemented. Refer to annex for rationale.	4.12.5.2.3	A deck shall be provided along the entire length of the lazy river.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.5.2.4	A deck shall be provided along the entire length of the leisure river.	*Do not believe it is practical or necessary to have a deck around lazy rivers*	The perimeter deck is required for access and more importantly for guarding and supervision. This is a current requirement of most current state and local codes.	4.12.5.2.3	A deck shall be provided along the entire length of the lazy river.
Design & Construction (D&C)	4.12.5.2.4	A deck shall be provided along the entire length of the leisure river.	This is in conflict with previous Code entries - all pools require both sides as per language above.	This is a relief for rivers. Deck needs to be provided around the perimeter, but is allowed to change sides as needed with the island.	4.12.5.2.3	A deck shall be provided along the entire length of the lazy river.
Design & Construction (D&C)	4.12.5.2.4	A deck shall be provided along the entire length of the leisure river.	*This requirement is not typical in many states. It should be made clear that an interior island that can be utilized for lifeguarding purposes as defined in the code shall suffice.* -- A deck shall be provided along the entire length of the LEISURE RIVER.	Refer to the following paragraph which allows for access on only one side and can alternate between the outside and inside if necessary. Also, refer to the annex.	4.12.5.2.3	A deck shall be provided along the entire length of the lazy river.
Design & Construction (D&C)	4.12.6.3	*Safety*	New (1) The design of the moveable floor must protect against entrapment between the floor and the pool wall by bathers.	Recommendation implemented.	4.12.5.4	Safety
Design & Construction (D&C)	4.12.6.3	*Safety*	New (3) If hydraulic methods are used to raise the moveable floor the hydraulic compounds must be safe for use in the pool water if there is a hydraulic leak. – REFERENCE: We had a leak with a hydraulic moveable floor and the material was evaluated by our toxicologist and found hazardous and the pool had to be drained. Ensure provide suitable fluids that don't create health and safety issues.	Recommendation implemented.	4.12.5.4	Safety
Design & Construction (D&C)	4.12.6.4.1	The speed of a moveable floor shall be less than or equal to 1.5 feet/min (45.7 cm/min).	Provide SI (XX mm/min)	Recommendation implemented.	4.12.6.4.1	The speed of a moveable floor shall be less than or equal to 1.5 feet/min (0.457 m/min).
Design & Construction (D&C)	4.12.6.5.2	Warning markings stating "Moveable Floor" shall be provided at 25 foot (7.62 m) intervals around the perimeter of the moveable floor.	A 10 foot minimum spacing is a safer requirement	Recommendation not implemented. It's not understood why a different standard should apply here compared to other warning signs around the pool.	4.12.6.5.2	Warning markings stating "Moveable floor" shall be provided at 25 foot (7.62 m) intervals around the perimeter of the moveable floor.
Design & Construction (D&C)	4.12.7.12 & 12.1	The width of the walkable area of a BULKHEAD shall be greater than or equal to 3 feet and 3 inches (99.1 cm). If starting platforms are installed, the width of the walkable area of a BULKHEAD shall be greater than or equal to 3 feet and 9 inches (1.14 m).	*Industry Standards* -- Please clarify the definition of "walkable area". The industry standard is a 4 foot wide total minimum width including the area occupied by starting blocks. If the definition of "walkable area" only includes the clear zone behind the blocks than the additional width would represent a major embarkation from the minimum standard and could entail significant additional cost to the construction of new facilities. Additional space would be beneficial to conducting competitive events, but clarification is needed in order to understand the intent of the statement.	The "walkable area" is intended to be the complete bulkhead width. It's true that in the U.S. most minimum bulkheads are 4'-0", but there as you get outside of the U.S. and/or work with some foreign manufacturers, many 1.0 meter wide bulkheads are used. It was these considerations that led to the current draft.	4.12.7.10 & 4.12.7.10.1	4.12.7.10 Width The width of the walkable area (total BULKHEAD width) of a BULKHEAD shall be greater than or equal to 3 feet and 3 inches (1.0 m). 4.12.7.10.1 Starting Platforms If starting platforms are installed, the width of the walkable area (total BULKHEAD width) of a BULKHEAD shall be greater than or equal to 3 feet and 9 inches (1140 mm).
Design & Construction (D&C)	4.12.7.12.1	If starting platforms are installed, the width of the walkable area of a BULKHEAD shall be greater than or equal to 3 feet and 9 inches (1.14 m).	*Clarifies the width is not measured from back of platform* . -- If starting platforms are installed, the clear width of the walkable area of the bulkhead shall be at least 3 feet 9 inches, neglecting the platform.	Parenthetical clarifications were made to 4.12.7.12 and 4.12.7.12.1 to note that these dimensions are referring to the total width of the bulkhead.	4.12.7.10.1	If starting platforms are installed, the width of the walkable area (total bulkhead width) of a bulkhead shall be greater than or equal to 3 feet and 9 inches (1140 mm).
Design & Construction (D&C)	4.12.7.12.1	If starting platforms are installed, the width of the walkable area of a BULKHEAD shall be greater than or equal to 3 feet and 9 inches (1.14 m).	Use SI. Probably either (990 mm) or (1000 mm) or (1 m)	Changed to 1140 mm. Changed 4.12.7.12 to 1.0 m.	4.12.7.10.1	If starting platforms are installed, the width of the walkable area (total bulkhead width) of a bulkhead shall be greater than or equal to 3 feet and 9 inches (1140 mm).
Design & Construction (D&C)	4.12.7.5	The bottom of the bulkhead shall be designed so that a pool user cannot be entrapped underneath the bulkhead.	"underneath *OR* inside of the BULKHEAD."	Recommendation implemented.	4.12.7.3	The bottom of the bulkhead shall be designed so that a bather cannot be entrapped underneath or inside of the bulkhead.
Design & Construction (D&C)	4.12.7.8	The gap between the bulkhead and the pool shall be 1.5 inches (3.81 cm).	*conflicts with 4.12.7.3* -- <delete>	4.12.7.3 has been deleted.	4.12.7.6	The gap between the bulkhead and the pool shall be 1.5 inches (38 mm).
Design & Construction (D&C)	4.12.7.8	The gap between the bulkhead and the pool shall be 1.5 inches (3.81 cm).	Section 4.12.7.8 contradicts section 4.12.7.3 1)	Corrections have been made to address the contradiction and section 4.12.7.3 has been deleted in its entirety.	4.12.7.6	The gap between the bulkhead and the pool shall be 1.5 inches (38 mm).
Design & Construction (D&C)	4.12.7.8	The gap between the bulkhead and the pool shall be 1.5 inches (3.81 cm).	Suggest (380 mm)	Changed to 38 mm.	4.12.7.6	The gap between the bulkhead and the pool shall be 1.5 inches (38 mm).
Design & Construction (D&C)	4.12.7.8	The gap between the bulkhead and the pool shall be 1.5 inches (3.81 cm).	*Various State's Regulations* -- Many states and industry standards consider a gap of 1.5 inches to be an entrapment hazard. If the pool wall is true and the bulkhead movement accurate there should be no need for such an extreme gap. It is recommended that the recommended gap be no more than 0.5 inches to prevent entrapment.	This section was drafted while consulting with bulkhead manufacturers. 1.5" has historically been one of the major North American suppliers design standard and entrapment here has never been an issue to anyone's knowledge. Guide pads are necessary in most instances which are often 0.5". California is the only state that is believed to have similar standards and they require 3" gaps which has led to bulkheads getting out of control if there is an issue with guide pads.	4.12.7.6	The gap between the bulkhead and the pool shall be 1.5 inches (38 mm).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.7.3 & 4.12.7.8	4.12.7.3 -- The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm). 4.12.7.8 -- The gap between the BULKHEAD and the POOL shall be 1.5 inches (3.81 cm).	Please review these statements, as they appear to me to be contradictory. In one the space between a bulkhead and the pool walls seems to require at least 3 inches, and the other 1.5 inches.	Modifications made. 1.5 inches is recommended by bulkhead manufacturers between the bulkhead and the side walls. 4.12.7.3 has been deleted in its entirety.	4.12.7.6 --- Section 4.12.7.3 DELETED	The gap between the bulkhead and the pool shall be 1.5 inches (38 mm).
Design & Construction (D&C)	4.12.7.11	Guard railings at least 34 inches (86.4 cm) tall shall be provided on both ends of the bulkhead.	Where does this number come from?	Manufacturer's recommendations.	4.12.7.9	Guard railings at least 34 inches (860 mm) tall shall be provided on both ends of the bulkhead.
Design & Construction (D&C)	4.12.8	Spraygrounds	Are there provisions for a storm water diversion switch than can be activated during a storm event so the water in the treatment tank is not contaminated by runoff during storms?	No. 4.12.8.3 requires that sloping of the sprayground and surrounding deck will allow only the feature water to return to the reservoir. In the event of a storm, any rainwater that lands on the spraypad will drain to the reservoir if no diverters are provided. This would be similar to a pool.	4.12.8	Interactive Water Play Venues
Design & Construction (D&C)	4.12.8	Spraygrounds	Are there provisions for the requirement of a turbidimeter to be installed in the water treatment tank to monitor the water clarity as an additional water quality measure?	This would be addressed under the Disinfection and Water Quality module of the MAHC.	4.12.8	Interactive Water Play Venues
Design & Construction (D&C)	4.12.8	Spraygrounds	Does a solitary sprayground in the middle of a park need an enclosure? What about an interactive fountain (no ponded water)? Does this section apply to spray pools using potable water and having no recirculation (Use once and dispose of)?	The definition of spraygrounds has been updated. This standard, and 4.12.8, is only intended to regulate recirculated water intended for patron use and recreation. Enclosures are not required if there is not standing water .	4.12.8	Interactive Water Play Venues
Design & Construction (D&C)	4.12.8.10	Maximum velocity at the orifice of the spray feature nozzle shall not exceed 20 feet (6.1 m) per second.	Suggested modification: To prevent injury ensure nozzle designs and maximum impact force per orifice is not greater than 9.0 pound-force for spray features with multiple inlets. The basic formula used is as follows; Pound Force (**SEE PUBLIC COMMENTS FOR EQUATION) REFERENCE: The issue with the nozzles creating potential injury is related to the Spray nozzle forces rather than the velocity. Some fog nozzles will exceed the velocity noted, but is so spread out, it will not create a force injury issue.	Recommendation not implemented. Refer to the annex and the study cited as the basis behind this requirement due to ocular injuries.	4.12.8.11	Maximum velocity at the orifice of the spray feature nozzle shall not exceed 20 feet (6.1 m) per second.
Design & Construction (D&C)	4.12.8.12	NEC swimming pool requirements shall apply to spraygrounds.	*Should be according to local building code. If the AHJ adopts the NEC, than it applies as set forth in the Code.* -- Delete	Recommendation not implemented.	4.12.8.13	NEC swimming pool requirements shall apply to Interactive water play venues.
Design & Construction (D&C)	4.12.8.2	Spraygrounds shall have a slip-resistant and easily cleanable surface.	It is recommended that the following statement be added in order to improve the safety of the public, "Spraygrounds shall have a slip-resistant and easily cleanable surface; that shall be designed in order to ensure the comfort and safety of the public. Soft watertight surfaces are strongly recommended to prevent injury."	Recommendation implemented. The following language added: Any manufactured surfacing shall be deemed suitable by the manufacturer for aquatic and chlorinated environments.	4.12.8.2	Interactive water play venues shall have a slip-resistant and easily cleanable surface.
Design & Construction (D&C)	4.12.8.4.1	Flow through the drains to the sprayground treatment tank shall be under gravity.	Term "Sprayground Treatment Tank". Suggest changing the term itself to "Sprayground Holding/Collection Tank" or "Sprayground Surge Tank" as there is no treatment taking place within the tank.	Recommendation implemented. Changed to "collection" tank.	4.12.8.4.1	Flow through the drains to the interactive water play venue collection tank shall be under gravity.
Design & Construction (D&C)	4.12.8.5	Openings in the grates covering the drains shall not exceed ½ inches (1.27 cm) wide.	Is that 1/2 x ½, or 1/2 x any length?	Only ½" in the width direction.	4.12.8.5	Openings in the grates covering the drains shall not exceed ½ inches (13 mm) wide.
Design & Construction (D&C)	4.12.8.6	The sprayground treatment tank shall be designed to provide ready access for cleaning and inspections, and be capable of complete draining.	Add new 4.12.8.6.1. The holding tank size is determined considering the daily use of the facility, the need to replenish water, and the frequency the owner plans to have an operator manually drain, clean and refill the tank. Take the total volume of the holding tank and divide by three (3) and then divide this by the daily use of the spray feature. Sizing the volume of the spray feature holding tank should allow the holding tank to supply adequate water for a replacement schedule of at least four days of operations. – REFERENCE: The build up of TDS in the tank will be similar to a spa pool and needs routine water removal, cleaning and disinfection of the tank and new water placed in the tank to prevent buildup of biofilms.	This should be addressed in the Recirculation Systems & Filtration module.	4.12.8.6	The interactive water play venue collection tank shall be designed to provide ready access for cleaning and inspections, and be capable of complete draining.
Design & Construction (D&C)	4.12.8.7	Eight feet (2.44 m) of deck area shall be provided between a sprayground and any landscaped area.	*Too restrictive and over reaching. Designers should be allowed to abut walls, buildings, landscape, shade structures, etc. Designers should not be forced to always incorporate an 8'0" wide deck. Only 4'-0" is required around pools! The landscape may be elevated for example.* -- <delete>	Recommendation not implemented, however an exemption is given for landscape in elevated planters.	4.12.8.7	Eight feet (2.44 m) of deck area shall be provided between a interactive water play venue and any landscaped area unless the landscaping is elevated above the deck in a planter.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.8.7	Eight feet (2.44 m) of deck area shall be provided between a sprayground and any landscaped area.	Five feet (preferably eight) of deck area shall be provided between a sprayground and any landscape area. – REFERENCE: CT Public Swimming Pool Design Guide Section 17.1	The current draft is requiring eight feet of separation.	4.12.8.7	Eight feet (2.44 m) of deck area shall be provided between a interactive water play venue and any landscaped area unless the landscaping is elevated above the deck in a planter.
Design & Construction (D&C)	4.12.8.8	A barrier shall be provided to separate a sprayground from another body of water within the same facility unless the sprayground is separated by a distance of at least 15 feet (4.57 m) from other bodies of water.	*A spray-ground might be incorporated into the zero depth entry of a pool, for example.* -- <Add at end> The foregoing shall not be deemed to require separation or barriers for spray features or equipment intentionally incorporated into a pool structure, for example, a zero depth beach entry to a pool.	Section 4.12.8 only applies to spraygrounds as they are defined in the glossary. The situation described would not fall under the sprayground requirements.	4.12.8.8	A barrier shall be provided to separate an interactive water play venue from another body of water within the same facility unless the Interactive water play venue is separated by a distance of at least 15 feet (4.57 m) from other bodies of water.
Design & Construction (D&C)	4.12.9	Wading Pools	Do we regulate interactive fountains. Do they need enclosures? If they pond water do they count as a wading pool? Does that require an enclosure?	This standard, and 4.12.9, is only intended to regulate recirculated water intended for patron use and recreation. Enclosures are required when there is standing water for a place intended for public bathing	4.12.9	Wading Pools
Design & Construction (D&C)	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.	-- A barrier shall be provided to separate a wading pool from other pools. – REFERENCE: Condition of Approval for construction of all new wading pools in CT	Refer to 4.12.9.2 annex for rationale.	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.
Design & Construction (D&C)	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.	<add at end> The barrier shall not be required to be a complete enclosure of the wading pool provided the shortest distance of travel between the wading pool around the barrier to the other pool, is a minimum of 15 feet.	Recommendation implemented	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.
Design & Construction (D&C)	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.	*Unnecessary and impractical* – Delete	Refer to annex for rationale centered around safety.	4.12.9.2	A barrier shall be provided to separate a wading pool from other pools unless the wading pool is separated by a distance of 15 feet (4.57 m) from other bodies of water.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	*Should be both full and empty conditions.* -- AQUATIC FEATURES shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or and empty conditions.	Recommendation implemented.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	"Aquatic Feature" is not the correct terminology, as by definition this would include things like squirt guns, tipping buckets, and padded kiddie slides all need to be impervious and rigid? This makes no sense based on the definition of aquatic feature above...	Changed to Aquatic Venues.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	"or other impervious and structurally sound material"	Recommendation implemented.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	*American Concrete Institute & American Plaster Association* -- Concrete is not an "impervious" material without additives orsurface treatments. Recommend revising the statement to read, "Aquatic features shall be constructed of impervious and structurally rigid materials, which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses / loads for full or empty conditions." – REFERENCE: ACI 318, ACI 350, and APA Manual	Deleted the word "other" before impervious.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	The current language is grossly inadequate and overlooks and fails to address numerous issues necessary for safety and operation. The MAHC should reference the comprehensive ISPSC to ensure the user understands aspects of design that the local building official will require compliance with. For example: i. 307.3 Aquatic vessels and appurtenances thereto shall be constructed of materials that are nontoxic to humans and the environment; that are generally or commonly regarded to be impervious and enduring; that will withstand the design stresses; and that will provide a watertight structure with a smooth and easily cleanable surface without cracks or joints, excluding structural joints, or that will provide a watertight structure to which a smooth, easily cleaned surface/finish is applied or attached. Material surfaces that come in contact with the user shall be finished, so that they do not constitute a cutting, pinching, puncturing or abrasion hazard under casual contact and intended use. (**SEE PUBLIC COMMENT FOR FULL TEXT)	Recommendations not implemented. The recommendations such as materials (impervious, non-toxic, enduring, etc.), finishes, slip resistance, etc. are all found elsewhere in this module. The structural design of water retaining vessels is arguably more applicable to the American Concrete Institute (ACI), section 350.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.
Design & Construction (D&C)	4.2.1.1	Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions.	*This is absurd. Most of these items are metal to begin with and many need to be soft/padded – not rigid and made out of concrete.* – Delete	Intended to read "aquatic venues" and not "aquatic features." Correction made.	4.2.1.1	aquatic venues shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions as required by applicable codes.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.2.1.2	All materials shall be inert, non-toxic, and resistant to corrosion, impervious, enduring, and resistant to damages related to environmental conditions of the installation region (such as freezing).	Not possible as written using Aquatic Feature term. Many "features" need winterized and/or removed for winter storage.	Applies to Aquatic Venues, i.e. pools.	4.2.1.2	All materials shall be inert, non-toxic, and resistant to corrosion, impervious, enduring, and resistant to damages related to environmental conditions of the installation region (such as freezing).
Design & Construction (D&C)	4.2.1.2.1	Per MAHC Regulatory Module Section 5.2.3.1: The AHJ may grant a variance to the requirements of this CODE.	*Not needed here but in the first or introductory section of the Code* -- This should be a general reg for the entire code.	Not changed at this time. Will consider as all modules are merged.	4.2.1.2.1	The AHJ may grant a variance to the requirements of this code.
Design & Construction (D&C)	4.2.1.2.2	Competitive type pools may have lane markings and end wall targets installed in accordance with FINA, NCAA, or other recognized standard.	*Add USA Swimming and NFSHSA as recognized governing bodies.* -- Competitive type POOLS may have lane markings and end wall targets installed in accordance with FINA, NCAA, USA Swimming, NFSHSA, or other recognized standard.	Recommendation implemented.	4.2.1.2.2	Competitive or lap pools may have lane markings and end wall targets installed in accordance with FINA, NCAA, USA Swimming, NFSHSA, or other recognized standard.
Design & Construction (D&C)	4.2.1.2.2	Competitive type pools may have lane markings and end wall targets installed in accordance with FINA, NCAA, or other recognized standard.	What about noncompetitive type pools? Can they not have lane markings? This should be broadened to include all pools as this is an unnecessary and unfair restriction.	Changed to completive or lap pools.	4.2.1.2.2	Competitive or lap pools may have lane markings and end wall targets installed in accordance with FINA, NCAA, USA Swimming, NFSHSA, or other recognized standard.
Design & Construction (D&C)	4.2.1.2.3	Any design, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection a bather in distress, algae, sediment, or other objects in the pool.	*Provide an objective measurement for evaluating the colors for a pool.* -- This condition is very vague and subjective. Suggested language. Swimming pools shall provide a pool color that is white or if there is any light color, it shall provide a light reflectance value of 70% or more to enhance bather visibility. Any design or finish added to the pool shall not prevent detection of a bather in the pool. – REFERENCE: Handbook of Sports and Recreation in the section 33 dealing with Electrical Engineering Services, establishes a minimum light reflectance value of 0.7 or greater.	Recommendation not implemented. Refer to 4.5.12.1.2 on color and finish which utilizes the Munsell color value scale.	4.2.1.2.3	Any graphics, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection of a bather in distress, algae, sediment, or other objects in the aquatic venue.
Design & Construction (D&C)	4.2.1.2.3	Any design, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection a bather in distress, algae, sediment, or other objects in the pool.	Should apply to all aquatic venues not just pools.	Recommendation not implemented. Paragraph applies to pools, which are independently defined in the glossary.	4.2.1.2.3	Any graphics, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection of a bather in distress, algae, sediment, or other objects in the aquatic venue.
Design & Construction (D&C)	4.2.1.2.3	Any design, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection a bather in distress, algae, sediment, or other objects in the pool.	The word design is confused with actual architectural/engineering design and should be changed. Suggest using "graphics"	Recommendation implemented.	4.2.1.2.3	Any graphics, color, or finish incorporated into the construction of a pool or painted on the floor or walls must not prevent the detection of a bather in distress, algae, sediment, or other objects in the aquatic venue.
Design & Construction (D&C)	4.2.1.2.3.1	Permission in writing from the health authority for the use of a design shall be obtained before the design is used.	*Need to clarify that this is for pool design.* -- Permission in writing from the Authority Having Jurisdiction for use of a pool design shall be obtained…	Recommendations implemented.	4.2.1.2.3.1	Permission in writing from the AHJ for the use of graphics shall be obtained before the graphics are used.
Design & Construction (D&C)	4.2.1.2.3.1	Permission in writing from the health authority for the use of a design shall be obtained before the design is used.	Again, the word design is confused with actual architectural/engineering design and should be changed. Suggest using "graphics"	Recommendation implemented.	4.2.1.2.3.1	Permission in writing from the AHJ for the use of graphics shall be obtained before the graphics are used.
Design & Construction (D&C)	4.2.1.3	Pool shall be designed in such a way to maintain their capability to retain water.	"to maintain their ability to retain the designed amount of water"	Recommendation implemented.	4.2.1.3	Pools shall be designed in such a way to maintain their ability to retain the designed amount of water.
Design & Construction (D&C)	4.2.1.3	Pool shall be designed in such a way to maintain their capability to retain water.	Again "Pool" should be replaced by "Venue" as we must think on a broader scope.	Recommendation not implemented. Paragraph applies to pools, which are independently defined in the glossary.	4.2.1.3	Pools shall be designed in such a way to maintain their ability to retain the designed amount of water.
Design & Construction (D&C)	4.2.1.3	Pool shall be designed in such a way to maintain their capability to retain water.	Change "POOL" to "POOLS"	Recommendations implemented.	4.2.1.3	Pools shall be designed in such a way to maintain their ability to retain the designed amount of water.
Design & Construction (D&C)	4.2.1.3	Pool shall be designed in such a way to maintain their capability to retain water.	POOLS shall be designed in such a way to maintain their capability to retain water.	Recommendation implemented.	4.2.1.3	Pools shall be designed in such a way to maintain their ability to retain the designed amount of water.
Design & Construction (D&C)	4.2.1.4.1	The finish shall be able to withstand daily brushing, scrubbing, and cleaning of the surface.	– *Industry Standards* -- Recommend the addition of the following language at the end of the statement, "in accordance with the professional society and / or manufacturer's recommendations." We feel it is critical that additional cleaning procedures for specific products need to be encouraged and included. This statement encourages that practice without going into unnecessary specifics.	Recommendation implemented.	4.2.1.4.1	The finish shall be able to withstand daily brushing, scrubbing, and cleaning of the surface in accordance with the professional society or manufacturer's recommendations.
Design & Construction (D&C)	4.2.1.4.2	Skimmer pools shall have a 6 inch (15.2 cm) to 12 inch (30.5 cm) high finish.	"water line finish"	Recommendation implemented.	4.2.1.4.2	Skimmer pools shall have a 6 inch (150 mm) to 12 inch (300 mm) high waterline finish that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1.
Design & Construction (D&C)	4.2.1.4.2	Skimmer pools shall have a 6 inch (15.2 cm) to 12 inch (30.5 cm) high finish.	Definition of a "Skimmer Pool" is needed. Not a common industry term or reference.	Definition added to glossary.	4.2.1.4.2	Skimmer pools shall have a 6 inch (150 mm) to 12 inch (300 mm) high waterline finish that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.2.1.4.2 to 4.2.1.4.4	4.2.1.4.2 Skimmer POOLS shall have a 6 inch (15.2 cm) to 12 inch (30.5 cm) high finish. 4.2.1.4.3 Gutter or perimeter overflow system shall have a minimum finish height of 2 inches (5.1 cm). 4.2.1.4.4 If dark colors are utilized for the POOL finish, the POOL finish shall not exceed a maximum height of 12 inches (30.5 cm).	*No ordinary person would know what it means when you use "finish."*-- Define what the "finish" is. The language should be obvious. Maybe use "freeboard:" which, I think is (as an ordinary person), a commonly defined definition related to the intention for "finish."	Additional description of "finishes" given in annex along with typical examples. 4.2.1.4 and 4.2.1.4.1 help also to describe what is intended and references to these two paragraphs have been added to 4.2.1.4.2 and 4.2.1.4.3 to help clarify.	4.2.1.4.2, 4.2.1.4.3, 4.2.1.4.4	4.2.1.4.2 Skimmer Pools SKIMMER POOLS shall have a 6 inch (150 mm) to 12 inch (300 mm) high waterline finish that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1. 4.2.1.4.3 Gutter / Perimeter Overflow Systems Gutter or perimeter overflow systems shall have a minimum finish height of 2 inches (50 mm) that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1. 4.2.1.4.4 Dark Colors If dark colors are utilized for the POOL finish, these colors shall not exceed a maximum height of 12 inches (300 mm) below the waterline.
Design & Construction (D&C)	4.2.1.4.3	Gutter or perimeter overflow system shall have a minimum finish height of 2 inches (5.1 cm	"finished"	Recommendation not implemented.	4.2.1.4.3	Gutter or perimeter overflow systems shall have a minimum finish height of 2 inches (50 mm) that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1.
Design & Construction (D&C)	4.2.1.4.4	If dark colors are utilized for the pool finish, the pool finish shall not exceed a maximum height of 12 inches (30.5 cm).	*Define "POOL FINISH" Not sure what this term refers to.* -- "POOL FINISH" is capitalized but not defined in the glossary	"FINISH" is not capitalized and therefore not indicating that there is a corresponding glossary term.	4.2.1.4.4	If dark colors are utilized for the pool finish, these colors shall not exceed a maximum height of 12 inches (300 mm) below the waterline.
Design & Construction (D&C)	4.2.1.4.4	If dark colors are utilized for the pool finish, the pool finish shall not exceed a maximum height of 12 inches (30.5 cm).	"above the designed water level"	Recommendation modified and implemented.	4.2.1.4.4	If dark colors are utilized for the pool finish, these colors shall not exceed a maximum height of 12 inches (300 mm) below the waterline.
Design & Construction (D&C)	4.2.1.4.4	If dark colors are utilized for the pool finish, the pool finish shall not exceed a maximum height of 12 inches (30.5 cm).	"If dark colors are utilized for the POOL finish, the POOL finish shall not exceed a maximum height of 12 inches (30.5cm)". As written this suggests the remainder of the pool wall does not need to be finished. This needs to be reworded to clarify entire pool needs finished.	Recommendation implemented.	4.2.1.4.4	If dark colors are utilized for the pool finish, these colors shall not exceed a maximum height of 12 inches (300 mm) below the waterline.
Design & Construction (D&C)	4.2.1.5	Pool floors in areas less than 3 feet (91 cm) deep shall have a slip resistant finish with an acceptable coefficient of friction.	*What defines "slip resistance?" Do we use an OSHA definition or an ADA definition? Are we looking at wet or dry?* -- OSHA defines a SCOF for a walkable surface of 0.5. ADA has raised that to a SCOF of 0.6 for general surfaces, with 0.8 for ramps. "Slip-resistant" usually means a SCOF of 0.5 dry. This is not always enough. The standards do not adequately identify what a safe "wet" surface SCOF is. I would suggest that for legal purposes you select an acceptable SCOF number, remembering that most pool surfaces are wet and are being used barefoot. I have seen some opinions that suggest 0.8 dry as a minimum to make surfaces safe when wet. Perhaps, because of the variation in measurements for the "Coefficient of Friction," a statement could be clarified that "pool floor surfaces must be 'slip resistant' when wet." Let the manufacturers and courts determine what it means. – REFERENCE: -Suggest maybe ASTM F-462-94, although I don't have access to review it. ADAAG	Refer to the 4.2.1.5 annex.	4.2.1.5	Pool floors in areas less than 3 feet (0.9 m) deep shall have a slip resistant finish with an acceptable coefficient of friction.
Design & Construction (D&C)	4.2.1.5	Pool floors in areas less than 3 feet (91 cm) deep shall have a slip resistant finish with an acceptable coefficient of friction.	"…acceptable coefficient of friction" needs defined, either by reference or Code entry.	Refer to the annex.	4.2.1.5	Pool floors in areas less than 3 feet (0.9 m) deep shall have a slip resistant finish with an acceptable coefficient of friction.
Design & Construction (D&C)	4.2.1.5	Pool floors in areas less than 3 feet (91 cm) deep shall have a slip resistant finish with an acceptable coefficient of friction.	*OSHA* -- Recommend defining what "an acceptable coefficient of friction" is. OSHA recommends a minimum static coefficient of friction (COF) of 0.5. –REFERENCE: Standard 1910.22	Refer to annex.	4.2.1.5	Pool floors in areas less than 3 feet (0.9 m) deep shall have a slip resistant finish with an acceptable coefficient of friction.
Design & Construction (D&C)	4.2.1.6	Vinyl or PVC panel and liner pool finish systems shall be acceptable provided that the system is installed on top of approved materials and design requirements as listed within this section.	-- There are a variety of pool systems in the market place with superior water proofing characteristics and equivalent structural integrity and puncture / cracking resistance to concrete. It is redundant to insist they be installed "on top of approved materials".	Section modified to allow approval of liners on top of non-approved materials by the AHJ.	4.2.1.6	Vinyl, PVC-P, or PVC panel and liner pool finish systems shall be acceptable provided that the system is installed on top of approved materials and design requirements as listed within this section or approved by the AHJ.
Design & Construction (D&C)	4.2.1.6	Vinyl or PVC panel and liner pool finish systems shall be acceptable provided that the system is installed on top of approved materials and design requirements as listed within this section.	"Vinyl, PVC, or PVC-P"; "and the pool system shall be a minimum of 60 mils thick"	PVC-P added.	4.2.1.6	Vinyl, PVC-P, or PVC panel and liner pool finish systems shall be acceptable provided that the system is installed on top of approved materials and design requirements as listed within this section or approved by the AHJ.
Design & Construction (D&C)	4.2.1.6.1	If at any time the liner system is damaged or cut, the pool shall be shut down until the system is fully repaired.	*Damaged can be Potentially interpreted as faded or in other unintended ways* . -- If at any time the liner system's is damaged integrity is compromised or cut, the POOL shall be shut down until the system is fully repaired.	Recommendation implemented.	4.2.1.6.1	If at any time the liner system is damaged or cut in such a way that its integrity is compromised, the pool shall be shut down until the system is fully repaired.
Design & Construction (D&C)	4.2.1.6.1	If at any time the liner system is damaged or cut, the pool shall be shut down until the system is fully repaired.	-- Any damage to a pool (liner or otherwise) that bears a risk of cross-contamination or compromises the water tight integrity of the system should warrant shut down until the system is fully repaired. A crack in a concrete or shotcrete pool is as potentially dangerous to the health and welfare of the public as damage to a liner system. It is recommended that this requirement be universal across all technologies.	Recommendation not implemented. Cracks are addressed in 5.5.6.1 and when it's required that they be evaluated by a structural engineer. The intent of this standard is not to necessarily dictate that every pool needs to be an impermeable water retaining vessel. But the concern over liner pools is if the liner is compromised, it could harbor bacteria or algae.	4.2.1.6.1	If at any time the liner system is damaged or cut in such a way that its integrity is compromised, the pool shall be shut down until the system is fully repaired.
Design & Construction (D&C)	4.2.1.6.1	If at any time the liner system is damaged or cut, the pool shall be shut down until the system is fully repaired.	Depending on location and what the damage is, complete shutdown may not be needed. Must define damage requiring shutdown more clearly...	Paragraph updated.	4.2.1.6.1	If at any time the liner system is damaged or cut in such a way that its integrity is compromised, the pool shall be shut down until the system is fully repaired.
Design & Construction (D&C)	4.2.1.6.1	If at any time the liner system is damaged or cut, the pool shall be shut down until the system is fully repaired.	*Minor cut may not require total and immediate shutdown. May be able to operate pool without significant problems through end of the season.* -- If at any time the liner system is damaged or cut, the POOL should be shut down as soon as practicable until the system is repaired.	Agree that a pool could successfully operate with a "minor cut" to the liner. However, "minor cut" and "should be shut down as soon as practical" are too loose and can be left to many interpretations. And one of the main concerns isn't necessarily with physical patron safety or water loss, but with inhibiting the growth of bacteria.	4.2.1.6.1	If at any time the liner system is damaged or cut in such a way that its integrity is compromised, the pool shall be shut down until the system is fully repaired.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.2.1.7	Wood, sand, or earth shall not be permitted as an interior finish.	Many existing pools have a layer of sand on the bottom to serve theme aspects is this no longer acceptable?	Yes, as the current draft reads, this would not be acceptable for new construction moving forward.	4.2.1.7	Wood, sand, or earth shall not be permitted as an interior finish.
Design & Construction (D&C)	4.2.2.1.1	The interior finish of a natatorium shall be suitable for indoor relative humidity as high as 80%.	"Natatorium" needs defined	Definition added to glossary.	4.2.2.1.1	The interior finish of a natatorium shall be suitable for indoor relative humidity as high as 80%.
Design & Construction (D&C)	4.2.2.2	*Condensation Prevention [in Natatoriums]*	This section seems like a building department function	The majority of building standards do not address the unique requirements of natatorium envelopes. Therefore, some best practices in the industry are referenced in this standard.	4.2.2.2	Condensation Prevention
Design & Construction (D&C)	4.2.2.2.1	Natatorium building envelope construction shall include a vapor-retarder/insulation arrangement to assist in the prevention of condensation of water inside building surfaces under the coldest outdoor conditions expected for the location at the design indoor temperature and the highest design indoor relative humidity.	*Is it reasonable that these extremes ("coldest outdoor conditions") be the design points? Typically it based on yearly averages.* -- Natatorium building envelope construction shall include a vapor retarder/ insulation arrangement to assist in the prevention of condensation of water inside building surfaces under the coldest outdoor conditions expected for the location at the design indoor temperature and the highest design indoor relative humidity.	Rather than the "coldest outdoor conditions" this section has been modified to design upon ASHRAE climate data.	4.2.2.2.1	Natatorium building envelope construction shall include a vapor-retarder/insulation arrangement to assist in preventing the condensation of water on inside building surfaces under the coldest outdoor conditions based on the ASHRAE climate data for the project locale or nearest reporting city and the highest design indoor relative humidity.
Design & Construction (D&C)	4.2.2.2.1	Natatorium building envelope construction shall include a vapor-retarder/insulation arrangement to assist in the prevention of condensation of water inside building surfaces under the coldest outdoor conditions expected for the location at the design indoor temperature and the highest design indoor relative humidity.	*Reads better and allows me to determine condensation. "Condensation of water inside building surfaces" is hard to determine sometimes.* -- Suggest: "...to assist in prevent~~ion~~ing the condensation of water on inside building surfaces... Provide SI equivalent of 0.2 U.S. perms.	Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).	4.2.2.2.1	Natatorium building envelope construction shall include a vapor-retarder/insulation arrangement to assist in preventing the condensation of water on inside building surfaces under the coldest outdoor conditions based on the ASHRAE climate data for the project locale or nearest reporting city and the highest design indoor relative humidity.
Design & Construction (D&C)	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.1 U.S. perm.	Needs SI equivalent.	Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.2 U.S. perm (11.4 $ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$).
Design & Construction (D&C)	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.1 U.S. perm.	*Provides some details for review, beyond the amount of air makeup.* -- Recognizing the ASHRAE standard seems appropriate, but also need some design details that should be included when reviewing: Assuring the fresh air return to exhaust doesn't short circuit and the air pressure in the natatorium maintains a negative air pressure less than any surrounding rooms. – REFERENCE: WAC 246-260-031(19).	This would be covered by the MAHC Ventilation module.	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.2 U.S. perm (11.4 $ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$).
Design & Construction (D&C)	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.1 U.S. perm.	*Why is 0.1 perm acceptable here and 0.2 perm is acceptable in4.2.2.2.2? Recommend consistent rating in both sections.* -- Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.1 U.S. perm.	Recommendation implemented. Changed to 0.2 perm.	4.2.2.2.3	Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.2 U.S. perm (11.4 $ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$).
Design & Construction (D&C)	4.2.2.3.3.1	Per MAHC Ventilation Module Section 4.6.2.1.15: Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code, International Fire Code, and any applicable local codes.	*There are other national codes in use by jurisdictions in addition to the IMC and IFC that address ventilation. They all should be noted in this section. The ventilation module should also be changed to reflect this revision (section 4.6.2.1.5 and section 4.6.2.1.15)* -- Ventilation system design for chemical storage rooms shall conform to either the International Mechanical Code or Uniform Mechanical Code, and either the International Fire Code or the Uniform Fire Code, and any applicable local codes.	Recommendations implemented.	4.2.2.3.3.1	Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code or Uniform Mechanical Code, and either the International Fire Code or the Uniform Fire Code, and any applicable local codes.
Risk Management (RM)	4.9.1.2	All air handling in chemical storage areas shall meet local building codes and/or American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standards.	*Exhaust @ source and away from breathing zone* -- Add air handling "exhaust vents" in chemical storage areas shall "be located at or near the ground level" and meet…	To be discussed further. The MAHC would prefer not getting to specific and will be determining whether this should be left to building code.	4.2.2.3.3.1	Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code or Uniform Mechanical Code, and either the International Fire Code or the Uniform Fire Code, and any applicable local codes.
Risk Management (RM)	4.9.1.3	The ventilation system for the chemical storage area and pump room shall be designed so that the rooms are ventilated to the outside with air flow directed away from public access areas.	The ventilation system for the chemical STORAGE area and pump room shall be designed so that the rooms are ventilated to the outside with air flow directed away from public access areas. *Is there a requirement for chemical storage rooms as to how many cubic feet of air per second has to be turned over?*	*Design and Construction 4.9.2.5.2.2.1addresses how this requirement should be met.*	4.2.2.3.3.1	Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code or Uniform Mechanical Code, and either the International Fire Code or the Uniform Fire Code, and any applicable local codes.
Design & Construction (D&C)	4.2.2.4 & 4.2.2.5	4.2.2.4 -- Natatorium Doors; 4.2.2.5 -- Natatorium Windows	The section seems like a building department function	The majority of building standards do not address the unique requirements of natatorium envelopes. Therefore, some best practices in the industry are referenced in this standard.	4.2.2.4 & 4.2.2.5	Natatorium Doors and Windows
Design & Construction (D&C)	4.3.1.1	All equipment used or proposed for use in Aquatic Facilities governed under the Model Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.	*What does "equipment" mean? An aquatic facility can include concessions, shelters, etc – not directly related to the actual pool. Specific equipment man not be listed by any organization. Many aquatic venues in waterparks employ new technology which is not "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Non-aquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International.* -- This needs major clarification regarding the definition of "equipment".	Changed "aquatic facilities" to "aquatic venues".	4.3.1.1	Where applicable, all equipment used or proposed for use in Aquatic facilities governed under this code shall be of a proven design and construction and shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.3.1.1	All equipment used or proposed for use in Aquatic Facilities governed under the Model Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.	*Shouldn't say "all equipment." What about starting blocks, lane lines, pool paint?* -- Where applicable, all equipment used or proposed for use in POOLS governed under the Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.	Recommendation implemented.	4.3.1.1	Where applicable, all equipment used or proposed for use in Aquatic facilities governed under this code shall be of a proven design and construction and shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.
Design & Construction (D&C)	4.3.1.1	All equipment used or proposed for use in Aquatic Facilities governed under the Model Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.	*This is a certification issue, not a standards issue. Adding the ANSI-Accredited wording limits acceptable certifiers to those that are of a higher level of competency - which is what you want in a code. Similar wording is used elsewhere in the MAHC.* -- All equipment used or proposed for use in AQUATIC FACILITIES governed under the Model Aquatic Health Code shall be of a proven design and construction, and shall be listed by NSF International, Underwriters Laboratories or other ANSI-Accredited certification organization. ~~accredited standards facility where existing standards apply~~. -- REFERENCE: Examples of similar language are provided in sections 4.7.3.3.1.1 and 4.7.3.3.3.2	Recommendations implemented.	4.3.1.1	Where applicable, all equipment used or proposed for use in Aquatic facilities governed under this code shall be of a proven design and construction and shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.
Design & Construction (D&C)	4.3.1.1	All equipment used or proposed for use in Aquatic Facilities governed under the Model Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.	What does "equipment" mean? An aquatic facility can include concessions, shelters, etc. – not directly related to the actual pools/venues. Specific equipment man not be listed by any organization. Many aquatic venues, especially in waterparks, employ new technology that is not of "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Nonaquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International.	This paragraph has been updated. It states "where applicable, all equipment used or proposed for use in aquatic venues…."	4.3.1.1	Where applicable, all equipment used or proposed for use in Aquatic facilities governed under this code shall be of a proven design and construction and shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.
Design & Construction (D&C)	4.3.2.1	All equipment used or proposed to use in Aquatic Facilities shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply.	*What does "equipment" mean? An aquatic facility can include concessions, shelters, etc – not directly related to the actual pool. Specific equipment man not be listed by any organization. Many aquatic venues in waterparks employ new technology which is not "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Non-aquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here.* -- This needs major clarification regarding the definition of "equipment".	Changed "aquatic facilities" to "aquatic venues".	4.3.2.1	Where applicable, all equipment used or proposed to use in aquatic facilities shall be of proven design and construction and shall be listed by NSF International, Underwriters Laboratories, or another ANSI accredited certification organization, or EPA registration where applicable.
Design & Construction (D&C)	4.3.2.1	All equipment used or proposed to use in Aquatic Facilities shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply.	*Basically, a repeat of section 4.3.1.1. If it is to be included here also, the wording needs to be the same as in section 4.3.1.1 above.* -- All equipment used or proposed to use in AQUATIC FACILITIES shall be of proven design and construction, and shall be listed by NSF International, Underwriters Laboratories or other ANSI-Accredited certification organization. ~~or an ANSI accredited standards facility where existing standards apply~~. -- REFERENCE -- Examples of similar language are provided in sections 4.7.3.3.1.1 and 4.7.3.3.3.2	Recommendations implemented.	4.3.2.1	Where applicable, all equipment used or proposed to use in aquatic facilities shall be of proven design and construction and shall be listed by NSF International, Underwriters Laboratories, or another ANSI accredited certification organization, or EPA registration where applicable.
Design & Construction (D&C)	4.3.2.1	All equipment used or proposed to use in Aquatic Facilities shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply.	Should also list EPA since some devices that may be used for pool applications must be registered. -- All equipment used or proposed to use in AQUATIC FACILITIES shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply or EPA registration where applicable. -- REFERENCE: http://www.epa.gov/fedrgstr/EPA-PEST/2007/September/Day-21/p18591.htm	Recommendation implemented.	4.3.2.1	Where applicable, all equipment used or proposed to use in aquatic facilities shall be of proven design and construction and shall be listed by NSF International, Underwriters Laboratories, or another ANSI accredited certification organization, or EPA registration where applicable.
Design & Construction (D&C)	4.3.2.1	All equipment used or proposed to use in Aquatic Facilities shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply.	What does "equipment" mean? An aquatic facility can include concessions, shelters, etc. – not directly related to the actual pools/venues. Specific equipment man not be listed by any organization. Many aquatic venues, especially in waterparks, employ new technology that is not of "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Nonaquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International	This paragraph has been updated. It states "where applicable, all equipment used or proposed for use in aquatic venues…."	4.3.2.1	Where applicable, all equipment used or proposed to use in aquatic facilities shall be of proven design and construction and shall be listed by NSF International, Underwriters Laboratories, or another ANSI accredited certification organization, or EPA registration where applicable.
Design & Construction (D&C)	4.3.2.2. #2	Recirculation systems and all materials used therein shall be suitable for their intended use and be installed… (2) as certified by an ANSI-Accredited third-party testing and certification organization	*Appropriate equipment should be installed according to the manufacturers standards and as inspected by local building department. No need for a third party inspection here.* – Delete	Recommendation not implemented. Certification is critical for recirculation systems.	4.3.2.2	Recirculation systems and all materials used therein shall be suitable for their intended use and be installed in accordance with this code, as certified by an ANSI-Accredited third-party testing and certification organization, and as specified by the manufacturer.
Design & Construction (D&C)	4.5.	Pool Structure (Shell) (see Code for full text)	*Section 4.5 omits the critical provisions that means of exit/entry be located outside the "diving" envelope.* – REFERENCE: See ISPSC Section 322	Recommendation not implemented. Diving is addressed in section 4.8.2.2 and the intent of the minimum diving envelope in 4.8.2.2.4.1 is to not have any objects (stairs or anything else) infringe upon the footprint of this envelope.	4.5.	Pool Structure (Shell) (see Code for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.1.1	The aquatic venue shape shall provide for the safety of swimmers, thorough and complete circulation of the water, the ability to clean and maintain the pool, and the supervision of patrons using the pool.	Change all uses of "pool" to "Venue".	Recommendation not implemented. Pools are independently defined in the glossary.	4.5.1.1	The aquatic venue shape shall provide for the safety of swimmers, thorough and complete circulation of the water, the ability to clean and maintain the aquatic venue, and the supervision of patrons using the aquatic venue.
Design & Construction (D&C)	4.5.10.1	Where zero depth entries are provided, they shall be constructed with slip-resistant materials.	"with a minimum slip resistance co-efficiency of friction of 0.6 or greater"	COFs are noted in the annex (4.2.1.5) as they reference other standards.	4.5.10.1	Where zero depth entries are provided, they shall be constructed with slip-resistant materials.
Design & Construction (D&C)	4.5.10.2	Zero depth entries shall have a maximum floor slope of 1:12 to a water depth of 3 feet (91.4 cm).	There is a consistency issue here on slope. In another section you require a 1/12 slope up to 5 feet depth. Are you going to allow a steeper slope in a zero depth pool after 3 feet?	Not intended. Reference to 4.5.2.2 added which has the same maximum slope requirement.	4.5.10.2	Zero depth entries shall have a maximum floor slope of 1:12, consistent with the requirements of MAHC Section 4.5.2.2.
Design & Construction (D&C)	4.5.10.2	Zero depth entries shall have a maximum floor slope of 1:12 to a water depth of 3 feet (91.4 cm).	*Zero depth sloped entries are better identified and defined in Chapter 6 (Aquatic Recreation Facilities) of the ISPSC. And D-3 pools have specific requirements not found here. The further break down of the different Public swimming pools is clearly an advantage in addressing the differences of public swimming pools. There is also a two foot difference in the water depth requirement from the ISPSC, see Section 602.1* -- 4.5.10.2 Zero depth entries shall have a maximum floor slope of 1:12 to a water depth of 5~~3~~ feet (91.4 cm). – REFERENCE: ISPSC Section 602.1	Minor modifications made to this section.	4.5.10.2	Zero depth entries shall have a maximum floor slope of 1:12, consistent with the requirements of MAHC Section 4.5.2.2.
Design & Construction (D&C)	4.5.10.2.1	Changes in floor slope are permitted.	This seems to create a potential problem for small non-swimmers, if you allow a sudden change in floor slope without accounting for protections for the small swimmers.	This is primarily intended to allow for level areas that are often required for interactive play structures in zero entries.	4.5.10.2.1	Changes in floor slope shall be permitted.
Design & Construction (D&C)	4.5.10.3	Trench drains shall be extended throughout zero depth entries to facilitate surface skimming.	*Is a trench drain required? Can the drain have a raised overflow (e.g. like a handhold edge), or must it be constructed to create no tripping hazards? Do they have to follow the slope of the deck/pool wall?* -- Describe more about what a trench drain looks like. I have seen several variations, some of which I don't like because they present a tripping hazard, coming out of the major design firms.	The following language added to 4.5.10.3: The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.	4.5.10.3	Trench drains shall be used along zero depth entries at the waterline to facilitate surface skimming. The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.
Design & Construction (D&C)	4.5.10.3	Trench drains shall be extended throughout zero depth entries to facilitate surface skimming.	Suggest rewording to something similar to "Trench drains shall be used along the zero depth entry edge to facilitate surface skimming."	Recommendation implemented.	4.5.10.3	Trench drains shall be used along zero depth entries at the waterline to facilitate surface skimming. The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.
Design & Construction (D&C)	4.5.10.3	Trench drains shall be extended throughout zero depth entries to facilitate surface skimming.	*There is little benefit and high cost to this requirement which is not currently a standard in a lot of jurisdictions. Especially for small skimmertype wading pools, the cost is disproportionate to the project cost and may not serve any real purpose. Would this also apply to handicap ramps? It's not defined by the definitions. Suggest replacing "shall" with "recommend."* -- Trench drains are recommended to shall be extended throughout zero depth entries to facilitate surface skimming.	Recommendation not implemented. These trenches can be tied into skimmer systems which wouldn't be cost prohibitive by adding a surge tank and full gutter system.	4.5.10.3	Trench drains shall be used along zero depth entries at the waterline to facilitate surface skimming. The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.
Design & Construction (D&C)	4.5.11.1	Access for disabled persons shall conform to accessibility guidelines contained within Accessible Swimming Pools and Spas, as published by the latest edition of the United States Access Board.	*The guidelines are not enforceable. They have been incorporated into the ADA Standards approved by the Department of Justice – which are enforceable.* -- Access for disabled persons shall conform to ADA Standards as approved by the Department of Justice	Recommendation implemented.	4.5.11.1	Access for disabled persons shall conform to ADA Standards as approved by the Department of Justice.
Design & Construction (D&C)	4.5.11.1	Access for disabled persons shall conform to accessibility guidelines contained within Accessible Swimming Pools and Spas, as published by the latest edition of the United States Access Board.	The guidelines here are not enforceable. They have been incorporated into the ADA Standards approved by the Department of Justice – which are enforceable.	Recommendation implemented.	4.5.11.1	Access for disabled persons shall conform to ADA Standards as approved by the Department of Justice.
Design & Construction (D&C)	4.5.12	Color and Finish	*Restricts color of interior to "white or light pastel" whereas ISPSC Section 307.7 and ANSI/APSP-1 state "shall not obscure objects or surfaces…" Thus allowing any color that allows for visibility. There is no evidence that "light colors" insure greater visibility.* – REFERENCE: See ISPSC Section 307.7 and ANSI/APSP-1	Recommendation not implemented. Refer to the annex for additional rationale.	4.5.12	Color and Finish
Design & Construction (D&C)	4.5.12.1	Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the pool floor).	*Not necessary in shallower pools.* -- Add "… in pools with greater than two feet of water depth.	Recommendation implemented.	4.5.12.1	Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the pool floor.
Design & Construction (D&C)	4.5.12.1	Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the pool floor).	*See:4.5.12.1.1* -- Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the POOL floor).	Minimum Munsell color value requirement modified to 6.5 to be consistent with the State of Wisconsin. Additional research has been suggested in this area for the relationship between pool finish colors, water clarity / turbidity, and underwater lighting as they relate to visibility (both physical safety and bacteriological safety).	4.5.12.1	Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the pool floor.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.12.1.1	The finish shall be at least 9 on the Munsell color value scale.	*In our research, of the 50 states only 2 address this item. This will significantly impact waterpark and leisure industry. Recommend a performance standard to visibility if this is required or delete.* -- The finish shall be at least 9 on the Munsell color value scale.	Minimum Munsell color value requirement modified to 6.5 to be consistent with the State of Wisconsin. Additional research has been suggested in this area for the relationship between pool finish colors, water clarity / turbidity, and underwater lighting as they relate to visibility (both physical safety and bacteriological safety).	4.5.12.1.1	The finish shall be at least 6.5 on the Munsell color value scale.
Design & Construction (D&C)	4.5.12.1.1	The finish shall be at least 9 on the Munsell color value scale.	Not sure I understand the use of the Munsell color value. The Munsell charts are used for soil samples. I haven't read any literature supporting visual acuity results related to the Munsell color value. When asking manufacturer's to specify compliance with this requirement, it will be harder for determinations than with light reflectance values. Have you asked industry if they will provide this determination. I can see it getting very difficult when we are working with a surface that has multiple colors of materials interspersed in the product. Determining light reflectance value is more objective. A further comment, when considering the Munsell color value, it seems that it is also necessary to consider the other two values associated with the Munsell charts, including "Hue" and "Chroma" which are not addressed in the proposed standard. Swimming pools shall provide a pool color that is white or light color. If providing a light color, it shall provide a light reflectance value of 70% or more to enhance bather visibility. Any design or finish added to the pool shall not prevent detection of a bather in the pool. – REFERENCE: Handbook of Sports and Recreation in the section dealing with Electrical Engineering Services, establishes a minimum light reflectance value of 0.7 or greater.	Minimum Munsell color value requirement modified to 6.5 to be consistent with the State of Wisconsin. Light reflectance was also considered, but Munsell was agreed upon since it's utilized by a few states currently. In Wisconsin's implementation of the Munsell color values, they indicated that most of the quartz aggregate plaster applicators were comfortable with this level and have not expressed concern with it or compliance since it's been enforced.	4.5.12.1.1	The finish shall be at least 6.5 on the Munsell color value scale.
Design & Construction (D&C)	4.5.12.1.3	*Darker colors or designs such as rock formations may be permitted by the AHJ as long as the above criteria are met.*	*AHJ should have authority to make any exception they see fit. No need to state it here.* – Delete	Recommendation not implemented.	4.5.12.1.3	Darker colors or designs such as rock formations may be permitted by the AHJ as long as the above criteria are met.
Design & Construction (D&C)	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance, or shall have uniform slopes not greater than 11 degrees from plumb (1:5 maximum slope) to a water depth of at least 5 feet (1.52 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.5 below.	*Do we have to continue this fallacy? Modern gunite and shotcrete can be applied vertically. We do not have to provide allowances for lazy or inexperienced builders that cannot build a proper wall. There is absolutely no way the pool will crack from ice expansion, if it pool freezes. The NFSHSA standards have been around long enough to prove that vertical walls are even safe and buildable in deep areas.* -- Propose +/- 3 degrees only	Recommendation implemented.	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance to a water depth of at least 5 feet (1.5 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance, or shall have uniform slopes not greater than 11 degrees from plumb (1:5 maximum slope) to a water depth of at least 5 feet (1.52 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.5 below.	line 3, "11 degrees" should be "11°" just like it is in the next section	Recommendation implemented	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance to a water depth of at least 5 feet (1.5 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance, or shall have uniform slopes not greater than 11 degrees from plumb (1:5 maximum slope) to a water depth of at least 5 feet (1.52 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.5 below.	*Non traditional pools should not be so limited.* -- POOLS used primarily for swimming …	Recommendation not implemented.	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance to a water depth of at least 5 feet (1.5 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance, or shall have uniform slopes not greater than 11 degrees from plumb (1:5 maximum slope) to a water depth of at least 5 feet (1.52 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.5 below.	*US Army Corps of Engineers* -- Shotcrete cannot effectively and consistently be installed to the proscribed tolerances. It is recommended that special provisions be required in such cases. – REFERENCE: Standard Practice for Shotcrete EM 110-2-2005	Recommendation not implemented.	4.5.13.1	Pool walls shall be plumb within a +/- 3 degree tolerance to a water depth of at least 5 feet (1.5 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.13.1&2	4.5.13.1 POOL walls shall be plumb within a +/- 3 degree tolerance, or shall have uniform slopes not greater than 11 degrees from plumb (1:5 maximum slope) to a water depth of at least 5 feet (1.52 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.5 below. 4.5.13.2 All structural support ledges and slopes of the wall shall fall entirely within a plane slope from the water line at not greater than 11º from plumb.	*If there are any lifeguards reviewing this, they would know that structural support ledges must be carefully controlled or they will be used by non-swimmers to edge around the pool perimeter into deep water. The use of support ledges must be controlled to keep them deep enough to discourage use by poor swimmers. This design is seldom used in lifeguarded pools and usually shows up in small unguarded pools. The usual construction standard is dangerous. Public fiberglass-walled and vinyl liner pools, if allowed by the AHJ, should be restricted to depths not exceeding the width of their wall panel after it is supported at the top and bottom. Maybe 4-foot water depth so they can slope to the drain* -- The usual construction standard is dangerous. Public fiberglass-walled and vinyl liner pools, if allowed by the AHJ, should be restricted to depths not exceeding the width of their wall panel after it is supported at the top and bottom. Maybe 4-foot water depth so they can slope to the drain. Having said that, I think that lifeguarded pools with diving areas can consider some "underwater toe ledges" in the deep area under controlled circumstances and depths. These are not "support elements" and are supervised. (See below)	Sections just allowing for a +/- 3 degree tolerance. Toe ledges allowed and governed under a separate section.	4.5.13.1 & 4.5.13.2	4.5.13.1 Plumb POOL walls shall be plumb within a +/- 3 degree tolerance to a water depth of at least 5 feet (1.5 m), unless the wall design requires structural support ledges and slopes below to support the upper wall. Refer to Figure 4.5.13.4 below. 4.5.13.2 Support Ledges and Slopes All structural support ledges and slopes of the wall shall fall entirely within a plane slope from the water line at not greater than a +/- 3 degree tolerance. A contrasting color shall be provided on the edges of any support ledge to draw attention to the ledge for BATHER SAFETY.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.13.2	All structural support ledges and slopes of the wall shall fall entirely within a plane slope from the water line at not greater than 11º from plumb.	Add additional sentence. A contrasting color shall be provided on the edges of any support ledge to draw attention to the ledge for bather safety.. – REFERENCE: There have been injuries where bathers have hit an edge either on diving or swimming. This provides warning of the submerged condition.	Recommendation implemented.	4.5.13.2	All structural support ledges and slopes of the wall shall fall entirely within a plane slope from the water line at not greater than a +/- 3 degree tolerance. A contrasting color shall be provided on the edges of any support ledge to draw attention to the ledge for bather safety.
Design & Construction (D&C)	4.5.13.3	All corners created by adjoining walls shall be rounded or have a radius in both the vertical and horizontal dimensions to eliminate sharp corners.	*FINA* -- Rounded or radiused corners in both vertical and horizontal dimensions to eliminate sharp corners are not appropriate for competitive swimming pools. – REFERENCE: FR 2.4	Industry practice is to provide a minimum floor to wall cove in pool basins for sanitary purposes. This similar approach is made to walls which are required currently by many jurisdictions. Typically the wall corners are only rounded 1-2" which won't impact the race course and surveying.	4.5.13.3	All corners created by adjoining walls shall be rounded or have a radius in both the vertical and horizontal dimensions to eliminate sharp corners.
Design & Construction (D&C)	4.5.13.4	There shall be no projections from a pool wall with the exception of structures or elements such as stairs, grab rails, ladders, hand holds, underwater benches, and underwater ledges as described in this section. Refer to Figure 4.5.13.5 below.	*Does this exclude peninsulas/wing walls?? --* ???	4.8.1.6 allows for the design / projection of wing walls and peninsulas. For clarification, these have been added to 4.5.13.4.	4.5.13.4	There shall be no projections from a pool wall with the exception of structures or elements such as stairs, grab rails, ladders, hand holds, peninsulas, wing walls, underwater lights, safety ropes, waterslides, play features, other approved pool amenities, underwater benches, and underwater ledges as described in this section. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.13.4	There shall be no projections from a pool wall with the exception of structures or elements such as stairs, grab rails, ladders, hand holds, underwater benches, and underwater ledges as described in this section. Refer to Figure 4.5.13.5 below.	Remove this entry or rewrite it… This does not allow for special use attractions, Float and Rope Anchors, slides, entertainment features, light covers, or any of the multitude of features found in today's aquatic facilities. The intention is good but this as is will not work as is.	Additional features added to the list of exemptions.	4.5.13.4	There shall be no projections from a pool wall with the exception of structures or elements such as stairs, grab rails, ladders, hand holds, peninsulas, wing walls, underwater lights, safety ropes, waterslides, play features, other approved pool amenities, underwater benches, and underwater ledges as described in this section. Refer to Figure 4.5.13.4 below.
Design & Construction (D&C)	4.5.3	Structural Stability	This section seems like a building department function	The majority of building standards do not address these requriements. Many existing state and local codes do, so it was broadly felt that the pool structure should be included in this standard	4.5.14	Structural Stability
Design & Construction (D&C)	4.5.3.3.1	Expansion and/or construction joints should be utilized when prudent.	*Recommend deleting. This is an engineering driven solution that is dependent on local soil conditions and means and methods.* -- Expansion and/or CONSTRUCTION JOINTS should be only utilized when prudent.	Paragraph removed from the code and placed in the annex with some additional language.	4.5.14 Annex	Expansion and/or construction joints should be utilized when determined prudent by a licensed structural engineer. Any joints should utilize waterproofing strategies such as water stops as they are subject to compromising a pool's integrity regarding water tightness. The condition of all joints should be inspected regularly to ensure their condition.
Design & Construction (D&C)	4.5.3.3.1	Expansion and/or construction joints should be utilized when prudent.	*What does this mean? Since it says "should," it is permissive using the modern meaning of the word; and when is it "prudent?" When I am reviewing and approving pool plans, "prudent" is not often in my vocabulary. How do I enforce "should?" Does "should" mean "shall" or do we use "ought" to define its meaning? You're the experts. Please define "should" and "prudent." My experience as a regulatory official does not include the ability to evaluate these terms. Definition "prudent": "Wise in handling practical matters; exercising good judgment or common sense." If everyone was doing this correctly, you wouldn't need me or the MAHC. But who decides what is good judgement or common sense. Pool operators do not like it when the regulatory community can abitrarily determine this... based on "common sense" and the regulatory officials "good judgement." Common sense is also counter-political, so using it usually gets us in trouble with the politicians.* -- Don't use ambiguous terms. Define when they are allowed or prohibited. Don't use "and/or"; I think "or" is appropriate here. Can't think of anything "and: would cover that can't be resolved using "or." I know, using my common sense and good judgement that ACI has some technical specifications to address expansion and construction joints. I heard about their standards often growing up, from a materials engineer that was a close relative. For materials other than concrete have them follow the manufacturer's recommendations or industry standard for that material	Agreed that 4.5.3.3.1 is not enforceable from a regulatory standpoint as stated in the original draft. This language has been moved to the annex as more of a design note. It should be left up to licensed structural engineers.	4.5.14 Annex	Expansion and/or construction joints should be utilized when determined prudent by a licensed structural engineer. Any joints should utilize waterproofing strategies such as water stops as they are subject to compromising a pool's integrity regarding water tightness. The condition of all joints should be inspected regularly to ensure their condition.
Design & Construction (D&C)	4.5.3.1	Pools shall be designed to withstand the loads imposed by pool water, pool patrons, and adjacent soils or structures.	Suggest changing to "…withstand the reasonably anticipated loads imposed by POOL water, POOL patrons, and adjacent soils or structures." Earthquakes for example may not be withstood.	Recommendation implemented.	4.5.14.1	Pools shall be designed to withstand the reasonably anticipated loads imposed by pool water, pool patrons, and adjacent soils or structures.
Design & Construction (D&C)	4.5.3.2	A hydrostatic relief valve and/or suitable under drain system shall be provided when site conditions warrant.	"And/or" is not appropriate. Pick one, I suggest "or."	No changes made. While it's agreed that under most circumstances both a hydrostatic relief valve and an under drain system are likely redundant, specific site conditions and design parameters may dictate that both are warranted.	4.5.14.2	A hydrostatic relief valve and/or suitable under drain system shall be provided when site conditions warrant.
Design & Construction (D&C)	4.5.3.2	A hydrostatic relief valve and/or suitable under drain system shall be provided when site conditions warrant.	*Should not be mandatory* -- Change "shall" to "should"	Recommendation not implemented (it is believed that this comment was in reference to 4.5.3.3 and not 4.5.3.2).	4.5.14.2	A hydrostatic relief valve and/or suitable under drain system shall be provided when site conditions warrant.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.14.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	*Provide for other hand hold types. The original 3 types would not ever be below the static water level as permitted here.* -- Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, cantilevered decking, horizontal bars, recessed hand holds) around the perimeter of the pool where the water depth at the wall exceeds 42 inches installed not more than 9 inches (22.9 cm) above or 3 inches (7.62 cm) below the static water surface.	Recommendation implemented. However, 42 inch water depth changed to 24 inches which is the threshold between wading pool water depths (Illinois has similar requirements, but they start at 30 inches).	4.5.15.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m). These handholds shall be installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.
Design & Construction (D&C)	4.5.14.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	*Are there any exemptions set forth? Many pools that are not used primarily for recreational swimming do not require handholds and this would be an unnecessary expense. No reason for handholds on a wading pool, spa, etc* -- Unless otherwise exempted, POOLS used primarily for recreational swimming with not less than 4 feet of water depth,…	Exemption for wavepools. Exemptions for rivers (only one side) as stated in 4.12. Otherwise, all pool perimeter in water depths greater than 24 inches will require an acceptable hand hold.	4.5.15.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m). These handholds shall be installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.
Design & Construction (D&C)	4.5.14.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	How does this apply to zero depth pools and is it really needed in shallow water wading pools? Is it necessary on Caisson walls or restricted areas where there is no guest access? Needs to be re-written and encompass all types of venues.	Section amended to only require handholds for water deeper than 24 inches and not along beach entries.	4.5.15.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m). These handholds shall be installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.
Design & Construction (D&C)	4.5.14.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	*ISPSC allows handholds to be located no more than 12 inches above design water line. An unnecessary conflict has been created. The ISPSC language is correct. There is no reason to restrict the depth of the handhold or to preclude its location up to 12 inches above.* -- Where not otherwise exempted, every POOL shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level. SEE GENERAL COMMENT under Basis for Change. – REFERENCE: See ISPSC Section 323.1	Recommendation implemented.	4.5.15.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m). These handholds shall be installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.
Design & Construction (D&C)	4.5.14.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	*The State of Illinois is one state that does not require handholds in shallow areas which is fairly logical.* -- Where not otherwise exempted, every POOL shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter where the water depths is 30 inches or greater and installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.	Standards modified to require handholds starting at water depths greater than 24 inches.	4.5.15.1	Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m). These handholds shall be installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.
Design & Construction (D&C)	4.5.14.5 NEW PROPOSED SECTION	N/A	*Provide for underwater recessed hand holds.* -- Horizontal recesses may be used for hand holds provided they are a minimum of 24 inches long, a minimum of 4 inches high and between 2 and 3 inches deep. Horizontal recesses shall drain into the pool. Horizontal recesses need not be continuous but consecutive recesses shall be separated by no more than 12 inches of wall.	Recommendation added as 4.5.14.1.	4.5.15.2	Horizontal recesses may be used for hand holds provided they are a minimum of 24 inches (0.6 m) long, a minimum of 4 inches (100 mm) high and between 2 inches (50 mm) and 3 inches (75 mm) deep.
Design & Construction (D&C)	4.5.14.2	Where perimeter gutter systems are not provided, a coping or cantilevered decking of reinforced concrete or material equivalent in strength and durability, with rounded, slip-resistant edges shall be provided.	Cantilevered decking is not required for skimmer pool type installations. The purpose of the original statement is not fully understood.	A deck that extends slightly beyond the vertical plane of the pool wall, similar to a coping stone handhold on many skimmer pools.	4.5.15.3	Where perimeter gutter systems are not provided, a coping or cantilevered decking of reinforced concrete or material equivalent in strength and durability, with rounded, slip-resistant edges shall be provided.
Design & Construction (D&C)	4.5.14.3	The overhang for coping or cantilevered decking shall be not greater than 2 inches (5.08 cm), nor less than 1 inch (2.54 cm), and shall not exceed 2.5 inches (6.35 cm) in thickness for the last 2 inches (5.08 cm) of the overhang.	"shall not be greater than 2" from the vertical plane of the pool wall"	Recommendation implemented.	4.5.15.4	The overhang for coping or cantilevered decking shall not be greater than 2 inches (50 mm) from the vertical plane of the pool wall, nor less than 1 inch (25 mm).
Design & Construction (D&C)	4.5.15	Infinity Edges	Add new 4.5.15.6 The maximum depth of the wall outside of the infinity edge will not exceed 30 inches in height above the pool wall. – REFERENCE: Building codes require a guard rail on any distance over 30" in height for safety.	Recommendation implemented.	4.5.16	Infinity Edges
Design & Construction (D&C)	4.5.15	Infinity Edges	Any restrictions? I have had proposals for infinity edges that have considered drops of more than 10 feet. They were proposed to be unsupervised and had proposed no protection to prevent "wall-walking. All our pools with this design utilize the edge as a "transfer wall," so they are not more than 19" above the deck/capture drain. A 19" fall is much different than a 10+' drop. Usually they also provide a way to drop the water slightly to allow the wall to be exposed for the transfer wall usage. Or was the "infinity edge" definition that was proposed, not to consider waterfall type "vanishing edges." (e.g. Lautner edges or zero-edge pools) If this is the case, the definition needs clarification to make this very clear.	A section has been added requiring that the height difference between the top of the wall and the adjacent deck or trench drain for the infinity water is no more than 30" to be consistent with building code for drops that do not require a guard rail.	4.5.16	Infinity Edges

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.15.2	All portions of a pool with infinity edges shall be within reach of a person standing on the pool deck utilizing at least 16 foot long shepherd's hook.	*This limits the infinity edge to 32 ft in length or have a pool less than 16 ft in width. This would eliminate a significant portion of the infinity pools that have been designed to date. Recommend taking another look at these restrictive requirements. Also, it can be argued that shallow pools could come under different requirements.* -- Not more than fifty percent (50%) of the POOL perimeter shall incorporate an INFINITY EDGE detail, unless an adjacent and patron accessible POOL DECK space conforming to MAHC Section 4.8.1 is provided.	This section has been modified. More research is needed in the future on this topic, in conjunction with lifeguarding and bather safety. A limit of 30 feet will be enforced for deep water infinity edges and no maximum length for infinity edges in water depths 5 ft and shallower.	4.5.16.2	The length of an infinity edge shall be no more than 30 feet (9 m) long when in water depths greater than 5 feet (1.5 m).
Design & Construction (D&C)	4.5.15.2	All portions of a pool with infinity edges shall be within reach of a person standing on the pool deck utilizing at least 16 foot long shepherd's hook.	This is a ridiculous requirement in a guarded facility. Might be ok for an unguarded facility but needs to be clarified.	This section has been modified. More research is needed in the future on this topic, in conjunction with lifeguarding and bather safety. A limit of 30 feet will be enforced for deep water infinity edges and no maximum length for infinity edges in water depths 5 ft and shallower.	4.5.16.2	The length of an infinity edge shall be no more than 30 feet (9 m) long when in water depths greater than 5 feet (1.5 m).
Design & Construction (D&C)	4.5.15.3	Handholds conforming to the requirements of Section 4.5.6 shall be provided for infinity edges, which may be separate from, or incorporated as part of the infinity edge detail.	This could lead to design issues	For infinity edge designs, a recessed handhold below the water level will likely prove most feasible	4.5.16.3	Handholds conforming to the requirements of MAHC Section 4.5.15 shall be provided for infinity edges, which may be separate from, or incorporated as part of the infinity edge detail.
Design & Construction (D&C)	4.5.15.4	Where infinity edges are provided, they shall be constructed of concrete or other impervious and structurally rigid material, and designed to withstand the loads imposed by pool water, pool patrons, and adjacent soils or structures.	*Incorrect reference.* -- Handholds conforming to the requirements of Section 4.5.14 4.5.6 shall be provided for INFINITY EDGES, which may be separate from, or incorporated as part of the INFINITY EDGE detail.	Recommendation implemented.	4.5.16.4	Where infinity edges are provided, they shall be constructed of reinforced concrete or other impervious and structurally rigid material(s), and designed to withstand the loads imposed by pool water, pool patrons, and adjacent soils or structures.
Design & Construction (D&C)	4.5.15.4	Where infinity edges are provided, they shall be constructed of concrete or other impervious and structurally rigid material, and designed to withstand the loads imposed by pool water, pool patrons, and adjacent soils or structures.	*Industry Standards* -- It is recommended that the statement be revised to read, "They shall be constructed of structurally rigid impervious material and designed to withstand loads imposed by pool water, pool patrons, and adjacent soil or structures." There are many technologies that are suitable for the purpose in addition to concrete and specifying concrete can be interpreted as unintentionally restrictive.	Same modifications were made here as to 4.2.1.1.	4.5.16.4	Where infinity edges are provided, they shall be constructed of reinforced concrete or other impervious and structurally rigid material(s), and designed to withstand the loads imposed by pool water, pool patrons, and adjacent soils or structures.
Design & Construction (D&C)	4.5.16	Underwater Benches	Add new 4.5.16.5 Underwater ledges shall be offset from the regular wall of the pool. The ledge shall not be used in an area that is used for lap swimming. No diving markings shall be provided on the deck above the ledge. – REFERENCE: The underwater ledge can create a hazard for swimmers and persons jumping into a pool. The ledge should be offset from the primary pool wall to draw attention to it's placement and prevent bathers from running into it while swimming. See WAC 246-260-091(2).	Requirement inherent. As stated in 4.5.16, benches cannot be installed in water deeper than 5 ft which would require No Diving signs by this standard.	4.5.17	Underwater Benches
Design & Construction (D&C)	4.5.16.2	The edges of underwater benches shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 1 inch (2.54 cm) and not greater than 2 inches (5.08 cm).	Add "…on both the top of horizontal edges and leading vertical edges, and should be viewable from the deck or from underwater." to the end of the entry.	Recommendation implemented.	4.5.17.2	The leading horizontal and vertical edges of underwater benches shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 3/4 inch (19.05 mm) and not greater than 2 inches (50 mm).
Design & Construction (D&C)	4.5.16.2	The edges of underwater benches shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 1 inch (2.54 cm) and not greater than 2 inches (5.08 cm).	*Another discrepancy, this time of a 1/4", from what is in the ISPSC.* -- The edges of UNDERWATER BENCHES shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than ~~1 inch (2.54 cm)~~ ¾ inch (1.91 cm) and not greater than 2 inches (5.08 cm). SEE General Comment under Basis for Change. – REFERENCE: See section 610.6.4 of the ISPSC.	Recommendation implemented.	4.5.17.2	The leading horizontal and vertical edges of underwater benches shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 3/4 inch (19.05 mm) and not greater than 2 inches (50 mm).
Design & Construction (D&C)	4.5.16.4	The maximum submerged depth of any seat or sitting bench shall be 24 inches (61 cm) measured from the water line.	*There is a discrepancy of 4 inches between this section & section 411.5.2 of the ISPSC. Further, underwater seats and swim-outs are also addressed in Section 610.6 and 610.7 of Chapter 6 (Aquatic Recreation Facilities) of the ISPSC. Another example of discrepancy by having construction and design elements in two codes that ultimately should complement each other.* -- The maximum submerged depth of any seat or sitting bench shall be ~~24~~ 20 inches ~~(61 cm)~~ measured from the water line. SEE General Comment under Basis for Change. – REFERENCE: See section 411.5.2 of the ISPSC.	Recommendation implemented.	4.5.17.4	The maximum submerged depth of any seat or sitting bench shall be 20 inches (0.5 m) measured from the water line.
Design & Construction (D&C)	4.5.17	Underwater Ledges	See comments at 4.5.13.1 & 2 I think underwater toe ledges should only be installed in deep water in lifeguarded pools. Toe ledges should discourage non-swimmers and small kids from "wall walking." Perhaps prohibit the toe ledge in water that is "shallow," and adding some space (4 ft.?) between the break-in grade and where the wall can start.	Recommendation implemented. Requirement for 4 ft spacing at the 5 ft slope break added	4.5.18	Underwater Ledges
Design & Construction (D&C)	4.5.17	Underwater Ledges	Underwater ledge construction shall conform with FIA facility rules for Swimming pools, FR2.4.2 – REFERENCE: This establishes the limitations of the ledges and how far they can protrude and the depth for placement so as not to interfere with flip turns.	Recommendation not implemented. While this would be applicable and valid for FINA regulation pools, it would not be applicable in the majority of installations in the U.S. since they would not govern unless it's a high-end competitive meet. Most toe ledges are at 4'-0" below the water surface which would avoid interference with almost every flip turn.	4.5.18	Underwater Ledges

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.17.1	Where underwater toe ledges are provided to enable swimmers in deep water to rest, or to provide structural support for an upper wall, they shall be constructed with slip-resistant materials.	*Can a ledge stick out from the wall if deep enough?* -- Where UNDERWATER TOE LEDGES are provided to enable swimmers in deep water to rest, or to provide structural support for an upper wall, they shall be constructed with slip-resistant materials.	Yes, as noted in the standards.	4.5.18.1	Where underwater toe ledges are provided to enable swimmers in deep water to rest, or to provide structural support for an upper wall, they shall be constructed with slip-resistant materials.
Design & Construction (D&C)	4.5.17.3	Underwater toe ledges for resting shall only be provided within areas of a pool with water depths of 5 feet (1.52 m) or greater.	*States that ledges shall only be provide within areas of a pool with water depths of 5 feet or greater. It does not state the minimum distance below the water surface it should be located. Can they be in pools less than 5 feet? What is the width of the ledge?* -- UNDERWATER TOE LEDGES for resting shall only be provided within areas of a POOL with water depths of 5 feet (1.52 m) or greater. See General Comment under Basis for Change. – REFERENCE: See 404.1 of the ISPSC	Refer to 4.5.17.6 for allowable tread depth. Clarification has been added that toe ledges may not be less than 4 feet below the water surface. They are not permitted in water shallower than 5 feet because it discourages "wall walking" by children who are poor swimmers and shouldn't be in deep water.	4.5.18.3	Underwater toe ledges for resting shall only be provided within areas of a pool with water depths of 5 feet (1.5 m) or greater.
Design & Construction (D&C)	4.5.17.5	The edges of underwater toe ledges shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 1 inch (2.54 cm) and not greater than 2 inches (5.08 cm).	Add "…on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater." to the end of the entry.	Recommendation not implemented. Marking the vertical edges not viewed as necessary since most don't project into the pool and if they do, there is usually not enough surface area vertically to get a marking. There is also no vertical safety issue.	4.5.18.5	The edges of underwater toe ledges shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 1 inch (25 mm) and not greater than 2 inches (50 mm).
Design & Construction (D&C)	4.5.17.5.1	The edges of underwater toe ledges shall be clearly visible from the pool deck.	How does this work with recessed ledges, which are permissible as stated above?	Section modified to only pertain to those ledges that project past the plane of the pool wall.	4.5.18.5.1	If they project past the plane of the pool wall, the edges of underwater toe ledges shall be clearly visible from the deck.
Design & Construction (D&C)	4.5.18.1	Underwater shelves may be constructed immediately adjacent to deeper water.	Proposed revision: Under water ledges may be constructed adjacent to water depths of 3 to 3.5 feet of water depth, but preferably located adjacent to stairs leading into the pool. – REFERENCE: Underwater ledges need to account for the issue with small children who may use them and suddenly go into deeper water.	Recommendation implemented, but modified to 5 feet of water depth (maximum) to coincide with the definition of "shallow water."	4.5.19.1	Underwater shelves may be constructed immediately adjacent to water shallower than 5 feet (1.5 m).
Design & Construction (D&C)	4.5.18.1	Underwater shelves may be constructed immediately adjacent to deeper water.	*Shelves or benches provide a shallow area attractive to non-swimming children, who should not be enticed to fall into deeper water* -- UNDERWATER SHELVES or benches shall not be constructed immediately adjacent to water deeper than 4 feet deep.	Recommendation implemented, but maximum depth of adjacent water changed to 5 feet consistent with the definition of shallow water.	4.5.19.1	Underwater shelves may be constructed immediately adjacent to water shallower than 5 feet (1.5 m).
Design & Construction (D&C)	4.5.18.2	Underwater shelves shall have a slip-resistant, color contrasting nosing at the leading edge.	Add "…on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater." to the end of the entry.	Recommendation implemented.	4.5.19.2	Underwater shelves shall have a slip-resistant, color contrasting nosing at the leading horizontal and vertical edges on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater.
Design & Construction (D&C)	4.5.18.3	Underwater shelves shall have a maximum depth of 2 feet (61 cm).	*Depth can be interpreted as horizontal distance from wall to nosing. Inches is consistent with other paragraphs in lieu of feet. (e.g. 4.5.16.4)* -- Underwater shelves shall have a maximum water depth of 24 inches.	Changed from feet to inches.	4.5.19.3	Underwater shelves shall have a maximum depth of 24 inches (0.6 m).
Design & Construction (D&C)	4.5.2.2	In water depths under 5 feet (1.52 m), the slope of the floor of all pools shall not exceed 1 foot (30.5 cm) vertical drop for every 12 feet (3.66 m) horizontal.	*This section of the MAHC fails to recognize the difference classes of pools and the need of varied requirements. Slopes of <u>1 unit vertical in 10 units horizontal</u> must be permitted for Class C pools (a pool operated solely for an in conjunction with lodgings such as hotels, motels, apartments, and condominiums). This slope adequately serves to protect children and swimmers, while allowing a pool to be constructed within the space available for many such properties. Many if not most pools in this category presently have slopes of 1:10 as opposed to 1:12, and there is no data or evidence that requiring a steeper slope would enhance safety. Requiring a 1:12 slope in this category would also make it impossible for many properties to install a pool with a deep and a shallow end. A <u>1 unit vertical in 12 units</u> horizontal slope for Class B pools (a pool intended for public recreational use) is appropriate.* -- 4.5.2.2 ~~In water depths under 5 feet (1.52 m), the slope of the floor of all pools shall not exceed 1 foot (30.5 cm) vertical drop for every 12 feet (3.66 m) horizontal.~~ Replace with Section 401.5 of the ISPSC. – REFERENCE: ISPSC, Section 401.5	Recommendation not implemented. 1:10 is steeper than 1:12, so the argument is not that a steeper slope is safer. 1:12 is consistent with ADA and the majority of local and state regulations in place. This standard is not intended to be enforced retroactively to pools already in existence, so there would be no impact on those Class C pools. It is not felt that the difference between 1:10 and 1:12 is prohibitive for most of these Class C pools. If they are of limited size and have a deep and shallow end, it can be presumed that the shallow end is not a full beach entry and likely 3'-0" or 3'-6". This would only require an additional 3-4 ft of shallow transition.	4.5.2.2	In water depths under 5 feet (1.52 m), the slope of the floor of all pools shall not exceed 1 foot (0.3 m) vertical drop for every 12 feet (3.66 m) horizontal.
Design & Construction (D&C)	4.5.2.3	In water depths 5 foot and greater, the slope of the floors of all pools shall not exceed 1 foot (30.5 cm) vertical to 3 feet (91.4 cm) horizontal, except that pools designed and used for competitive diving shall be designed to meet the standards of the sanctioning organization (such as NFSHSA, NCAA, or FINA).	*Add USA Diving.* -- In water depths 5 foot and greater, the slope of the floors of all POOLS shall not exceed 1 foot (30.5 cm) vertical to 3 feet (91.4 cm) horizontal, except that POOLS designed and used for competitive diving shall be designed to meet the standards of the sanctioning organization (such as NFSHSA, NCAA, USA Diving, or FINA).	Recommendation implemented.	4.5.2.3	In water depths 5 foot and greater, the slope of the floors of all pools shall not exceed 1 foot (0.3 m) vertical to 3 feet (0.9 m) horizontal, except that pools designed and used for competitive diving shall be designed to meet the standards of the sanctioning organization (such as NFSHSA, NCAA, USA Diving or FINA).
Design & Construction (D&C)	4.5.2.4	Pools shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	*Common central location is unclear. Does this mean only one drain in the pool or that all pool drains are connected to the common central location? Why do all drains need to be connected to the same central location?* -- Delete "common central location"	Recommendation implemented.	4.5.2.4	Pools shall be designed so that they drain without leaving puddles or trapped standing water.
Design & Construction (D&C)	4.5.2.4	Pools shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	*Pools may have more than one low area separated by higher areas.* -- Pools shall be designed so that all parts of the pool are drained so that they do not leave trapped or standing water.	It is felt that the intent of the current draft addresses this comment. No standing water should be allowed inside of the pool structure(s).	4.5.2.4	Pools shall be designed so that they drain without leaving puddles or trapped standing water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.2.4	Pools shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	*Possible misinterpretation could be that drains need to be "centrally located" in the mid-point of all pools and not the mid-point of the deep end.* -- POOLS shall be designed so that they drain to drains a common central location without leaving puddles or trapped standing water.	Section reworded to avoid potential misinterpretation.	4.5.2.4	Pools shall be designed so that they drain without leaving puddles or trapped standing water.
Design & Construction (D&C)	4.5.2.4	Pools shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	This should be objective and not prescriptive. Venues do not need to drain entirely to one central location as long as the drainage can be achieved without puddles or standing water.	This section has been amended.	4.5.2.4	Pools shall be designed so that they drain without leaving puddles or trapped standing water.
Design & Construction (D&C)	4.5.2.4	Pools shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	*US Army Corps of Engineers* -- The installation techniques for shotcrete are not controlled enough to allow for the installation of an even slope to "drain to a common central location without leaving puddles". It is recommended that special provisions be required in such cases – REFERENCE: Standard Practice for Shotcrete EM 110-2-2005	Recommendation not implemented.	4.5.2.4	Pools shall be designed so that they drain without leaving puddles or trapped standing water.
Design & Construction (D&C)	4.5.19.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) minimum depth; 2) maximum depth; 3) on both sides and at each end of the pool; and 4) at the break in the floor slope between the shallow and deep portions of the pool.	All markers should be in metric and English measurements	Only English measurements are required and metric is optional.	4.5.20.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) Minimum depth, 2) Maximum depth, 3) On both sides and at each end of the POOL and, At the break in the floor slope between the shallow and deep portions of the POOL.
Design & Construction (D&C)	4.5.19.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) minimum depth; 2) maximum depth; 3) on both sides and at each end of the pool; and 4) at the break in the floor slope between the shallow and deep portions of the pool.	Is this really needed in zero depth entry ways, catch pools, lazy rivers, and other specialty pools not intended for access at all points	Refer to 4.12 for reliefs from these requirements (such as zero beach entries). But catch pools, for instance, can be used for learn-to-swim programming at municipal facilities during non-peak hours. So they often serve multiple purposes. And perimeter deck is required around 100% of most pools, so they should be marked accordingly.	4.5.20.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) Minimum depth, 2) Maximum depth, 3) On both sides and at each end of the POOL and, At the break in the floor slope between the shallow and deep portions of the POOL.
Design & Construction (D&C)	4.5.19.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) minimum depth; 2) maximum depth; 3) on both sides and at each end of the pool; and 4) at the break in the floor slope between the shallow and deep portions of the pool.	*No good reason to place such depth markers on all pools. Catch pool depths are important to note at the top of a slide where people enter – not at the pool itself. Is there a need to put depth markers on wading pools?* -- POOLS used primarily for recreational swimming shall require depth to be clearly…	Recommendation not implemented. Catch pools are often used for other purposes besides sliding, such as learn-to-swim programming during off-peak hours. Depth markings will be necessary for all areas around pool perimeters except zero beaches as described in the MAHC. This is not a deviation from almost every local standard that is enforced today.	4.5.20.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) Minimum depth, 2) Maximum depth, 3) On both sides and at each end of the POOL and, At the break in the floor slope between the shallow and deep portions of the POOL.
Risk Management (RM)	4.5.5.1.3	Depth markings shall be located on both sides of the aquatic venue at the shallow end, slope break, deep end wall and deep point if the deep point is located more than five feet (1.5m) from the deep end wall.	*Not sufficient guidance.* -- Need to define what constitutes a slope break.	*MAHC Facility Design and Construction defines "slope break" at 5 feet.*	4.5.20.1.1	POOL water depths shall be clearly and permanently marked at the following locations: 1) Minimum depth, 2) Maximum depth, 3) On both sides and at each end of the POOL and, 4) At the break in the floor slope between the shallow and deep portions of the POOL.
Risk Management (RM)	4.5.5.1.6	Depth markers shall be located both on the vertical wall at or above water level and on the horizontal surface within 3 feet (1m) of the water's edge.	*Depth marking not readily visible to bathers.* -- Keep current language and add exception: If overflow channels do not allow for placement of vertical wall markings above the water level, they are not required. – Reference: WAC 246-260-041(8)(a).(*)	Partially agree. The MAHC still wants bathers to see the depth when in the pool. Design and Construction states "4.5.19.1.3. Where depth markings cannot be placed on the vertical wall above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool.	4.5.20.1.2	Depth markers shall be located on the vertical pool wall and positioned to be read from within the pool.
Design & Construction (D&C)	4.5.19.1.3	Where depth markings cannot be placed on the vertical wall above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool.	*Similar standards are in place in other jurisdictions and they are often useless since the nearest place to post markings could be 30 ft + away from the pool.* -- Where depth markings cannot be placed on the vertical wall above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool.	Refer to annex	4.5.20.1.3	Where depth markings cannot be placed on the vertical wall above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool.
Design & Construction (D&C)	4.5.19.1.4	Depth markers shall also be located on the pool coping or deck within 12 inches (30.5 cm) of the pool structural wall or perimeter gutter.	*Why the difference in six inches? Another example of conflict between MAHC and ISPSC that will cause considerable problems for the enforcement side, contractor, and consumer.* -- 4.5.19.1.4 Depth markers shall also be located on the POOL coping or deck within ~~12~~ 18 inches ~~(30.5 cm)~~ (46.6 cm) of the POOL structural wall or perimeter gutter. See General Comment under Basis for Change. – REFERENCE: See ISPSC, Section 409.2.5	Recommendation implemented.	4.5.20.1.4	Depth markers shall also be located on the pool coping or deck within 18 inches (0.45 m) of the pool structural wall or perimeter gutter.
Risk Management (RM)	4.5.5.1.1	Depth markings shall be visible to patrons when they enter the aquatic venue to inform the patron of the water depth and when water depth changes.	*Not sufficient guidance* . -- Need to define what constitutes a water depth change. For example a 1 foot depth increase.	*See MAHC Design and Construction Guidance for depth markers. The MAHC does not believe this language needs to be more specific.*	4.5.20.1.5	Depth markers shall be positioned to be read while standing on the deck facing the pool.
Design & Construction (D&C)	4.5.19.1.6	Depth markers shall be installed at not more than 25 foot (7.62 m) intervals around the pool perimeter edge.	Add "…and according to the requirements above." to the end.	Recommendation implemented.	4.5.20.1.6	Depth markers shall be installed at not more than 25 foot (7.6 m) intervals around the pool perimeter edge and according to the requirements of this section.
Design & Construction (D&C)	4.5.19.2.1	Depth markers shall be constructed of a durable material resistant to local weather conditions.	Add>Painting shall not be considered a permanent marking.	It was not felt that painted depth markings (while not ideal) should be prohibited. But a requirement stating that all illegible depth markings need to be replaced was added to this paragraph.	4.5.20.2.1	Depth markers shall be constructed of a durable material resistant to local weather conditions. Any depth markings that are illegible are required to be replaced.
Risk Management (RM)	4.5.5.2.2	Depth markers shall be slip resistant for depth markers on walking surfaces.	Depth markers shall be slip resistant for depth markers on walking surfaces.	*Agreed. Language was changed to "Depth markers on walking surfaces shall be slip resistant."*	4.5.20.2.2	Depth markers shall be slip-resistant when they are located on horizontal surfaces.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.5.5.2.3	Depth markers shall indicate the unit of measurement in feet, inches, or meters.	*A venue in Texas lost a case in court due to the lack of signage and markings in an alternative language (Spanish)* -- It is recommended for an aquatic venue to use both imperial and metric units when more than half of the patrons require the use of metric units	Disagree. This is a minimum and a facility will have the freedom to provide additional guidance to their patrons as appropriate. No change. Design and construction section 4.5.19.2.4.2 also states the following "Metric units may be provided in addition to—but not in lieu of—units of feet and inches." *As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	4.5.20.2.4	Depth markers shall be marked in units of feet and inches.
Risk Management (RM)	4.5.5.2.3	Depth markers shall indicate the unit of measurement in feet, inches, or meters.	The International Swimming Pool & Spa Code (ISPSC) requires depths to be displayed in feet and inches, allowing for metric in addition to feet and inches. -- Depth markers shall indicate the unit of measurement in feet, and inches, or meters. Meters may be displayed in addition to feet and inches. – Reference: See section 409.2.8 of the ISPSC. www.iccsafe.org/cs/ispsc	Disagree. It can be ideal for depths to be placed in feet, inches with meters optional but it is not required. Facilities have the freedom to include additional units based on their unique operation. No change. Design and construction section 4.5.19.2.4.2 also states the following "Metric units may be provided in addition to—but not in lieu of—units of feet and inches." *As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	4.5.20.2.4	Depth markers shall be marked in units of feet and inches.
Risk Management (RM)	4.5.5.2.7.1	Symbols for feet (') and inches (") shall not be permitted on water depths signs to avoid confusion.	Symbols for feet (') and inches (") shall not be permitted on water depths (DEPTH) signs to avoid confusion.	*Agreed. Changed as suggested.*	4.5.20.2.4.1.1	Symbols for feet (') and inches (") shall not be permitted on water depth signs.
Design & Construction (D&C)	4.5.19.3.1	Depth markers shall be located to indicate water depth to the nearest 6 inches (15.2 cm), as measured from the pool floor 3 feet (91.4 cm) out from the pool wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).	*An discrepancy between stated depth and actual depth over three inches is not acceptable, and can create a risk of drowning or other injury by misleading bathers, supervising adults, or lifeguards as to the true depth of the water. Three inches is sufficient to account for variation in depth due to water level.* -- 4.5.19.3.1 Depth markers shall be located to indicate water depth to the nearest 6 inches (15.2 cm), as measured from the POOL floor 3 feet (91.4 cm) out from the POOL wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s). See General Comment under Basis for Change. – REFERENCE: See ISPSC, Section 409.2.3	Recommendation implemented. Depth markers shall be provided to the nearest 3 inches.	4.5.20.3.1	Depth markers shall be located to indicate water depth to the nearest 3 inches (75 mm), as measured from the pool floor 3 feet (0.9 m) out from the pool wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).
Design & Construction (D&C)	4.5.19.3.1	Depth markers shall be located to indicate water depth to the nearest 6 inches (15.2 cm), as measured from the pool floor 3 feet (91.4 cm) out from the pool wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).	*This prevents marking depths such as 3'-9". Does one round up to 4'-0" or round down to 3'-6"? There are consequences to both. Recommend modifying language to allow for markings to be within 3" of measured depth. Then leisure pools and other pools can be accurately marked with depth markers.* -- Depth markers shall be located to indicate water depth to the nearest 3 6 inches (7.6 15.2 cm), as measured from the POOL floor 3 feet (91.4 cm) out from the POOL wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).	Recommendation implemented.	4.5.20.3.1	Depth markers shall be located to indicate water depth to the nearest 3 inches (75 mm), as measured from the pool floor 3 feet (0.9 m) out from the pool wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).
Risk Management (RM)	4.5.5.1.2	Depth markers shall indicate the actual AQUATIC FEATURE depth, within 3 inches (8cm), at normal operating water level when measured 3 feet (1m) from the AQUATIC VENUE wall.	*In deeper portions of pools, accounting for the radius construction will provide accurate pool depth, e.g. if working with 10 foot depth and have a springline at 3 feet depth, would need to measure 7 feet out for accurate bottom depth.. If measured 3 feet out, it would record a depth of 8.5 feet and would not have an accurate representative condition of the deepest depth of the pool.* -- After the words: "normal operating water level when measured" 3 feet (1 m) from the Aquatic Venue wall *(add the words)* when pool has minimal wall intrusion with the floor or measured beyond the radius of curvature of coving when representing pool depth with radius coved pool construction. "	Agree. Wording added to clarify	4.5.20.3.1	Depth markers shall be located to indicate water depth to the nearest 3 inches (75 mm), as measured from the POOL floor 3 feet (0.9 m) out from the POOL wall to the gutter lip, mid-point of surface SKIMMER(s), or surge weir(s).
Risk Management (RM)	4.5.5.1.2	Depth markers shall indicate the actual AQUATIC FEATURE depth, within 3 inches (8cm), at normal operating water level when measured 3 feet (1m) from the AQUATIC VENUE wall.	*No benefit to approximate depth and the actual depth is easy enough to determine* -- Remove reference to "within 3 inches (8cm)"	Disagree. The content including "within 3 inches" allows for rainwater, bather load, etc. It is impractical for the water level to be exact at all times.	4.5.20.3.1	Depth markers shall be located to indicate water depth to the nearest 3 inches (75 mm), as measured from the POOL floor 3 feet (0.9 m) out from the POOL wall to the gutter lip, mid-point of surface SKIMMER(s), or surge weir(s).
Design & Construction (D&C)	4.5.19.4	*No Diving Markers*	*Discussing starting platforms and diving regulations and optimal depth is misleading within the same context. References referring to the "5 feet litigation line for starting platform" as the safe water depth should be cited.* -- This section needs significant revision and study by the technical committee. – REFERENCE: Racing Start Safety: Head Depth and Head Speed During Competitive Starts into a Water Depth of 1.22m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2010, 4, 365-378. ********** Competitive Swimmers Modify Racing Start Depth Upon Request. White, Cornett, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 187-198. ********** Racing Start Safety: Head Depth and Head Speed During Competitive Swim Starts into a Water Depth of 2.29m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 14-31.	Wording altered. The "No diving" markers are required at 5 ft and pertain to recreational diving, no competitive diving since few pools cater only to competitive swimming.	4.5.20.4	No Diving Markers

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.19.4 Annex	*No Diving Markers*	*There is an inconsistency in this section in addressing untrained diving versus trained diving during a competitive racing start. More recent data from Dr. Dawn Comstock and Dr. Fred Mueller indicates that since the NFHS has made its rule change to require a minimum water depth of 4 feet, there have been zero reported catastrophic or fatal injuries due to race starts in competitive high school swimming. Moreover, the data indicates only one injury over that period that was the result of contact with the bottom of the pool after a racing start. Proper supervision and instruction appears to have a much more significant affect on the potential for injury during a competitive racing start than pool depth. There is no reference given to cases or a history of lawsuits that have established this purported litigation line for diving from a starting platform. Moreover, as the goal of this model is to establish best practices for the industry, the purpose should be to discuss best practices not models for litigation. Based on the above-referenced data from UNC, OSU and the Counsilmen Center for the Science of Swimming , the technical committee should start over on this section.* -- This section should be withdrawn pending further study by the technical Committee. – REFERENCE: Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. …….. Excerpted from research data compiled by Dr. Dawn Comstock, Principal Investigator, Center for Injury Research and Policy. …… White, J. C., Cornett, A. C., Wright, B. V., Willmott, A. P., & Stager, J. M. (2011). Competitive Swimmers Modify Racing Start Depth Upon Request. *International Journal Of Aquatic Research & Education* , *5* (2), 187-198.	Agreed to rewording. Changes made to Annex wording. This section relates to recreational diving at deck level, not competitive diving.	4.5.20.4	No Diving Markers
Design & Construction (D&C)	4.5.19.4 ANNEX	*No Diving Markers*	*"Case histories reveal that there are extremely few starting platform injuries to competitive swimmers where the water depth is deeper than 5 feet (1.5 m)." If this is the "science" and 5 feet is also the most conventional practice in the industry, why is the bar being raised to 6'-7" arbitrarily without the science to substantiate a significant improvement in safety?* -- The vast majority of current standards allow for diving off the side of the pool in water 5 feet (1.5 m) deep. Standards also allow diving off of starting blocks at 6 feet and 7 inches (2 m) (or even 4 feet (1.22 m) by some regulations as allowed by some governing bodies and permitted by this module's draft) and mandate 8 feet (2.44 m) off the pool deck. Water depths of at least 5 feet (1.5 m) are generally considered as safe for diving from the edge of a pool where the coping/deck is the typical 6 inches (15.24 cm) above the water surface. Starting platforms are located 18 inches (45.72 cm) to 30 inches (76.2 cm) above the waterline, with most at 29.5 inches (74.93 cm). Case histories reveal that there are extremely few starting platform injuries to competitive swimmers where the water depth is deeper than 5 feet (1.5 m). (***SEE PUBLIC COMMENT FOR FULL TEXT)	The section mentioned is about: No diving" markers to be installed at 5 ft and does not pertain to competitive diving, just recreational. Section 4.8.3.3 refers to starting block depths and has been altered based on public comment. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (***SEE PUBLIC COMMENTS FOR FULL TEXT)	4.5.20.4	No Diving Markers
Design & Construction (D&C)	4.5.19.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "No Diving" directly adjacent to the depth marker.	ADD TO THIS SECTION THE TEXT "The words 'NO DIVING" in 4-inch contrasting letters shall be placed with the international no diving symbol." – REFERENCE: ST. LOUIS COUNTY POOL CODE	Paragraph 4.5.19.4.1 amended to require "No Diving" verbiage and the international No Diving symbol at 25 ft (max) spacing.	4.5.20.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by MAHC section 4.5.20 above shall be provided with "No Diving" warning signs along with the universal international symbol for "No Diving" spaced at not more than 25 foot (7.6 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*
Design & Construction (D&C)	4.5.19.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "No Diving" directly adjacent to the depth marker.	I believe that the intent is to permit diving into water that is at least 5 feet deep. -- For POOL water depths ~~5.0 feet or~~ shallower than 5.0 feet, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "NO DIVING" directly adjacent to the depth marker.	Not changed. Intent is 5 ft or less, not less than 5 ft.	4.5.20.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by MAHC section 4.5.20 above shall be provided with "No Diving" warning signs along with the universal international symbol for "No Diving" spaced at not more than 25 foot (7.6 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*
Design & Construction (D&C)	4.5.19.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "No Diving" directly adjacent to the depth marker.	Is this really needed in zero depth entry ways, catch pools, lazy rivers, and other specialty pools not intended for access at all points	Refer to 4.12 for reliefs from these requirements (such as zero beach entries). But catch pools, for instance, can be used for learn-to-swim programming at municipal facilities during non-peak hours. So they often serve multiple purposes. And perimeter deck is required around 100% of most pools, so they should be marked accordingly.	4.5.20.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by MAHC section 4.5.20 above shall be provided with "No Diving" warning signs along with the universal international symbol for "No Diving" spaced at not more than 25 foot (7.6 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*
Design & Construction (D&C)	4.5.19.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "No Diving" directly adjacent to the depth marker.	*No reason to put this warning on catch pools which are entered by a slide. Also, no reason to use the no diving symbol in an area that does not allow pool access.* -- For POOLS used primarily for recreational swimming and with water depths of 5.0 feet or shallower, ……. with the exception that such symbol is not required in areas where an enclosure prevents access to the POOL.	Recommendation not implemented. See previous response to 4.5.19.1.1.	4.5.20.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by MAHC section 4.5.20 above shall be provided with "No Diving" warning signs along with the universal international symbol for "No Diving" spaced at not more than 25 foot (7.6 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.19.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "No Diving" directly adjacent to the depth marker.	*This section is inadequate because it does not address maximum interval between signs and therefore fails to ensure that a sign will be within the line of vision of a bather. It also fails to reference NEMA Z535* -- 4.5.19.4.1 For POOL water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "NO DIVING" directly adjacent to the depth marker. See General Comment under Basis for Change. – REFERENCE: See ISPSC, Section 409.3, NEMA Z535	Initially, the international no diving symbol was required adjacent to the depth markings for water less than 5 feet. And these depth markings were required at 25 ft max spacing per 4.5.19 and the reference to that section in 4.5.19.4.1. However, this section has been modified to require the "No Diving" verbiage with the symbol and will therefore not be adjacent to the depth markings necessarily. So a 25 ft interval requirement has been added here.	4.5.20.4.1	For pool water depths 5.0 feet or shallower, all depth markers required by MAHC section 4.5.20 above shall be provided with "No Diving" warning signs along with the universal international symbol for "No Diving" spaced at not more than 25 foot (7.6 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*
Risk Management (RM)	4.5.5.1 ANNEX	This requirement is not intended to apply to competition AQUATIC VENUES where skilled divers train and compete in 4-6 feet (1.3-2m) of water and are under the supervision of a certified instructor.	American National Standard for Public Pools *Third Paragraph:* This requirement is not intended to apply to competition AQUATIC VENUEs where skilled divers competitive swimmers train and compete in 4-6 feet (1.3-2m) of water and are under the supervision of a certified instructor.	Agreed. Have clarified by having both divers and swimmers included	4.5.20.4.1 Annex	This requirement is not intended to apply to competition aquatic venues where skilled divers train and compete in 4-6 feet (1.3-2m) of water and are under the supervision of a certified instructor or coach.
Risk Management (RM)	4.5.5.2.8 ANNEX	Diving boards are permitted only when the diving envelope conforms to the standards of the certifying agency that regulates diving at the facility - National Collegiate Athletic Association (NCAA), the National Federation of State High School Associations (NFSHSA), the Federation Internationale de Natation Amateur (FINA), or U.S. Diving. If the venue does not have competitive diving, then the diving envelope must conform to these diving envelope standards. (SEE ANNEX FOR FULL TEXT)	*Same as reasons listed above in 4.5.5.2.8 for the first change. Regarding paragraph 3, divers would not train in 4-6 feet of water, should clarify this is in regards to competitive racing training.* -- Diving boards are permitted only when the diving envelope conforms to the standards of the certifying agency that regulates diving at the facility - National Collegiate Athletic Association (NCAA), the National Federation of State High School Associations (NFSHSA), the Federation Internationale de Natation Amateur (FINA), or U.S. Diving. If the venue does not have competitive diving, then the diving envelope must conform to these diving envelope standards.or the ANSI/NSPI-1 2003	Disagree. The minimum head first entry pool depth for experienced competitive swimmers diving from side or starting blocks would be 4' but must be at a supervised practice or competition with certified coach/instructor present. Recommend no change to the content.	4.5.20.4.1 Annex	The symbol is required as it is the universally recognized symbol for "no diving" and can be understood by those who do not read and non-English speaking individuals. Diving boards are permitted only when the diving envelope conforms to the standards of the certifying agency that regulates diving at the facility - National Collegiate Athletic Association (NCAA), the National Federation of State High School Associations (NFSHSA), the Federation Internationale de Natation Amateur (FINA), or U.S. Diving. If the venue does not have competitive diving, then the diving envelope must conform to these diving envelope standards. The intent of this section.... (SEE ANNEX FOR FULL TEXT)
Design & Construction (D&C)	4.5.19.5	*Depth Marking At Break in Floor Slope*	Proposed revision: Retitle: Safety float and Marking Line: When encountering any change in slope exceeding 1 in 12 in the pool at depths of 5' or less, a safety float line and marking line shall be placed at this area. The safety float line shall be secured to allow bathers to hold onto the line for support. A receptacle for receiving the safety line shall be recessed into the pool wall. – REFERENCE: to preclude non-swimmers from suddenly going into deeper water..	Floor slopes exceeding 1:12 are not permitted in water less than 5 ft deep. A paragraph has been added to clarify the need for a safety float rope at deep water slope breaks.	4.5.20.5	Depth Marking At Break in Floor Slope
Design & Construction (D&C)	4.5.19.5.1	For pools deeper than 5 feet (1.52 m), a straight line of contrasting color, not less than 2 inches and not more than 6 inches (15.2 cm) in width, shall be clearly and permanently installed on the pool floor at the shallow side of the break in the floor slope, and extend up the pool walls.	Add "…to the perimeter deck."	Changed to "…to the waterline."	4.5.20.5.1	For pools deeper than 5 feet (1.5 m), a line of contrasting color, not less than 2 inches (50 mm) and not more than 6 inches (150 mm) in width, shall be clearly and permanently installed on the pool floor at the shallow side of the break in the floor slope, and extend up the pool walls to the waterline.
Design & Construction (D&C)	4.5.19.5.1	For pools deeper than 5 feet (1.52 m), a straight line of contrasting color, not less than 2 inches and not more than 6 inches (15.2 cm) in width, shall be clearly and permanently installed on the pool floor at the shallow side of the break in the floor slope, and extend up the pool walls.	Not always possible this can also be address by positioning of lifeguards/staff -- How does a straight line work in a round pool (bowl shaped, or an attraction without a straight break line? How do you apply it to pool walls in these instances?	The word "straight" has been removed.	4.5.20.5.1	For pools deeper than 5 feet (1.5 m), a line of contrasting color, not less than 2 inches (50 mm) and not more than 6 inches (150 mm) in width, shall be clearly and permanently installed on the pool floor at the shallow side of the break in the floor slope, and extend up the pool walls to the waterline.
Design & Construction (D&C)	4.5.19.5.2	Depth marking at break in floor slope shall be constructed of a durable material resistant to local weather conditions and be slip-resistant.	*What if there is no break – just a steadily sloping surface?* -- What does "break in floor slope" actually mean?	Then a depth marking will only be required per 4.5.19.1. A "break in floor slope" is where the slope of the pool floor changes. For example, between the shallow end up to a 5' water depth, the maximum allowable slope is 1:12. Beyond for deeper water, this maximum allowable slope is 1:3. At this interface there is a slope break.	4.5.20.5.2	Depth marking at break in floor slope shall be constructed of a durable material resistant to local weather conditions and be slip-resistant.
Risk Management (RM)	4.5.5.1.2.1	*Symmetrical aquatic venue designs with the deep point at the center may be allowed provided a dual marking system is used which indicates the depth at the wall and at the deep point.*	Symmetrical AQUATIC VENUE designs with the deep point at the center may be allowed provided a dual marking system ~~is used~~ which indicates the depth at the wall and at the deep point.	*Language was changed to: "Symmetrical aquatic venue designs with the deep point at the center may be allowed by providing a dual marking system which indicates the depth at the wall and at the deep point."*	4.5.20.6	Symmetrical aquatic venue designs with the deep point at the center may be allowed by providing a dual depth marking system which indicates the depth at the wall as measured in MAHC section 4.5.20.3.1 and at the deep point.
Risk Management (RM)	4.5.5.1.7	Controlled-access aquatic venues such as an activity pool, lazy rivers, etc. do not require depth markers but the depth should be indicated on a sign at the entry to such an aquatic venue.	*Best practice.* -- Recommend that max depth markers be located on venue deck at entrance as well as on the entrance sign. Also this should NOT include Wave pools (which could be considered restricted access) due to the safety factor for swimmer to view water depth as wave pool.	Disagree. Depth markers are required at specified intervals for bodies of water so they are visible from inside the venue. Controlled access venues are treated differently in MAHC 4.5.5.1.7	4.5.20.7	Controlled-access aquatic venues such as an activity pool, lazy rivers, etc. do not require depth markers but the depth shall be indicated on a sign at the entry to such an aquatic venue.
Recirculation and Filtration	4.7.	Recirculation and Water Treatment	Need recommendations on turnover rate for surf board pools. State of Nebraska does not have standards	Disagree. Surf boards pools would be covered under the definition for "Activity Pool" so no separate definition needed.	4.5.20.7	Controlled-access aquatic venues such as an activity pool, lazy rivers, etc. do not require depth markers but the depth shall be indicated on a sign at the entry to such an aquatic venue.
Risk Management (RM)	4.5.5.2.4	Depth markers for spa shall meet the above requirements. Small spas less than 200 square feet (61m) do not require depth markers or "No Diving" signs.	*A 200 square foot spa is too large to exempt from provisions* -- Change to spas less than "100" square feet	Disagree. The MAHC committees agreed that 200 square feet was the cutoff.	4.5.20.8	Depth markers for a spa shall meet the above requirements. Small spas less than 200 square feet (18.6 square m) do not require depth markers or "No Diving" signs.
Risk Management (RM)	4.5.5.2.4	Depth markers for spa shall meet the above requirements. Small spas less than 200 square feet (61m) do not require depth markers or "No Diving" signs.	*There is no reason to allow spas an exemption from depth markings. A 10 foot x 10 foot spa has sufficient deck area to allow for markers.* -- Depth markers are required on all spas	Disagree. This is common in industry practice	4.5.20.8	Depth markers for a spa shall meet the above requirements. Small spas less than 200 square feet (18.6 square m) do not require depth markers or "No Diving" signs.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.5.5.2.4	Depth markers for spa shall meet the above requirements. Small spas less than 200 square feet (61m) do not require depth markers or "No Diving" signs.	*We discussed this issue during one of our rule making sessions and opted to not require depth markings. On larger spa pools, if you do elect to do this, consider including both seat and spa bottom depths.* -- General question on this subsection for spa pools. Is the deepest depth to be provided or both the deep depth and the seat depth to be included on the depth?	Disagree. The MAHC feels it is too complicated to also add seat depth. Max depth of basin only.	4.5.20.8	Depth markers for a spa shall meet the above requirements. Small spas less than 200 square feet (18.6 square m) do not require depth markers or "No Diving" signs.
Risk Management (RM)	4.5.5.2.4	Depth markers for spa shall meet the above requirements. Small spas less than 200 square feet (61m) do not require depth markers or "No Diving" signs.	The ISPSC and the ANSI/NSPI-2 Standard for Public Spas requires depth markers and "No Diving" signs in all pubic spas. -- Depth markers for spas shall meet the above requirements. Small spas less than 200 square feet (61m) do not require depth markers or "No Diving" signs. – Reference: See sections 509.2 and 509.3 of the ISPSC www.iccsafe.org/cs/ispsc . A copy of the ANSI/NSPI 2 standard can be provided by request.	Disagree. No changes due to common industry practice.	4.5.20.8	Depth markers for a spa shall meet the above requirements. Small spas less than 200 square feet (18.6 square m) do not require depth markers or "No Diving" signs.
Risk Management (RM)	4.5.5.2.5	Wading pools and water activity features (aqua play) are not required to have depth markings or no diving signage if water depth is 2.5 inches (6.35cm) of water or less.	*A slide run-out in an aqua-play aquatic venue may hold up to six inches of water without necessitating a no-diving sign or depth marker* _ Wading pools and water activity features (aqua play) are not required to have depth markings or no diving signage if water depth is 6 inches of water or less.	*Agreed that 2.5 inches is too shallow and slide runouts should also be included. MAHC changed to not require "No Diving" signage if water is less than 6 inches deep. Wading pools are typically >6 to 24 inches so would recommend that depth of water as the limit.*	4.5.20.9	aquatic venues such as wading pools and water activity areas or other aquatic venues are not required to have depth markings or no diving signage if water depth is 6 inches (15 cm) of water or less.
Design & Construction (D&C)	4.5.4	Pool Access / Egress	"Pool Access/Egress/ADA Requirements"	ADA referenced in 4.5.4.1.	4.5.4	Pool Access / Egress
Design & Construction (D&C)	4.5.4.1	Each pool shall have a minimum of two means of access and egress.	*Not required and may be hazardous in non-traditional pools such as catch pools.* -- Either delete entirely or change to "All pools used primarily for recreational swimming"	Requirements for non-traditional pools or catch pools are addressed in 4.12.	4.5.4.1	Each pool shall have a minimum of two means of access and egress.
Design & Construction (D&C)	4.5.4.1	Each pool shall have a minimum of two means of access and egress.	*Exception needed for wave pools and slide plunge pools* -- Exceptions to two entry requirements: wave pools	Specific ingress/egress requirements for wave pools and slide plunge pools are addressed in 4.12.2 and 4.12.3.	4.5.4.1	Each pool shall have a minimum of two means of access and egress.
Design & Construction (D&C)	4.5.4.1	Each pool shall have a minimum of two means of access and egress.	Not necessary and may be hazardous in non-traditional pools such as catch pools.	Recommendation not implemented. There are exemptions and reliefs from these and other requirements for "non-traditional" pools in section 4.12.	4.5.4.1	Each pool shall have a minimum of two means of access and egress.
Design & Construction (D&C)	4.5.4.1, 4.5.4.1.1, & 4.5.4.1.2	4.5.4.1 Each POOL shall have a minimum of two means of access and egress. 4.5.4.1.1 At least one access/egress point shall be at the shallow end of the aquatic venue. 4.5.4.1.2 At least one access / egress point shall be at the deep end of the aquatic venue.	*The current MAHC language is inadequate and confusing, and mistakenly presumes that every pool has a shallow or deep end. This revision, which incorporates the already accepted language from the ISPSC removes thre confusion and closes that loophole.* -- 4.5.4.1 Each POOL shall have a minimum of two means of access and egress, located so as to serve both ends of a pool. ~~4.5.4.1.1 At least one access/egress point shall be at the shallow end of the aquatic venue. 4.5.4.1.2 At least one access / egress point shall be at the deep end of the aquatic venue.~~ --REFERENCE: ISPSC Section 411.1	Recommendation partially implemented.	4.5.4.1	Each pool shall have a minimum of two means of access and egress.
Design & Construction (D&C)	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, and zero-depth entries.	Add lifts and transfer stations here or are lifts/transfer stations not acceptable so we need 3 means to comply with ADA?	This is intended to be independent of the ADA requirements which have been added as a reference to 4.5.4.1.	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, ladders, ramps, swimouts, and zero-depth entries.
Design & Construction (D&C)	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, and zero-depth entries.	*Should there be some mention of the 2010 ADA requirements? It feels a little funny not mentioning something here.*	Reference to ADA added to 4.5.4.1.	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, ladders, ramps, swimouts, and zero-depth entries.
Design & Construction (D&C)	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, and zero-depth entries.	*This section is inadequate and fails to address many important issues, such as location of means and of access/egress. ISPSC requirements in Section 411.1 are very specific and thorough; recommend either more detail that is consistent with ISPSC or a reference to the ISPSC section.* -- 4.5.4.2 Acceptable means of access/egress shall include stairs/handrails, grab rails/recessed steps, zero depth entries. SEE General Concern/Comment under Basis for Change. – REFERENCE: ISPSC Section 411.1.	Additional means of access listed.	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / recessed steps, ladders, ramps, swimouts, and zero-depth entries.
Design & Construction (D&C)	4.5.4.3	For pools wider than 30' (9.14 m), such means of access / egress shall be provided on each side of the pool, not more than 75' (22.9 m) apart.	*For pools such as catch pools, do not want access on the sides of the pool but rather at the end directly in front of the slide entry.* -- For POOLS used primarily for recreational swimming…	Requirements for non-traditional pools or catch pools are addressed in 4.12.	4.5.4.3	For pools wider than 30' (9.14 m), such means of access / egress shall be provided on each side of the pool, not more than 75' (22.9 m) apart.
Design & Construction (D&C)	4.5.4.3	For pools wider than 30' (9.14 m), such means of access / egress shall be provided on each side of the pool, not more than 75' (22.9 m) apart.	How does this apply to a Lazy River for example? Does a lazy river that is 1/2 mile long needs access/egress every 75 feet. Overly Burdensome and Unnecessary	Recommendation not implemented. There are exemptions and reliefs from these and other requirements for rivers in section 4.12.	4.5.4.3	For pools wider than 30' (9.14 m), such means of access / egress shall be provided on each side of the pool, not more than 75' (22.9 m) apart.
Design & Construction (D&C)	4.5.5	Stairs	This entire section should be in accordance with local building codes.	Recommendation not implemented. Local building codes do not govern stairs inside swimming pools.	4.5.5	Stairs
Design & Construction (D&C)	4.5.5	Stairs	*This should be in accordance with local building codes.* -- Delete entire section	Most building codes do not speak to nor govern steps inside of a pool.	4.5.5	Stairs
Design & Construction (D&C)	4.5.5.3 ANNEX	It is common, especially in high-end diving wells with 10-meter towers, for there to be "swim-out" stairs underneath the dive tower. This provision is allowing for those types of deep water stairs without requiring the stairs to continue down to the bottom of the pool (which may be 17 feet deep and impractical in the diving well example).	*Verbiage clarification suggestions.* -- It is common, especially in high-end diving wells with 10-meter towers, for there to be "swim-out" stairs underneath the dive tower. This provision is allowing for those types of deep water stairs without requiring the stairs to continue down to the bottom of the pool (which may ~~would~~ be 17 feet deep and impractical in the diving well example).	Recommendation implemented.	4.5.5	It is common, especially in high-end diving wells with 10-meter towers, for there to be "swim-out" stairs underneath the dive tower. This provision is allowing for those types of deep water stairs without requiring the stairs to continue down to the bottom of the pool (which may be 17 feet deep and impractical in the diving well example).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.5.1 / 4.5.5.2 / 4.5.8.1 / 4.5.8.3.1 / 4.5.10.1	4.5.5.1 -- Where stairs are provided, they shall be constructed with slip-resistant materials. 4.5.5.2 -- The edges of stair treads shall be outlined with slip-resistant contrasting tile or other permanent marking of not less than 1 inches (2.54 cm) and not greater than 2 inches (5.08 cm). 4.5.8.1 -- RECESSED STEPS shall be slip-resistant. 4.5.8.3.1 -- RECESSED STEPS shall drain into the pool. 4.5.10.1 -- Where zero depth entries are provided, they shall be constructed with slip-resistant materials.	*What defines "slip resistance?" Do we use an OSHA definition or an ADA definition? Are we looking at wet or dry?* -- OSHA defines a SCOF for a walkable surface of 0.5. ADA has raised that to a SCOF of 0.6 for general surfaces, with 0.8 for ramps. "Slip-resistant" usually means a SCOF of 0.5 dry. This is not always enough. The standards do not adequately identify what a safe "wet" surface SCOF is. I would suggest that for legal purposes you select an acceptable SCOF number, remembering that most pool surfaces are wet and are being used barefoot. I have seen some opinions that suggest 0.8 dry as a minimum to make surfaces safe when wet. Perhaps, because of the variation in measurements for the "Coefficient of Friction," a statement could be clarified that "pool floor surfaces must be 'slip resistant' when wet." Let the manufacturers and courts determine what it means. – REFERENCE: -Suggest maybe ASTM F-462-94, although I don't have access to review it. ADAAG	Refer to the 4.2.1.5 annex.	4.5.5.1, 4.5.5.2, 4.5.8.1, 4.5.8.3, 4.5.10.1	4.5.5.1 Slip Resistant D&C Where stairs are provided, they shall be constructed with slip-resistant materials. 4.5.5.2 Outlined Edges D&C The leading horizontal and vertical edges of stair treads shall be outlined with slip-resistant contrasting tile or other permanent marking of not less than 1 inch (25 mm) and not greater than 2 inches (50 mm). 4.5.8.1 Slip-Resistant RECESSED STEPS shall be slip-resistant. 4.5.8.3 Drain D&C RECESSED STEPS shall drain into the POOL. 4.5.10.1 Slip Resistant Where zero depth entries are provided, they shall be constructed with slip-resistant materials.
Design & Construction (D&C)	4.5.5.2	The edges of stair treads shall be outlined with slip-resistant contrasting tile or other permanent marking of not less than 1 inches (2.54 cm) and not greater than 2 inches (5.08 cm).	Add "…on both the top of horizontal edges and leading vertical edges." to the end of the entry.	Recommendation implemented.	4.5.5.2	The leading horizontal and vertical edges of stair treads shall be outlined with slip-resistant contrasting tile or other permanent marking of not less than 1 inch (25 mm) and not greater than 2 inches (50 mm).
Design & Construction (D&C)	4.5.5.3	Where stairs are provided in pool water depths greater than 3.5 feet (1.07 m), they shall extend to a minimum depth of 3.5 feet below the static water level.	*There is a 6 inch difference in water depths that mandates pool stairs extending below the static water level and there is also 6 inches difference in the depth the stairs must travel below the water level. Suggest that the language be changed to match the ISPSC.* -- 4.5.5.3 Where stairs are provided in pool water depths greater than 3.5 feet (1.07 m), they shall extend to a minimum depth of 3.5 feet below the static water level. 411.2.4 Bottom tread. Where stairs are located in water depths greater than 48 inches (1219 mm), the lowest tread shall be not less than 48 inches (1219 mm) below the deck and shall be recessed in the pool wall. RECOMMEND changing 4.5.5.3 to align with 411.2.4 of ISPSC.	Recommendation implemented.	4.5.5.3	Where stairs are provided in pool water depths greater than 4.0 feet (1.2 m), the lowest tread shall be not less than 4.0 feet (1.2 m) below the deck elevation.
Design & Construction (D&C)	4.5.5.4	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (30.5 cm), and a minimum tread width of 24 (61 cm) inches.	*Add tolerance to be consistent with 4.5.5.7.* -- Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (30.5 cm), and a minimum tread width of 24 (61 cm) inches, with a tolerance of 1/2 inches (1.27 cm) between adjacent risers.	Recommendation not implemented. This paragraph only speaks to the treads whereas 4.5.5.7 speaks to the risers. Tolerance on risers is arguably more critical and more difficult to construct in the field especially when the stairs are perpendicular to a non-level pool floor slope.	4.5.5.4	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (0.3 m), and a minimum unobstructed tread width of 24 (0.6 m) inches.
Design & Construction (D&C)	4.5.5.4	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (30.5 cm), and a minimum tread width of 24 (61 cm) inches.	*European Committee for Standardization* -- It is recommended that each stair maintain dimensional harmony and tread slope continuity to ensure there is no user confusion in emergency conditions or for differently abbled access. -- REFERENCE: EN 13451-2	Agree in theory. However, the challenge often is with steps that are perpendicular to the slope of the pool floor. The bottom step's riser is often unable to be uniform in these situations, which are frequent.	4.5.5.4	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (0.3 m), and a minimum unobstructed tread width of 24 (0.6 m) inches.
Design & Construction (D&C)	4.5.5.4 / 4.5.5.6	4.5.5.4 -- Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (30.5 cm), and a minimum tread width of 24 (61 cm) inches. 4.5.5.6 -- Table 4.5.5.6: Required Dimensions for Stair Treads and Risers (See Code for Table.)	*Many unenlightened designers and builders would assume that could this requirement could mean that the handrail could go down the middle of the stair tread.* -- An "unobstructed" stair tread of the stated size might be appropriate.	"Unobstructed" added to 4.5.5.4	4.5.5.4 (see Code for Table)	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (0.3 m), and a minimum unobstructed tread width of 24 (0.6 m) inches.
Design & Construction (D&C)	4.5.5.6	Table 4.5.5.6: Required Dimensions for Stair Treads and Risers (see Code for Table)	*NO maximum dimensions in CT Standards* -- Eliminate maximum dimensions on T-1 and T-2 – REFERENCE: CT Public Swimming Pool Design Guide	It was felt by the committee that both riser and tread dimensions (minimums and maximums) be governed for accessibility and safety purposes.	4.5.5.6 Table	See Code for Table
Design & Construction (D&C)	4.5.5.6	Table 4.5.5.6: Required Dimensions for Stair Treads and Risers (see Code for Table)	"and one additional hand rail for each additional 5 feet or portion thereof"	Additional handrail requirements for wide stairs are covered by 4.5.6.4.	4.5.5.6 Table	See Code for Table
Design & Construction (D&C)	4.5.5.6	Table 4.5.5.6: Required Dimensions for Stair Treads and Risers (see Code for Table)	Suggested change: Maintain maximum riser height on pools are over 1500 or 2000 SF to a range of 6" to 7.5". – REFERENCE: You have a wide range of acceptable stair riser height. When we rewrote our rules in the 90's, we received public input regarding riser height and injury. The public is used to a standard height on stairs and when entering a pool may be surprised by higher minimum riser heights. Also can make a difference for smaller children that are setting on the steps and suddenly go a foot deeper.	Recommendation not implemented. It's felt that if it's a safety concern for ingress/egress of one pool then it should be a safety concern for ingress/egress of any pool.	4.5.5.6 Table	See Code for Table
Design & Construction (D&C)	4.5.5.7	Stair risers shall have a minimum uniform height of 6 inches (15.2 cm) and a maximum height of 12 inches (30.5 cm), with a tolerance of 1/2 inches (1.27 cm) between adjacent risers.	The bottom riser of a pool stair may vary in height due to pool floor slope but not exceed the height of the other risers.	Recommendation implemented. However, the bottom riser is only restricted by the maximum allowable riser height. It is viewed as equal of a trip hazard whether it varies in the plus or minus direction from the other risers.	4.5.5.7	Stair risers shall have a minimum uniform height of 6 inches (0.15 m) and a maximum height of 12 inches (0.3 m), with a tolerance of 1/2 inches (13 mm) between adjacent risers. Note: The bottom riser may vary due to potential cross slopes with the POOL floor; however, the bottom step riser may not exceed the maximum allowable height required by this section.
Design & Construction (D&C)	4.5.6	Handrails	This entire section should be in accordance with local building codes.	Recommendation not implemented. Local building codes do not govern stairs inside swimming pools or pool railings.	4.5.6	Handrails

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.6	Handrails	*This should be in accordance with local building codes.* -- Delete entire section	Most building codes do not speak to nor govern steps inside of a pool.	4.5.6	Handrails
Design & Construction (D&C)	4.5.6.2	Hand rails shall be constructed of corrosion-resistant materials, and anchored securely into the pool deck and/or stairs.	*Industry Standards* -- It is recommended that the location for anchoring hand rails is not specified. There are many successful systems that include anchoring in the gutter or other point. If the language was modified to read, "and anchored securely to provide easy access to facility users without violating other standards in the document regarding obstructions."	Anchoring locations deleted.	4.5.6.2	Hand rails shall be constructed of corrosion-resistant materials, and anchored securely.
Design & Construction (D&C)	4.5.6.4	Stairs wider than 5 feet (1.52 m) shall have at least one additional hand rail for every 10 feet (3.05 m) of stair width.	*There doesn't appear to be a basis for the 10 ft spacing requirement and is not addressed in the majority of current standards. Suggest increasing this as a starting point / minimum requirement.* -- Stairs wider than 5 feet (1.52 m) shall have at least one additional hand rail for every 15 feet 10 feet (3.05 m) of stair width.	Recommendation implemented. However, maximum width changed from 10 ft to 12 ft (not 15 ft) to be consistent with the current regulations enforced by the state of Michigan.	4.5.6.4	Stairs wider than 5 feet (1.52 m) shall have at least one additional hand rail for every 12 feet (3.65 m) of stair width.
Design & Construction (D&C)	4.5.6.5	Hand rail outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of Section 4.5.6.5.1 and 4.5.6.5.2 below	*The ADA 2010 Standards have specific requirements. No need to repeat them here.* – Delete	ADA standards have specific requirements on spacing and their location, but not structural integrity.	4.5.6.5	Hand rail outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of MAHC Section 4.5.6.5.1 and 4.5.6.5.2 (below).
Design & Construction (D&C)	4.5.6.5	Hand rail outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of Section 4.5.6.5.1 and 4.5.6.5.2 below	Reference should be made to the specific ADA standard here and not to MAHC sections.	Recommendation not implemented. ADA speaks to spacing requirements, which the MAHC defers to ADA. However, structural requirements of those railings are not addressed in the ADA standard.	4.5.6.5	Hand rail outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of MAHC Section 4.5.6.5.1 and 4.5.6.5.2 (below).
Design & Construction (D&C)	4.5.6.5.2	Hand rails shall also be designed to resist a single concentrated load of 200 pounds (90.7 kg) applied in any direction along the top.	It is recommended that the resistance criteria be further defined by "any direction", "worst case", etc. In addition, what is the failure criteria ("no breakage", "plastic deformation", etc.)?	The draft states "applied in any direction." Failure criteria is not meeting the 200 lb standard whether it's a result of breakage, corrosion, etc.	4.5.6.5.2	Hand rails shall also be designed to resist a single concentrated load of 200 pounds (90.7 kg) applied in any direction along the top.
Design & Construction (D&C)	4.5.7	Grab Rails	*Less experienced pool builders seem to overhang the rails fairly frequently.* -- There is no mention of vertical alignment of grab rails. Rails installed to overhang the edge of the pool are difficult to use and could pose some degree of hazard. Propose they be mounted so the front edge is within 0 to -3" perpendicular to the plane extended upward following the wall of the pool.	Paragraph added to address vertical alignment.	4.5.7	Grab Rails
Design & Construction (D&C)	4.5.7.2	Grab rails shall be anchored securely into the pool deck.	*Industry Standards* -- It is recommended that the location for anchoring grab rails is not specified. There are many successful systems that include anchoring in the gutter or other point. If the language was modified to read, "anchored securely to provide easy access to facility users without violating other standards in the document regarding obstructions."	Anchoring locations deleted.	4.5.7.2	Grab rails shall be anchored securely.
Design & Construction (D&C)	4.5.7.5	The upper railing surface of grab rails shall extend above the pool coping or pool deck a minimum of 28 inches (71.1 cm).	*Table 4.5.6.7 says 27". Should be coordinated.* -- The upper railing surface of grab rails shall extend above the POOL coping or POOL DECK a minimum of 28 inches (71.1 cm).	Recommendation not implemented. The table addresses handrails for pool stairs and ramps. Grab rails are for recessed steps.	4.5.7.5	The upper railing surface of grab rails shall extend above the pool coping or deck a minimum of 28 inches (0.7 m).
Design & Construction (D&C)	4.5.6.7.1 FIGURE	Figure 4.5.6.7.1: Stair Hand Rails (See Code for Figure)	Are you only recognizing handrails that extend into the water? Some facilities use "figure 4" handrails that extend over the water, but don't make a connection to the floor or steps due to issues of strength of materials. Having some language that talks about how far it has to extend to in relation to the bottom riser may be helpful. Establishing a statement on the handrails having the leading edges extending a certain distance beyond and /or less than the vertical plane of the bottom riser, ensures it extends to be accessible at the bottom step. – REFERENCE: WAC 246-260-031(11)(b)(iv)	Recommendation implemented. Refer to the new 4.5.7.6 paragraph where language added for grab rails in relation to the vertical plane of the pool wall.	4.5.7.6	Grab rails shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top.
Design & Construction (D&C)	4.5.7.6	Grab rails outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of Sections 4.5.7.6.1 to 4.5.7.6.4 below	*First of all, grab rails do not provide ADA access. The ADA 2010 Standards have specific requirements. No need to repeat them here.* – Delete	Recommendation implemented.	4.5.7.6	Grab rails shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top.
Design & Construction (D&C)	4.5.7.6	Grab rails outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of Sections 4.5.7.6.1 to 4.5.7.6.4 below	Reference should be made to the specific ADA standard here and not to MAHC sections.	This paragraph has been deleted. This was included as an oversight initially since grab rails are not an acceptable means of access per ADA.	4.5.7.6	Grab rails shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top.
Design & Construction (D&C)	4.5.8.6 / 4.5.8.7.1 / 4.5.8.8	4.5.8.6 RECESSED STEPS shall be uniformly spaced not less than 6 inches (15.2 cm) and not more than 12 inches (30.5 cm) vertically along the POOL wall. 4.5.8.7 The top surface of the uppermost recessed step shall be located not more than 12 inches (30.5 cm) below the POOL coping or POOL DECK. 4.5.8.7.1 A gutter shall be considered a step. 4.5.8.8 For POOLS with perimeter gutter systems, the gutter may serve as a step, provided that the gutter conforms to all construction and dimensional requirements herein specified.	*4.5.8.6 Does this mean that the gutter has to be located between 6 and 12 inches below the deck surface? 4.5.8.7.1. requires that the gutter "shall be used as a step, while 4.5.8.6 requires the height of the step or riser as 6 to 12 inches.. 4.5.8.7.1 How do you build a roll out gutter and recessed steps? 4.5.8.6 requires steps to a separation height of 6 to 12 inches. 4.5.8.7.1 require the gutter to be a step. 4.5.8.8 Wait... if you follow 4.5.8.8 it would appear that the gutter would not have to be used as a step, but must still conform to the construction and dimensional requirements. Does that comply with 4.5.8.7.1, which is prescriptive and allows me no choice but to consider the gutter as a step?*-- These need some tweaking to allow for different types of gutter systems and reliminate the contradictions.	After some thought, 4.5.8.7.1 has been deleted. The intent was not to require that the gutter be a step and the selection of the word "considered" as the draft originally stated could have some different interpretations. So 4.5.8.8 will remain and the gutter "may serve as a step" provided the other requirements are met. If you have an open rollout gutter for instance, a ladder system likely be necessary.	4.5.8.6, 4.5.8.7, 4.5.8.8	4.5.8.6 Uniformly Spaced D&C RECESSED STEPS shall be uniformly spaced not less than 6 inches (0.15 m) and not more than 12 inches (0.3 m) vertically along the POOL wall. 4.5.8.7 Uppermost Step D&C The top surface of the uppermost RECESSED STEP shall be located not more than 12 inches (0.3 m) below the POOL coping or DECK. 4.5.8.8 Perimeter Gutter Systems D&C For POOLS with PERIMETER GUTTER SYSTEMS, the gutter may serve as a step, provided that the gutter is provided with a grating or cover and conforms to all construction and dimensional requirements herein specified.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.9.2.2	The horizontal clear space between hand rails shall be not less than 18 inches (45.7 cm) and not more than 24 inches (61 cm).	*There is a one inch difference with the ISPSC on minimum horizontal clear space between hand rails. This is another example of where inconsistency between codes will cause problems for the local building and health departments, as well as the contractor and consumer/pool owner.* -- 4.5.9.2.2 The horizontal clear space between hand rails shall be not less than 17~~18~~ inches (45.7 cm) and not more than 24 inches (61 cm). – REFERENCE: See Section 322.4.3 of the ISPSC	Recommendation implemented.	4.5.9.2.2	The horizontal clear space between hand rails shall be not less than 17 inches (0.43 m) and not more than 24 inches (0.6 m).
Design & Construction (D&C)	4.5.9.2.4	The clear space between hand rails and the pool wall shall be not less than 2 inches (5.08 cm) and not more than 4 inches (10.2 cm).	*There is no justification or data for this requirement to differ from what is in the current ISPSC. This is another example of inconsistencies between the codes. If this requirement were to remain, many ladders currently on the market would not be able to meet it without having to purchase expensive tooling at a minimum, and even after such purchase, it may not be technically feasible for manufacturers to produce compliant ladders using current manufacturing methods. An example of a typical clearance for ladders currently on the market is a range between 4.5" to 5.5".* -- The clear space between hand rails and the POOL wall shall be not less than 3~~2~~ inches (~~5.08 c~~76mm) and not more than 6~~4~~ inches (~~10.2 c~~152mm). – REFERENCE: See ISPSC Section 322.3.1 Wall clearance. There shall be a clearance of not less than 3 inches (76 mm) and not greater than 6 inches (152 mm) between the pool wall and the *ladder*.	Recommendation implemented.	4.5.9.2.4	The clear space between hand rails and the pool wall shall be not less than 3 inches (76 mm) and not more than 6 inches (152 mm).
Design & Construction (D&C)	4.5.9.3.4	The top surface of the upmost ladder tread shall be located not more than 12 inches (30.5 cm) below the pool coping or pool deck.	Suggest amending this to allow ladders to terminate 12" below gutter as well, as gutters count as a step and may inhibit one from stepping directly to deck/coping.	Recommendation implemented.	4.5.9.3.4	The top surface of the upmost ladder tread shall be located not more than 12 inches (0.3 m) below the pool coping, gutter, or deck.
Design & Construction (D&C)	4.6.	Indoor/Outdoor Environment (see Code for full text)	This needs broken down into two sections: Indoor and Outdoor, as the entire section is confusing to the reader and does not differentiate.	Recommendation not implemented. After additional consideration, there is too much that applies to both indoor and outdoor facilities and the consensus was that the section was best as it initially was written.	4.6.	Indoor/Outdoor Environment (see Code for full text)
Design & Construction (D&C)	4.6.1.3	*Light Levels*	Be consistent with verbiage. Watts/sq. ft. works better than trying to convert from watts, to lumens, to foot-candles. ½ watt per square foot is the most commonly referenced requirement.	The MAHC acknowledges that W/SF units are most recognized in the pool industry. However, it means little to nothing to regular electrical engineers and lay people. This standard attempts to move the pool industry to more acknowledged units while referencing traditional units through conversions.	4.6.1.3	Light Levels
Design & Construction (D&C)	4.6.1.3.1	POOL water surface and POOL DECK light levels shall meet the following minimum maintained light levels: 1) Indoor Water Surface - 30 horizontal footcandles 2) Outdoor Water Surface - 10 horizontal footcandles 3) POOL DECK - 10 horizontal footcandles (Note that higher levels may be advisable for acceptable spectator viewing for competitive swimming and diving events.)	• "lux" is the unit typically used by lighting engineers. I think we should start talking their language, maybe with foot candle equivalents, if necessary. I am very pleased we are moving away from the undefinable "watts / s q. ft. It is a large improvement to move to an objective, measurable unit.-- Add the SI equivalent = lux = 10.76 lux /fc (CONTINUED ON NEXT PAGE) 1) = ~53 lux or round to 50 lux (accuracy vs. precision) 2) = ~108 lux or round to 100 lux 3) = ~108 lux or round to 100 lux	Lux equivalents added in parentheses.	4.6.1.3.1	POOL water surface and DECK light levels shall meet the following minimum maintained light levels*: 1) Indoor Water Surface - 30 horizontal footcandles (320 lux) 2) Outdoor Water Surface - 10 horizontal footcandles (100 lux) 3) DECK - 10 horizontal footcandles (100 lux)
Design & Construction (D&C)	4.6.1.3.1	POOL water surface and POOL DECK light levels shall meet the following minimum maintained light levels: 1) Indoor Water Surface - 30 horizontal footcandles 2) Outdoor Water Surface - 10 horizontal footcandles 3) POOL DECK - 10 horizontal footcandles (Note that higher levels may be advisable for acceptable spectator viewing for competitive swimming and diving events.)	Large discrepancy for indoor and outdoor requirements here from what is in the ISPSC. -- 4.6.1.3.1 POOL water surface and POOL DECK light levels shall meet the following minimum maintained light levels: 1) Indoor Water Surface - 30 horizontal footcandles 2) Outdoor Water Surface - 10 horizontal footcandles 3) POOL DECK - 10 horizontal footcandles – REFERENCE: See ISPSC, Section 321.2.2	Recommendation not implemented. Current proposal submitted to the ISPSC to align with MAHC lighting requirements.	4.6.1.3.1	POOL water surface and DECK light levels shall meet the following minimum maintained light levels*: 1) Indoor Water Surface - 30 horizontal footcandles (320 lux) 2) Outdoor Water Surface - 10 horizontal footcandles (100 lux) 3) DECK - 10 horizontal footcandles (100 lux)
Risk Management (RM)	4.6.1.2.1	Artificial lighting shall be provided at all swimming aquatic venues which are to be used at night or which do not have adequate natural lighting.	Artificial lighting shall be provided at all swimming AQUATIC VENUEs which are to be used at night or which do not have adequate natural lighting. *Does adequate lighting refer to the next section: that it should illuminate all parts of the AQUATIC VENUE floor? This is too subjective.*	Yes, the adequate lighting is covered in the next section as a performance measure--- Lighting shall illuminate all parts of the bottom of the AQUATIC VENUE to enable a lifeguard or other person to determine whether a BATHER is on the bottom of the AQUATIC VENUE.	4.6.1.4.1	Artificial lighting shall be provided at all aquatic venues which are to be used at night or which do not have adequate natural lighting.
Risk Management (RM)	4.6.1.2.1	Artificial lighting shall be provided at all swimming aquatic venues which are to be used at night or which do not have adequate natural lighting.	*Recommend deleting the word "Swimming" because it is somewhat synonymous with Aquatic Venues, but not entirely. All Aquatic Venues should be lighted at night if they are going to be used.* -- Artificial lighting shall be provided at all swimming AQUATIC VENUEs which are to be used at night or which do not have adequate natural lighting.	Agree. Changed as suggested	4.6.1.4.1	Artificial lighting shall be provided at all aquatic venues which are to be used at night or which do not have adequate natural lighting.
Risk Management (RM)	4.6.1.1.1	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.	*While I like the intent of this performance standard, I'm concerned of our staff having the ability to determine this. Are you confident necessary training can be passed to plan review staff? Glare or veiling reflections are difficult issues. This seems to assign determination and responsibility to departments.*	Agree. Glare content modified and relocated to the annex.	4.6.1.4.1 Annex	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.
Risk Management (RM)	4.6.1.1.1	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.	*General Statement that presents an operator exposure.* -- While this is a fine general statement the fact remains that if glare impedes lifeguards ability to view the zone of pool bottom or both then by definition the zone is not meeting draft code. Suggest this be removed	Agree. Glare content modified and relocated to the annex.	4.6.1.4.1 Annex	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.6.1.1.1	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided. *Will this section be repeated in 4.6.1.6?*	*Agree. Glare content modified and relocated to the annex.*	4.6.1.4.1 Annex	Glare from artificial light that interferes with the lifeguard's view of the swimmers shall be avoided.
Risk Management (RM)	4.6.1.2.2	Lighting shall illuminate all parts of the aquatic venue floor to enable a lifeguard or other person to determine whether a bather is lying on the bottom of the venue.	Lighting shall illuminate all parts of the AQUATIC VENUE floor to enable a lifeguard or other person to determine whether a BATHER is ~~lying~~ on the bottom of the VENUE.	*Agreed. Deleted word*	4.6.1.4.2	Lighting shall illuminate all parts of the floor of the aquatic venue to enable a qualified lifeguard or other person to determine whether a bather is on the floor of the aquatic venue.
Design & Construction (D&C)	4.6.1.4	*Underwater Lighting*	Confused by this entry. Is this saying that outdoor daytime only pools need underwater lighting? Must clarify here.	No. Exemption stated in 4.6.1.5.1.	4.6.1.5	Underwater Lighting
Design & Construction (D&C)	4.6.1.4	*Underwater Lighting*	Should there be a requirement for underwater lighting during periods that the pool is closed?	Recommendation not implemented. This is not current industry standard.	4.6.1.5	Underwater Lighting
Risk Management (RM)	4.6.1.3.1	Underwater lighting shall be a minimum of one-half watt per square foot of aquatic venue water surface area.	*Can't assign an amount of light to 0.5 watt per sq. foot. I suggest the use of lux and lumens.*-- I have some ideas, but I am not an expert. There is a lot of difference between 0.5 watt incandescent and 0.5 watt LED. The amount of light can even vary with the wattage of the bulb. (SEE PUBLIC COMMENT DOCUMENT FOR FULL COMMENT)	*Agreed. These measures are used in the Design and Construction module and will be used in the MAHC. As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	4.6.1.5.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided.
Risk Management (RM)	4.6.1.3.1	Underwater lighting shall be a minimum of one-half watt per square foot of aquatic venue water surface area.	*Consistency: Follow the common sense recommendation in the annex.* -- Underwater lighting shall be a minimum of ~~one-half watt~~ 6.25 lumens per square foot of AQUATIC VENUE water surface area. – Reference: Same section (4.6.1.3.1) in Annex of same module (Risk Management...)	Agreed. Lumens are to be used in MAHC Design and Construction module Section 4.6.1.4 says, "Underwater lighting of not less than 6 initial rated lumens per square foot of POOL water surface area shall be provided. Higher underwater light levels should be considered for deeper water." *As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	4.6.1.5.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided.
Design & Construction (D&C)	4.6.1.4.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided. Higher underwater light levels should be considered for deeper water.	*Difference of 2 lumens per square foot of pool water with ISPSC, where it is minimum of 8 lumens per square foot of pool water. Suggest using Section 321.2.3 language.* -- Underwater lighting of not less than 6 initial rated lumens per square foot of POOL water surface area shall be provided. Higher un -- REFERENCE: See ISPSC, Section 321.2.3	Recommendation not implemented. Refer to the annex and basis for conversions. It is recommended that future studies be conducted to determine minimum lighting requirements based on water depth, hours of operation, and overhead lighting design. The main goal is to be able to see the bottom of the pool at all times when the pool is open to the public.	4.6.1.5.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided.
Design & Construction (D&C)	4.6.1.4.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided. Higher underwater light levels should be considered for deeper water.	*No reason to have lights on in every outdoor pool during daylight operations. Some small pools do not require lighting at all due to size or shallow depth.* -- Modify to exempt outdoor pools only open during daylight hours and pools of shallow depth.	Outdoor pools open only during "daylight" hours are exempted. Refer to 4.6.1.5.1.	4.6.1.5.1	Underwater lighting of not less than 6 initial rated lumens per square foot of pool water surface area shall be provided.
Risk Management (RM)	4.6.1.2.3	Lighting shall provide complete illumination to all underwater areas of the aquatic venue without blind spots.	*Liability exposure/objective based language.* -- Remove "without blind spots". Blind spots should not be defined or reference as the mere presence of such an occlusion is an exposure. Keep this objective and remove words after Aquatic venue	Agree. Replaced "blind spots" with "glare" and added, "…which can block visibility to the pool floor." Also, this content was moved to the annex as a recommendation to inspect for, be aware of, and how to avoid glare.	4.6.1.5.1.1	Such underwater lights, in conjunction with overhead or equivalent deck lighting, shall be located to provide illumination so that all portions of the aquatic venue, including the aquatic venue bottom and drain(s), may be readily seen. Higher underwater light levels shall be considered for deeper water to achieve this outcome.
Risk Management (RM)	4.6.1.2.3	Lighting shall provide complete illumination to all underwater areas of the aquatic venue without blind spots.	Lighting shall provide complete illumination to all underwater areas of the AQUATIC VENUE without blind spots. *What is a blind spot? This needs to be defined or termed in a way that is not subjective.*	Agree. Replaced "blind spots" with "glare" and added, "…which can block visibility to the pool floor." Also, this content was moved to the annex as a recommendation to inspect for, be aware of, and how to avoid glare.	4.6.1.5.1.1	Such underwater lights, in conjunction with overhead or equivalent deck lighting, shall be located to provide illumination so that all portions of the aquatic venue, including the aquatic venue bottom and drain(s), may be readily seen. Higher underwater light levels shall be considered for deeper water to achieve this outcome.
Risk Management (RM)	4.6.1.3.2	Underwater lighting shall fully illuminate the aquatic venue bottom and drains.	Underwater lighting shall fully illuminate the AQUATIC VENUE bottom and drains. *Should this say AQUATIC VENUE floor rather than bottom to be consistent with 4.6.1.2.2?*	*Agreed. Using floor where appropriate.*	4.6.1.5.1.1	Such underwater lights, in conjunction with overhead or equivalent deck lighting, shall be located to provide illumination so that all portions of the aquatic venue, including the aquatic venue bottom and drain(s), may be readily seen. Higher underwater light levels shall be considered for deeper water to achieve this outcome.
Design & Construction (D&C)	4.6.1.4.1.1	Such lights shall be located to provide illumination so that all portions of the pool, including the bottom, may be readily seen.	Is this using only underwater lights or in conjunction with other light sources? Needs clarification here	Clarification added that this is intended in conjunction with overhead lighting.	4.6.1.5.1.1	Such underwater lights, in conjunction with overhead or equivalent deck lighting, shall be located to provide illumination so that all portions of the aquatic venue, including the aquatic venue bottom and drain(s), may be readily seen. Higher underwater light levels shall be considered for deeper water to achieve this outcome.
Design & Construction (D&C)	4.6.1.5.1	Where outdoor pools are open for use from thirty (30) minutes before sunset to thirty (30) minutes after sunrise, or during periods of low illumination underwater lighting may be excluded where maintained pool surface lighting levels are a minimum of 15 horizontal footcandles and all portions of the pool, including the bottom, may be readily seen.	*See above* -- Provide SI equivalents = 161.4 lux	Lux equivalents added in parentheses.	4.6.1.6.1	Where outdoor pools are open for use from thirty (30) minutes before sunset to thirty (30) minutes after sunrise, or during periods of low illumination underwater lighting may be excluded where maintained pool surface lighting levels are a minimum of 15 horizontal footcandles (160 lux) and all portions of the pool, including the bottom and drain(s), may be readily seen.
Design & Construction (D&C)	4.6.1.5.1	Where outdoor pools are open for use from thirty (30) minutes before sunset to thirty (30) minutes after sunrise, or during periods of low illumination underwater lighting may be excluded where maintained pool surface lighting levels are a minimum of 15 horizontal footcandles and all portions of the pool, including the bottom, may be readily seen.	Why does this only apply to outdoor pools?	Because indoor pools have a higher requirement for overhead lighting (4.6.1.3.1).	4.6.1.6.1	Where outdoor pools are open for use from thirty (30) minutes before sunset to thirty (30) minutes after sunrise, or during periods of low illumination underwater lighting may be excluded where maintained pool surface lighting levels are a minimum of 15 horizontal footcandles (160 lux) and all portions of the pool, including the bottom and drain(s), may be readily seen.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.6.1.6.1	Pool areas requiring lighting shall be provided with emergency egress lighting in compliance with the applicable Building Code, but in no case shall the path of egress be illuminated to less than a maintained value of 0.5 footcandles.	*Suggested revision to change the emergency lighting requirement to "…in no case shall the path of egress be illuminated to less than a maintained value of ~~0.5~~ 0.6 footcandles." This would allow for the IBC requirement of 1 footcandle to apply, but still allow the illumination to decline during the 90 minutes of operation. The absolute minimum in either case would then be 0.6 footcandles.* -- POOL areas requiring lighting shall be provided with emergency egress lighting in compliance with the applicable Building Code, but in no case shall the path of egress be illuminated to less than a maintained value of ~~0.5~~ 0.6 footcandles. – REFERENCE: See ISPSC, Section 321.3 and IBC, Section 1006.3.1	Recommendation implemented.	4.6.1.7.1 & 4.6.1.7.2	4.6.1.7.1 Emergency Egress Lighting D&C POOL areas requiring lighting shall be provided with emergency egress lighting in compliance with the applicable Building Code. 4.6.1.7.2 Footcandles D&C In no case shall the path of egress be illuminated to less than a maintained value of 0.6 footcandles (6 lux).
Design & Construction (D&C)	4.6.1.7	Glare	Glare: In the Western Hemisphere, it is advised that windows or other fixtures allowing natural light into the natatorium, be placed on the north end of the natatorium. When placed on other sides, consideration for providing suitable coverings over the windows to reduce glare issues. – REFERENCE: Good design practice	While good design practice to address the issue of glare, this isn't an item that the MAHC committee felt could be codified. Some good design practices are noted in the annex for reference.	4.6.1.8	Glare
Design & Construction (D&C)	4.6.1.7.1	Windows and any other features providing natural light into the pool space and overhead pool lighting shall be arranged to avoid glare on the pool surface that would prevent identification of objects on the pool bottom.	*"Avoid" is virtually impossible. Suggest changing language to "inhibit."* -- Windows and any other features providing natural light into the pool space and overhead pool lighting shall be arranged to inhibit ~~avoid~~ glare on the pool surface that would prevent identification of objects on the pool bottom.	Recommendation implemented.	4.6.1.8.1	Windows and any other features providing natural light into the pool space and overhead or equivalent deck lighting shall be designed or arranged to inhibit or reduce glare on the pool water surface that would prevent seeing objects on the pool bottom.
Design & Construction (D&C)	4.6.1.7.1	Windows and any other features providing natural light into the pool space and overhead pool lighting shall be arranged to avoid glare on the pool surface that would prevent identification of objects on the pool bottom.	Not always possible; this should be an objective statement that glare should not prohibit identification of objects on the bottom. This can be accomplished in various ways i.e by positioning of lifeguards/staff	Refer to the annex. Most of the design and operational recommendations aren't able to be codified and are suggested in the annex.	4.6.1.8.1	Windows and any other features providing natural light into the pool space and overhead or equivalent deck lighting shall be designed or arranged to inhibit or reduce glare on the pool water surface that would prevent seeing objects on the pool bottom.
Design & Construction (D&C)	4.6.7.1	An area designed for use by spectators may be located within a pool enclosure.	Change "pool enclosure" to "facility/venue enclosure"	Recommendation not implemented. "Pool Enclosure" is a defined term. Refer to the glossary.	4.6.10.1	An area designed for use by spectators may be located within an aquatic facility enclosure.
Design & Construction (D&C)	4.6.7.2	When a spectator area or an access to a spectator area is located within the pool enclosure, the pool deck adjacent to the area or access shall be an additional 4 feet (1.22 m) wider than required by Section 4.8.1.5 and have either of the following:	*This will allow facilities where the 48" egress width is not adequate to still comply. This does not change the requirement in the MAHC, but allows it to coordinate with the egress requirements in the IBC. The IBC requires a minimum width of 44", but this can increase based on the occupant load. The IBC will use a factor of 0.2" per person to determine the required egress path width.* -- When a spectator area or an access to a spectator area is located within the POOL ENCLOSURE, the POOL DECK adjacent to the area or access shall ~~be an additional 4 feet (1.22 m) wider than~~ provide egress width for the spectators in addition to the width required by Section 4.8.1.5. The additional width shall be based on the egress requirements in the Building Code based on the occupant load served with a minimum width of 4 feet (1.22 m) and have either of the following: -- REFERENCE: See IBC	Recommendation implemented.	4.6.10.2	When a spectator area or an access to a spectator area is located within the Aquatic Facility Enclosure, the deck adjacent to the area or access shall provide egress width for the spectators in addition to the width required by MAHC Section 4.8.1.5.
Design & Construction (D&C)	4.6.7.2.1 & 7.2.2	4.6.7.2.1 A BARRIER as defined in Section 4.8.6.1 located on the deck to separate the deck used by spectators from the PERIMETER DECK used by BATHERS. The BARRIER may have one or more openings directly into the BATHER areas. 4.6.7.2.2 A demarcation line on the deck that shows the separation between the deck used by spectators and the PERIMETER DECK used by BATHERS.	WHY? This is not practical especially within the confines of a large water park, nor is it necessary in any case. There is no need for this to be a barrier as defined in 4.8.6.1	This is intended to limit foot traffic with shoes and concessions onto the deck.	4.6.10.2.1.1, 4.6.10.2.1.1.1, 4.6.10.2.1.2	4.6.10.2.1.1 Barrier D&C A BARRIER as defined in MAHC Section 4.8.6.1 located on the DECK to separate the DECK used by spectators from the PERIMETER DECK used by BATHERS. 4.6.10.2.1.1.1 Openings D&C The BARRIER may have one or more openings directly into the BATHER areas. 4.6.10.2.1.2 Demarcation Line D&C A demarcation line on the DECK that shows the separation between the DECK used by spectators and the PERIMETER DECK used by BATHERS.
Design & Construction (D&C)	4.6.7.3	A spectator or other area located in a balcony within 10 feet (3.05 m) of or overhanging any portion of a swimming pool shall be designed to deter jumping or diving into the swimming pool.	Suggested change: A spectator or other area located in a balcony within ~~10~~ 15 feet of or overhanging any portion of a swimming pool shall be designed to deter jumping or diving into the swim pool. – REFERENCE: An average healthy adult doing a standing broad jump on level ground is able to go 7.5 feet. Provide the elevation above the pool and the 10 feet is not enough.	Recommendation not implemented. 10 feet is standard adopted from the state of Michigan's current standards.	4.6.10.3	A spectator or other area located in a balcony within 10 feet (3. m) of or overhanging any portion of an aquatic venue shall be designed to deter jumping or diving into the aquatic venue.
Design & Construction (D&C)	4.6.7.4	Bleachers in a spectator area shall be designed according to International Code Council 300-2007 which has been approved for reference in the 2007 Supplement to the International Codes or another applicable code.	*The ICC 300 Standard is available in 2012 Edition. This section should reference the 2012 edition or refer to the most recent addition of the ICC 300 Standard.* -- 4.6.7.4 Bleachers in a spectator area shall be designed according to International Code Council 300-2007 which has been approved for reference in the 2007 Supplement to the International Codes or another applicable CODE.See General Comment under Basis for Change – REFERENCE: ICC 300 Standard	Recommendation implemented.	4.6.10.4	Bleachers in a spectator area shall be designed according to the International Code Council's most recent version of the 300 Standard which has been approved for reference or another applicable code.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2	Ventilation	• I would be more than happy to discuss this further with you and also to let you know what the dehumidifier industry is doing (Seresco is a Natatorium dehumidifier manufacturer) to help with the IAQ issues in this market. I could also review what ASHRAE is suggesting to designers. I sit on two ASHRAE Technical Committees that cover this subject. I live in Decatur and could easily meet you at your convenience. Our ASHRAE summer meeting is coming up end of June and I would be happy to volunteer to be the liason between us if you like.	ASHRAE was contacted to participate, but did not respond.. We appreciate your input.	4.6.2	Indoor Aquatic Facility Ventilation
Ventilation (VEN)	4.6.2	Ventilation	1) If you are hoping design engineers consider your guidelines, then I would encourage you to talk to and partner with ASHRAE. ASHRAE and their handbooks are where design engineers around the world go for design guidance. The last 10-15 years most Natatoriums have been designed with dehumidifiers that have 100% outdoor air capabilities. Even with 100% OA capabilities there are still many facilities with IAQ issues. There are many that have good IAQ. So, if a pool with 100% OA capabilities can still have IAQ issues, clearly more outdoor air alone is not the solution to pool IAQ issues. The recommendations in the Air Quality module for more outdoor air than Standard 62 is not the silver bullet for IAQ issues. What it will do is dramatically change how HVAC/dehumidification equipment is sized and will also have a significant impact on first cost and operating costs. In the south the dehumidification load would get much larger. Up north that extra OA will result in spaces with RH levels under 30% in winter. Both would have significantly increased operating costs and you could easily still have IAQ issues. Designers using the current Standard 62 OA requirement and following the lastest ASHRAE design guidelines can have every expectation of good IAQ in the space. The air distribution side of things is the key. There are plenty of pools out there using significantly more OA than required by Standard 82 (even in excess of what you call for) that still have air quality issues. Proper Air distribution and reduction of chloramines will resolve the IAQ issue. Source capture of chemicals has proven very effective too. More OA alone will not get the job done unless the items above are addressed – if you are doing that, the recommended OA CFM requirements for Standard 62	Agree. The committee agrees with you regarding distribution and control of chloramines. The MAHC module has flexibility built into it based on loading, movement of water, and the temperature of the water to address the control of chloramines. As for distribution, there are items that call for design of distribution based on load. In an effort to make the code as flexible as possible to account for the many types of facilities and types of air handling units, language was added to address this in particular. As for increasing outside air, Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements. We certainly appreciate the use of other technologies to capture chloramines, to break them down before they reach the pool, and protocols that prevent them from forming in the first place. We have added line items that account for those additions	4.6.2	Indoor Aquatic Facility Ventilation
Design & Construction (D&C)	4.6.2	Electrical Systems and Components	*No change- just encouraging looking at pools different from other open areas to ensure air quality. Thank you.* – Ventilation	Not sure what reference is being made. See Ventilation module for exact guidance	4.6.2	Indoor Aquatic Facility Ventilation
Ventilation (VEN)	4.6.2	Ventilation	Negative air pressurization of the NATATORIUM is required to inhibit DBP odor (trichloramine) from transferring to surrounding rooms. In northern climates this also reduces moisture flow into insulation and around exterior doors and is essential to reduce icing. -- Add: "Negative pressure 4.2.6.x.x The NATATORIUM shall be designed and controlled to maintain a negative air pressure relative to all surrounding spaces." – REFERENCE: 2007 ASHRAE APPLICATIONS p 4.6	Agree. Code revised.	4.6.2	Indoor Aquatic Facility Ventilation
Ventilation (VEN)	4.6.2.1	Building Ventilation	The "key word" given of "Turnover Rates" is misapplied here. These are Fresh Air Requirements.	Agree. Code revised.	4.6.2	Indoor Aquatic Facility Ventilation
Ventilation (VEN)	4.6.2.1.1	Aquatic facility building ventilation systems shall be designed, constructed, and installed to protect the health of the building's occupants.	The word protect has a much higher standard of care than the word support. The concern is that to protect someone in bad health or with special needs would elevate the standard to an undefined performance level. -- Aquatic Facility building ventilation systems shall be designed, constructed and installed to ~~protect~~ support the health of the building's occupants. – REFERENCE: Encarta Dictionary: Protect: to prevent somebody or something from being harmed or damaged; Support: to provide sufficient or the appropriate conditions or facilities to enable people to live or allow something to function	Agree. Changed as suggested.	4.6.2.1	Indoor aquatic facility air handling systems shall be designed, constructed, and installed to support the health and safety of the building's patrons.
Ventilation (VEN)	4.6.2.1.3	*Aquatic facility ventilation design system requirements do not apply to aquatic facilities that meet the definition of an "Open Building" in the International Building Code.*	Reader cannot find the definition of "Open Building" in the 2009 IBC. -- Research and revise as required	Agree. Code revised.	4.6.2.2	Indoor aquatic facility air handling system design requirements do not apply to aquatic facilities that do not meet the definition of a "Building" in the International Building Code 2012.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	"Modified" is too broad. As written, minor revisions even outside the natatorium would arguably trigger a complete overhaul of the pool HVAC system. The annex does little to help thanks to the words "not limited to". -- Ventilation design requirements shall apply to a new or substantially altered or renovated… -- Another source for language in this context could be how the IECC scopes applicability of its code to renovations.	Agree. We have defined the term "substantial alteration".	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	1) What constitutes "modified?" The annex suggests that "adding a new aquatic feature" would constitute being "modified." So is it reasonable to assume that installing a new $5000 spray feature to an existing facility would then require wholesale ventilation design modifications? Owners of existing indoor aquatic facilities are not likely to upgrade their facility if it triggers a upgrade that is cost prohibitive. They may choose to invest elsewhere or leave the building unimproved, which leads to further deterioration. The MAHC should not provide barriers to addressing a ventilation deficiency. If an owner voluntarily chooses to make upgrades, this should not trigger bringing the entire natatorium up to current code requirements. MAHC should also consider a historic building criteria. The United States has some beautiful historic bath houses. A process to allow a building official to approve continued operation with alterations that do not constitute a distinct life safety hazard. -- Ventilation design requirements shall apply to a new or modified (defined as: alterations where the work area exceeds 50 percent of the aggregate area of the indoor aquatic facility). – REFERENCE: The International Code Council: International Existing Building Code 2009, Section 403, 404, 405,411. http://publicecodes.citation.com/icod/iebc/2009/index.htm	Agree. We have defined the term substantial alteration	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	Please clarify. Interpreted liberally, this could have unintended consequences. -- Does a "direct opening" include a door? I would suggest not.	Agree. Code revised.	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	Vague reference as to when the Code applies. -- adding new aquatic features or venues (can this be quantified?) to an existing facility,	Agree. We have defined the term substantial alteration.	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	Ventilation design requirements shall apply to a new or modified INDOOR AQUATIC FACILITY including the area of the building's AQUATIC VENUES, the surrounding BATHER and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the AQUATIC FACILITY. -- Until the scope of required modifications is defined, eliminate this word. The sentence as constructed implies that a modification to any associated area would trigger changing the amount of outside air whether or not the change affects the aquatic venue. This cannot be true.	Agree. We have defined the term substantial modification to speak to an indoor setting and the air handling system	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	Why are locker rooms and pool mechanical rooms in the "aquatic facility?" These are typically on different air handling systems as they should be. -- Ventilation design requirements shall apply to a new or modified INDOOR AQUATIC FACILITY including the area of the building's AQUATIC VENUES, the surrounding BATHER and spectator/stadium seating area, ~~mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the AQUATIC FACILITY.~~	Agree. Code revised.	4.6.2.3	Air handling system design requirements shall apply to new or substantially altered indoor aquatic facilities including the area of the building's aquatic venues and the surrounding bather and spectator/stadium seating areas.
Ventilation (VEN)	4.6.2.1.5	Aquatic facility design, construction, and installation shall comply with the International Code Council (ICC) International Mechanical Code, Chapter 4, and/or applicable local codes.	This reference is unnecessary. The requirement to comply with adopted state and local building codes is a self-evident constraint. -- Delete this entirely	Agree partially but have kept reference to applicable codes.	4.6.2.4	Indoor aquatic facility air handling system design, construction, and installation shall comply with applicable local codes.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.6 ANNEX	See Original Annex for full text	1) Bullet 1 – The language "still requires turnover" is unclear. The ASHRAE Applications Handbook Section 4.6 on Natatoriums makes recommendations on both fresh air and total air volume (determined in terms of air changes per hour). Both need to be determined to design a natatorium air delivery system. The term "Turnover" adds confusion to the discussion, and should be avoided. The fresh air required will be calculated using 4.2.1.7. The total air volume should be calculated in terms of air changes based on the ASHRAE recommendations but modified for building height. The total air volume is sized so meet all requirements of air distribution (removing chloramines, avoiding condensation and corrosion, distributing fresh air to swimmers and spectators, and handling heating/cooling loads with reasonable supply air temperatures) for the particular facility. The fresh air volume should be based on bather load. Bather load is not a factor for the total air volume. Bullet 2 – The use of the term ventilation is confusing here. By introducing the building size, the total required airflow is being discussed, not just the fresh (ventilation) air. The height of the facility does not affect the fresh air prescribed by either the current standards or the proposed MAHC code. Both are multiplying surface area by factors to obtain the amount of fresh air. The height affects the total air volume in the current ASHRAE Handbook recommendations. It has nothing to do with	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	Avoid of a continuing cycle of reactions. ASHRAE already well-established and referenced by building codes. -- Philosophical question: Why not pursue a change to the ASHRAE standard instead of overlaying it? What happens when ASHRAE reacts? MAHC then reacts.	*Partially Agree.* Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	Exception 1 - The present language is restrictive of advancement of the art. For example, gas-phase filtration has been demonstrated to remove disinfection by-products without the costs associated with excess ventilation.; re: Exception 2 – Continuous purge comes with a significant additional energy cost. The present language could be un-necessarily burdensome to some smaller special-purpose venues, such as pools for persons whose skin is allergic to contact with halogen sanitizers. Such pools may be sanitized with copper or silver ions, among other methods. This section should be reconciled with section 4.7.3 (Disinfection and Water Quality).--- Exception 1: Where other effective means of removing disinfection by-products from the natatorium air are used, the required ventilation rate shall be that required by ASHRAE 62.1.; Exception 2 – For smaller venues using alternative pool sanitizers, e.g. metal-ions that do not produce aggressive air-borne disinfection by-products, the required ventilation rate shall be that required by ASHRAE 62.1. – REFERENCE: Editorial, Studies & Practice -- See ACCA Manual SPS Chapter 5.	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements. Disagree regarding metal ---ions as alternative pool sanitizers. The MAHC Disinfection and Water Quality requirements do not allow use in the absence of chlorine or bromine.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	1) A very high concentration of Disinfection By-Products (DBP) often occurs during Breakpoint Chlorination when there is no bather load. At breakpoint the operator can be quickly exposed to rapidly released chlorine gas as the pool water comes to equilibrium, necessitating a high exchange rate of outdoor air. In cold climates it is generally difficult to provide a heating system to accommodate a higher exchange rate and three ACH appears to be adequate based on experience, however that is anecdotal. Three ACH provides a 20 minute turnover of air, which is relatively slow. If good scientific data is available to refine this solution it is most welcome, but lacking data a minimum ACH rate should be established -- Add a introductory sentence to the first paragraph and reword the following sentences to convey the following: "The ventilation system for the NATAORIUM shall provide a minimum of three (3) air changes per hour (ACH) of OUTDOOR AIR or the minimum OUTDOOR AIR calculated in this section, whichever is greater."	Disagree. However Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	1) Clarity. See suggested definitions in earlier comments -- Replace the term "AQUATIC FACILITY" with "NATATORIUM" in five (5) places. Only the last paragraph should use both terms, as follows: Although AQUATIC FACILITY ventilation system planning will include consideration of mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening [connection] to the AQUATIC FACILITY [NATATORIUM], these non-wet areas are not included in the section 4.6.2.1.7 calculation.	Disagree. Code revised, terminology changed to indoor aquatic facility.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	1) How does the committee know that increasing the ventilation rates will really make the IAQ satisfactory and overcome the consequences of an operator that just doesn't maintain adequate minimum pool water chemistry levels? The science behind these recommendations appears to be missing. A direct quantitative relationship between the increase in the ventilation rates and the measurable achievement of satisfactory IAQ should be presented. -- Using the ASHRAE 62.1 definitions for outside air as a baseline and utilizing the ASHRAE method to determine the minimum outside air requirements and then adding additional fresh air for each AQUATIC VENUE type, the number of cubic feet per minute (cfm) of fresh air for an AQUATIC FACILITY is: Wet Area x Ra + Stadium seating Area x Ra + Aquatic venue area x (Ro/ Density factor for that type of area) +Deck area x (Ro/density factor for deck) + Stadium seating area x (Ro/density factor for seating) Ra = cfm/ft2 required for the area WITHOUT OCCUPANTS Ro = cfm/OCCUPANT OCCUPANT = area in ft2 / density at peak occupancy (ft2/person)	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	1) 1) Flat Water Description add text movement made by users and/or circulating water.	Agree. Changed as suggested.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	AQUATIC FACILITY ventilation system design, construction, and installation shall supply the fresh outside air requirements outlined in Table 1, which include the minimum air of ASHRAE 62.1 and/or applicable local CODEs PLUS the additional amount of fresh outside air needed while the facility is occupied. These additional fresh outside air requirements depend on the types and areas of AQUATIC VENUES, deck, and spectator/stadium seating areas making up the AQUATIC FACILITY as outlined below -- No such thing as "fresh air" air. The best you can do is 'outside air'; Fix this everywhere the words "fresh air" exist	Agree - we have changed all references to OUTDOOR AIR. *Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	~~Aquatic venue area x (Ro/ Density factor for that type of area) + Deck area x (Ro/density factor for deck) + Stadium seating area x (Ro/density factor for seating)~~ -- The numbers that you get when applying the density factors to the areas shown imply ridiculous numbers of people in the water and deck areas. The premise that the committee started with causes this. In section 4.6.2.1.8 the following appears "Expected BATHER load and other building Occupants". This appears to be in direct conflict with the "density factor" calculation. Why would you not use the information requested for the design. I am submitting a separate example of the implications of this formula for an existing "flat water" facility. Conversations with the pool operator indicate that the maximum occupancy would only occur 6 or so days/year. Furthermore, during these days, while there are several hundred people in the pool area, only 8 – 10 people are swimming at one time – it is a swimming meet after all. At other times, the occupancy is much less. There is probably more pool agitation during swimming team practice than during swim meets although there are a lot less people in the pool area. The outside air requirements for this facility take the spectators into account even though normally the occupancy is much less. This facility has not had any complaints of problems for swimmers according to the operator.	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	Based on 15 years of field experience, I agree that the amount of outside air prescribed by ASHRAE 62.1 is not adequate to provide a healthy environment. The ASHRAE Applications Handbook Section 4.6 states that the ventilation requirement of 62.1 "may also prove inadequate for high-occupancy public or waterpark-type installations". However, based on field experience I believe the Ro factors in Table 1 will result in significantly more outside air than necessary for a typical flat water pool, somewhat too much for a multi-venue facility like a community recreation center, and far too little for a commercial waterpark. I believe that when current air distribution guidelines are used, with some air directed across the pool surface and captured at pool level to "wipe" the chloramine layer, lower Ro factors are appropriate. Based on field experience, I recommend using Ro for Flat Water of 5. For Agitated Water, the Ro factor should be variable based on the number and type of water features. Mushrooms, large dump buckets, and waterfalls require significantly more fresh air than a slide, spray gun, bubbler, or lazy river. I recommend a minimum Ro of 10 (a few features) and a maximum Ro of 40 (full blown waterpark). The full waterpark will be 100% fresh air.	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	Clarity. See suggested definitions in earlier comments. -- Replace the terms "fresh air" and "Outside Air" with "OUTDOOR AIR" in all cases.	Agree. Code revised.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	I'm certain that your group has or is developing a Model on Filtration but I think it extremely important to tie both areas together as the water is the source and cause of all the IAQ issues. The "Ventilation System" needs to control temperature and humidity but unfortunately it can only try to mask the problems that the water is creating! This suggestion is 100% Energy Conservation and an incentive to get owners to understand the importance of Water Filtration and Contaminant Control -- Table 1. An astrix should be note for Ra and Ro if the facility is using RMF [Regenerative Media Filtration] Water Filtration Technology. As we all know the water is the source of all the problems associated with these types of venues. The RMF is an excellent defense for controlling water contaminants especially with their single pass 1 micron performance compared to traditional sand 6-10 micron performance which undoubtedly would reduce the release of di and tri chloramines compounds in the air which get re-absorbed back into the water and continue the cycle. The astrix is simple a notation that if these RMF technology is used in the facility than the reduction of the amount of OA needed for Ra & Ro portion could be reduced if the "Ventilation System" gets feedback confirming that the Combined Chlorine Levels are at a ____ ppm acceptable level. If this level should increase than the "Ventilation System" shall proportionally increase the amount of OA until the calculated amount has been reached. – REFERENCE: Unfortunately, no actual studies have been made to specifically study the impact and address this synergy. On energy conservation, using this strategy would save large operational dollars per year without affecting the health of the occupants.	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	If the year of the standard is not referenced, this may have an unintended consequence of any changes that ASHRAE makes being multiplied by the MAHC. Be referencing the specific standard and year, the MAHC can make changes as appropriate and not be automatically impacted by ASHRAE changes. -- ASHRAE 62 and ASHRAE 62.1 are reference several times in this section. It is recommended that anytime ASHRAE is referenced that the standard year is included. For example: Using ASHRAE 62 -2001-1 definitions for outside air …. – REFERENCE: www.ashrae.org	Agree. Code revised.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	Outside air is typical Code language -- … ~~fresh~~ outside air … -- Reference: IMC	Agree. Code revised.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	~~The Density factor in Table 1 may be increased, but not reduced may be changed to increase the number of people per area (smaller density factor) but not reduced~~ -- The words as written imply that you can make the density factor larger, which would decrease the number of people not increase it as I suspect was the intent. However, my actual thought is that this method of calculation, while addressing the "answer" that you proposed, does not actually solve any problems in the pool space. Thus my recommendation is to eliminate it entirely because I have suggested deleting that part of the equation in a separate comment below.	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	There is a point of diminishing returns when it comes to air turnover rates. As turnover rate increases, efficacy decreases. At some point, this matrix could simply result in exponential expense without genuine benefit. -- I question the fundamental logic of piling on above and beyond the ASHRAE standard, which in fact allows for engineering discretion and professional judgment on its own. Has anyone studied representative projects to determine what the unit sizing and operational consequences of this would be? If this logic is to remain, consider an overall cap to the multipliers. – REFERENCE: Furr, A. Keith (ed.). Asymptotic Effect of Rate of Air Change. CRC Handbook of Laboratory Safety, 3rd Edition. Boca Raton, FL: CRC Press, Inc., 1989, p. 105.	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	This approach is problematic from an engineering and scientific perspective. The data should not be manipulated to achieve a pre-determined goal. -- (ANNEX) ~~Design professional experience factored into the final cfm/ft2. Design Professionals knew from experience where the final number needed to be, added in reasonable density factors and then addressed the individual characteristics of the AQUATIC VENUES to include splashing at the surface and the temperature of the water.~~	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	~~Using the ASHRAE 62.1 definitions for outside air as a baseline and utilizing the ASHRAE method to determine the minimum outside air requirements and then adding additional fresh air~~ For each AQUATIC VENUE type, the number of cubic feet per minute (cfm) of ~~fresh~~ outside air for an AQUATIC FACILITY is: -- Strike the sentence as indicated. The formula below includes the effect of 62.1 (sort of, because it doesn't include all of the things that 62.1 allows.) -- Unless you carefully read the statement you could be led to believe that you first calculate according to 62.1 and then apply the whole formula again. This would have the effect of doubling the outside air calculations of 62.1 and then adding the rest of the calculations. This cannot be what is intended.	*Annex comment.* Suggestions incorporated into revised section wording	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	We have witnessed dramatic improvements in air quality after installing UV systems in existing facilities. Evidentiary comment: We have had an HVAC equipment vendor provide extended coil warranty for systems installed in UV-fitted venues. -- Include some type of benefit for having a UV system. The MAHC should not recognize the benefits of UV, yet ignore it in application of the code. UV use should be incentivized, not penalized. Upsizing an HVAC system could easily cost more in capital and operations than a UV system. The scientific basis appears no more robust for the former than the latter.	Partially Agree. The Annex provides information and committee discussion regarding potential recognition of UV/ozone in fresh air system requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	What is the validation for the matrix? Mandating this approach could have SIGNIFICANT economic impacts on the owner/operators. Example 1 noted increases the outside air quantity to the aquatic venue by a factor of 2+. This will increase not only the first cost of the equipment, but the operational cost of the facility. If this is the right approach, then the Code should mandate this quantity of outside air, however, to base the new outside air requirements with empirical data is not providing any health and safety benefits to the users. -- The committee had to use the experience of its members on what was working in the real world and what was not working to modify the formula used in ASHRAE 62.…Design Professionals knew from experience where the final number needed to be, added in reasonable density factors…	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.7	See original code for full text.	~~Although AQUATIC FACILITY ventilation system planning will include consideration of mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the AQUATIC FACILITY, these non-wet areas are not included in the section 4.6.2.1.7 calculation.~~ The ventilation requirements apply only to the areas indicated. -- Normally a code specifies what is included and NOT what is not included.	Agree - code revised to clarify that these spaces are considered only for their effects on negative pressure, temperature, and contribution to air volume.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7 ANNEX	See Original Annex for full text	1) Based on 15 years of field experience, I agree that the amount of outside air prescribed by ASHRAE 62.1 is not adequate to provide a healthy environment. The ASHRAE Applications Handbook Section 4.6 states that the ventilation requirement of 62.1 "may also prove inadequate for high-occupancy public or waterpark-type installations". However, based on field experience I believe the Ro factors in Table 1 will result in significantly more outside air than necessary for a typical flat water pool, somewhat too much for a multi-venue facility like a community recreation center, and far too little for a commercial waterpark. I believe that when current air distribution guidelines are used, with some air directed across the pool surface and captured at pool level to "wipe" the chloramine layer, lower Ro factors are appropriate. Based on field experience, I recommend using Ro for Flat Water of 5. For Agitated Water, the Ro factor should be variable based on the number and type of water features. Mushrooms, large dump buckets, and waterfalls require significantly more fresh air than a slide, spray gun, bubbler, or lazy river. I recommend a minimum Ro of 10 (a few features) and a maximum Ro of 40 (full blown waterpark). The full waterpark will be 100% fresh air.	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.7 & 8	See original code for full text.	This is a mandate that has up to 3X the amount of air necessary. Currently the way we design, we are over the current industry standard by 1.5 – 2X in some cases since we do review O/A and spectator load requirements, not just sq-ft like many pool equipment suppliers design. Going 3X does appear extreme as we have sites that are perfect air quality without the 3X stipulation. -- The true language is more research is necessary, not a whole new mandated method that takes up by 3X	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.5	Indoor aquatic facility air handling system design, construction, and installation shall comply with ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality, and/or applicable local codes with additional requirements as stated in section MAHC Section 4.6.2.6.
Ventilation (VEN)	4.6.2.1.4	Ventilation shall be provided through mechanical systems or engineered openings for natural ventilation.	Why not allow both? As in a pool open in the summer, but enclosed and heated in the winter. How should this code apply to air-supported dome structures that are seasonally erected and removed? -- Change "or" to "and/or"	Agree. Changed as suggested.	4.6.2.6.1	Ventilation shall be provided through mechanical systems and/or engineered openings for natural ventilation.
Ventilation (VEN)	4.6.2.4	Mechanical Systems	1) The "Mechanical Systems" title does not really describe the content in this section. A more appropriate title is "Air System Distribution and Sizing" Sections 4.6.2.4.1 thru 4.6.2.4.3 address issues of Air Distribution. A few more sections should be added. "INDOOR AQUATIC FACILITY ventilation system design shall provide airflow over the venue water surfaces to remove the highest concentration of airborne DISINFECTION BY-PRODUCTS by collection of a portion of return air near the water surface and directing a portion of the supply air toward/across the water surface. If the MAHC is going to include the surface level collection of return air in the Performance Requirements in 4.6.2.1.8, it belongs in this section. I don't believe the MAHC can be the defining code for pool ventilation without addressing the total airflow required to effectively distribute the fresh air within the space, remove the contaminated air, eliminate condensation and dead spots where corrosion starts, and handle space sensible loads with an acceptable supply air temperature. I think it is fair to state that unhealthy pool spaces have been caused by too little ventilation air and ineffective air distribution. This has been exacerbated by the advent of recreational pools with new water features. Total air volume is really about effective distribution. The greater the number of air changes, the less critical that the distribution system is perfectly designed. The guidelines provided by ASHRAE Applications on Air Delivery Rates (4-8	Partially Agree. Code revised and reformatted and have used the recommendations of the ASHRAE handbook for the number of air turns required within a space.	4.6.2.6.1	Mechanical Systems

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	1) The Designer needs to confirm that the main facility needs to be under a negative pressure and all adjoining rooms i.e. locker, mechanical and offices should be under positive pressure. While the chemical storage should have its own code. 1) Building size (___ sqft & ____cuft) and layout 2) Aquatic Facility size (___sqft & ____cuft) 8) add or provide direct source capture exhaust techniques i.e. Hot Tubes/Spas.	Agree. Code revised.	4.6.2.6.2	The air handling system design engineer shall provide plan drawings and documentation showing the design meets the performance requirements per MAHC Section 4.6.2.7: (SEE CODE FOR FULL TEXT)
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	7) change "outside air" to "OUTDOOR AIR"; 9) Delete the word "INDOOR".	Agree. Code revised.	4.6.2.6.2	The air handling system design engineer shall provide plan drawings and documentation showing the design meets the performance requirements per MAHC Section 4.6.2.7: (SEE CODE FOR FULL TEXT)
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	Is this section valid for a Code? i.e. the designer shall document……. "External environment, and infiltration and exfiltration concerns that would influence air quality in the INDOOR AQUATIC FACILITY."	Partially agree. Code revised.	4.6.2.6.2	The air handling system design engineer shall provide plan drawings and documentation showing the design meets the performance requirements per MAHC Section 4.6.2.7: (SEE CODE FOR FULL TEXT)
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	It seems that UV, ozone and other secondary sanitizers are being held to a different standard as was applied to general ventilation design (see comments to 4.6.2.1.7 two rows prior). Most industry professionals would likely agree that adequately sized UV, ozone and other secondary sanitizers improve IAQ. So why can't these be considered as part of the overall design and ventilation calculations? -- (ANNEX) The efficacy of UV and ozone are well documented for their effect on biological CONTAMINANTs but the photochemistry taking place is a different reaction for DISINFECTION vs. controlling combined CHLORINE levels. Further research is needed to determine the effectiveness of UV and ozone on destroying DBPs before they can be included in the MAHC Ventilation Section. Guidance will be included in the MAHC for the use of UV and ozone for DISINFECTION. It is unknown at this time if the parameters for the equipment to achieve DISINFECTION will also result in the reduction of DBPs.	Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.	4.6.2.6.2	The air handling system design engineer shall provide plan drawings and documentation showing the design meets the performance requirements per MAHC Section 4.6.2.7: (SEE CODE FOR FULL TEXT)
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	~~Known chemical, biological, and physical CONTAMINANTs,~~ -- Why would a "ventilation design engineer" (whatever that is) know about this. There is no facility so how would you predict something that hasn't happened yet, especially if you are not a chemist or other knowledgeable professional	Agree. Deleted.	4.6.2.6.2	The air handling system design engineer shall provide plan drawings and documentation showing the design meets the performance requirements per MAHC Section 4.6.2.7: (SEE CODE FOR FULL TEXT)
Ventilation (VEN)	4.6.2.1.14	Ventilation system design for toilet, shower, and dressing rooms shall conform to applicable local codes.	~~Ventilation system design for toilet, shower, and dressing rooms shall conform to applicable local CODEs. --~~ Again, codes do not normally include things that are NOT included	Agree. Code revised.	4.6.2.6.3	Air handling system design for chemical storage, mechanical, toilet, shower, and dressing rooms are not included in the scope of this section of the code, but shall be considered for their effects on the performance requirements of MAHC Section 4.6.2.7 such as maintaining negative pressure, temperature differences, and contribution to the air volume of the indoor aquatic facility.
Ventilation (VEN)	4.6.2.1.15	Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code, International Fire Code, and any applicable local codes.	~~Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code, International Fire Code, and any applicable local codes.~~ -- Again, codes do not normally include things that are NOT included	Agree. Code revised	4.6.2.6.3	Air handling system design for chemical storage, mechanical, toilet, shower, and dressing rooms are not included in the scope of this section of the code, but shall be considered for their effects on the performance requirements of MAHC Section 4.6.2.7 such as maintaining negative pressure, temperature differences, and contribution to the air volume of the indoor aquatic facility.
Ventilation (VEN)	4.6.2.1.15	Ventilation system design for chemical storage rooms shall conform to the International Mechanical Code, International Fire Code, and any applicable local codes.	Refer to code section 4.9 for details.)-- There are other applicable standards, depending on type and quantity of chemicals stored. This paragraph should be reconciled with section 4.9 (Design and Construction).	Agree. Code revised.	4.6.2.6.3	Air handling system design for chemical storage, mechanical, toilet, shower, and dressing rooms are not included in the scope of this section of the code, but shall be considered for their effects on the performance requirements of MAHC Section 4.6.2.7 such as maintaining negative pressure, temperature differences, and contribution to the air volume of the indoor aquatic facility.
Design & Construction (D&C)	4.9.2.5.2.3 ANNEX	Where more than one chemical-storage space is present, a separate exhaust system should be provided for each chemical-storage space.	*I disagree with this requirement. This is not industry standard now, at least as far as I'm aware. And unless there is substantial case documentation for asking this change in the industry or from ASHRAE, then I believe this requirement should be removed.* -- Function of this exhaust system should be monitored continuously by an audible differential-pressure alarm system which should sound if the specified differential air pressure is not maintained for a period of thirty minutes.	Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to address the situation when a blower fails.	4.6.2.6.3	The design for chemical storage space was included in the initial version of the MAHC Ventilation and Air Quality module air handling system design posted for public comment. It was, removed in the revised indoor air handling system design area of the MAHC as part of revising the definition of an indoor aquatic facility for which the air handling system does not include chemical storage space or other space outside the negative pressure zone around the aquatic venue. However, the building of an indoor aquatic facility will still require considering the ventilation of chemical storage spaces using separate air handling systems so the text has been moved to MAHC 4.9.2.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.10	Ventilation system design may not consider paddle fans as part of the fresh air calculations for the indoor aquatic facility.	Change "fresh air" to "OUTDOOR AIR". Delete the word "INDOOR	Partially Agree. All references to "fresh air" changed to OUTDOOR AIR.	4.6.2.6.4	Air handling system design may not consider mechanical fans used to push air within the space as part of the outdoor air calculations for the indoor aquatic facility as defined in MAHC Section 4.6.2.7.
Ventilation (VEN)	4.6.2.1.10	Ventilation system design may not consider paddle fans as part of the fresh air calculations for the indoor aquatic facility.	What is a paddle fan? -- Ventilation system design may not consider paddle fans as part of the fresh air calculations for the INDOOR AQUATIC FACILITY.	No change proposed by commenter. Note-A paddle fan is a mechanical fan used to push air within the space.	4.6.2.6.4	Air handling system design may not consider mechanical fans used to push air within the space as part of the outdoor air calculations for the indoor aquatic facility as defined in MAHC Section 4.6.2.7.
Ventilation (VEN)	4.6.2.1.13	Ventilation system design shall consider roof, door, and window openings in the indoor aquatic facility, only if they are planned to be open during all times the indoor aquatic facility is occupied, regardless of season.	Ambiguous as written. The Code should allow design flexibility in tropical and semi tropical climates. Daily operator control to account for varying winds and stack effect should be allowed, hence the wording "continuously controlled open" -- Delete entirely and replace with: "Natural ventilation of the NATATORIUM calculated in accordance with the ASHRAE Handbooks may be substituted for mechanical ventilation only if all the planned exterior openings will be continuously controlled open throughout every day of the year regardless of season."	Agree. Code revised.	4.6.2.6.5	Air handling system design may include natural ventilation calculated in accordance with the ASHRAE Handbooks to substitute the corresponding portion of mechanical ventilation only if all the calculated exterior openings will be continuously controlled open during all times the indoor aquatic facility is occupied, regardless of season.
Ventilation (VEN)	4.6.2.2.1, 4.6.2.2.2, 4.6.2.2.3, 4.6.2.3.1, 4.6.2.3.2, 4.6.2.4.1, 4.6.2.4.2	See original code for full text.	Delete the word "INDOOR AQUATIC FACILITY" with "NATATORIUM"	Disagree. The term Natatorium is more restrictive than the intended applicability of the code. However, code revised to include definition for Indoor Aquatic Facility.	4.6.2.7, 4.6.2.7.2, 4.6.2.7.5, 4.6.2.7.6, 4.6.2.7.10	SEE UPDATED CODE FOR FULL TEXT
Ventilation (VEN)	4.6.2.2.1	Indoor aquatic facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62.1 and/or applicable local codes plus additional fresh air requirements specified in 4.6.2.1.7.	INDOOR AQUATIC FACILITY ventilation system design shall provide outside air ~~turnover rates~~ that complyies with the ~~ASHRAE 62.1 and/or applicable local CODEs plus additional fresh air~~ requirements specified in 4.6.2.1.7. -- Too Much Information. The actual calculation referenced here is the UNNUMBERED equation.	Agree. Code revised.	4.6.2.7.1	The air handling system shall have a design capability to supply the minimum outdoor air requirements using ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality.
Ventilation (VEN)	4.6.2.2.1	Indoor aquatic facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62.1 and/or applicable local codes plus additional fresh air requirements specified in 4.6.2.1.7.	1) Exception 1: Where other effective means of removing disinfection by-products from the natatorium air are used, the required ventilation rate shall be that required by ASHRAE 62.1. Exception 2 – For smaller venues using alternative pool sanitizers, e.g. metal-ions, that do not produce air-borne disinfection by-products, the required ventilation rate shall be that required by ASHRAE 62.1. -- re: Exception 1 - The present language is restrictive of advancement of the art. For example, gas-phase filtration has been demonstrated to remove disinfection by-products without the costs associated with excess ventilation. re: Exception 2 – The present language could be un-necessarily burdensome to some smaller special-purpose venues, such as pools for persons whose skin is allergic to contact with halogen sanitizers. Such pools may be sanitized with copper or silver ions, among other methods. – REFERENCE: See ACCA Manual SPS Chapter 5.	Partially Agree. With further research, other technologies can reduce the amount of outside air required.	4.6.2.7.1	The air handling system shall have a design capability to supply the minimum outdoor air requirements using ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality.
Ventilation (VEN)	4.6.2.2.1	Indoor aquatic facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62.1 and/or applicable local codes plus additional fresh air requirements specified in 4.6.2.1.7.	Reference ASHRAE standard year. -- Indoor Aquatic Facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62-2001-1 … -- REFERENCE: www.ashrae.org	Agree. Code revised.	4.6.2.7.1	The air handling system shall have a design capability to supply the minimum outdoor air requirements using ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality.
Ventilation (VEN)	4.6.2.2.1	Indoor aquatic facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62.1 and/or applicable local codes plus additional fresh air requirements specified in 4.6.2.1.7.	These air turnover rates i.e. Air Changes per Hour need to be stated: 4-6 Air Changes per Hour or 6-8 Air Changes per Hour for Spectator Areas. This should not be tied into section 4.6.2.1.7 as this is the amount of fresh air and that would only be a percentage of the actual air changes per hour. This is confusing and could lead to mis-calculation!	Agree. Code revised..	4.6.2.7.1	The air handling system shall have a design capability to supply the minimum outdoor air requirements using ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality.
Ventilation (VEN)	4.6.2.2.1	Indoor aquatic facility ventilation system design shall provide air turnover rates that comply with ASHRAE 62.1 and/or applicable local codes plus additional fresh air requirements specified in 4.6.2.1.7.	This talks about fail safe? What does that mean? Is this 100% redundancy? Need more detail as to what is being proposed -- Clarification Needed	Agree. (Note section relevant to comment is 4.6.2.2.2.) Code revised to require system features to notify operator if outdoor air entering the Aquatic Facility is less than 0.48 cfm/ft2 Sentence reworded.	4.6.2.7.1	The air handling system shall have a design capability to supply the minimum outdoor air requirements using ASHRAE standard 62.1 2013, Ventilation for Acceptable Indoor Air Quality.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	1) Add Allow for 50% purges based on the following requirements: • use of RMF and/or Specialized Carbon Air Filtration, • mechanical controlled ventilation system, • full or partial heat recovery on exhaust and fresh air, • supply duct are capable to adjust air flow so that all exterior surfaces air flow has not been reduced. • return ducts lower return is active while any high returns are reduce to handle new air flow i.e. 50% • Mechanical system can reduce Supply Air through VFD and confirm Supply CFM and confirmation that Fresh Air is at the Supply CFM and Exhaust Fan is exhausting Fresh Air CFM x 1.1 to ensure Aquatic facility is at the recommended negative pressure. This could also be accomplished by a pressure differential sensor which regulates the exhaust fan to ensure this at all times. The new 50% purge can be programmed to run a predetermined amount of time based on the design air turnover air or air change rate or can be manual controlled for emergency evacuation. This will allow the owner of the facility to save enormous amount of operating expenses associated with the standard purge techniques that have been incorporated for the last 10 to 15 years. This also will allow the owner to setup a preventative IAQ program that will allow the owner to execute this purge automatically at the end of each day or second day, or fifth day…according to the facility's loading. It has been poorly studied but the CDC involvement in the Great Wolf Mason OH incident has shown encouraging new data about these facilities and how, when and why they become problematic!	Partially Agree. Code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	1) INDOOR AQUATIC FACILITY ventilation system design shall provide a complete building natatorium purge method that will allow for complete exhaust of the building's natatorium air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period. Note 1: Separate devices operating in coordination to achieve the stated goal shall be acceptable. Exception: Where other effective means of removing disinfection by-products from natatorium air are used, or where alternative pool sanitizers, e.g. metal-ions, that do not produce aggressive air-borne disinfection by-products are used, such purge mode shall be optional.-- re: "building" The word "building" could be misinterpreted as overly inclusive. re: Note 1 – Smaller venues do not always have sufficient mechanical-room space to incorporate a single device with this capability. re: Exception - The present language is restrictive of advancement of the art. For example, gas-phase filtration has been demonstrated to remove the disinfection by-products without the costs associated with excess ventilation.	Partially Agee. Code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	Purge modes are typically run after super-chlorination. The amount of time required to bring the venue back to safe levels is proportional to the amount of fresh air provided. If a facility needs to return to safe levels quickly (perhaps a rec center or health club), 100% OA/EA purge may make sense. If purge can be scheduled during unoccupied hours (a school or university), a 50% OA/EA purge would work well. There is a huge cost in the size of the heating system required to provide 100% OA/EA purge, even with energy recovery. Rather than state "an indefinite period", state that space temperature shall be maintained at its normal setpoint during purge mode. The design engineer and the owner can decide on the purge OA/EA percentage (50-100%).	Partially Agree. Code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	Purge should not be mandated. See comments above on 4.6.2.1.18	Disagree. The intent of the purge ability is to address maintenance of air quality under high load conditions and address emergencies. Code has been revised to clarify that it is not required to heat or otherwise treat this air, but to provide a method to quickly purge the building.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	This is a specific to a particular vendor's equipment. -- INDOOR AQUATIC FACILITY ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	Disagree. However code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	This will have a significant capital cost implication. During extreme cold, heating the makeup air will require significant capital and operational investment. The coldest times that will drive design parameters will be during the night. Be limiting the requirement during occupancy, the design standard maybe more realistic. It's reasonable to think that in the very near future, natatorium air quality will be able to be monitored to bring in more or less outside air depending upon the readings. We can already read combined chlorine levels in the water. So could we require more outside air when these readings are elevated? Why not give the required scientifically-based result rather than stipulating how to design the system? -- Indoor Aquatic Facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replace with fresh air, with no air recirculation at full fan speed for during hours of occupancy.	Agree. Code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	~~INDOOR AQUATIC FACILITY ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period~~ -- This provision would eliminate a whole class of equipment in common use today as well as force anyone who would be upgrading to change their equipment type with a resulting major cost penalty that could cause the pool operator to forego the upgrade entirely and/or go out of business. Some equipment types only include an exhaust fan that is capable of the required minimum amount of outside air. In this type of equipment a single fan is not capable of providing the range of airflow that would be required to encompass the purge. A second fan is required and existing equipment cannot be modified to include the second fan. There is equipment that does provide this feature either by providing a second 'purge' fan or a return fan. If the facility has a separate exhaust fan, the problem becomes worse.	*Partially Agree. Code revised.*	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	Indoor aquatic facility ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	Three ACH provides a 20 minute turnover of air, which is relatively slow but appears to be adequate based on experience. If good scientific data is available to refine this solution it is most welcome, but lacking data a minimum ACH rate should be established. -- Replace "INDOOR AQUATIC FACILITY" with "NATATORIUM". Delete ", with no air recirculation at full fan speed" and substitute "at a minimum rate of three (3) air changes per hour of OUTDOOR AIR"	Section cited should be 4.6.2.5.1. Partially agree. Code revised.	4.6.2.7.11	The air handling system shall have the capability to periodically purge air for air quality maintenance or for emergency situations.
Ventilation (VEN)	4.6.2.5.1	INDOOR AQUATIC FACILITY ventilation system design shall provide a complete building purge method that will allow for complete exhaust of the building's air volume and replacement with fresh air, with no air recirculation at full fan speed for an indefinite period.	Purge for extended periods -- This would require the heating system capacity be increased by 500% in some cases if this is something you want to be able to happen on a winter design day. The cost of operating in this mode would be astronomical and the RH levels would fall below 20%.	Partially Agree. Code revised.	4.6.2.7.11.1	The air handling system shall have a purge capacity equal or greater than 2 times the ASHRAE code level. This purge would be activated manually and run for a time that achieved one complete air turn of the space.
Ventilation (VEN)	5.6.2.5	Natural Air	~~Natural Air~~ -- What is "natural air"? Eliminate the whole section. Is 'natural air' another of your euphemisms for 'fresh air' which is really outside air? Really confuses people.	Partially Agree. Section revised and reworded .	4.6.2.7.11.2	Outdoor Air
Ventilation (VEN)	4.6.2.2.2	Indoor aquatic facility ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh air for an aquatic facility is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied.	~~INDOOR AQUATIC FACILITY ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh outside air for an AQUATIC FACILITY is not less than the minimum calculated by…~~ -- What are "fail safes"? This isn't defined. The best one can do is make the calculations in accordance with 4.6.2.2.1 and specify equipment that can do that. Once the facility is occupied, control reverts to the maintenance person and there is no way to prevent them from doing whatever they want.	Agree. Code revised to require system features to notify operator if outdoor air entering the Aquatic Facility is less than 0.48 cfm/ft2.	4.6.2.7.2	The air handling system design shall provide system features to notify the operator if the outdoor air entering the indoor aquatic facility is below 0.48 cfm/ft^2.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.2.2	Indoor aquatic facility ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh air for an aquatic facility is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied.	shall provide fail safes (specify tolerances and responses) to ensure that number of cubic feet per minute (cfm) of fresh air for an AQUATIC FACILITY is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied. Exception 1: Where other effective means of removing disinfection by-products from the natatorium air are used, the required ventilation rate shall be that required by ASHRAE 62.1. Exception 2 – For smaller venues using alternative pool sanitizers, e.g. metal-ions, that do not produce air-borne disinfection by-products, the required ventilation rate shall be that required by ASHRAE 62.1. -- re: "specify tolerances and responses" – "fail safe" has a specific (and expensive) (requires feedback, modifiers, compensators, etc.) meaning. Committee may wish to consider the word "alarm" rather than "fail safe". If not, code should specify either an acceptable device, or an acceptable technology, e.g. damper-position, differential pressure, sail, turbine, positive displacement, etc., or at least specify the allowable accuracy and tolerances. The response of the system to the failsafe device, e.g. alarm, should be specified. re: Exception 1 - The present language is restrictive of advancement of the art. For example, gas-phase filtration has been demonstrated to remove disinfection by-products without the costs associated with excess ventilation. re: Exception 2 – The present language could be un-necessarily burdensome to some smaller special-purpose venues, such as pools for persons whose skin is allergic to contact with halogen sanitizers. Such pools may be sanitized with copper or silver ions, among other methods.	Agree. Code revised to require system features to notify operator if outdoor air entering the Aquatic Facility is less than 0.48 cfm/ft2	4.6.2.7.2	The air handling system design shall provide system features to notify the operator if the outdoor air entering the indoor aquatic facility is below 0.48 cfm/ft^2.
Ventilation (VEN)	4.6.2.2.2	Indoor aquatic facility ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh air for an aquatic facility is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied.	State Types of Acceptable Fail Safes. IE Air Flow Monitoring Stations can provide exact read out of CFM being introduced as Fresh Air and/or Exhaust Air. These have routinely been used in hospital applications for the last 25+ years.	Agree. Code revised to require system features to notify operator if outdoor air entering the Aquatic Facility is less than 0.48 cfm/ft^2.	4.6.2.7.2	The air handling system design shall provide system features to notify the operator if the outdoor air entering the indoor aquatic facility is below 0.48 cfm/ft^2.
Ventilation (VEN)	4.6.2.2.2	Indoor aquatic facility ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh air for an aquatic facility is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied.	To what extent? i.e. during initial set up the HVAC system may be balanced to provide OSA quantities. Someone could change this. -- INDOOR AQUATIC FACILITY ventilation system design shall provide fail safes to ensure that number of cubic feet per minute (cfm) of fresh air for an AQUATIC FACILITY is not less than the minimum calculated by the formula in 4.6.2.1.7 for the facility during times the facility is occupied.	Agree. Code revised to require system features to notify operator if outdoor air entering the Aquatic Facility is less than 0.48 cfm/ft2	4.6.2.7.2	The air handling system design shall provide system features to notify the operator if the outdoor air entering the indoor aquatic facility is below 0.48 cfm/ft^2.
Ventilation (VEN)	4.6.2.4.1	Indoor aquatic facility ventilation system design shall provide consistent air flow through all parts of the building that preclude any stagnant areas.	Add Recommendation of proving this with the use of CFD [Computational Fluid Dynamics] Technology	Partially agree. No code change but discussion added in Annex.	4.6.2.7.5	Indoor aquatic facility air handling system shall be designed to provide consistent air flow through all parts of the indoor aquatic facility to preclude any stagnant areas.
Ventilation (VEN)	4.6.2.4.1	Indoor aquatic facility ventilation system design shall provide consistent air flow through all parts of the building that preclude any stagnant areas.	INDOOR AQUATIC FACILITY ventilation system design should ~~shall~~ provide consistent air flow through all parts of the building that preclude any stagnant areas. -- The whole statement is a wish list and reminiscent of 'motherhood and apple pie'. You cannot FORCE this nor can you figure out whether it has been followed. My first thought was to eliminate this section entirely. However it is a good thought but one I suspect that the air distribution designer tries to do anyway – just doesn't succeed very often.	Partially Agree. Code revised to specify that the system shall be designed to provide consistent air flow.	4.6.2.7.5	Indoor aquatic facility air handling system shall be designed to provide consistent air flow through all parts of the indoor aquatic facility to preclude any stagnant areas.
Ventilation (VEN)	4.6.2.4.1	Indoor aquatic facility ventilation system design shall provide consistent air flow through all parts of the building that preclude any stagnant areas.	Wording created ambiguity. -- Replace "building that" with "space to"	Agree. Changed as suggested.	4.6.2.7.5	Indoor aquatic facility air handling system shall be designed to provide consistent air flow through all parts of the indoor aquatic facility to preclude any stagnant areas.
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	24 hour average means what? Occupied days, weekends, summer, winter, etc. -- Suggest defining what is the maximum RH level.	Partially Agree. Code revised.	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	Cannot guarantee RH level for this style system. They are effective in some areas. Need a caveat to deal with it since this style system is at the mercy of mother nature. Does this mandate mechanical means are now also required? -- Need a section added for Ventilation only Systems	Partially Agree. Code revised	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	Not all occupied periods are 24 hours long. -- INDOOR AQUATIC FACILITY ventilation system design shall be capable of maintaining the time-weighted average relative humidity ~~average~~ at less than 65% during occupied periods. Where occupied periods exceed 24 hours, the time-weighted average shall be taken over a 24-hour period. ~~in a 24 hour period when the building is occupied.~~	Partially Agree. Code revised.	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	Refer to copy of document titled "Michael Keller – Additional Info" as reference as well as my Bio describing my qualifications and back ground. -- This is extremely dangerous and needs to be change. First to state an average RH in a 24 hour period is flawed. RH is relative to something else i.e. dry bulb, wet bulb, dew point, etc. To allow this average 65%RH to pass will cause all sorts of other health related problems for the occupants. Please refer to the attached Arundel et Al "Optimum RH range for minimizing adverse health effects" This study and supporting graph has in my opinion been misapplied in the indoor natatorium field for the last 35 years. I have contacted Mr. Anthony Arundel and he has confirmed to me that this study was not done in an indoor natatorium environment and in fact he could not tell me what temperature i.e. Dry Bulb was the study and graph based on. The graph clearly indicates that the Optimum RH Zone is from 40% to 60% with 50% being the optimum RH. Assuming that study was in fact based on a 75F Dry Bulb Temperature the resulting 50% Optimum Zone would result in a 55F Dew Point! This is the standard AC Leaving Air Temperature that designers use when designing Residential, Commercial and Industrial AC applications. Considering that these Aquatic facilities Dry Bulb Temperatures vary from 82F to 86F allowing them to have an average 24 hour 65%RH will be catastrophic. The average 24 hour RH should never exceed 55%RH and in certain high temperature spaces should not exceed 52.5%! – REFERENCE: Arundel et Al 1988 "Optimum RH Range for Minimizing Adverse Health Effects"	Agree. Code revised.	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	The 65% r.h. requirement is in agreement with ASHRAE 62.1 Section 5.10.1. At the elevated temperatures of pool spaces, I question whether this number is too high. The ASHRAE Applications Handbook recommends a 60% upper limit both for comfort of occupants and health of the building. Engineers familiar with pool design often reduce the upper limit when the design air temperature exceeds 85 deg F to keep the space dewpoint below 70 deg F. This section also uses a 24 hour averaged occupied period as the criterion. The great majority of pool spaces are not in occupied operation for 6-8 hours per day, which results in low humidity loads during those hours. It would be fairly easy to completely lose control of humidity during the day and make it up at night to meet this criterion. Also, the average is to be determined by multiple sensing points taken throughout the facility. It is often very impractical to find a single location for sensors in the facility that is not affected by sprayed water. I recommend "The system shall be capable of maintaining the relative humidity at 60% or less, averaged over the occupied hours of operation, as measured at the RA inlet to the air handling unit." – REFERENCE: ASHRAE Applications Handbook Section 4.6 , Environmental Control and Table 1.	*Partially Agree. Section revised and the emphasis has been put on dew point.*	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	What is the scientific basis or justification for the 65% RH threshold? This likely requires a dehumidification system on all indoor aquatic facilities. There are current installations all over the country that operate without dehumidification – they just move a lot of outside air. Unoccupied facilities should only be required to maintain RH and temperatures when not in use (especially if the pool is covered). -- INDOOR AQUATIC FACILITY ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	Agree. Code revised.	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.3.1	Indoor aquatic facility ventilation system design shall be capable of maintaining the relative humidity average at less than 65% in a 24 hour period when the building is occupied.	Average of 65% RH over a 24 hour period -- This recommendation would make is acceptable if the space is 100% RH for extended periods as long as the average is acceptable. This could have catastrophic consequences to the building envelope. ASHRAE gives guidelines that should be referenced.	Partially Agree. Section revised.	4.6.2.7.6	4.6.2.7.6 Relative Humidity VEN The AIR HANDLING SYSTEM shall maintain the relative humidity in the space as defined in ASHRAE Handbook – HVAC Applications 2011, Places of Assembly, Natatoriums. 4.6.2.7.6.1 Dew Point VEN The AIR HANDLING SYSTEM shall be designed to maintain the dew point of the INTERIOR space less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls. 4.6.2.7.6.2 Condensation & Mold Control VEN The AIR HANDLING SYSTEM shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.3.1 ANNEX	See Original Annex for full text	The 65% r.h. requirement is in agreement with ASHRAE 62.1 Section 5.10.1. At the elevated temperatures of pool spaces, I question whether this number is too high. The ASHRAE Applications Handbook recommends a 60% upper limit both for comfort of occupants and health of the building. Engineers familiar with pool design often reduce the upper limit when the design air temperature exceeds 85 deg F to keep the space dewpoint below 70 deg F. This section also uses a 24 hour averaged occupied period as the criterion. The great majority of pool spaces are not in occupied operation for 6-8 hours per day, which results in low humidity loads during those hours. It would be fairly easy to completely lose control of humidity during the day and make it up at night to meet this criterion. Also, the average is to be determined by multiple sensing points taken throughout the facility. It is often very impractical to find a single location for sensors in the facility that is not affected by sprayed water. I recommend "The system shall be capable of maintaining the relative humidity at 60% or less, averaged over the occupied hours of operation, as measured at the RA inlet to the air handling unit." – REFERENCE: ASHRAE Applications Handbook Section 4.6 , Environmental Control and Table 1.	Agree. Code revised.	4.6.2.7.6	Maintaining relative humidity within acceptable levels, below 60%, in the indoor aquatic facility environment is important for a variety of reasons. Research has shown elevated relative humidity levels often coincide with mold growth, damage to building structures, bather discomfort, and inadequate ventilation. The engineer should pay particular attention when designing the air handling system to ensure relative humidity levels can be maintained below the recommended 60% when the..... (SEE ANNEX FOR FULL TEXT)
Ventilation (VEN)	4.6.2.4.3	Indoor aquatic facility ventilation system design shall provide air flow that washes walls and windows with air to reduce condensation and mold growth.	Add air flow that washes exterior walls, emergency door, skylights and windows with cover these areas with 5 cfm/per sift of treated supply air to eliminate condensation and mold growth. Ensure that the facility has a vapor barrier on all walls, roof and floor.	Partially agree. Code revised. However, disagree with vapor barrier comment as a vapor barrier requirement is outside the scope of this section.	4.6.2.7.6.2	The air handling system shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.4.3	Indoor aquatic facility ventilation system design shall provide air flow that washes walls and windows with air to reduce condensation and mold growth.	Historically, this means blowing air on glass and walls. We have projects that have good air movement, limited "washing" and still maintain good air, but it does require good air distribution and mass flow. We have found a sweep method and source capture extremely effective. -- Need to specify proper air movement and distribution, not "washing"	Agree. Code revised.	4.6.2.7.6.2	The air handling system shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.4.3	Indoor aquatic facility ventilation system design shall provide air flow that washes walls and windows with air to reduce condensation and mold growth.	Stating the health objective is more effective that attempting to dictate a solution that may not apply in all circumstances -- Delete and replace with: "NATATORIUM architectural and engineering design shall prohibit condensation and mold growth on building surfaces."	Disagree on wording but it has been revised.	4.6.2.7.6.2	The air handling system shall be designed to distribute air toward walls and windows to reduce condensation and mold growth.
Ventilation (VEN)	4.6.2.1.8	Aquatic facility ventilation system design engineer shall provide documentation with the plans submitted for review that the following parameters in the ventilation system design have been addressed to meet the ventilation performance requirements of this code: (See Original Code for complete Text)	Add "Air distribution design to provide minimum air flow across the pool surface." -- See my initial general comment above.	Agree. Changed as suggested.	4.6.2.7.8.1	The air handling system shall be designed considering airflow across the water surface to promote removal of disinfection by-products.
Ventilation (VEN)	4.6.2.1.18	AQUATIC FACILITY ventilation system design engineer and/or ventilation system manufacturer shall provide facility owner with a ventilation system operating manual which includes: 1) Startup and shutdown procedures, 2) Purging and other safety procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Troubleshooting processes, 6) Frequency of required calibration of equipment, 7) Descriptions of general operating schemes, and 8) Contact information for the manufacturer.	Purge is being promoted by several large Pool Equipment suppliers to handle "shocking" the pool. If maintained properly, purge is not required nearly to the extent claimed, and several studies indicate it is in many cases not effective. Better control required, Purge is a band-aid approach -- I am not a proponent of requiring purge cycles in equipment at all. I don't feel this should be a requirement since it is more of a band-aid approach to begin with.	Disagree. The intent of the purge ability is to address maintenance of air quality under high load conditions and address emergencies. Code has been revised to clarify that it is not required to heat or otherwise treat this air, but to provide a method to quickly purge the building.	4.6.2.8.1	The contractor installing the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM shall provide the AQUATIC FACILITY owner with an operating manual from the manufacturer which includes: 1) Startup and shutdown procedures, 2) PURGING and other SAFETY procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Pressure differential specifications for filter replacement, filter replacement type, and frequency of cleaning or replacement, 6) Troubleshooting processes, 7) Frequency of required calibration of equipment, 8) Descriptions of general operating schemes, and 9) Contact information for the manufacturer.
Ventilation (VEN)	4.6.2.1.18	AQUATIC FACILITY ventilation system design engineer and/or ventilation system manufacturer shall provide facility owner with a ventilation system operating manual which includes: 1) Startup and shutdown procedures, 2) Purging and other safety procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Troubleshooting processes, 6) Frequency of required calibration of equipment, 7) Descriptions of general operating schemes, and 8) Contact information for the manufacturer.	The Code should only address WHAT should be done, not WHO does it -- Reword the first sentence to read: "The facility owner shall be provided with a ventilation system operating manual which includes:"	Disagree. For clarity and enforceability, the responsible party must be designated. Code revised.	4.6.2.8.1	The contractor installing the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM shall provide the AQUATIC FACILITY owner with an operating manual from the manufacturer which includes: 1) Startup and shutdown procedures, 2) PURGING and other SAFETY procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Pressure differential specifications for filter replacement, filter replacement type, and frequency of cleaning or replacement, 6) Troubleshooting processes, 7) Frequency of required calibration of equipment, 8) Descriptions of general operating schemes, and 9) Contact information for the manufacturer.
Ventilation (VEN)	4.6.2.1.18	AQUATIC FACILITY ventilation system design engineer and/or ventilation system manufacturer shall provide facility owner with a ventilation system operating manual which includes: 1) Startup and shutdown procedures, 2) Purging and other safety procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Troubleshooting processes, 6) Frequency of required calibration of equipment, 7) Descriptions of general operating schemes, and 8) Contact information for the manufacturer.	This should not be the responsibility of the design engineer. -- AQUATIC FACILITY ventilation system ~~design engineer and/or ventilation system~~ manufacturer or installer shall provide facility owner with a ventilation system operating manual which includes:	Agree. Code revised	4.6.2.8.1	The contractor installing the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM shall provide the AQUATIC FACILITY owner with an operating manual from the manufacturer which includes: 1) Startup and shutdown procedures, 2) PURGING and other SAFETY procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Pressure differential specifications for filter replacement, filter replacement type, and frequency of cleaning or replacement, 6) Troubleshooting processes, 7) Frequency of required calibration of equipment, 8) Descriptions of general operating schemes, and 9) Contact information for the manufacturer.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.4.6	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with recommendations for filter replacement type, frequency and pressure differential specifications.	The Code should only address WHAT should be done, not WHO does it. -- Delete the words "engineer and/or ventilation system manufacturer shall provide facility owner" and substitute "shall include"	Disagree. For clarity and enforceability, the responsible party must be designated. However, code revised to specify it's the responsibility of the contractor installing the system.	4.6.2.8.1	The contractor installing the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM shall provide the AQUATIC FACILITY owner with an operating manual from the manufacturer which includes: 1) Startup and shutdown procedures, 2) PURGING and other SAFETY procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Pressure differential specifications for filter replacement, filter replacement type, and frequency of cleaning or replacement, 6) Troubleshooting processes, 7) Frequency of required calibration of equipment, 8) Descriptions of general operating schemes, and 9) Contact information for the manufacturer.
Ventilation (VEN)	4.6.2.4.6	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with recommendations for filter replacement type, frequency and pressure differential specifications.	This should not be the responsibility of the design engineer. -- AQUATIC FACILITY ventilation system ~~design engineer and/or the ventilation system~~ manufacturer or installer shall provide facility owner with recommendations for filter replacement type, frequency and pressure differential specifications.	Agree. Code revised.	4.6.2.8.1	The contractor installing the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM shall provide the AQUATIC FACILITY owner with an operating manual from the manufacturer which includes: 1) Startup and shutdown procedures, 2) PURGING and other SAFETY procedures, 3) Cleaning procedures, 4) General maintenance requirements with parts listings and frequency of maintenance (i.e., filter cleaning frequencies, motor bearing maintenance), 5) Pressure differential specifications for filter replacement, filter replacement type, and frequency of cleaning or replacement, 6) Troubleshooting processes, 7) Frequency of required calibration of equipment, 8) Descriptions of general operating schemes, and 9) Contact information for the manufacturer.
Ventilation (VEN)	4.6.2.1.16	Aquatic facility ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	Suggest using a special inspector, similar to other IBC special inspections (i.e. smoke control or structural inspections). This could provide some unintended legal liability for the design professionals. -- AQUATIC FACILITY ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	Partially Agree. Code revised.	4.6.2.9.1	A qualified, licensed professional shall commission the air handling system to verify that the installed system is operating properly in accordance with the system design.
Ventilation (VEN)	4.6.2.1.16	Aquatic facility ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	Allowance should be provided for a some other licensed commissioning agent (other than the design engineer) to perform this commissioning. -- A *qualified, licensed professional engineer* shall commission the ventilation system… -- For example, the commissioning agent must be an independent party from the design entity in projects seeking LEED™ Credit EA3, "enhanced commissioning".	Agree. Code revised.	4.6.2.9.1	A qualified, licensed professional shall commission the air handling system to verify that the installed system is operating properly in accordance with the system design.
Ventilation (VEN)	4.6.2.1.16	Aquatic facility ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	The Code should only address WHAT should be done, not WHO does it. Other contractual requirements may preclude the design engineer from performing this task -- Revise to read as follows: "AQUATIC FACILTY ventilation systems shall be commissioned to verify that the installed system is operating properly in accordance with the system design."	Partially Agree. Code revised and now indicates " …qualified , licensed professional shall commission…"	4.6.2.9.1	A qualified, licensed professional shall commission the air handling system to verify that the installed system is operating properly in accordance with the system design.
Ventilation (VEN)	4.6.2.1.16	Aquatic facility ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	These types of facilities need to be commissioned twice once in the heating and again in the cooling season. This way the facility would be 100% protected from the design intend.	Agree. We have changed the section to read: A qualified, licensed professional engineer shall commission the ventilation system to verify that the installed system is operating properly in accordance with the system design.	4.6.2.9.1	A qualified, licensed professional shall commission the air handling system to verify that the installed system is operating properly in accordance with the system design.
Ventilation (VEN)	4.6.2.1.16	Aquatic facility ventilation system design engineer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	This should not be the responsibility of the design engineer. -- AQUATIC FACILITY ventilation system ~~design engineer~~ manufacturer/installer shall commission the ventilation system in a manner to verify that the installed system is operating in compliance with the design intent.	Agree. Code revised.	4.6.2.9.1	A qualified, licensed professional shall commission the air handling system to verify that the installed system is operating properly in accordance with the system design.
Ventilation (VEN)	4.6.2.1.17	Aquatic facility ventilation system design engineer shall provide a written statement of commissioning to facility owner.	Other contractual requirements may preclude the design engineer from performing this task. "Commissioning Authority" is the proper and current term of art. -- Replace "design engineer" with "Commissioning Authority" – REFERENCE: ASHRAE Terminology of Heating, Ventilation, Air Conditioning, & Refrigeration, Second Edition	Partially Agree. Code revised regarding submission of written statement.	4.6.2.9.2	A written statement of commissioning shall be provided to the AQUATIC FACILITY owner to include but is not limited to: 1) The number of cubic feet per minute of outdoor air flowing into the INDOOR AQUATIC FACILITY at the time of commissioning; 2) The number of cubic feet per minute of exhaust air flowing through the system at the time of commissioning; and, 3) A statement that the amount of outdoor air meets the performance requirements of MAHC Section 4.6.2.7.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.17	Aquatic facility ventilation system design engineer shall provide a written statement of commissioning to facility owner.	Add including all 3rd party reports such as AIR BALANCING and a copy of this must be sent to the Ventilation System Manufacturer before Initial Start-Up is performed.	Partially Agree. Code revised	4.6.2.9.2	A written statement of commissioning shall be provided to the AQUATIC FACILITY owner to include but is not limited to: 1) The number of cubic feet per minute of outdoor air flowing into the INDOOR AQUATIC FACILITY at the time of commissioning; 2) The number of cubic feet per minute of exhaust air flowing through the system at the time of commissioning; and, 3) A statement that the amount of outdoor air meets the performance requirements of MAHC Section 4.6.2.7.
Ventilation (VEN)	4.6.2.1.17	Aquatic facility ventilation system design engineer shall provide a written statement of commissioning to facility owner.	Allowance should be provided for a some other licensed commissioning agent (other than the design engineer) to perform this commissioning. -- A *qualified, licensed professional engineer* shall commission the ventilation system… -- For example, the commissioning agent must be an independent party from the design entity in projects seeking LEED™ Credit EA3, "enhanced commissioning".	Agree. Code revised.	4.6.2.9.2	A written statement of commissioning shall be provided to the AQUATIC FACILITY owner to include but is not limited to: 1) The number of cubic feet per minute of outdoor air flowing into the INDOOR AQUATIC FACILITY at the time of commissioning; 2) The number of cubic feet per minute of exhaust air flowing through the system at the time of commissioning; and, 3) A statement that the amount of outdoor air meets the performance requirements of MAHC Section 4.6.2.7.
Ventilation (VEN)	4.6.2.1.17	Aquatic facility ventilation system design engineer shall provide a written statement of commissioning to facility owner.	This should not be the responsibility of the design engineer. -- AQUATIC FACILITY ventilation system ~~design engineer~~ manufacturer/installer shall provide a written statement of commissioning to facility owner.	Agree. Code revised.	4.6.2.9.2	A written statement of commissioning shall be provided to the AQUATIC FACILITY owner to include but is not limited to: 1) The number of cubic feet per minute of outdoor air flowing into the INDOOR AQUATIC FACILITY at the time of commissioning; 2) The number of cubic feet per minute of exhaust air flowing through the system at the time of commissioning; and, 3) A statement that the amount of outdoor air meets the performance requirements of MAHC Section 4.6.2.7.
Design & Construction (D&C)	4.6.2.1.1	Nothing in this code shall be construed as providing relief from any applicable requirements of the NEC or other applicable code, except where modified by this MAHC.	*Clarification* -- Spell out National Electrical Code	Recommendation implemented.	4.6.3.1.1	Nothing in this code shall be construed as providing relief from any applicable requirements of the National Electric Code (NEC) or other applicable code, except where modified by this MAHC.
Design & Construction (D&C)	4.6.3	Pool Water Heating	Pool Water Heating: Maybe I'm not understanding this. The 120 F temperature will protect against scalds, and that is appropriate for showers and sink water. But this section is for pool water heating. We need to ensure the overall temperature of the water in a pool doesn't exceed 104 F. If you're talking about the water coming out of a jet into the pool, perhaps that should be said, but the overall temperature of the pool water should not exceed 104 F and preferably 102 F. (Spa) and probably not > 95 F in a swimming pool. – REFERENCE: CPSC work on establishing the maximum spa temperature to 104 F back in the early 80s.	Agreed that the blended pool / spa water temperature should not exceed 104 F, but it is common for heat exchangers to have temperature set points in excess of this for heating the water before it fully "blends." Spa water temperatures are limited to 104 per 4.12.1.7.	4.6.4	Pool Water Heating
Design & Construction (D&C)	4.6.3.1	When designing pool heating equipment, measures shall be taken to prevent patron exposure to water temperatures in excess of 120°F (49°C), or in excess of such lower maximum temperature as shall be recommended by the manufacturer for their equipment.	104 degrees is the maximum temperature allowed in spas. I think that the same measures should be enforced for water entering a pool.	This is not intending to reference any sort of maintained water temperature. Most heat exchangers are set to higher temperatures (110 deg) prior to returning to the recirculation line and blending with the pool/spa water.	4.6.4.1	When designing pool heating equipment, measures shall be taken to prevent patron exposure to water temperatures in excess of 104°F (40°C).
Design & Construction (D&C)	4.6.3.2	Where pool-water heating equipment is installed with valves capable of isolating the heating equipment from the pool, a listed pressure-relief device shall be installed to limit the pressure on the heating equipment to no more than the maximum value specified by the heating-equipment manufacturer.	*This section will create confusion. It also fails to reference NFPA 70, which thoroughly addresses this issue. The MAHC should reference Section 316.4 of the ISPSC, which includes the appropriate references and citations.* -- Where pool-water heating equipment is installed with valves capable of isolating the heating equipment from the pool, a listed pressure-relief device shall be installed to limit the pressure on the heating equipment to no more than the maximum value specified by the heating-equipment manufacturer. See General Comment under Basis for Change – REFERENCE: See ISPSC, Section 316.4	NFPA 70 reference added to the other standards listed in 4.6.3.1 of the annex.	4.6.4.2	Where pool water heating equipment is installed with valves capable of isolating the heating equipment from the pool, a listed pressure-relief device shall be installed to limit the pressure on the heating equipment to no more than the maximum value specified by the heating-equipment manufacturer and applicable codes.
Design & Construction (D&C)	4.6.3.3	Pool-water heating equipment shall be selected and installed to preserve compliance with the applicable codes, the terms of listing, and labeling of equipment, and with the equipment manufacturer's installation instructions.	*Same as above. Suggest using language in Section 316.4 of the ISPSC.* -- Pool-water heating equipment shall be selected and installed to preserve compliance with the applicable codes, the terms of listing, and labeling of equipment, and with the equipment manufacturer's installation instructions. See General Comment under Basis for Change – REFERENCE: See ISPSC, Section 316.4	NFPA 70 reference added to the other standards listed in 4.6.3.1 of the annex.	4.6.4.3	Pool-water heating equipment shall be selected and installed to preserve compliance with the applicable codes, the terms of listing, and labeling of equipment, and with the equipment manufacturer's installation instructions and applicable codes.
Lifeguard & Bather Supervision (LG)	4.6.5	First Aid Station	*Inadequate quality of product pushed by a "proposed CDC Timeline"* -- All items related to a First Aid Station should not apply to Unguarded Aquatic Facilities as defined in this code. This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product.	Agree. We changed this to a designated area for first aid equipment, not a dedicated station, knowing that first aid supplies still need to be accessible even in unguarded facilities but a full scale station is not necessary.	4.6.5	First Aid Room

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5	First Aid Station	*It is not the function of a lifeguard or aquatic facilities to treat even minor injuries for the bathers. This exposes them to major litigation if the injury becomes worse. EMS or trained EMTs should treat the bathers. Lifeguards only try to keep the bather from further injuring themselves while waiting for EMS and work a drowning as they were trained.* -- Delete: First Aid Station. The First Aid Station is a convenient and designated location that can be maintained and kept clean for use when bathers with minor injuries and/or illness need to be provided first aid care. The first aid station must be easy to locate and must have first aid supplies to care for minor injuries and more serious injuries until emergency assistance can arrive	Not persuasive. Lifeguards are trained in basic First Aid and it is appropriate for staff to respond to non-life-threatening emergencies and contacting/transferring care to EMS whenever appropriate to do so. Care provided should be limited to scope of First Aid training received. The annex has been edited to reflect the changes in the document. This language reflects the change to a designated area vs. station for first aid equipment.	4.6.5	First Aid Room
Lifeguard & Bather Supervision (LG)	4.6.5	First Aid Station	*Too broad in scope, doesn't apply to all facilities.* -- All items in 4.6.5 related to a First Aid Station should not apply to unguarded aquatic facilities or facilities where a first aid station isn't practical.	Agree. We changed this to a designated area for first aid equipment, not a dedicated station, knowing that first aid supplies still need to be accessible even in unguarded facilities but a full scale station is not necessary.	4.6.5	First Aid Room
Risk Management (RM)	4.6.6.1	The aquatic venue emergency exit enclosure shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency.	*Mixed order of terms.* -- Should read aquatic venue enclosure's emergency exit(s)...	*Agreed. Language changed to read,* " The aquatic venue emergency exit(s) shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency."	4.6.6.1	The aquatic venue emergency exit(s) shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency.
Risk Management (RM)	4.6.6.1	The aquatic venue emergency exit enclosure shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency.	The AQUATIC VENUE emergency exit ~~enclosure~~ shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency.	Agreed. Language changed to read, "The aquatic venue emergency exit(s) shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency."	4.6.6.1	The aquatic venue emergency exit(s) shall not be blocked by objects or secured in a manner that prevents patrons from exiting in the event of an emergency.
Risk Management (RM)	4.6.6.2	Unless all gates or doors are so equipped, those gates and/or doors which will allow egress without a key shall be clearly and conspicuously labeled in letters at least 4 inches (10cm) high "EMERGENCY EXIT".	*No need to label every door if they are securely open during operation.* – Unless all gates or doors are so equipped, those gates and/or doors which will allow egress without a key but are typically closed shall be clearly and conspicuously labeled in letter at least 4 inches high "Emergency Exit".	Disagree. Doors should not be open to the public. No changes made.	4.6.6.2	Unless all gates or doors are so equipped, those gates and/or doors which will allow egress without a key shall be clearly and conspicuously labeled in letters at least 4 inches (10cm) high "EMERGENCY EXIT."
Design & Construction (D&C)	4.6.4.1	A drinking fountain shall be provided inside a swimming pool enclosure if practical.	Add: "A drinking fountain or other form of potable water, free and available to patrons (i.e. cup of water from food stand), shall be provided…"	Refer to the annex. Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.	4.6.7.1	A drinking fountain shall be provided inside an aquatic facility.
Design & Construction (D&C)	4.6.4.1	A drinking fountain shall be provided inside a swimming pool enclosure if practical.	Change "Pool" to "Facility/Venue"	Recommendation not implemented. "Pool Enclosure" is a defined term. Refer to the glossary.	4.6.7.1	A drinking fountain shall be provided inside an aquatic facility.
Design & Construction (D&C)	4.6.4.1	A drinking fountain shall be provided inside a swimming pool enclosure if practical.	*Editorial – in CT we allow Bubblers and Bottle water* -- A drinking fountain, or other approved means of supplying drinking water, shall be provided inside a swimming pool enclosure if practical. – REFERENCE: Editorial – our Code only requires that drinking water be provided, not specifically by a fountain.	Agreed. Alternative wording added.	4.6.7.1	A drinking fountain shall be provided inside an aquatic facility.
Design & Construction (D&C)	4.6.4.1	A drinking fountain shall be provided inside a swimming pool enclosure if practical.	*Not necessary.* – Delete	Recommendation not implemented. Refer to the annex for rationale.	4.6.7.1	A drinking fountain shall be provided inside an aquatic facility.
Design & Construction (D&C)	4.6.4.1	A drinking fountain shall be provided inside a swimming pool enclosure if practical.	The language for the requirement for a drinking fountain provided in the code does not agree with the annex, where the annex states it is a requirement, and the code notes that it is optional.	This section has been modified. A drinking fountain is required or some alternative equivalent (e.g. bottled water) that may be acceptable to the AHJ.	4.6.7.1	A drinking fountain shall be provided inside an aquatic facility.
Design & Construction (D&C)	4.6.4.1 & 4.6.4.1.1	4.6.4.1 A drinking fountain shall be provided inside a swimming POOL ENCLOSURE if practical. 4.6.4.1.1 If the drinking fountain cannot be provided inside the ENCLOSURE, it shall be provided in a common use building or area adjacent to the POOL ENCLOSURE entrance and on the normal path of BATHERS going to the POOL ENCLOSURE entrance.	*When is a drinking fountain installation "practical?"* -- How about "...provided inside the pool enclosure, accept when another location is approved on a case by case basis by the AHJ."?	Refer to 4.6.4.1 annex. This primarily addresses the situations where the outdoor seasonal facility is adjacent to a year-round rec facility and potential winterization / convenience issues.	4.6.7.1	4.6.7.1 Provided D&C A drinking fountain shall be provided inside an AQUATIC FACILITY. 4.6.7.1.1 Alternative D&C Alternate locations or the use of bottled water shall be evaluated by the AHJ. 4.6.7.1.2 Common Use Area D&C If the drinking fountain cannot be provided inside the AQUATIC FACILITY, it shall be provided in a common use building or area adjacent to the AQUATIC FACILITY entrance and on the normal path of BATHERS going to the AQUATIC FACILITY entrance.
Design & Construction (D&C)	4.6.4.1.1	If the drinking fountain cannot be provided inside the enclosure, it shall be provided in a common use building or area adjacent to the pool enclosure entrance and on the normal path of bathers going to the pool enclosure entrance.	Add Exception: "…unless another source of water is available."	Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.	4.6.7.1.1	Alternate locations or the use of bottled water shall be evaluated by the AHJ.
Design & Construction (D&C)	4.6.4.1.1	If the drinking fountain cannot be provided inside the enclosure, it shall be provided in a common use building or area adjacent to the pool enclosure entrance and on the normal path of bathers going to the pool enclosure entrance.	*Not suitable for multi-venued facilities like waterparks.* – Delete	Recommendation not implemented. Refer to the annex. This is not intended to discourage multiple drinking fountains for large facilities like waterparks.	4.6.7.1.2	If the drinking fountain cannot be provided inside the aquatic facility, it shall be provided in a common use building or area adjacent to the aquatic facility entrance and on the normal path of bathers going to the aquatic facility entrance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.6.4.3	A single drinking fountain shall be allowed for one or more swimming pools within a pool enclosure.	Add: "A single drinking fountain or other form of potable water, free and available to patrons (i.e. cup of water from food stand), shall be allowed for one or more venue within a facility enclosure.	Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.	4.6.7.3	A single drinking fountain shall be allowed for one or more aquatic venues within an aquatic facility.
Design & Construction (D&C)	4.6.4.3	A single drinking fountain shall be allowed for one or more swimming pools within a pool enclosure.	*Not sure what the requirement is here.* – Confusing	For example, a municipal facility that has a lap pool and a wading pool would only be required to have a minimum of one drinking fountain.	4.6.7.3	A single drinking fountain shall be allowed for one or more aquatic venues within an aquatic facility.
Design & Construction (D&C)	4.6.4.4	The drinking fountain shall be an angle jet type installed according to applicable plumbing codes.	*Not necessary to specify the type of drinking fountain. That is a building code issue.* – Delete	Recommendation not implemented. In most jurisdictions currently, this is not under the purview of the building code and is in the local pool codes (though perhaps not to this detail).	4.6.7.4	The drinking fountain shall be an angle jet type installed according to applicable plumbing codes.
Design & Construction (D&C)	4.6.5.2	The number and location of receptacles shall be at the discretion of the pool facility manager.	Delete "Pool"	Changed to "Aquatic facility manager."	4.6.8.2	The number and location of receptacles shall be at the discretion of the aquatic facility manager.
Design & Construction (D&C)	4.6.5.2	The number and location of receptacles shall be at the discretion of the pool facility manager.	*Stick to defined terms* -- Replace "POOL" with "AQUATIC"	Recommendation implemented.	4.6.8.2	The number and location of receptacles shall be at the discretion of the aquatic facility manager.
Recirculation and Filtration	4.7.1.1 ANNEX	The hydraulic flexibility recommendation made in the section above will also reduce friction losses in the pipes that may lead to energy savings and reduced operating costs. With the formalization of a new turndown system for pools, it is hoped that pools may be designed for worst-case conditions and then operated according to the demands placed on the system. A turndown system could be used to operate below the minimum operational standards set by the MAHC when the pool is not occupied as an additional cost-saving measure as long as water quality criteria are maintained.	The hydraulic flexibility recommendation made in the section provide the recommended flow against a minimum total dynamic head of the system, which is normally at least 50 feet (15.2 m) for all vacuum filters and 70 feet (21.3 m) for all pressurized filters. A lower total dynamic head could be shown to be hydraulically appropriate by the designer by calculating the total head loss of the system components under worst-case conditions. -- This section currently differentiates between granular media/ cartridge filters and precoat filters. Precoat filters typically see the media replaced at a 12 to 15 psi pressure drop in the same manner as granular media and/ or cartridge filters. There should be no differentiation between the three technologies as the trigger point for backwashing, cleaning or media replacement is a similar pressure differential.	The comment doesn't correlate with the content of the cited Annex section.	4.7.1.1	Hydraulic Flexibility Recommendation R&F The hydraulic flexibility recommendation made in the section above will also reduce friction losses in the pipes that may lead to energy savings and reduced operating costs. With the formalization of a new turndown system for AQUATIC VENUES, it is hoped that AQUATIC VENUES may be designed for worst-case conditions and then operated according to the demands placed on the system. A turndown system could be used to operate below the minimum operational STANDARDS set by the MAHC when the AQUATIC VENUES is not occupied as an additional cost-saving measure as long as water quality criteria are maintained.
Recirculation and Filtration	4.7.1.1.3	A water recirculation system consisting of one or more pumps, pipes, return inlets, suction outlets, filters, and other necessary equipment shall be provided.	A water RECIRCULATION SYSTEM consisting of one or more pumps, pipes, return INLETS, suction outlets, vented reservoirs, filters, and other necessary equipment shall be provided. --- A vented reservoir can be a part of a recirculation system and therefore should be included in this definition. Per ANSI/APSP-7 a vented reservoir is defined as: A receptacle or container incorporated as part of a circulation system that is vented to atmosphere and receives water from the pool/spa or water feature by force of gravity, from which the pump draws its water supply. Systems including vented reservoirs are commonly referred to as gravity flow systems, gravity feed systems or gravity drainage systems. Vented reservoirs include but are not limited to the following: catch pools or catch basins, surge tanks, collector tanks, skimmers open to atmosphere, atmospheric vent pipe tees, gutters, overflow gutters, or perimeter gutter systems.	*Partially agree. Included "tanks" as part of the recirculation system.*	4.7.1.1.3	A water recirculation system consisting of one or more pumps, pipes, return inlets, suction outlets, tanks, filters, and other necessary equipment shall be provided.
Recirculation and Filtration	4.7.1.10	Flow Rates/Turnover Times	Adopt current CA flow rate requirements -- The recommended flow rates as listed in chart may be ideal but depending upon what gets put under the "substantial renovation 4.7.1.2.2 could make it impossible to achieve or could financially by unfeasible. -- REFERENCE: The Design, construction, operation and Maintenance of Public Swimming Pools- excerpts from CA Health and safety code, CA code of Regulations, CA Building Code, Ca Electrical Code; Editorial Comment: This item could be a slippery slope depending upon what is considered "substantial renovation" . You may want to tread a little lighter on suggested turnover rates. Rates listed are very aggressive and don't match many current state code requirements.	Partially agree. Turnover rates revised.	4.7.1.10	Flow Rates / Turnover Times

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.10 TABLE	See Code for Table	(See Code for Table) – 1. -- The proposed MAHC Table does not address the widely held notion that "water depth" has a direct relationship to the bather load that is deserving of adequate treatment. 2. It is both possible and common that two pools of equal volume will have vastly different surface area & water volume. The bather load within these seemingly similar pools could be diametrically opposed & different. Many consider that this "difference" behooves the application of different TO Rates/plant flows. 3. The MAHC quoted "Pool Type" is arguably limited & subjective, whereby it's open to various interpretations & potential criticisms. Again, the inclusion of water depth would assist with definition of pool load and the pool type. 4. The proposed Table shows no respect to & for different & various pool types, such as indoor vs. outdoors, heated or unheated, new and or existing, variances with process treatment efficacy, type & extent of plant (with & without advanced oxidation, etc.,). 5. Definition on TO duty point seems elusive; is the required TO Rate with clean filters, dirty filters, or at an average between clean/dirty? One could imagine many applications (such as indoor high load privately operated Learn to Swim Pools) whereby the MAHC would be grossly deficient. The converse also applies. --REFERENCES: • PWTAG 1999, Chapter 3, Page 19 • WA Code of Practice (October 2004, Table 4, Page 24; • WHO, Vol 2; Box 5.1 (Page 91) and Table 5.2 (Page 92). • NSW DoH (2013), All of Chapter 17, Page 48. With special reference to Clause 7.2.3 where a TO Rate concession is providing when using precoat filters & Clause 7.2.8 (Upgrading	Partially agree. Turnover rates revised.	4.7.1.10 Table	Table 4.7.1.10: Aquatic Venue Maximum Allowable Turnover Times (See code for table)
Recirculation and Filtration	4.7.1.10 Table	See Code for Table	*(see Code for Table)*– The proposed turnover rates are not supported by most current or proposed codes. The proposed changes will add significant cost to new facility design and construction as well as any major renovation. What scientific evidence was presented to support these changes from current or proposed changes to existing codes? – REFERENCE: California Codes, Florida Draft Revisions to DOH Code, Alberta Building Code, Ontario Building Code	Partially agree. Turnover rates revised.	4.7.1.10 Table	Table 4.7.1.10: Aquatic Venue Maximum Allowable Turnover Times (See code for table)
Recirculation and Filtration	4.7.1.10 TABLE	See Code for Table	(The values in the table are VERY conservative compared to CT design standards. CT uses 8 hours for recreational pools, 2 hours for wading pools, 1 hour for whirlpool spas and 30 min for splash/spray parks.) -- There will be a huge discrepancy new old vs. new construction. Will be hard to justify when the existing turnover rates have not been an issue in CT	Partially agree. Turnover rates revised.	4.7.1.10 Table	Table 4.7.1.10: Aquatic Venue Maximum Allowable Turnover Times (See code for table)
Recirculation and Filtration	4.7.1.10 TABLE	See Code for Table	Maximum Allowable Turnover Times -- suggest clarification - not clear on intent for these numbers, the annex portion reads information on coagulant used filtration, but these maximums don't fit common practice by NSPF, APSP. The times are more stringent for commercial activities where larger bodies of water would be a more diluted. Here we also have some unusual explanation of turnover using multipliers and citing the group PWTAG as having credible knowledge on treatment and quality standard for pools and spas.	Partially agree. Turnover rates revised.	4.7.1.10 Table	Table 4.7.1.10: Aquatic Venue Maximum Allowable Turnover Times (See code for table)
Recirculation and Filtration	4.7.1.10 TABLE	See Code for Table	There are tables in APSP 1 Standard for Public Swimming Pools and APSP 9 Standard for Aquatic Recreation Facilities that have industry experience. If the industry experience is not going to be respected and used, the turnover times should be calculated looking at bather load, and the dynamics of the water (e.g. temperature of water, sprays, waves). Where anticipated bathers per gallon of water is X, factor for water temperature, etc. This needs to be more of a sliding scale based on the design peak bather load, and the volume of turn over required per person. Recommendation using standard bather load per type of venue: Spa – 15 minutes; Interactive Water Feature – 30 minutes; Wading Pool – 1 hour; Attractions and Special Pools – 2 hours; Wave Pools & River Rides – 3 hours; This considers 5 gallons of recirculated water per minute per patron	Partially agree. Turnover rates revised.	4.7.1.10 Table	Table 4.7.1.10: Aquatic Venue Maximum Allowable Turnover Times (See code for table)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.10.1	All aquatic venues as defined in the MAHC shall comply with the following maximum allowable turnover times show in MAHC Table 4.7.1.10: "Maximum Allowable Turnover Times."	I thought the Annex for this section would have the scientific basis for the turnover times in Table 4.7.1.10. However this Annex section is a misplaced discussion of the filter backwash rate.There is a long discussion of a new methodology (MSBL) for calculating pool flow rates in Annex section 4.7.1.10.2. In this discussion, there are two bare statements about the turnover times in Table 4.7.1.10. Since neither of these statements gives any scientific justification for MAHC to require these turnovers, I cannot support them. Since most of these turnovers are considerably higher than required in Michigan, where do these turnovers come from? Are there multiple sources that verify these turnovers? In my experience in Michigan, I have not observed problems with older high school pools that still run on an 8-hour turnover, but have observed problems with hotel/motel pools running at a 5-hour turnover. I agree with some of the turnovers in the table, but with limited research and references in MAHC, we will be hard pressed to go to higher flow rates and faster turnovers. The larger pumps will be an even harder to sell to the energy auditors that want filtration pumps to be shut off for long periods of time or have VFDs installed to ramp back the flow rate to a 10-hour turnover or longer during off-hours. With only observational science involved, I have observed that hotel/motel pools do not maintain water clarity with a 5+ hour turnover required in Michigan, but apartment/condo pool do maintain clarity. We have not observed problems with wave, activity, or leisure pools with 4-hour turnovers. Although we still have no rules for spray pads, we have been following the industry standard of a 30-minute turnover and not a 10-minute turnover. Again, I would really like to see references for what MAHC is requiring in this table. Without discussion of where these requirements came from, I cannot support them.	Partially agree. Turnover rates revised.	4.7.1.10.1	All aquatic venues shall comply with the following maximum allowable turnover times show in MAHC Table 4.7.1.10: "Maximum Allowable Turnover Times."
Recirculation and Filtration	4.7.1.10.2 ANNEX	A new methodology is being proposed for use in the future that calculates the recommended minimum design recirculation flow rate, which is called the maximum sustainable bather load (MSBL) calculation. The MSBL calculation is based on the values in MAHC Annex Table 4.7.1.10.2 (below) and adjusted by all applicable multipliers in MAHC Annex Table 4.7.1.10.3 (below) as the maximum turnover time allowable based on the pathogen load and chlorine demand imparted by bathers. Whereas, the traditional turnover time values (required in MAHC Code Table 4.7.1.10) are based on physical transport processes of contaminants and disinfectant in the pool. The MSBL design turnover rates should use the adjustment factors provided. For mixed-use pools, each zone of the pool should individually meet the recommended turnover time for the zone based on the lesser turnover time calculated by the procedures already described. All of the maximum turnover times provided in MAHC Code Table 4.7.1.10 are required for aquatic venues as defined in the MAHC. The MSBL values calculated might help to identify pools that could be slightly over-designed to meet the demands placed on the venue. Furthermore, the MSBL approach actually identifies risk factors that might require higher or lower levels of treatment based on the actual system. 1) Zone Volume (ft3) = Zone Surface Area (ft2) x Average Depth (ft) 2) Zone Bather Load Factor (bathers/ft3) = 1/ {Surface Area per Bather (ft2/bather)} x (Average Depth (ft)) 3) Estimated Maximum Number of Bathers Per Zone = Zone Bather Load Factor (bather/ft3) x Zone Volume (ft3)	A new methodology is being proposed for use in the future that calculates the recommended minimum design recirculation flow rate, which is called the maximum sustainable bather load (MSBL) calculation. The MSBL calculation is based on the values in MAHC Annex Table 4.7.1.10.2 (below) and adjusted by all applicable multipliers in MAHC Annex Table 4.7.1.10.3 (below) as the maximum turnover time allowable based on the pathogen load and chlorine demand imparted by bathers. Whereas, the traditional turnover time values (required in MAHC Code Table 4.7.1.10) are based on physical transport processes of contaminants and disinfectant in the pool. The MSBL design turnover rates should use the adjustment factors provided. For mixed-use pools, each zone of the pool should individually meet the recommended turnover time for the zone based on the lesser turnover time calculated by the procedures already described. All of the maximum turnover times provided in MAHC Code Table 4.7.1.10 are required for aquatic venues as defined in the MAHC. The MSBL values calculated might help to identify pools that could be slightly over-designed to meet the demands placed on the venue. Furthermore, the MSBL approach actually identifies risk factors that might require higher or lower levels of treatment based on the actual system. 1) Zone Volume (ft3) = Zone Surface Area (ft2) x Average Depth (ft) 2) Zone Bather Load Factor (bathers/ft3) = 1/ {Surface Area per Bather (ft2/bather)} x (Average Depth (ft)) 3) Estimated Maximum Number of Bathers Per Zone = Zone Bather Load Factor (bather/ft3) x Zone Volume (ft3)	*Partially agree. Turnover rates revised. Bather load calculation defined that do not use these numbers.*	4.7.1.10.2	A new methodology is being proposed for use in the future that calculates the recommended minimum design recirculation flow rate, which is called the maximum sustainable bather load (MSBL) calculation. The MSBL calculation is based on the values in MAHC Annex Table 4.7.1.10.2 (below) and adjusted by all applicable multipliers in MAHC Annex Table 4.7.1.10.3 (below) as the maximum turnover time allowable based on the pathogen load and chlorine demand imparted by bathers. Whereas, the traditional turnover time values (required in MAHC Code Table 4.7.1.10) are based on physical transport processes of contaminants and disinfectant in the pool. The MSBL design turnover rates should use the adjustment factors provided. For mixed-use pools, each zone of the pool should individually meet the recommended turnover time for the zone based on the lesser turnover time calculated by the procedures already described. All of the maximum turnover times provided in MAHC Code Table 4.7.1.10 are required for aquatic venues as defined in the MAHC. The MSBL values calculated might help to identify pools that could be slightly over-designed to meet the demands placed on the aquatic venue. Furthermore, the MSBL approach actually identifies risk factors that might require higher or lower levels of treatment based on the actual system. (See Annex for complete text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.10.2.1	Unfiltered water shall not factor into turnover time.	All AQUATIC VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times show in MAHC Table 4.7.1.10: "Maximum Allowable Turnover Times." Table 4.7.1.10: Maximum Allowable Turnover Times (See Code for Table) -- Turnover times are considerably more aggressive than industry standard. These are generally typical of recent ANSI requirements, but where is the science and empirical evidence that such a dramatic industry change is warranted? What justification is there for one to one and a half hour turnovers for a wave pool, activity pool, or river? Is a river more or less loaded in terms of bathers per SF or gallon than potentially any other shallow water (plus the artificially generated currents permit greater water movement and less "dead zones," arguably. What about slide plunge pools? These are lightly loaded, typically only a lifeguard and one patron per flume is in the plunge area at a time. What about the 0.25 hour required turnover for multi-level play attractions? Does this mean the portion of a pool where this exists? How to define extents? It seems to me that this is speaking to the $1 million + large interactive play structures that do not have any, or very limited standing water. However, the vast majority of these interactive play structures are at the municipal level ($50K to $300K variety) and are incorporated into a shallow water area or zero beach entry that is part of a larger leisure pool. Wherever these turnover times end up, it should be stipulated that separate zone calculations are required for these leisure pools that have a beach entry, small river, some open water	Partially agree. Turnover rates revised.	4.7.1.10.2.1	Unfiltered water shall not factor into turnover time.
Recirculation and Filtration	4.7.1.10.2.1	Unfiltered water shall not factor into turnover time.	Change to 6 hour turnover times. -- Our pools are designed for a 6 hour turnover. The turnover rates set forth in the table are not achievable without substantial medication and expense.	Partially agree. Turnover rates revised.	4.7.1.10.2.1	Unfiltered water shall not factor into turnover time.
Recirculation and Filtration	4.7.1.10.4.3	Supply water to attractions (*e.g., slides, lazy rivers, and tube rides*) may be reused prior to filtration provided the disinfectant and pH levels of the supply water are maintained at required levels.	Supply water to attractions (e.g., slides, lazy rivers, and tube rides) may be reused prior to filtration provided the DISINFECTANT and PH levels of the supply water are maintained at required levels. -- The State of Ohio was requiring a disinfection feed for each feature pump (though never controls) which was typically accomplished through the installation of erosion feeders on these feature lines while the main recirculation feed had metered chemical feeds and a controller for the pool as a whole. However, even Ohio backed off this requirement recently and now just requires that a minimum residual should be measured at each feature's return in the pool. If proper recirculation designs are followed, this is a much more reasonable approach.	No change proposed by commenter. The requirement is purposely left as a performance goal and not prescriptive to allow designers and operators to determine the best way to maintain water.	4.7.1.10.4.3	Supply water to attractions (e.g., slides, lazy rivers, and tube rides) may be reused prior to filtration provided the disinfectant and pH levels of the supply water are maintained at required levels.
Recirculation and Filtration	4.7.1.10.5	Secondary disinfection systems (*e.g. UV or Ozone*) for spray pads shall be installed on the total recirculation flow.	Secondary disinfection systems (*e.g. UV or Ozone*) for spray pads shall be installed on the water line returning flow to the feature (spray pad) -- The change is to ensure the water that comes into contact with the patrons is treated.	Disagree. The intent is to treat the total tank volume.	4.7.1.10.5	Secondary disinfection systems (e.g. UV or Ozone) for interactive water play venues shall be installed on the total recirculation flow.
Recirculation and Filtration	4.7.1.10.5.1	The ratio of aquatic feature water to filtered water shall be no greater than 3:1 in order to maintain the efficiency of the filtration system.	~~The ratio of AQUATIC FEATURE water to filtered water shall be no greater than 3:1 in order to maintain the efficiency of the FILTRATION SYSTEM.~~ --Why does feature water diminish recirculation efficiency? A large waterslide may have a requirement of 5,000 – 8,000 GPM for the waterslide. If one or more slides exit into a dedicated plunge pool the 3:1 ratio for filtration leads to a filtration rate of thousands of GPM and a turnover time of less than 10 minutes. This is impractical and unnecessary with respect to water quality.	Disagree. This section only applies to spray pads. Code revised to clarify.	4.7.1.10.5.1	The ratio of interactive water play feature water to filtered water shall be no greater than 3:1 in order to maintain the efficiency of the filtration system.
Recirculation and Filtration	4.7.1.10.5.1	The ratio of aquatic feature water to filtered water shall be no greater than 3:1 in order to maintain the efficiency of the filtration system.	This might be ok for a spray pad, but is not feasible for a slide, where the bather load needs to be considered. What science is this ratio based on. Maybe add some examples including a sliding ratio.	This section only applies to spray pads. Annex discussion added.	4.7.1.10.5.1	The ratio of interactive water play feature water to filtered water shall be no greater than 3:1 in order to maintain the efficiency of the filtration system.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.10.6	For aquatic facilities that intend to reduce the recirculation flow rate below the minimum required design values when the pool is unoccupied, the flow turndown system shall be designed as follows in MAHC Section 4.7.1.10.6.1 to 4.7.1.10.6.3.	It is good that some specific language is incorporated into the MAHC to recognize that VFD equipped pumps can be programmed to reduce the recirculation flow rate during off hours. I see that some research has been cited to establish the maximum 25% reduction but the Annex still leaves further room to study more aggressive turndown rates. In Michigan, we have allowed programmed off-hour reductions from a 6-hour turnover to an 8-hour turnover for pools that were constructed when an 8-hour turnover was allowed, but they opted for a 6-hour turnover. The provision in MAHC for a turbidity standard and an online turbidimeter are excellent. The next sections 4.7.1.10.7, -7.1, -7.2, and 4.7.1.10.8 are really subsections of 4.7.1.10.6. When 4.7.1.10.7 and 4.7.1.10.8 are written as main subsections of 4.7.1.10, legally they can be used to modify ANY section of 4.7.1.10. Unless these are renumbered, I believe that there will be confusion with many owners requesting 25% reductions to save energy without installing a VFD or a turbidimeter.	Agree. Re-numbered as suggested and wording has been revised to eliminate use of turbidimeters to monitor.	4.7.1.10.6	For aquatic facilities that intend to reduce the recirculation flow rate below the minimum required design values when the pool is unoccupied, the flow turndown system shall be designed as follows in MAHC Section 4.7.1.10.6.1 to 4.7.1.10.6.7.
Recirculation and Filtration	4.7.1.10.6	For aquatic facilities that intend to reduce the recirculation flow rate below the minimum required design values when the pool is unoccupied, the flow turndown system shall be designed as follows in MAHC Section 4.7.1.10.6.1 to 4.7.1.10.6.3.	For AQUATIC FACILITIES that intend to reduce the recirculation flow rate below the minimum required design values when the POOL is unoccupied, the flow turndown system shall be designed as follows in MAHC Section 4.7.1.10.6.1 to 4.7.1.10.6.3. -- Most turbidity meters are $4000 - plus cost of VFDs -- and this limits many people from installing and using them.	Disagree since inline turbidity meter (turbidimeters) are available for less than $2,000 and VFDs are becoming more commonly used in new/renovated facilities. However, wording has been revised to eliminate use of turbidimeters to monitor.	4.7.1.10.6	For aquatic facilities that intend to reduce the recirculation flow rate below the minimum required design values when the pool is unoccupied, the flow turndown system shall be designed as follows in MAHC Section 4.7.1.10.6.1 to 4.7.1.10.6.7.
Recirculation and Filtration	4.7.1.10.7	The system flowrate shall not be reduced more than 25% lower than the minimum design requirements and only reduced when the pool is unoccupied.	This is not an industry practice and turbidity is not a measure of disinfectant. This should be a performance based requirement. Due to different chlorinating system (etc. salt generators) it would be difficult to set a standard requirement for turbidity.	Disagree. This is allowing/acknowledging a performance based approach to filtration. Turnover rates are to address particle/turbidity removal through filtration based on the consecutive dilution process. Disinfectant distribution is based on dispersion and influenced by circulation within the pool but wording has been revised to eliminate use of turbidimeters to monitor.	4.7.1.10.6.1	The system flowrate shall not be reduced more than 25% lower than the minimum design requirements and only reduced when the pool is unoccupied.
Recirculation and Filtration	4.7.1.10.7	The system flowrate shall not be reduced more than 25% lower than the minimum design requirements and only reduced when the pool is unoccupied.	25% maximum turn down is too limiting. A maximum of so% should be allowed provided clarity, water quality and sanitation and pH control can be maintained. -- Common sense, energy savings	Disagree. No data provided to support proposed change.	4.7.1.10.6.1	The system flowrate shall not be reduced more than 25% lower than the minimum design requirements and only reduced when the pool is unoccupied.
Recirculation and Filtration	4.7.1.2.3	Each component of a combined venue treatment system shall be capable of being isolated for maintenance purposes.	Each component aquatic venue of a combined venue treatment system shall be capable of being isolated for maintenance purposes. –It is not clear to me whether "component" refers to individual aquatic venues within an aquatic facility (e.g. spa, pool, spray pad, etc.) or whether it refers to individual pieces of equipment (e.g. pump, filter, etc.). If it is the former, then suggest that the word "component" be replaced with "aquatic venue."	Agree. Code revised.	4.7.1.2.3	Each aquatic venue of a combined venue treatment system shall be capable of being isolated for maintenance purposes.
Recirculation and Filtration	4.7.1.2.3	Each component of a combined venue treatment system shall be capable of being isolated for maintenance purposes.	Move the content to the annex as a design consideration. -- Would be onerous and unnecessary in certain installations (e.g. two features in a kiddy area.)	Disagree. It is not necessary to isolate each feature only each venue.	4.7.1.2.3	Each aquatic venue of a combined venue treatment system shall be capable of being isolated for maintenance purposes.
Recirculation and Filtration	4.7.1.3.1.2	This shall be accomplished by either a continuous perimeter gutter system with integral inlets or by means of adjustable inlets adequate in design, number, and location.	Replace the word "this" with a requirement that shall be accomplished ….. or subjugate under the subject requirement. -- There is no subject requirement. What shall be accomplished?	Agree. Code section renumbered and revised.	4.7.1.3.1.2	Effective distribution of treated water shall be accomplished by either a continuous perimeter overflow system with integral inlets or by means of directionally adjustable inlets adequate in design, number, and location.
Recirculation and Filtration	4.7.1.3.1.2	This shall be accomplished by either a continuous perimeter gutter system with integral inlets or by means of adjustable inlets adequate in design, number, and location.	"Perimeter gutter". How about "perimeter overflow system" or POS?	Agree. Changed as suggested.	4.7.1.3.1.2	Effective distribution of treated water shall be accomplished by either a continuous perimeter overflow system with integral inlets or by means of directionally adjustable inlets adequate in design, number, and location.
Recirculation and Filtration	4.7.1.3.1.2	This shall be accomplished by either a continuous perimeter gutter system with integral inlets or by means of adjustable inlets adequate in design, number, and location.	Awkward. Suggest: Effective distribution of treated water shall be accomplished by means of adjustable inlets located in the aquatic venue walls and/or floor that are adequate in design, location, and number or by inlets that are integral with a continuous perimeter overflow system. (What do you mean by "adjustable"? Flow rate adjustable? Directionally adjustable? Directional adjustability is mentioned in 4.7.1.3.3.3.)	Agree. Changed as suggested	4.7.1.3.1.2	Effective distribution of treated water shall be accomplished by either a continuous perimeter overflow system with integral inlets or by means of directionally adjustable inlets adequate in design, number, and location.
Recirculation and Filtration	4.7.1.3.1.3	Pools shall use wall and/or floor inlets to provide adequate mixing.	Eliminate. Combined this section into the previous section.	Agree. Changed as suggested	4.7.1.3.1.3	Pools shall use wall and/or floor inlets to provide adequate mixing.
Recirculation and Filtration	4.7.1.3.1.3	Pools shall use wall and/or floor inlets to provide adequate mixing.	Pools shall use wall and floor inlets to provide adequate mixing -- *should include - during new construction or renovation of existing circulation system	Disagree. Not needed as the design requirements/Section 4 only applies to new construction or significant alteration, unless otherwise specifically stated.	4.7.1.3.1.3	Pools shall use wall and/or floor inlets to provide adequate mixing.
Recirculation and Filtration	4.7.1.3.1.5	Inlets shall be hydraulically sized to provide the design flow rates for each pool area of multi-zone pools based on the required design turnover rate for each zone.	Inlets shall be hydraulically sized to provide the design flow rates for each POOL area of multi-zone pools based on the required design turnover rate for each zone. GENERAL COMMENT: Is it being suggested that certain areas of the pool should and can receive more and better treated water than other areas of the pool? Does this make it safer or less safe to swim in certain zones because of differing turnover rates?	This provides for adequate treatment of different pool areas likely receiving different contamination burden.	4.7.1.3.1.5	Inlets shall be hydraulically sized to provide the design flow rates for each pool area of multi-zone pools based on the required design turnover rate for each zone.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.3.2	Floor Inlets	If pool is over 40 feet in width wall inlets only should not be acceptable -- Treated water will not be able to project out in the middle – REFERENCE: State codes	Partially agree. Code revised to require bottom inlets when the width of a pool exceeds 50 feet.	4.7.1.3.2	Floor Inlets
Recirculation and Filtration	4.7.1.3.2.1	Floor inlets shall be uniformly spaced and flush with the bottom of the pool.	Explanation of comments: Text below in yellow highlight is suggested for addition ~~Text below in yellow highlight and strikethrough is recommended for removal~~ Water inlets (floor or wall) shall be certified in accordance with NSF/ANSI Standard 50. Inlets shall be installed and used in accordance with manufacturer instructions and aquatic facility designer criteria for optimum circulation. Rationale: NSF has balloted and passed evaluation and testing criteria for water return inlets. This section of NSF 50 has not yet been published yet but will be issued in late 2013 or early 2014. The criteria includes inlet material safety, corrosion resistance, head loss (pressure or pumping resistance), pressure safety, horizontal and or vertical load testing, dimensional compliance for connections (ie threaded ends) and UV strength for plastic fitting materials for outdoor use. Manufacturers may also have their inlet or return fittings tested for distance of water projection into the pool at a range of pressures -- Health, safety and performance issue -- REFERENCE: NSF/ANSI Standard 50 is the criteria used to evaluate, test, and certify pool, spa, and recreational water equipment. It's scope includes all materials, products and equipment for use at pool spas and other aquatic facilities. NSF. Therefore this industry standard should be referenced. If any changes are sought to create product testing and certification criteria or change criteria, that effort should be channeled through the NSF/ANSI Standard 50 Joint Committee which is the group of public health officials, manufacturers, and product users that oversees the development of NSF/ANSI Standard 50.	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.3.2.1	Floor INLETS shall be 1. spaced to effectively distribute the treated water throughout the POOL, and 2. flush with the bottom of the POOL.
Recirculation and Filtration	4.7.1.3.2.1	Floor inlets shall be uniformly spaced and flush with the bottom of the pool.	Floor inlets shall be uniformly spaced and flush with the bottom of the POOL. GENERAL COMMENT: It says that floor inlets shall be uniformly space. Would this be true in 3 feet of water and also in 12 feet of water within the same aquatic vessel? How can this produce water that is uniformly treated water throughout the pool?	Partially agree. Code revised.	4.7.1.3.2.1	Floor INLETS shall be 1. spaced to effectively distribute the treated water throughout the POOL, and 2. flush with the bottom of the POOL.
Recirculation and Filtration	4.7.1.3.2.1.2	Rows of inlets shall be within 15 feet (4.6 m) of each side.	Suggest: A row of floor inlets shall be located within 15 feet (4.6 m) of each side wall. What is required if the pool is round or an irregular shape?	Agree. Code revised.	4.7.1.3.2.1.2	A row of floor inlets shall be located within 15 feet (4.6 m) of each side wall.
Recirculation and Filtration	4.7.1.3.2.1.2	Rows of inlets shall be within 15 feet (4.6 m) of each side.	add) If the width of the pool is greater than 50 feet than floor inlets shall be required. – REFERENCE: CT Public Swimming Pool Design Guide Section 6.7	Agree. Code revised	4.7.1.3.2.1.2	A row of floor inlets shall be located within 15 feet (4.6 m) of each side wall.
Recirculation and Filtration	4.7.1.3.2.1.2	Rows of inlets shall be within 15 feet (4.6 m) of each side.	Rows of inlets shall be within 15 feet (4.6 m) of each any side. -- Current language would require floor inlets to layout in a triangular arrangement and not in a checkerboard style.	Partially agree. Code revised.	4.7.1.3.2.1.2	A row of floor inlets shall be located within 15 feet (4.6 m) of each side wall.
Recirculation and Filtration	4.7.1.3.2.2	Floor inlets, used in combination with wall inlets, shall be spaced no greater than 25 feet (7.6 m) from adjacent side walls.	Floor inlets, used in combination with wall inlets, shall be spaced no greater than 25 feet (7.6 m) from adjacent side walls any wall. -- Does the term "adjacent side walls" mean two walls that are 90 degrees to each other or parallel to each other? Do they not mean end wall to side wall? If that is the case then the words "adjacent side walls" should be deleted and replace with "any wall".	Agree. Replaced "Adjacent" with "nearest".	4.7.1.3.2.2	Floor inlets, used in combination with wall inlets, shall be spaced no greater than 25 feet (7.6 m) from nearest side walls.
Recirculation and Filtration	4.7.1.3.3	Wall Inlets	Wall inlets five feet from skimmers -- To ensure treated water goes into pool – REFERENCE: State codes	Agree. Code revised.	4.7.1.3.3	Wall Inlets
Recirculation and Filtration	4.7.1.3.3.3	Inlets shall be directionally adjustable.	Wall inlets - Inlets shall be directionally adjustable -- should read possibly - Inlets shall provide effective distribution of water to mix, suggest directional eyelets for troubled areas	Partially agree. Code revised.	4.7.1.3.3.2	Inlets shall be directionally adjustable to provide effective distribution of water.
Recirculation and Filtration	4.7.1.3.3.3 & 4.7.1.3.3.5	4.7.1.3.3.3 -- Inlets shall be directionally adjustable. 4.7.1.3.3.5 -- Wall INLETS that are not part of a manufactured gutter system shall be designed to provide directional flow.	Inlets shall be directionally adjustable. 4.7.1.3.3.5 Wall INLETS that are not part of a manufactured gutter system shall be designed to provide directional flow. – 4.7.1.3.3.3 and in 4.7.1.3.3.5 seem to be redundant. 4.7.1.3.3.5 could be deleted.	Partially agree. Code revised.	4.7.1.3.3.2 & 4.7.1.3.3.4	4.7.1.3.3.2 Adjustable R&F INLETS shall be directionally adjustable to provide effective distribution of water. 4.7.1.3.3.4 Directional Flow R&F Wall INLETS that are part of a manufactured gutter system do not need to be designed to provide directional flow.
Recirculation and Filtration	4.7.1.3.3.4.1	Inlets shall be placed within 5 feet (1.5 m) of each corner of the pool.	Inlets shall be placed within 5ft of each corner of the pool -- should read - Inlets on new construction shall be placed within 5ft of each corner of the pool where inlets are utilized on the wall surface.	Disagree. Not needed as the design requirements/Section 4 only applies to new construction or significant alteration, unless otherwise specifically stated.	4.7.1.3.3.3.1	Inlets shall be placed within 5 feet (1.5 m) of each corner of the pool.
Recirculation and Filtration	4.7.1.3.3.4.2	Inlets shall be placed in each recessed or isolated area of the pool.	Inlets shall be placed in each recessed or isolated are of the POOL. GENERAL COMMENT: Does it mean that wall inlets must be place within recessed ladders?	No. Info added to annex to address intent for this section.	4.7.1.3.3.3.3	Inlets shall be placed in each recessed or isolated area of the pool.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.3.3.5	Wall inlets that are not part of a manufactured gutter system shall be designed to provide directional flow.	What is the difference between this section and 4.7.1.3.3.3? They both require that inlets be directionally adjustable.	Agree. Code revised to eliminate redundancy.	4.7.1.3.3.4	Wall inlets that are part of a manufactured gutter system do not need to be designed to provide directional flow.
Recirculation and Filtration	4.7.1.3.3.6	Dye testing shall be required to evaluate the mixing characteristics of the recirculation system unless exempted by the local AHJ.	Since the Annex only recommends this, how can this be a "shall" requirement? Although dye testing is a method to determine if the pool inlet system effectively distributes treated water, this can only be done after construction. What if the pool "fails"? Is the pool going to be rebuilt based on a dye test? It is critical that the design engineer and the AHJ ensure that the pool has properly located and spaced inlets BEFORE the pool is built. This test will only identify a possible problem after the fact and offers no solution. This is an operational procedure after the pool is finished and the RS & F module is not the appropriate location.	Agree. Annex revised to be consistent with Code.	4.7.1.3.3.5	Dye testing may be required by the AHJ to evaluate the mixing characteristics of the recirculation system.
Recirculation and Filtration	4.7.1.3.3.6	Dye testing shall be required to evaluate the mixing characteristics of the recirculation system unless exempted by the local AHJ.	This requirement is not a design requirement or a construction requirement and should be rewritten as a requirement for the design of dye testing capabilities or rewritten as a post construction test process requirement.	Partially agree. However, dye test kept in the design section as the dye test can demonstrate the conformance of the designed and constructed recirculation system with performance expectations. Failure may require adjustments or modifications to the system under the direction of the design engineer.	4.7.1.3.3.5	Dye testing may be required by the AHJ to evaluate the mixing characteristics of the recirculation system.
Recirculation and Filtration	4.7.1.3.3.6	Dye testing shall be required to evaluate the mixing characteristics of the recirculation system unless exempted by the local AHJ.	Dye testing shall be conducted when deemed necessary to evaluate the mixing characteristics…….Not all pools would need to be dye tested based on pervious known design flows	Agree. Code revised	4.7.1.3.3.5	Dye testing may be required by the AHJ to evaluate the mixing characteristics of the recirculation system.
Recirculation and Filtration	4.7.1.3.3.6	Dye testing shall be required to evaluate the mixing characteristics of the recirculation system unless exempted by the local AHJ.	~~Dye testing shall be required to evaluate the mixing characteristics of the RECIRCULATION SYSTEM unless exempted by the local AHJ.~~ Dye tests are a visual verification of adequate circulation, but what is to be done after construction? Rip out portions of the pool and re-plumb? It seems that this wouldn't be necessary if the flow rate requirements, inlet spacing requirements, etc. in this standard are adhered to. It's suggested that efforts be focused here rather than a dye test. For example, there is nothing requiring floor inlets for pools of a certain width. So, a 13,000+ SF 50 meter pool with 750,000 gallons of water can comply with the code in terms of the inlet design just utilizing an integrated supply tube in a gutter trough. If would be extremely unlikely that adequate recirculation would find its way to the middle of the pool and at deeper water. (This is noted in the annex for 4.7.1.3.3.4, but should find its way into the code for design and enforcement.)	Agree. Code revised regarding dye test mandate and requiring floor inlets for widths greater than 50 feet.	4.7.1.3.3.5	Dye testing may be required by the AHJ to evaluate the mixing characteristics of the recirculation system.
Recirculation and Filtration	4.7.1.3.3.6	Dye testing shall be required to evaluate the mixing characteristics of the recirculation system unless exempted by the local AHJ.	New and renovated RECIRCULATION SYSTEMS shall be subjected to Dye testing shall be required to evaluate the mixing characteristics of the RECIRCULATION SYSTEM unless exempted by the local AHJ. -- This suggested rewording, which is similar to what is used in 4.7.1.7.5.1, is so the language is specifying how often dye testing needs to be conducted.	Partially agree. Code revised.	4.7.1.3.3.5	Dye testing may be required by the AHJ to evaluate the mixing characteristics of the recirculation system.
Recirculation and Filtration	4.7.1.3.3.6.2	If dye test reveals inadequate mixing in the pool after 15-20 minutes, the recirculation system shall be modified to assure adequate mixing.	Again, is the pool going to be rebuilt on the basis of an admittedly qualitative and subjective dye test? Rebuilding is what "shall be modified" implies. Is there any science at all that ties dead spots in pools to increased risk of disease? Is there sufficient science to be prescriptive about 15 to 20 minutes? Dye testing actually should be optional.	Partially agree. Code revised.	4.7.1.3.3.5.1	If dye test reveals inadequate mixing in the pool after 20 minutes, the recirculation system shall be adjusted or modified to assure adequate mixing.
Recirculation and Filtration	4.7.1.3.3.6.2	If dye test reveals inadequate mixing in the pool after 15-20 minutes, the recirculation system shall be modified to assure adequate mixing.	If dye test reveals inadequate mixing in the pool after 15-20 minutes, the recirculation system shall be modified to assure adequate mixing -- suggest - the appropriate modifications will be done to provide adequate mixing, including repositioning directional eyelet	Agree. Code has been revised. Annex contains some guidance on remediation.	4.7.1.3.3.5.1	If dye test reveals inadequate mixing in the pool after 20 minutes, the recirculation system shall be adjusted or modified to assure adequate mixing.
Recirculation and Filtration	4.7.1.3.3.6.2	If dye test reveals inadequate mixing in the pool after 15-20 minutes, the recirculation system shall be modified to assure adequate mixing.	If Dye test reveals inadequate mixing of the pool after 50% of the time of a normal turnover minutes then the pool is to be brought back to pre-dye conditions and a second test is to be performed to simulate minimal user conditions with agitated water with another dye test and if dye test reveals inadequate mixing of the pool after 35-30 minutes then the recirculation system shall be modified until it can pass either the standard static dye test or the simulated user dye test. -- In a static dye test there can be potential voids due to pool shell design and/or inlet placements or flow variations and or environmental factors. There is no health code requirement when pool is not in use to have chemical levels at a particular residual. Additionally, when open you will have agitation of the water and a more relevant test would be an actual or simulated in use environment. -- REFERENCE: NSPF Certified Pool-Spa Operator Handbook 2007 Edition pg. 101, NSPF Pool and Spa Operator Handbook 2009 pg 134; Editoral comment: Multiple jurisdictional health codes would substantiate chemical recirculation theory in which no chemical residual is necessary in static closed conditions.	Disagree. Proper/effective mixing is essential for adequate water treatment including filtration. Absence of a disinfectant residual in a portion of the pool may result in growth of bacteria, algae and biofilm. Turnover rates to provide effective particle removal by filtration are based on consecutive dilution predicated on uniform distribution of the treated (filtered) water throughout the pool.	4.7.1.3.3.5.1	If dye test reveals inadequate mixing in the pool after 20 minutes, the recirculation system shall be adjusted or modified to assure adequate mixing.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.3.3.6.2	If dye test reveals inadequate mixing in the pool after 15-20 minutes, the recirculation system shall be modified to assure adequate mixing.	If dye test reveals inadequate mixing in the POOL after 15-20 minutes, the RECIRCULATION SYSTEM shall be modified to assure adequate mixing. -- If the test can go to 20 minutes then why even suggest 15 minutes? Delete the range and make it 20 minutes only.	Agree. Code revised.	4.7.1.3.3.5.1	If dye test reveals inadequate mixing in the pool after 20 minutes, the recirculation system shall be adjusted or modified to assure adequate mixing.
Recirculation and Filtration	4.7.1.4	Overflow Systems/Gutters	I suggest "Perimeter Overflow Systems / Gutters". Did the committee have any discussion about the minimum surface area of a pool when a POS would be required? I see some discussion about this in the skimmer section of the Annex, but nothing is mentioned in these code sections. The requirement is 2,400 sq ft in Michigan. Other states have 2,000 sq ft. Are there any studies that suggest POSs for smaller pools?	Partially agree. Changed to Perimeter Overflow Systems/Gutter . The requirement is based on the width of the pool (regardless of surface area) since the limitation of a skimmer appears to be based on the distance (not area) it can effectively skim. The Code limits use of skimmers to pools with a maximum width of 30 feet.	4.7.1.4	Perimeter Overflow Systems/Gutters
Recirculation and Filtration	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.	All POOLs shall be designed to provide SKIMMING for the entire POOL surface area with engineering rationale provided by the design professional. – There should be a minimum percentage of the overall perimeter where gutters are required. Should have some flexibility with rivers, wave pools, etc. that typically have interruptions.	Commenter did not provide recommended revisions corresponding justification.	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.
Recirculation and Filtration	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.	Gutter systems and overflows shall be certified in accordance with NSF/ANSI Standard 50. Systems for outdoor use shall be certified for UV strength and weathering resistance. Rationale: NSF has balloted and passed evaluation and testing criteria for gutter systems and overflows. This section of NSF 50 has not yet been published yet but will be issued in late 2013 or early 2014. The criteria includes material safety, corrosion resistance, open area flow capacity, vertical load testing, dimensional compliance for connections (ie threaded ends) and UV strength for plastic fitting materials for outdoor use. -- Health, safety and performance issue – REFERENCE: NSF/ANSI Standard 50 is the criteria used to evaluate, test, and certify pool, spa, and recreational water equipment. It's scope includes all materials, products and equipment for use at pool spas and other aquatic facilities. NSF. Therefore this industry standard should be referenced.	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.
Recirculation and Filtration	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.	Outlets shall be hydraulically sized to provide the design flow rates for each pool area of multi-zone pools based on the required design turnover rate for each zone. -- This requirement may work for small recreational pools less than 30 feet in size, however for other types of pools this requirement might not be achievable and cause safety hazards.	Comment doesn't correlate with cited code section. Additionally, no rationale provided to support statement.	4.7.1.4.1.1	All pools shall be designed to provide skimming for the entire pool surface area with engineering rationale provided by the design professional.
Recirculation and Filtration	4.7.1.4.1.2	Zero-depth entry pools shall have a continuous overflow trench that terminates as close to the side walls as practical.	What is a "continuous overflow trench"? Does this mean a gutter trench along the zero-depth portion? Suggest: For pools that require a perimeter overflow system, the POS shall extend around the entire pool perimeter including any zero-depth portion of the pool perimeter. Where a POS cannot be continuous, the ends of each section shall terminate as close as practical to each other.	Agree. Code revised.	4.7.1.4.1.2	Zero depth entry pools shall have a continuous overflow trench that terminates as close to the side walls as practical including any zero depth portion of the pool perimeter.
Recirculation and Filtration	4.7.1.4.1.2	Zero-depth entry pools shall have a continuous overflow trench that terminates as close to the side walls as practical.	Zero-depth entry POOLS shall have a continuous overflow trench that terminates as close to the side walls as practical. GENERAL COMMENT: It seems to imply that there is a trench that needs to terminate close to the side walls. There is not trench along the entrance end of the pool or it would not be a zero-depth entrance. Does this mean that the gutter/trench on the sides of this pool needs to terminate as close as practical to the zero-depth entry end of the pool?	Code revised for clarity.	4.7.1.4.1.2	Zero depth entry pools shall have a continuous overflow trench that terminates as close to the side walls as practical including any zero depth portion of the pool perimeter.
Recirculation and Filtration	4.7.1.4.2.1	The gutter system shall be designed to allow continuous removal of water from the pool's upper surface at a rate of at least 125 percent of the approved total recirculation flow rate chosen by the designer.	This requirement is over-reaching and results in an system that is oversized from an efficiency perspective as well as a filtration/recirculation perspective and will negatively affect the function. The percentage should be backed by science that results in addressing the safety risk and providing an efficient system	Disagree. No recommended revisions or data provided to support statements.	4.7.1.4.2.1	The gutter system shall be designed to allow continuous removal of water from the pool's upper surface at a rate of at least 125 percent of the approved total recirculation flow rate chosen by the designer.
Recirculation and Filtration	4.7.1.4.2.1	The gutter system shall be designed to allow continuous removal of water from the pool's upper surface at a rate of at least 125 percent of the approved total recirculation flow rate chosen by the designer.	……upper surface at a rate of at least 100 percent of the approved…… -- REFERENCE: CT Public Swimming Pool Design Guide Section 9.2	Disagree. The intent of this section was to overdesign to prepare for future upgrades	4.7.1.4.2.1	The gutter system shall be designed to allow continuous removal of water from the pool's upper surface at a rate of at least 125 percent of the approved total recirculation flow rate chosen by the designer.
Recirculation and Filtration	4.7.1.4.3.1	Drop boxes, converters, return piping, or flumes used to convey water from the gutter shall be designed to handle at least 125 percent of the approved total recirculation flow.	…..to handle at least 100 percent of the approved…… -- REFERENCE: CT Public Swimming Pool Design Guide Section 9.3	Disagree. The intent of this section was to overdesign to prepare for future upgrades.	4.7.1.4.3.1	Drop boxes, converters, return piping, or FLUMEs used to convey water from the gutter shall be designed to 1) prevent flooding and BACKFLOW of skimmed water into the POOL, and 2) handle at least 125 percent of the approved total recirculation flow.
Recirculation and Filtration	4.7.1.4.3.1	Drop boxes, converters, return piping, or flumes used to convey water from the gutter shall be designed to handle at least 125 percent of the approved total recirculation flow.	This requirement is over-reaching and results in a system that is oversized from an efficiency perspective as well as a filtration/recirculation perspective and will negatively affect the function. The percentage should be backed by science that results in addressing the safety risk and providing an efficient system	Disagree. No recommended revisions or data provided to support statements.	4.7.1.4.3.1	Drop boxes, converters, return piping, or FLUMEs used to convey water from the gutter shall be designed to 1) prevent flooding and BACKFLOW of skimmed water into the POOL, and 2) handle at least 125 percent of the approved total recirculation flow.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.4.3.2	Drainage shall be sized to prevent flooding and backflow of skimmed water into the pool.	What does "drainage" in this section mean? Does this mean the POS drop boxes, converters, and returns mentioned in the previous section? I suggest combining both sections: Drop boxes, converters, return piping, or flumes used to convey water from the POS shall be designed to prevent flooding and backflow of skimmed water into the pool and shall be designed to handle at least 125 percent of the approved total recirculation flow.	Agree. Code revised as suggested.	4.7.1.4.3.1	Drop boxes, converters, return piping, or FLUMEs used to convey water from the gutter shall be designed to 1) prevent flooding and BACKFLOW of skimmed water into the POOL, and 2) handle at least 125 percent of the approved total recirculation flow.
Recirculation and Filtration	4.7.1.4.4.1	All overflow systems shall be designed with an effective net surge tank capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area	Minimum surge tank capacity needed for spray grounds. 4000 gallon. -- Anything less becomes a sludge pit. – REFERENCE: California codes	Disagree. No data provided to support minimum size tank.	4.7.1.4.4.1	All POS shall be designed with an effective net surge capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area.
Recirculation and Filtration	4.7.1.4.4.1	All overflow systems shall be designed with an effective net surge tank capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area	The surge tank should be designed based on peak bather load including other features that are circulating in the pool using a standard displacement figure per person. The peak bather load should be defined by the designer /engineer.	Disagree. Bather loads are normally calculated based on surface area to prevent under designs based on lowball bather load estimates. This design requirement simply skips the conversion to bather load.	4.7.1.4.4.1	All POS shall be designed with an effective net surge capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area.
Recirculation and Filtration	4.7.1.4.4.1	All overflow systems shall be designed with an effective net surge tank capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area	Remove the requirement of 1Gallon per square foot of pool surface area. This is excessive for non-competitive use pools. Adds extreme cost to pools that are not high competitive use such as general recreational use. Balancing tanks for gutter pools is sufficient.	Partially agree. Code revised to clarify applicability and intent.	4.7.1.4.4.1	All POS shall be designed with an effective net surge capacity of not less than 1 gallon for each square foot (41 L/m^2) of pool surface area.
Recirculation and Filtration	4.7.1.4.4.2	The tank capacity specified shall be the net capacity	How do you define the "net capacity" of the surge tank? The 4.7.1.4.4 section of the Annex on Surge Tank Capacity does not actually discuss surge tank capacity. It is discussed Annex section 4.6.1.4.2. The Annex or the Code should indicate that the net capacity means the operating tank capacity from the minimum operating depth required to maintain pump suction to the tank overflow. The Annex should also discuss how to determine the minimum operating depth of a surge tank.	Agree. Annex revised to address net capacity.	4.7.1.4.4.2	The tank capacity specified shall be the net capacity.
Recirculation and Filtration	4.7.1.4.4.2	The tank capacity specified shall be the net capacity	Surge tanks that serve splashpads or other elements that do not retain water shall have a minimum capacity of 5000 gallons. -- There is not a standard for minimum water volumes on splashpad and interactive elements that have high bather loads. In addition to the minimum recirculation rates for these elements a minimum water volume should be set for the tanks to ensure that the water can be balanced under the load conditions they will see.	Disagree. Tanks serving Interactive Water Play attractions such as splash pads are not surge tanks.	4.7.1.4.4.2	The tank capacity specified shall be the net capacity.
Recirculation and Filtration	4.7.1.4.4.2	The tank capacity specified shall be the net capacity	The tank capacity specified shall be the net capacity – Define "net capacity". It's assumed that this is after neglecting normal operating water level. May consider stipulating that the gutter trough and gutter piping returns to the surge tank can be included in the capacity calculation.	Agree. Code and annex revised.	4.7.1.4.4.2	The tank capacity specified shall be the net capacity.
Recirculation and Filtration	4.7.1.4.4.3	The design professional shall define the surge tank's minimum, maximum, and unoccupied pool levels in the surge tank.	Awkward. "Unoccupied pool" is not an adjective describing the surge tank. Actually, the minimum tank level should occur within a set time after everyone leaves the pool and the system reaches equilibrium. Suggest: The design professional shall define the surge tank minimum and maximum levels in the surge tank. • Comment: Most sections stop using "perimeter gutter" as in the definition and simply uses "gutter". • Comment: Since in-pool surge is a surge capacity consideration, the discussion of surge capacity from section 4.7.1.5.1.3 below should be moved here. This would allow the discussion of the surge weir in the skimmer section below. • Comment: It seems that the intention of this committee is to allow in-pool surge to replace a surge tank. Even though Michigan only allows a 50% credit for in-pool surge, a section should be added under surge capacity to make the committee intensions clear that in-pool surge can replace all or part of a surge tank.	Agree. Code revised.	4.7.1.4.4.3	The design professional shall define the minimum, maximum, and normal pool operating water levels in the surge tank.
Recirculation and Filtration	4.7.1.4.4.3.1	The surge tank's minimum, maximum, and unoccupied pool levels shall be marked on the tank.	The surge tank's minimum, maximum, and unoccupied pool levels shall be marked on the tank -- suggest adding - where visual inspection is accessible or can be clearly identified without removing equipment.	Agree. Code revised.	4.7.1.4.4.3.1	The surge tank's minimum, maximum, and normal pool operating water levels shall be marked on the tank so as to be readily visible for inspection.
Recirculation and Filtration	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.	Section mentions air gap or backflow prevention device. There is no backflow prevention device for wastewater. -- Not an alternative to air gap. – REFERENCE: Plumbing codes	Agree. This allows for an alternate if one becomes available.	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.
Recirculation and Filtration	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.	Surge tanks shall have overflow pipes to convey excess water to waste via an air gap. -- Air gap is required on all drain/discharge piping	Not sure what change is being suggested	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.	~~Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved BACKFLOW prevention device.~~ Why must surge tanks have overflow pipes? Sometimes the tank is built above the level of the pool, preventing flooding of the deck? Or is there a reason why an one would need to be provided for all outdoor gutter pools where overflow is the result of a rain event and the excess water flows on the deck and evacuated vai deck drains? There are also other methods, such as a water level controller that can be equipped with a high level sensor to close an electrically actuated solenoid on the domestic fill line if it is left open by an operator by mistake.	Disagree. A design to have pools overflow during rain events was not considered an acceptable option by the technical committee. The intent is to design to maintain gutters to be effective at all times, which would not occur during periods of overflow or being submerged.	4.7.1.4.4.4	Surge tanks, shall have overflow pipes to convey excess water to waste via an air gap or other approved backflow prevention device.
Recirculation and Filtration	4.7.1.4.5.1	Gutters shall be level within a tolerance of plus or minus 1/8 inch (3.175 mm) around the perimeter of the aquatic venue.	Gutters shall be level within a tolerance of plus or minus 1/16 inch -- +/- 1/8 inch can result in a ¼ inch difference in elevation which will result in inefficient full perimeter skimming	Agree. Code revised	4.7.1.4.5.1	Gutters shall be level within a tolerance of plus or minus 1/16 inch (1.6 mm) around the perimeter of the aquatic venue.
Recirculation and Filtration	4.7.1.4.6.1	Automatic makeup water supply equipment shall be provided to maintain continuous skimming of all pools.	It is certainly desirable that all pools are equipped for automatic makeup, but there is no science to support MAHC establishing this as a requirement. Manual makeup is necessary for all pools to allow the pool to be filled. Permanent piping is also necessary to prevent operators from using a hose to fill a pool. Suggest: Permanent makeup water supply equipment shall be provided to fill all pools, with automatic makeup preferred to maintain continuous skimming.	Partially agree. Code revised to require automatic make-up water supply equipment for pools with perimeter overflow systems but not for pools with skimmers.	4.7.1.4.6.1	Automatic makeup water supply equipment shall be provided to maintain continuous skimming of pools with POS.
Recirculation and Filtration	4.7.1.4.6.1	Automatic makeup water supply equipment shall be provided to maintain continuous skimming of all pools.	Automatic makeup water supply equipment shall be provided to maintain continuous skimming of all pools -- suggest revising - Automatic makeup water supply equipment is recommended to control appropriate waterline level to maintain continuous skimming of all pools during operating hours. The fear with automatic water supply equipment is that they fail and can waste large amounts of water if left to operate on its own. If an auto level is installed, some may never know of a leak in the pool unless they pay attention to the water bill.	Disagree. No data submitted to support commenter's recommendation. However, code revised to require automatic make-up water supply equipment for pools with perimeter overflow systems but not for pools with skimmers.	4.7.1.4.6.1	Automatic makeup water supply equipment shall be provided to maintain continuous skimming of pools with POS.
Recirculation and Filtration	4.7.1.4.6.2	Makeup water shall be supplied through an air gap or other approved backflow prevention device.	Makeup water shall be supplied through an air gap. – REFERENCE: CT Public Swimming Pool Design Guide Section 2.2	Disagree. Approved backflow prevention device is also acceptable.	4.7.1.4.6.2	Makeup water shall be supplied through an air gap or other approved backflow prevention device.
Recirculation and Filtration	4.7.1.5	Skimmers and Alternative Gutter Technologies Using In-pool Surge Capacity	For the title of this section, is there some language that is more understandable than "alternative technologies using in-pool surge capacity?" Suggest: Skimmers and Surge Weirs	Disagree. Language is meant to be unrestrictive if new technologies become available or desirable.	4.7.1.5	Skimmers
Recirculation and Filtration	4.7.1.5.1.1	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations and NSF Standard 50 certification of each skimmer.	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations and NSF/ANSI Standard 50 certification of each skimmer. Rationale: Correct reference citation -- Health and safety issue and code compliance – REFERENCE: NSF/ANSI Standard 50is the standard for evaluation and testing of skimmers and state codes require the use of NSF/ANSI 50 Certified skimmers such as California, Florida, Texas, New York, North Carolina, etc.	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.5.1.1	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations.
Recirculation and Filtration	4.7.1.5.1.1	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations and NSF Standard 50 certification of each skimmer.	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations. ~~and NSF Standard 50 certification of each skimmer.~~ Skimmers shall be certified to NSF/ANSI 50 by an ANSI-Accredited certification organization. – Requiring certification of skimmers insures that they meet all applicable health-related requirements of NSF 50. Specifying ANSI-Accredited certification organizations further insures this. – REFERENCE: Most codes in the US require the use of certified products, and also that they be certified by an ANSI-Accredited organization (such as UL, NSF, etc.). For example, the Uniform Codes by IAPMO, the International Codes by ICC, etc.	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.5.1.1	The use of manufactured direct suction skimmers shall be in accordance with the manufacturer's recommendations.
Recirculation and Filtration	4.7.1.5.1.2	At least one surface skimmer shall be provided for each 500 square feet (46 m^2) of surface area or fraction thereof.	At least one skimmer or acceptable alternative gutter technologies shall be provided… -- This section seems to require the use of skimmers on all pools. Skimmers in waterparks are not as effective as overflow drains due to continuous fluctuations in water levels	Partially agree. Code revised to clarify applicability and intent.	4.7.1.5.1.2	Where skimmers are used, at least one surface skimmer shall be provided for each 500 square feet (46 m^2) of surface area or fraction thereof.
Recirculation and Filtration	4.7.1.5.1.4	At least two skimmers shall be provided to reduce the impact of prevailing winds on removing contaminants from the surface of the pool.	Rather than 'provided" use the word situated or located. -- Section indicates placement rather as well as provision.	Partially agree. This section deleted, placement addressed in 4.7.1.5.2	4.7.1.5.1.2.1	Additional skimmers may be required to achieve effective skimming under site-specific conditions (e.g., heavy winds and/or contaminant loading) and/or to comply with all applicable building codes.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.5.1.4	At least two skimmers shall be provided to reduce the impact of prevailing winds on removing contaminants from the surface of the pool.	This section is setting a requirement for a minimum of 2 skimmers for every pool. It seems to assume outdoor pools. What is the science behind requiring 2 skimmers in the MAHC? I have not observed small indoor pools less than 500 sq ft or indoor spas with 1 skimmer to have problems. The Annex discussion indicates that research is not available to compare skimmer effectiveness with more skimmers. Suggest: One or more skimmers shall be located to reduce the impact of prevailing winds on removing contaminants from the surface of the pool. Or eliminate this section since skimmer location is discussed in 4.7.1.5.2	Agree. This section deleted, placement addressed in 4.7.1.5.2	4.7.1.5.1.2.1	Additional skimmers may be required to achieve effective skimming under site-specific conditions (e.g., heavy winds and/or contaminant loading) and/or to comply with all applicable building codes.
Recirculation and Filtration	4.7.1.5.1.4	At least two skimmers shall be provided to reduce the impact of prevailing winds on removing contaminants from the surface of the pool.	At least one skimmer or acceptable alternative gutter technologies shall be provided… -- This section seems to require the use of skimmers on all pools. Skimmers in waterparks are not as effective as overflow drains due to continuous fluctuations in water levels	Agree. Code revised.	4.7.1.5.1.2.1	Additional skimmers may be required to achieve effective skimming under site-specific conditions (e.g., heavy winds and/or contaminant loading) and/or to comply with all applicable building codes.
Recirculation and Filtration	4.7.1.5.1.4	At least two skimmers shall be provided to reduce the impact of prevailing winds on removing contaminants from the surface of the pool.	At least two skimmers placed on different sides of the pool shall be provided to reduce the impact of prevailing winds on removing CONTAMINANTS from the surface of the POOL. -- Although it is probably obvious that two side-by-side skimmers will not reduce the impact of prevailing winds, it might be good to specify that the skimmers should be placed on different sides of the pool.	Partially agree. Code revised to delete minimum number but address effects of prevailing wind.	4.7.1.5.1.2.1	Additional skimmers may be required to achieve effective skimming under site-specific conditions (e.g., heavy winds and/or contaminant loading) and/or to comply with all applicable building codes.
Recirculation and Filtration	4.7.1.5.1.3	Hybrid systems that can switch between skimmers and overflow gutters through the use of in-pool surge shall meet all of the requirements specified for each system *(with the exception of the surge or balance tank since the surge capacity requirement will be alternately met by the in-pool surge capacity*).	Hybrid systems that can switch between skimmers and overflow gutters through the use of in-POOL surge shall meet all of the requirements specified for each system *(with the exception of the surge or balance tank since the surge capacity requirement will be alternately met by the in-POOL surge capacity*). -- I assume this is speaking to "surge weirs?" There should be additional regulatory requirements on minimum quantity, flow rate, etc. Gutters require continuous perimeter overflow and 125% of recirc rate. At least one skimmer is required per 500 SF of surface area (and many standards have a flow rate per lineal inch of skimmer weir requirement). I have seen traditional 25 yard lap pools with only one surge weir in each corner of the pool, for example. Certainly this would not meet the same design standard that skimmers or perimeter overflow gutters are held to.	Agree. Code revised to clarify requirements.	4.7.1.5.1.3	Hybrid systems that incorporate skimmers in the overflow gutters to provide for in-pool surge shall meet all of the requirements specified for each system *(with the exception of the surge or balance tank since the surge capacity requirement will be alternately met by the in-pool surge capacity*).
Recirculation and Filtration	4.7.1.5.1.3	Hybrid systems that can switch between skimmers and overflow gutters through the use of in-pool surge shall meet all of the requirements specified for each system *(with the exception of the surge or balance tank since the surge capacity requirement will be alternately met by the in-pool surge capacity*).	The language switches from "alternative technologies using in-pool surge capacity" to "hybrid systems." I would leave the explanation of alternative/hybrid surge weir systems to the Annex. Suggest: When surge weirs are proposed in a pool equipped with a POS, the surge weirs shall meet all of the requirements for skimmers in this section.	Partially agree. Code and annex revised for clarity.	4.7.1.5.1.3	Hybrid systems that incorporate skimmers in the overflow gutters to provide for in-pool surge shall meet all of the requirements specified for each system *(with the exception of the surge or balance tank since the surge capacity requirement will be alternately met by the in-pool surge capacity*).
Recirculation and Filtration	4.7.1.5.1.5	The skimmer system, when used, shall be designed to handle up to 100% of the total recirculation flow rate chosen by the designer.	This is confusing as it seems to indicate that skimmers are not mandatory but see 4.7.1.5.1.2	Agree. Code revised to clarify "Where skimmers are used…"	4.7.1.5.1.4	The skimmer system, when used, shall be designed to handle up to 100% of the total recirculation flow rate chosen by the designer.
Recirculation and Filtration	4.7.1.5.1.6	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.	Remove the 30 foot width requirement for the use of skimmers. Not required for general recreational use pools. Adds extreme cost to general recreational use pools and many state codes allow the use of skimmers on any size pool.	Disagree. Many states currently limit the surface area. This requirement is based on the limits of the skimmer to effectively skim water from the surface layer from greater distances.	4.7.1.5.1.5	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.
Recirculation and Filtration	4.7.1.5.1.6	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.	Again, this is confusing if all pools have to use skimmers. Wave pools are much wider than 30 feet.	Agree. Code revised to clarify skimmer requirements.	4.7.1.5.1.5	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.
Recirculation and Filtration	4.7.1.5.1.6	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.	Eliminate Section -- Although some states have width limitations most do not. There is no logical need for this item. -- Editorial Comment: Why create a most restrictive environment when item is not needed in the code	Disagree. Many states currently limit the surface area. This requirement is based on the limits of the skimmer to effectively skim water from the surface layer from greater distances.	4.7.1.5.1.5	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.
Recirculation and Filtration	4.7.1.5.1.6	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.	Pools using skimmer shall not exceed 30 feet (9.0 m) in width unless adequate circulation can be demonstrated. -- There are a few very large pools in CT that use skimmers that have not had circulation issues	Disagree. See annex for additional explanation. The width restriction is to address the limitation/ability of skimmers to draw water from the surface layer over a distance. Circulation addresses water movement within the pool.	4.7.1.5.1.5	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.
Recirculation and Filtration	4.7.1.5.1.6	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.	~~POOLs using skimmers shall not exceed 30 feet (9.1 m) in width. --~~ Rationale? If your return valves are throttled such that you are returning 80% of surface water and 20% of main drain water (probably the most typical balance and consistent with 5.7.1.1.3) to filtration, does it matter if it's skimmers or gutters? Many current regulations do not have a maximum pool width or surface area for skimmers because they are situated in parts of the country where expansive soils are present. Gutters are designed (by MAHC and most other standards) to a 1/8" tolerance. So if you have 1/8" + of differential movement at one end of a pool, you will only be skimming from the low end. Skimmers have adjustable weirs which make this situation a non-issue in most instances (see 4.7.1.5.4.1).	Disagree. Many states currently limit the surface area. This requirement is based on the limits of the skimmer to effectively skim water from the surface layer from greater distances.	4.7.1.5.1.5	Pools using skimmers shall not exceed 30 feet (9.1 m) in width.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.5.2.1	Skimmers shall be so located as to provide effective skimming of the entire water surface.	Skimmers shall be so located as to provide effective skimming of the entire water surface -- suggest revising - When skimmers are present, they shall be so located as to provide effective skimming of the entire water surface	Agree. Code revised to clarify "Where skimmers are used…"	4.7.1.5.2.1	Skimmers shall be so located as to provide effective skimming of the entire water surface.
Recirculation and Filtration	4.7.1.5.2.2	Skimmers shall be offset from steps and recessed areas.	There is no Annex discussion here. What does "offset" mean? Does this mean that a skimmer should not be located in a recessed step area or a small recessed area? I think that one point here is that we do not necessarily want a skimmer located in a stairway area to minimize its being played with. I think we want a skimmer in a larger recessed area.	Partially agree. Code revised for clarity.	4.7.1.5.2.2	Skimmers shall be located so as not to be affected by restricted flow in areas such as near steps and within small recesses.
Recirculation and Filtration	4.7.1.5.2.2	Skimmers shall be offset from steps and recessed areas.	Skimmers shall be offset from steps and recessed areas. -- What is meant by "offset?"	Agree. Code revised for clarity.	4.7.1.5.2.2	Skimmers shall be located so as not to be affected by restricted flow in areas such as near steps and within small recesses.
Recirculation and Filtration	4.7.1.5.2.3	Wind direction shall be considered in skimmer placement.	This requirement should be deleted as wind direction is not constant, nor predictable.	Disagree. There are typically prevailing wind patterns/directions.	4.7.1.5.2.3	Wind direction shall be considered in number and placement of skimmers.
Recirculation and Filtration	4.7.1.5.2.3	Wind direction shall be considered in skimmer placement.	Wind direction shall be considered in skimmer placement -- suggest revising - Wind direction shall be considered during new construction for the skimmer placement	Disagree. Not needed as the design requirements/Section 4 only applies to new construction or significant alteration, unless otherwise specifically stated.	4.7.1.5.2.3	Wind direction shall be considered in number and placement of skimmers.
Recirculation and Filtration	4.7.1.5.3 ANNEX	Skimmers should provide for a flow-through rate of 30 gallons per minute (1.9 L/s), or 3.75 gallons per minute per linear inch (9.3 L/s/m) of weir, whichever is greater. The authority having jurisdiction may approve alternate flow-through rates so long as the skimmer are NSF listed (or equivalent) and manufacturer's design specifications are not exceeded.	Skimmers should provide for a flow-through rate of 30 gallons per minute (1.9 L/s), or 3.75 gallons per minute per linear inch (9.3 L/s/m) of weir, whichever is greater. The authority having jurisdiction may approve alternate flow-through rates so long as the skimmer are certified to NSF/ANSI 50 by an ANSI-Accredited certification organization, ~~NSF listed (or equivalent)~~ and manufacturer's design specifications are not exceeded. -- Current working indicates a preference for certification by NSF. In order to insure equality for skimmers certified by an accredited body, the proposed wording is preferred.	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.5.3	Skimmers should provide for a flow-through rate of 30 gallons per minute (1.9 L/s), or 3.75 gallons per minute per linear inch (9.3 L/s/m) of weir, whichever is greater. The AHJ may approve alternate flow-through rates so long as the skimmers are NSF or equivalent listed and manufacturer's design specifications are not exceeded.
Recirculation and Filtration	4.7.1.5.3.1	The flow rate for the skimmers shall comply with manufacturer data plates or ANSI NSF Standard 50 including Annex K.	The flow rate for the skimmers shall comply with manufacturer data plates or ~~ANSI~~ NSF/ANSI Standard 50 including Annex K. Rationale: Correct reference citation -- Health and safety standard reference -- REFERENCE: Correct title of NSF/ANSI Standard 50	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	4.7.1.5.3.1	The flow rate for the skimmers shall comply with manufacturer data plates or NSF/ANSI 50 including Annex K.
Recirculation and Filtration	4.7.1.5.4.1	Each skimmer shall have a weir that adjusts automatically to variations in water level of at least 4 inches (10 cm).	Each skimmer shall have a weir that adjusts automatically to ~~variations~~ a total range in water level of at least 4 inches (10 cm). -- As written, it could be misinterpreted to mean +/- 4 inches --the proposed change clears up any confusion.	Agree. Code revised.	4.7.1.5.4.1	Each skimmer shall have a weir that adjusts automatically to variations in water level over a minimum range of 4 inches (10 cm).
Recirculation and Filtration	4.7.1.5.4.1	Each skimmer shall have a weir that adjusts automatically to variations in water level of at least 4 inches (10 cm).	Each skimmer shall have a weir that adjusts automatically to variations in water level of at least 4 inches (10 cm). Weirs must remain in place, and in working condition at all times. -- It is all too common for weirs to be missing. Requiring that they remain in place may help reduce the frequency of this happening.	Partially agree. Operation and maintenance aspects addressed in corresponding Section 5.	4.7.1.5.4.1	Each skimmer shall have a weir that adjusts automatically to variations in water level over a minimum range of 4 inches (10 cm).
Recirculation and Filtration	4.7.1.5.4.2	Each skimmer shall be equipped with a trimmer valve capable of distributing the total flow between individual skimmers.	Each skimmer shall be equipped with a trimmer valve capable of distributing the total flow between individual skimmers -- not sure if this is feasible on commercial applications where we use a shared manifold for skimmer outlets	No change suggested	4.7.1.5.4.2	Each skimmer shall be equipped with a trimmer valve capable of distributing the total flow between individual skimmers.
Recirculation and Filtration	4.7.1.5.5.1	The base of each skimmer shall be level within a tolerance of plus or minus ¼ inch (6 mm).	I don't think this is worded properly. This implies that each individual skimmer be level, but does not indicate that they need to be level with each other. Suggest: The base of each skimmer shall be level with all other skimmers in the pool within a tolerance of plus or minus ¼ inch (6 mm).	Agree. Code revised.	4.7.1.5.5.1	The base of each skimmer shall be level with all other skimmers in the pool within a tolerance of plus or minus ¼ inch (6 mm).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.5.6 ANNEX	Flotation test procedure Materials Needed: • Yellow wooden stars (55 -110 minimum depending on the pools surface area) • Video camera • Tripod Conditions prior to test: • Turnover time and recirculation flow rate are operated as normal for the pool • Inlets and outlets are positioned as normal for the pool • Skimmers or gutter system is not flooded • If using skimmers make sure that the weirs are present • Water level is at the appropriate height above the weir/gutter (about ¼") • Set up video camera to record Test 1: Circulation 1. Determine how many stars are necessary by using the following: • Pool surface area < 2,500 sq ft. use a minimum of 55 stars • Pool surface area > 2,500 sq ft. use a minimum of 110 stars 2. Randomly toss the stars into the swimming pool. Try to toss the stars so that there is an even distribution throughout the surface of the pool. 3. Record and observe the stars as they travel. 4. Record the motion of the stars in each area of the pool (e.g., clockwise, counter-clockwise, no movement) and any other observations.	Under Material-need to identify size of stars to be used and efficacy between using a wooden star versus a plastic star -- Not specific enough for a test that is being required – No reference of this test within either NRPA AFO manual nor NSPF Certified Pool operator handbook 2007, 2009 Editorial Comment: Any testing requirement has to be specific	Agree. Annex revised.	4.7.1.5.6 Annex	Testing (See Annex for Flotation Test Procedure)
Recirculation and Filtration	4.7.1.5.6.1	Flotation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers.	The Annex lists a floatation test procedure and indicates that yellow wooden stars are to be used. What are the shape, size, and thickness of the stars? Are these readily available in a standard size and shape? I understand the need to be able to see skimmer results in a contrasting color, but why just yellow, or wood, or star shaped? Why can't multi-colored foam dots of a certain size be used? Sorry for the sarcasm. I recognize that this is a Code recommendation, but what changes annually to make this a recommendation? Once the pool is built, if the flow rate remains the same, the only possibility is to adjust the trimmer valves covering the skimmer suction port. This can be tested by removing the skimmer basket and sticking two or three fingers into the skimmer suction port. You can readily tell if the skimmers are getting relatively equal flow and can adjust the trimmer valves accordingly.	Agree. Annex revised to address specifications for the stars. Also, code revised to differentiate between requirement for initial construction compliance/commissioning flotation test and operational aspect in Section 5.	4.7.1.5.6 Annex	Testing (See Annex for Flotation Test Procedure)
Recirculation and Filtration	4.7.1.5.1.6.1	N/A	Floatation tests should be performed as needed to ensure effective skimming and proper……. -- Not all pools really need to be tested, so why add the extra burden and cost to them	Agree. Code revised to differentiate between requirement for initial construction compliance/commissioning flotation test and operational aspect in Section 5	4.7.1.5.6.1	Flotation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers.
Recirculation and Filtration	4.7.1.6.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ASME/ANSI A112.19.8.	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ASME/ANSI A112.19.8 ANSI/APSP-16. –The CPSC voted unanimously to adopt the ANSI/APSP-16 Suction Fitting Standard as the successor standard to the ASME/ANSI A112.19.8 Standard. This went into effect on September 6, 2011. Therefore, the ASME Standard is "retired" and it is imperative the MAHC reference the standard that is required to be met by federal law via the VGB Act. – REFERENCE: APSP-16; VGB Act; and ISPSC	Agree. Code revised.	4.7.1.6.1.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ANSI/APSP-16 2011.
Recirculation and Filtration	4.7.1.6.1.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ASME/ANSI A112.19.8.	Change ASME/ANSI A112.19.8 to ANSI/APSP-16 2011	Agree. Code revised.	4.7.1.6.1.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ANSI/APSP-16 2011.
Recirculation and Filtration	4.7.1.6.1.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ASME/ANSI A112.19.8.	Submerged suction outlets, including sumps and covers, shall be certified to the requirements of ASME/ANSI A112.19.8-2007, 2008a or 2009b or the successor standard APSP-16-2011 by an independent 3rd party, nationally recognized testing laboratory (NRTL). Rationale: The ASME A112.19.8 standard was massively revised for 2007. There were small changes for 2008a and 2009b versions. Many products were tested and certified to those versions of the standard. In 2011 the APSP-16 standard became the successor standard. For completeness and to help code officials this statement should be included in the MAHC. Codes that only reference the old ASME standard will appear out of date and inadequate. -- Safety issue and code compliance and correct standard reference – REFERENCE: APSP-16 is the current and appropriate standard reference for submerged suction outlets.	Agree. Code revised.	4.7.1.6.1.1	Submerged suction outlets, including sumps and covers, shall conform to the requirements of ANSI/APSP-16 2011.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.6.2	Number and Spacing	1. Number and Spacing • 4.7.1.6.2.1 Where submerged suction outlets are installed, there shall be a A minimum of two suction outlets, HYDRAULICALLY BALANCED outlets are required in the bottom at the deepest level. • 4.7.1.6.2.2 Outlets shall be equally spaced from the POOL side walls. • 4.7.1.6.2.3 Where two or more suction outlets are present, the Outlets shall be located no less than 6 3 feet (1.8 0.9 m) apart, measuring between the center lines of the drain covers points of the outlets or located on two different planes. • OR • Consider replacing this section and any other sections addressing suction entrapment with the following: • Suction entrapment avoidance for pools and spas shall be provided in accordance with APSP 7. Exception: Portable spas and portable exercise spas listed and labeled in accordance with UL 1563 or CSA C22.2 Na. 218.1. --- This section poses two major concerns: 1) requiring suction outlets (formerly known as main drains) and 2) requiring a maximum spacing of 6 feet between drains. In either case there appears to be no rationale, data or empirical evidence to support the need for suction outlets (drains) or the 6 feet separation. Whereas when it comes to allowing for pools without suction outlets (drains) and providing for a minimum 3 feet separation when installing suction outlets or having them located on different planes - there has been rationale and data to support these allowances, which are now found in the following: The CPSC, per the VGB Act – allows for pools without drains or drain disablement and the CPSC in their guidance documents and FAQs clearly says suction outlet cover centers must be at least 3 feet apart (measured	Partially agree. Separation distance changed to 3 feet.	4.7.1.6.2	Number and Spacing
Recirculation and Filtration	4.7.1.6.2.1	A minimum of two hydraulically balanced outlets are required in the bottom at the deepest level.	Add to end of sentence "unless engineered without outlets" – Pools can be designed and engineered with suction outlets for safety other than skimmers or gutters. – REFERENCE: California Spa & Pool Industry	*Disagree. No data/details provided by commenter to support proposed change.*	4.7.1.6.2.1	A minimum of two hydraulically balanced filtration system outlets are required in the bottom.
Recirculation and Filtration	4.7.1.6.2.1	A minimum of two hydraulically balanced outlets are required in the bottom at the deepest level.	What about the submerged suction outlets for spa therapy pumps or other water feature pumps? There is no scientific reason to require these pumps to draw suction only from the pool bottom. I am a strong advocate of every pump needing at least 2 suction outlets, but only the filtration system pump suction needs to be at the deepest level. Then again, if there is a good way to drain the pool, and if we have the proper number of skimmers, do we really need these bottom suction fittings at all?	Agree. Code revised to clarify suction outlets for filtration system.	4.7.1.6.2.1	A minimum of two hydraulically balanced filtration system outlets are required in the bottom.
Recirculation and Filtration	4.7.1.6.2.1	A minimum of two hydraulically balanced outlets are required in the bottom at the deepest level.	A minimum of two hydraulically balanced outlets are required in the bottom, one of the outlets may be located on the bottom of a side/end wall, at the deepest level. – REFERENCE: CT Public Swimming Pool Design Guide Section 6.2	Agree. Code revised	4.7.1.6.2.1	A minimum of two hydraulically balanced filtration system outlets are required in the bottom.
Recirculation and Filtration	4.7.1.6.2.3	Outlets shall be located no less than 6 feet (1.8 m) apart, measuring between the centerlines of the drain covers.	Outlets no less than six feet apart does not take into consideration the dynamic hold down forces. This is a dis-service to the industry and increases the chance of entrapments.	Unclear what changes are proposed by commenter. However, code revised.	4.7.1.6.2.3	Outlets shall be located no less than 3 feet (91 cm) apart, measuring between the centerlines of the suction outlet covers.
Recirculation and Filtration	4.7.1.6.2.3	Outlets shall be located no less than 6 feet (1.8 m) apart, measuring between the centerlines of the drain covers.	Why is a more stringent standard being proposed in the MAHC than required by the VGB Act and ANSI/APSP-16 2011? Where does the 6 feet come from? How is this going to work for a spa? APSP-16 indicates in their section on the packaging of suction fittings that "when two or more suction fittings are used on a common suction line, they shall be separated by a minimum of 3 ft *(914 mm)* , or if any are located closer, they shall be located on two different planes (i.e., one on the bottom and one on the vertical wall, or one each on two separate vertical walls), such that it is unlikely both could be simultaneously blocked." Another problem with this section is that there seems to be no consideration for side wall suctions for pumps other than the filtration pump. Suggest: Submerged suctions outlets shall be located no less than 3 feet (0.9 m) apart, measuring between the centerlines of the drain covers or if they are closer, they shall be located on two different planes.	Partially agree. Code revised.	4.7.1.6.2.3	Outlets shall be located no less than 3 feet (91 cm) apart, measuring between the centerlines of the suction outlet covers.
Recirculation and Filtration	4.7.1.6.2.3	Outlets shall be located no less than 6 feet (1.8 m) apart, measuring between the centerlines of the drain covers.	Outlets (Add)and shall be ANSI/APSP-16-2011 compliant – REFERENCE: APSP-16-2011	Agree. Code revised.	4.7.1.6.2.3	Outlets shall be located no less than 3 feet (91 cm) apart, measuring between the centerlines of the suction outlet covers.
Recirculation and Filtration	4.7.1.6.2.3	Outlets shall be located no less than 6 feet (1.8 m) apart, measuring between the centerlines of the drain covers.	Outlets shall be located no less than 3 feet (.9 m) apart, measuring edge to edge of drain covers. -- Not sure why 6 feet is used here, and 3 feet edge to edge of cover allows for the piping in the sump to be 3 feet apart no matter what the sump's configuration and still meet the VGB – REFERENCE: CT Public Swimming Pool Design Guide Section 6.2.	Agree. Code revised	4.7.1.6.2.3	Outlets shall be located no less than 3 feet (91 cm) apart, measuring between the centerlines of the suction outlet covers.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.6.2.3	Outlets shall be located no less than 6 feet (1.8 m) apart, measuring between the centerlines of the drain covers.	Outlets shall be located no less than 6 feet apart, measuring between the centerlines of the drain covers -- suggest staying with VGB minimum requirements - 3 feet apart	Agree. Code revised.	4.7.1.6.2.3	Outlets shall be located no less than 3 feet (91 cm) apart, measuring between the centerlines of the suction outlet covers.
Recirculation and Filtration	4.7.1.6.3.1	Where gravity drains are used, the main drain outlet shall be connected to a surge tank or balance tank/pipe.	What about Florida's collector tank? Suggest: Where gravity drains are used, the main drain outlets (2 are required) shall be connected to a tank that is open to the atmosphere.	Partially agree. Code revised.	4.7.1.6.3.1	Where gravity outlets are used, the main drain outlet shall be connected to a surge tank, collection tank, or balance tank/pipe.
Recirculation and Filtration	4.7.1.6.3.1	Where gravity drains are used, the main drain outlet shall be connected to a surge tank or balance tank/pipe.	Where gravity ~~drains~~ outlets are used, the ~~main drain~~ suction outlet shall be connected to a surge tank or balance tank/pipe. -- The term "drain" should be used for drain to waste. In order to conform to all current pool standards, and standard technical usage drain should be replaced with outlet and main drain with suction outlet (as noted in earlier comment). This correction should be made throughout this module and all other modules. – REFERENCE: APSP-16, APSP-7, etc.	Partially agree. Code revised to use term "outlet". Disagree with changing main drain to suction outlet in this section as it specifically addresses gravity outlets which are not under suction.	4.7.1.6.3.1	Where gravity outlets are used, the main drain outlet shall be connected to a surge tank, collection tank, or balance tank/pipe.
Recirculation and Filtration	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked.	This is unclear. It seems like this says that a single main drain system still needs to handle 100% when the ONLY drain is blocked. Suggest: The main drain system shall be designed at a minimum to handle recirculation flow of 100% of the total recirculation flow rate with one of the drains blocked.	Partially agree. Code revised.	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate. The branch pipe from each main drain outlet shall be designed to carry 100% of the recirculation flow rate.
Recirculation and Filtration	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked.	Here and throughout the document refers to "main drains". They should be referred to as "bottom suction outlets" -- Current writings and ASME writing from many years ago.	Partially agree. Code revised to use term "outlet". Disagree with changing main drain to "bottom suction outlet" as some main drain outlets are designed to operate under gravity, not suction.	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate. The branch pipe from each main drain outlet shall be designed to carry 100% of the recirculation flow rate.
Recirculation and Filtration	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked.	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked. – What is the definition of "a single main drain is blocked?" Does this include main drains that are greater in size than the blocking element used in main drain testing? Would a pair of 18" x 54" main drains only be allowed to account for flow through one 18" x 54" main drain? (Note: This is what North Carolina has used as their basis of code interpretation even though a body blocking element has been defined as 18" x 23" per ASME/ANSI A112.19.8-2007).	Partially agree. Code revised for clarity.	4.7.1.6.4.1	The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate. The branch pipe from each main drain outlet shall be designed to carry 100% of the recirculation flow rate.
Recirculation and Filtration	4.7.1.6.4.1 & 4.7.1.6.4.2	4.7.1.6.4.1 The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked. 4.7.1.6.4.2 The main drain system shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.	4.7.1.6.4.1 The main drain suction outlet system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain suction outlet is blocked. 4.7.1.6.4.2 The main drain suction outlet system shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain suction outlet piping and the surface overflow system piping. -- Per earlier comments, changing "main drain" to "suction outlet" for consistency with APSP-16, VGB Act, ISPSC, etc. However, this section also needs additional changes to account for flow distribution and control in a pool without suction outlets.	Partially agree. Code revised to use term "outlet". Disagree with changing main drain to " suction outlet" as some main drain outlets are designed to operate under gravity, not suction.	4.7.1.6.4.1 & 4.7.1.6.4.2	4.7.1.6.4.1 Design Capacity R&F The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate. The branch pipe from each main drain outlet shall be designed to carry 100% of the recirculation flow rate. 4.7.1.6.4.2 Proportioning Valve R&F The single main drain suction pipe to the pump shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.
Recirculation and Filtration	4.7.1.6.4.1, 4.7.1.7.2.2, and 5.7.1.1.3	4.7.1.6.4.1 -- The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked. 4.7.1.7.2.2 -- Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes. 5.7.1.1.3 -- For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.	1. Design Capacity 4.7.1.6.4.1 The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate if a single main drain is blocked. Gravity Piping 4.7.1.7.2.2 Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes more than 3 feet (0.9 m) per second to reduce the operating pressure differential at the main drain." Gutter/Skimmer Pools 5.7.1.1.3 For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain. BASIS FOR CHANGE: In 4.7.1.6.4.1 it states the main drain must be sized to handle 100% of the design flow. It then goes on to state in 4.7.1.7.2.2 that gravity piping shall be sized with a velocity of no less than two feet per second. Finally it states in 5.7.1.1.3 that in a gutter or skimmer pool the flow must be proportioned to 80% through the gutter and 20% through the main drain. These are not compatible. If you sized the main drain so that handling only 20% of the flow rate resulted in not less than 2 feet per second the resulting velocity at 100% would be approximately 10-11 feet per second and require 10-20 feet of drawdown to accomplish depending on the size of pipe. This would be almost as unsafe as a direct suction system. For example in a 4" pipe 80 gpm flows by gravity at 2 ft/sec. and results in .81 feet of drawdown. 80 gpm is 20% of 400 gpm, which would result in 10.21 ft/sec and 16 feet of drawdown. This would make a gravity system virtually impossible to build. In another example in a 6" pipe 180 gpm flows by gravity at 2 ft/sec and results in .5 ft of drawdown. 180 gpm is 20% of 900 gpm, which would result in 10.2 ft/sec and	Agree. Code revised to delete gravity pipe flow velocity restriction of 2 fps.	4.7.1.6.4.1, 4.7.1.7.2.3, & 5.7.1.1.3	4.7.1.6.4.1 Design Capacity R&F The main drain system shall be designed at a minimum to handle recirculation flow of 100% of total design recirculation flow rate. The branch pipe from each main drain outlet shall be designed to carry 100% of the recirculation flow rate. 4.7.1.7.2.3 Additional Considerations R&F Gravity piping shall be sized with consideration of available system head or as demonstrated by detailed hydraulic calculations at the design recirculation flow rate. 5.7.1.1.3 Gutter/ Skimmer Pools R&F For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.6.4.2	The main drain system shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.	The ~~main drain~~ suction outlet system shall be equipped with a single proportioning valve~~(s)~~ in the trunk line leading to the vented reservoir or pump to adjust the flow distribution between the ~~main drain~~ suction outlet piping and the surface overflow system piping. – As written, one valve could be shut off, leaving a single outlet, which could cause an entrapment.	Partially agree. Code revised.	4.7.1.6.4.2	The single main drain suction pipe to the pump shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.
Recirculation and Filtration	4.7.1.6.4.2	The main drain system shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.	The main drain system shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping -- suggest revising - New construction or renovation to recirculation system	Disagree. All items in Section 4, unless otherwise stated, are only applicable to new construction or substantial renovation. Please see statement at the beginning of this chapter.	4.7.1.6.4.2	The single main drain suction pipe to the pump shall be equipped with a proportioning valve(s) to adjust the flow distribution between the main drain piping and the surface overflow system piping.
Recirculation and Filtration	4.7.1.6.5.1	Flow velocities shall meet ANSI/APSP-16 2011 based on 100% design flow through each main drain cover.	Flow velocities shall meet ANSI/APSP-16 2011 based on 100% design flow through each main drain cover. -- Same as above. In addition, if more than two main drains are connected then is this criteria still applicable?	Partially agree. Code revised for clarity.	4.7.1.6.5.1	Flow velocities shall meet ANSI/APSP-16 2011 based on 100% design flow through each main drain cover.
Recirculation and Filtration	4.7.1.6.5.1	Flow velocities shall meet ANSI/APSP-16 2011 based on 100% design flow through each main drain cover.	For pools with two outlets flow velocities shall meet ANSI/APSP-16-2011 based on 100% of design flow. For pools with three outlets flow velocities shall be based on 67% of design flow. For pools with four outlets flow velocities shall be based on 50% design flow. -- Requiring pools with more than two outlets to meet the same 100% flow velocity criteria will discourage designers from specifying more than two outlets. The more outlets in a pool the safer it is.	Agree. Annex discussion added regarding more than 2 outlets in a system.	4.7.1.6.5.1	Flow velocities shall meet ANSI/APSP-16 2011 based on 100% design flow through each main drain cover.
Recirculation and Filtration	4.7.1.7.1.2	Piping system components in contact with swimming pool water shall be of non-toxic material, resistant to corrosion, able to withstand operating pressures, chemicals, and temperatures.	PVC schedule 40 should be minimum pipe material -- Industry standard	Disagree. Where practical, the Code is written to be performance-based instead of prescriptive.	4.7.1.7.1.1	Piping system components in contact with swimming pool water shall be of non-toxic material, resistant to corrosion, able to withstand operating pressures, chemicals, and temperatures.
Recirculation and Filtration	4.7.1.7.1.3	Piping materials shall be suitable for potable water contact and shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable.	Piping materials ~~shall be suitable for potable water contact and~~ shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable, and shall be certified by an ANSI-Accredited certification organization. -- Requiring certification of piping insures that they meet all applicable health-related requirements of NSF 14 and/ or 61. Specifying ANSI-Accredited certification organizations further insures this. -- REFERENCE: Most codes in the US require the use of certified products, and also that they be certified by an ANSI-Accredited organization (such as UL, NSF, etc.). For example, the Uniform Codes by IAPMO, the International Codes by ICC, etc.	Agree. Code revised.	4.7.1.7.1.2	Piping and piping system component materials shall be suitable for potable water contact and shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable.
Recirculation and Filtration	4.7.1.7.1.3	Piping materials shall be suitable for potable water contact and shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable.	Piping materials shall be suitable for potable water contact and shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable. Pressure rated plastic piping shall be certified to NSF/ANSI Standard 14 for potable water end use (such as NSF-pw) by an independent 3rd party nationally recognized testing laboratory (NRTL). Rationale: NSF 61 contains no performance evaluation or testing criteria. It only addresses material health safety via chemical extraction testing. NSF 61 addresses all material and product types in contact with process and drinking water. NSF/ANSI Standard 14 addresses many different material types and product types and multiple types of end uses for plastics piping systems. NSF/ANSI 14 is unique in that it includes many different end uses such as: drinking water, drain waste and vent, corrosive waste, radiant floor heating, fuel gas piping, fire safety systems, etc. If you are installing rigid plastic piping for pressurized water use, you need to specify use of piping that has been tested and certified in accordance with NSF/ANSI Standard 14 for potable water applications. This includes the NSF 61 materials health safety work and testing as well as the short term and long term burst pressure safety and dimensional compliance. If you do not include this reference and language the MAHC will not measure up to the existing state code language or other model codes. -- Health, safety, and performance issue and code compliance – REFERENCE: NSF/ANSI Standard 61 and NSF/ANSI Standard 14 for pressure rated plastic piping. See existing ICC and UPC plumbing codes as well as state pool and spa codes as well as other existing pool and spa model codes.	Agree. Code revised.	4.7.1.7.1.2	Piping and piping system component materials shall be suitable for potable water contact and shall meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14 as applicable.
Recirculation and Filtration	4.7.1.7.2	Velocity in Pipes	Pump discharge pipe velocity and gravity pipe velocity is covered. What about pump suction pipe velocity? Michigan requires a maximum of 5 ft (1.5 m) per second for suction piping. Other states require 6 ft/sec (1.8 m/sec). In any case, it is essential to limit suction losses in piping. Therefore, the suction velocity must be less than in the pump discharge piping.	Agree. Code revised to include suction pipe velocity.	4.7.1.7.2	Velocity in Pipes

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	The Annex indicates that the discharge pipe velocity "should" not exceed 8 ft/sec but this MAHC section says "shall." I understand the current trend toward energy conservation, but is this sufficient science to justify a MAHC requirement for not allowing higher velocities? The Annex further indicates that 8 ft/sec is a maximum value and implies that this is not a good design value. Where does this come from? For 2-inch piping, friction loss increases less than 4 psi per 100 ft of piping when the flow velocity is increased from about 6 ft/sec to about 10 ft/sec. If you have 25 feet of piping, I do not agree that a 1 psi loss justifies larger piping. This will unnecessarily increases pipe sizes. The result of larger piping will be the need to use several pipe increasers and reducers to connect to the pump, filter, and heater connections. The addition of these increasers/reducers will in many cases negate the lower friction in the larger piping. Another problem will be out of range flow meters	Partially agree. Annex revised to be consistent with code. Annex provides explanation/basis for the velocity.	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	A requirement for discharge recirculation velocity should only be included in this standard if it is at the bather interface and reducing risk to the bather.	Disagree. The rationale for 8 fps. is to minimize energy consumption and provide flexibility to accommodate subsequent changes in operation or renovation.	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	Include suction side of pump velocity, 6 fps	Partially agree. Code revised to use term "outlet". Disagree with changing main drain to "bottom suction outlet" as some main drain outlets are designed to operate under gravity, not suction.	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	Recirculation system piping shall be designed so that the water velocities do not exceed 6 feet…….	Disagree. The rationale for 8 fps. is to minimize energy consumption and provide flexibility to accommodate subsequent changes in operation or renovation	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	Recirculation system piping shall be designed so that water velocities do not exceed 10 feet per second for pressure piping. -- 10 fps has been widely used for pressure piping in the pool industry for decades with success. Lower velocities should be the decision of the Pool Design Consultant	Disagree. The rationale for 8 fps. is to minimize energy consumption and provide flexibility to accommodate subsequent changes in operation or renovation.	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	RECIRCULATION SYSTEM piping shall be designed so that water velocities do not exceed ~~8 feet (2.4 m) per second~~ 10 feet per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification. -- The overwhelming majority of current regulations allow for 10 ft/sec for return piping.	Disagree. The rationale for 8 fps. is to minimize energy consumption and provide flexibility to accommodate subsequent changes in operation or renovation .	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification -- suggest staying with ANSI/APSP - 1 2003; 10 ft / sec.	Disagree. The rationale for 8 fps. is to minimize energy consumption and provide flexibility to accommodate subsequent changes in operation or renovation.	4.7.1.7.2.1	Recirculation system piping shall be designed so that water velocities do not exceed 8 feet (2.4 m) per second on the discharge side of the recirculation pump unless alternative values have proper engineering justification.
Recirculation and Filtration	4.7.1.7.2.2	Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes.	The Annex for this section discusses suction piping, and states a maximum 6 ft/sec requirement. The Annex discusses gravity piping in section 4.7.1.7.2.3 which is not included in the code. Suggest: Move the gravity section language to 4.7.1.7.2.3 in the code and include the Annex language for pump suction piping requirements in section 4.7.1.7.2.2.	Agree. Code revised and code and annex renumbered.	4.7.1.7.2.3	Gravity piping shall be sized with consideration of available system head or as demonstrated by detailed hydraulic calculations at the design recirculation flow rate.
Recirculation and Filtration	4.7.1.7.2.2	Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes.	Consider rephrasing to ensure there is no conflict with VGB which specifies 1.5 feet/second at the drain cover.	Disagree. Conflict not created, the velocity through a drain cover is dependent on the drain cover design and open area.	4.7.1.7.2.3	Gravity piping shall be sized with consideration of available system head or as demonstrated by detailed hydraulic calculations at the design recirculation flow rate.
Recirculation and Filtration	4.7.1.7.2.2	Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes.	Gravity piping shall be sized with velocity of no less than 2 feet (0.6 m) per second to prevent particles settling inside pipes. GENERAL COMMENT: It is impossible to meet this requirement along with the requirement that two outlets be provided, each of which can supply 100% of the system flow rate, and also allow a majority of the flow to normally come through skimmers.	Agree. Code revised to delete gravity pipe flow velocity restriction of 2 fps.	4.7.1.7.2.3	Gravity piping shall be sized with consideration of available system head or as demonstrated by detailed hydraulic calculations at the design recirculation flow rate.
Recirculation and Filtration	4.7.1.7.3.1 & 4.7.1.7.3.4	4.7.1.7.3.1 -- Provisions shall be made for expansion and contraction of pipes due to temperature variations. 4.7.1.7.3.4 -- Provisions shall be made for expansion and contraction of pipes due to temperature variations.	4.7.1.7.3.1 Provisions shall be made for expansion and contraction of pipes due to temperature variations. 4.7.1.7.3.4 Provisions shall be made for expansion and contraction of pipes due to temperature variations. -- 4.7.1.7.3.4 is a repeat of 4.7.1.7.3.1 – deleted the repeated section as it is not needed.	Agree. Code revised to eliminate duplication.	4.7.1.7.3.1	Provisions shall be made for expansion and contraction of pipes due to temperature variations.
Recirculation and Filtration	4.7.1.7.3.2	Provisions shall be made for gravity drainage of all pool piping exposed to a freezing climate.	Provisions shall be made for gravity drainage of all POOL piping exposed to a freezing climate. GENERAL COMMENT: This is not common practice because many pools have no sewer below the lowest level, making gravity drainage physically impossible. It is more common to blow out the piping.	Agree. Code revised.	4.7.1.7.3.2	Provisions shall be made for complete drainage of all pool piping for winterization.
Recirculation and Filtration	4.7.1.7.3.2	Provisions shall be made for gravity drainage of all pool piping exposed to a freezing climate.	Provisions shall be made for gravity drainage of all pool piping exposed to a freezing climate when the piping is located outside a climate controlled environment -- Requirement should be rewritten for clarity that it is the location of the piping not the location of the aquatic facility. For pools that are located in a freezing climate where piping is located outside, the requirement should be rewritten to be applicable to certain climate zones.	Partially agree. Code revised.	4.7.1.7.3.2	Provisions shall be made for complete drainage of all pool piping for winterization.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.7.3.2	Provisions shall be made for gravity drainage of all pool piping exposed to a freezing climate.	~~Provisions shall be made for gravity drainage of all POOL piping exposed to a freezing climate.~~ Gravity drainage of all pool piping is often not possible/feasible. Many will use compressors to blow out and cap lines or other methods for winterization. Should just state that all piping should be designed and constructed to be drained completely for winterization.	Agree. Code revised.	4.7.1.7.3.2	Provisions shall be made for complete drainage of all pool piping for winterization.
Recirculation and Filtration	4.7.1.7.4 ANNEX	Piping and Component Identification	Color coding is only example based but must meet state/local codes so if specifying must meet all state code requirements for all states -- Too specific and may not comply with current state laws or may not be specific enough to leave to interpretation for all operators – REFERENCE: The Design, construction, operation and Maintenance of Public Swimming Pools-excerpts from CA Health and safety code, CA code of Regulations, CA Building Code, Ca Electrical Code	Disagree. As indicated in the annex, the color coding table is only an example.	4.7.1.7.4	Piping and Component Identification
Design & Construction (D&C)	4.9.1.5.1	All piping in the equipment room shall be permanently identified by AQUATIC FEATURE/VENUE and use. Identification shall be provided for: 1) main drains and skimmers, 2) filtered water, 3) make-up water, 4) backwash water, 5) CHLORINE (or DISINFECTION) feeds, 6) acid (or pH) feeds, 7) compressed air lines, 8) gutters, and POOL heating lines.	The code does not specify how the piping should be identified or marked – should it be color coded according to use, lettered according to what it is connected to, etc.	Suggested ways to meet this requirement added to the annex.	4.7.1.7.4	Piping and Component Identification
Design & Construction (D&C)	4.9.1.5.1	All piping in the equipment room shall be permanently identified by AQUATIC FEATURE/VENUE and use. Identification shall be provided for: 1) main drains and skimmers, 2) filtered water, 3) make-up water, 4) backwash water, 5) CHLORINE (or DISINFECTION) feeds, 6) acid (or pH) feeds, 7) compressed air lines, 8) gutters, and POOL heating lines.	Add: 10) Return Lines 11) Feature Name and Suction or Discharge	Recommendation not implemented. Return lines are "filtered water" and suction is covered by "main drains and skimmers." Features can have separate labeling, but it's not required by this code. Typically feature pump water is not separately heated, chemically treated, etc. It's just pulled from the pool and immediately returned.	4.7.1.7.4	Piping and Component Identification
Design & Construction (D&C)	4.9.1.5.1	All piping in the equipment room shall be permanently identified by AQUATIC FEATURE/VENUE and use. Identification shall be provided for: 1) main drains and skimmers, 2) filtered water, 3) make-up water, 4) backwash water, 5) CHLORINE (or DISINFECTION) feeds, 6) acid (or pH) feeds, 7) compressed air lines, 8) gutters, and POOL heating lines.	*No need for such specificity in this Code. Should be in accordance with local building code.* -- Identification shall be provided as required by the AHJ	Recommendation not implemented.	4.7.1.7.4	Piping and Component Identification
Recirculation and Filtration	4.7.1.7.4.2	Pipes shall be marked to indicate flow direction and source.	All pipes shall be clearly marked with a directional arrow as to the path of the water flow in Black in a size appropriate for easy identification based on pipe size -- A clearer more precise requirement -- Editorial Comment: If you are requiring something make it specific and easy to follow with no interpretation	Disagree. Proposed language is too prescriptive, however, code revised for clarity.	4.7.1.7.4.2	All piping shall be clearly marked to indicate type or source of water and direction of flow with clear labeling and/or color coding.
Recirculation and Filtration	4.7.1.7.4.2	Pipes shall be marked to indicate flow direction and source.	Pipes shall be clearly marked to indicate flow direction and source. -- Add the word "clearly" for consistency with other parts of this section.	Agree. Code revised.	4.7.1.7.4.2	All piping shall be clearly marked to indicate type or source of water and direction of flow with clear labeling and/or color coding.
Recirculation and Filtration	4.7.1.7.4.2	Pipes shall be marked to indicate flow direction and source.	Pipes shall be marked to indicate flow direction and source <u>or destination if not apparent</u>.	Partially agree. Code revised.	4.7.1.7.4.2	All piping shall be clearly marked to indicate type or source of water and direction of flow with clear labeling and/or color coding.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.7.4.3	All valves shall be clearly marked to indicate function by using color coding or detail labeling	All valves shall be clearly marked to indicate function by using color coding or detail labeling. Water circulation and filtration valves (such as multiport type valves) shall be certified in accordance with NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL). Rationale: NSF/ANSI Standard 50 is the industry standard for pool and spa equipment and for pool, spa, and water park valves. Valves are evaluated and tested for criteria such as material health safety, corrosion resistance, burst pressure safety, and head loss or pumping losses and other issues. Various state codes and other model pool and spa codes reference NSF/ANSI Standard 50. MAHC should reference NSF/ANSI 50 as well in order to meet industry norms and best practice in safety. -- Health, safety, and performance issue and code compliance -- REFERENCE: NSF/ANSI Standard 50 is the standard for pool, spa, and waterpark valves used in flow control, filtration and circulation.	Disagree. Valve specification not needed in this section which is about "Component Identification". However, piping materials section revised to include piping components.	4.7.1.7.4.3	All valves shall be clearly marked to indicate function with clear labeling and/or color coding.
Recirculation and Filtration	4.7.1.7.4.3	All valves shall be clearly marked to indicate function by using color coding or detail labeling	All Valves shall be clearly marked to indicate function with clear labeling or color coding or as directed by their state building, aquatic, or fire code. -- Don't suggest color coding in annex which utilizes NSPF example which may or may not follow state jurisdictional basis – REFERENCE: The Design, construction, operation and Maintenance of Public Swimming Pools-excerpts from CA Health and safety code, CA code of Regulations, CA Building Code, Ca Electrical Code; Need to confer with all state codes; Editorial Comment: If you are requiring something either prescribe specifics or as with my suggested change make it directed to their state code	Disagree. As indicated in the annex, the color coding table is only an example . Also, the MAHC uses performance-based language where practical, instead of being prescriptive.	4.7.1.7.4.3	All valves shall be clearly marked to indicate function with clear labeling and/or color coding.
Design & Construction (D&C)	4.9.1.5.4	Valves shall be described as to their function and referenced in the operating instruction manual and wall-mounted piping diagram to be prepared.	Is there a specific requirement for a piping diagram/schematic elsewhere in the code?	No.	4.7.1.7.4.3	All valves shall be clearly marked to indicate function with clear labeling and/or color coding.
Design & Construction (D&C)	4.9.1.5.4	Valves shall be described as to their function and referenced in the operating instruction manual and wall-mounted piping diagram to be prepared.	*"to be provided" is awkward. Suggest change.* -- Valves shall be described as to their function and referenced in the operating instruction manual and wall-mounted piping diagram ~~to be prepared~~ shall be provided.	Recommendation implemented.	4.7.1.7.4.3	All valves shall be clearly marked to indicate function with clear labeling and/or color coding.
Design & Construction (D&C)	4.9.1.5.4	Valves shall be described as to their function and referenced in the operating instruction manual and wall-mounted piping diagram to be prepared.	Where is the requirement for wall mounted piping diagram found within the Code?	In this section.	4.7.1.7.4.3	All valves shall be clearly marked to indicate function with clear labeling and/or color coding.
Recirculation and Filtration	4.7.1.7.4.4	A complete easily readable schematic of the entire pool recirculation system shall be openly displayed in the mechanical room or available to maintenance or inspection personnel.	A Pool schematic of the recirculation system shall be available for maintenance or inspection personal -- Undue burden to have to put an "openly displayed" schematic on the wall and there may not be the ability to do so -- Editorial Comment: The need is to have the schematic available not to have it displayed. Although it may be nice or convenient to see it may also not be possible and to put this or that within the MAHC supersedes the intent of making a universal code.	Disagree. Commenter did not provide documentation or other rationale to support "undue burden". A posted schematic could be important for operation and troubleshooting. As an example, the diagram could be displayed on the back of the pump room door, which should not be an unreasonable burden.	4.7.1.7.4.4	A complete easily readable schematic of the entire pool recirculation system shall be openly displayed in the mechanical room or available to maintenance and inspection personnel.
Recirculation and Filtration	4.7.1.7.4.4	A complete easily readable schematic of the entire pool recirculation system shall be openly displayed in the mechanical room or available to maintenance or inspection personnel.	A complete easily readable schematic of the entire POOL RECIRCULATION SYSTEM shall be openly displayed in the mechanical room or available to maintenance ~~or~~ and inspection personnel. -- Replaced "or" with "and". Schematic shall be available to both.	Agree. Code revised.	4.7.1.7.4.4	A complete easily readable schematic of the entire pool recirculation system shall be openly displayed in the mechanical room or available to maintenance and inspection personnel.
Recirculation and Filtration	4.7.1.7.5.1	New and renovated suction and supply pool piping shall be subjected to an induced static hydraulic pressure test for 6 hours.	New and renovated suction and supply pool piping shall be subjected to an induced static hydraulic pressure test for 6 hours -- suggest adding - where the AHJ requires this in the building codes	Disagree. However, code revised to indicate duration of test is as specified by the design engineer and/or AHJ.	4.7.1.7.5.2	New and renovated suction and supply POOL piping shall be able to maintain the greater of the two following amounts of pressure: 1) 25% greater than the maximum design operating pressure of the system, or 2) 25 psi (172 KPa).
Recirculation and Filtration	4.7.1.7.5.1	New and renovated suction and supply pool piping shall be subjected to an induced static hydraulic pressure test for 6 hours.	New and renovated suction and supply POOL piping shall be subjected to ~~an induced~~ static hydraulic pressure test for 6 hours. -- What is the meaning of "induced"? The line should be purged of air, pressurized to a specified level, and the tested line shall be isolated by being disconnected from the municipal supply, because a leaky valve could allow continuous supply from the supply to compensate for a leak in the tested line. The pool pump cannot be used because the test pressure must be higher than operating. Air cannot be used because it is unsafe to pressurize plastic pipe with air, and it could mask a leak.	Partially agree. Code revised.	4.7.1.7.5.2	New and renovated suction and supply POOL piping shall be able to maintain the greater of the two following amounts of pressure: 1) 25% greater than the maximum design operating pressure of the system, or 2) 25 psi (172 KPa).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.8.1	Strainers	Strainers serving filter pumps or recirculation pumps shall be able to supply 80% design flow rate at 50% blockage of their open area. -- The main effort in recirculation is to ensure proper flow rates through the filters even when becoming loaded. This portion of the module is missing the effect of small strainer baskets on the flow rates of the pumps. A handful of leaves in a small basket can drastically reduce the flow rate and therefore the sanitation rate through the filter. This should be addressed in this module.	*Please re-submit comment with supporting documentation and specific wording.*	4.7.1.8.1	Strainers
Recirculation and Filtration	4.7.1.8.1.1	All filter recirculation pumps shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment.	This section requires all filtration pumps to have a strainer/screen device on the suction side. Why would a strainer/screen be necessary for a vacuum sand or vacuum diatomaceous filter? Since the filter is on the suction side of the pump, the filter already protects the pump and a strainer would be redundant. Suggest: All filter recirculation pumps that pump water to a pressure filter shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment.	Agree. Code revised.	4.7.1.8.1.1	All filter recirculation pumps, except those for vacuum filter installations, shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment
Recirculation and Filtration	4.7.1.8.1.1	All filter recirculation pumps shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment.	All filter recirculation and feature pumps shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment -- feature pumps should have this protection as they do not have the benefit of a filter to remove debris prior to returning to the pool.	Disagree. Feature pumps are not required equipment for water quality/treatment, therefore the MAHC does not mandate installation of strainers/screen devices for non-recirc system pumps.	4.7.1.8.1.1	All filter recirculation pumps, except those for vacuum filter installations, shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment
Recirculation and Filtration	4.7.1.8.1.1	All filter recirculation pumps shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment.	Strainers and pump shall be certified in accordance with NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL). Pumps and strainers shall be installed and used in accordance with the manufacturer instructions. Rationale: NSF 50 certification includes the following design review, safety markings, pressure safety testing, pump curve verification testing, pump self-priming test (for self prime pumps), energy efficiency testing (for pumps with energy efficiency claims), strainer open area and volume, corrosion resistance and material health safety chemical and colorant extraction evaluation and testing requirements. NSF 50 reference is current best practice in leading state codes. Various state codes and other model pool and spa codes reference NSF/ANSI Standard 50. MAHC should reference NSF/ANSI 50 as well in order to meet industry norms and best practice in safety otherwise the MAHC will be viewed as inferior to current codes. -- Health, safety and performance issue and code compliance -- NSF/ANSI Standard 50 (Section 6-Pumps & Section 7-Strainers) and numerous state public health and safety pool and spa codes such as Florida, Texas, New York, California, New Mexico, North Carolina, Illinois, etc.)	Agree with intent but change not necessary since it is stated elsewhere in MAHC (Section 4.3.1.1, 4.3.2.1)	4.7.1.8.1.1	All filter recirculation pumps, except those for vacuum filter installations, shall have a strainer/screen device on the suction side to protect the filtration and pumping equipment
Recirculation and Filtration	4.7.1.8.2.2	All material used in the construction of strainers and screens shall be: 1) Nontoxic, impervious, and enduring, 2) Able to withstand design stresses, and Designed to minimize friction losses	The recirculation pump(s) shall be selected to ~~provide~~ maintain the required recirculation flow in accordance with the maximum total dynamic head required by the entire RECIRCULATION SYSTEM under the most extreme operating conditions (*e.g., clogged filters in need of backwashing*).	Partially agree. Code revised.	4.7.1.8.1.2	All material used in the construction of strainers and screens shall be: 1) Nontoxic, impervious, and enduring, 2) Able to withstand design stresses, and 3) Designed to minimize friction losses
Recirculation and Filtration	4.7.1.8.2.2	All material used in the construction of strainers and screens shall be: 1) Nontoxic, impervious, and enduring, 2) Able to withstand design stresses, and Designed to minimize friction losses	The recirculation pump(s) shall be selected to provide the required recirculation flow in accordance with the maximum total dynamic head required by the entire RECIRCULATION SYSTEM under the most extreme operating conditions (*e.g., clogged filters in need of backwashing*). Pumps and strainers shall be certified in accordance with NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL). Pumps and strainers shall be installed and used in accordance with the manufacturer instructions. Rationale: NSF 50 certification includes the following design review, safety markings, pressure safety testing, pump curve verification testing, pump self-priming test (for self prime pumps), energy efficiency testing (for pumps with energy efficiency claims), strainer open area and volume, corrosion resistance and material health safety chemical and colorant extraction evaluation and testing requirements. NSF 50 reference is current best practice in leading state codes. Various state codes and other model pool and spa codes reference NSF/ANSI Standard 50. MAHC should reference NSF/ANSI 50 as well in order to meet industry norms and best practice in safety otherwise the MAHC will be viewed as inferior to current codes. -- Health, safety and performance issue and code compliance -- REFERENCE: NSF/ANSI Standard 50 (Section 6-Pumps & Section 7-Strainers) and numerous state public health and safety pool and spa codes such as Florida, Texas, New York, California, New Mexico, North Carolina, Illinois, etc.)	Agree with intent but change not necessary since it is stated elsewhere in MAHC (Section 4.3.1.1, 4.3.2.1)	4.7.1.8.1.2	All material used in the construction of strainers and screens shall be: 1) Nontoxic, impervious, and enduring, 2) Able to withstand design stresses, and 3) Designed to minimize friction losses

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.8.2.4	Where vacuum filters are used, a vacuum limit switch shall be provided on the pump suction line.	Where vacuum filters are used, a vacuum limit switch shall be provided on the pump suction line. -- suggest they define the intent behind this, a limiting switch could shut down equipment providing a period when no movement is taking place on the recirculation system	Agree. Annex revised.	4.7.1.8.2.4	Where vacuum filters are used, a vacuum limit switch shall be provided on the pump suction line.
Recirculation and Filtration	4.7.1.8.3	Operating Gauges	I do not understand what the Annex means by "back check the flow meter." You use the pressure/vacuum gauges and the pump curve to verify the flow meter reading. Please clarify this.	Agree. Annex revised.	4.7.1.8.3	Operating Gauges
Recirculation and Filtration	4.7.1.8.3.1	A compound vacuum-pressure gauge shall be installed on the pump suction line as close to the pump as possible.	A compound vacuum-pressure gauge shall be installed on the pump suction line as close to the pump as possible. -- Mention valve/snubbed?	Valves are required in Section 4.7.1.8.3.5	4.7.1.8.3.1	A compound vacuum-pressure gauge shall be installed on the pump suction line as close to the pump as possible.
Recirculation and Filtration	4.7.1.8.3.1	A compound vacuum-pressure gauge shall be installed on the pump suction line as close to the pump as possible.	Compound Gauge on suction side of pump. ????? Suction side should result in a vacuum therefor a vacuum gauge should be all that is required, unless the equipment is below grade by a minimum of 10 feet, then a compound gauge be required.	Disagree. No change. The gauges cost the same, and there are cases where the compound gauge provide additional (necessary) information such as the example cited here.	4.7.1.8.3.1	A compound vacuum-pressure gauge shall be installed on the pump suction line as close to the pump as possible.
Recirculation and Filtration	4.7.1.8.3.5	All gauges shall be equipped with valves to allow for servicing under operating conditions.	All gauges shall be equipped with valves to allow servicing under operating conditions -- suggest revising or omitting - to have adjustment valves could alter actual results if someone failed to re-open the valve, giving a false reading.	Disagree. Many aspects of pool systems are dependent on proper operation of the equipment. The possibility of improper operation does not outweigh the value of having valves to allow for service while the pool is operating.	4.7.1.8.3.5	All gauges shall be equipped with valves to allow for servicing under operating conditions.
Recirculation and Filtration	4.7.1.9.1	A flow meter accurate to within +/- 5% of the actual design flow shall be provided for each filtration system.	A flow meter accurate to within +/- 5% of the actual design flow shall be provided for each filtration system. Flow meters shall be certified in accordance with NSF/ANSI Standard 50, Level 1 a (Level 1 accuracy is +/- 5% or better). Flow meters shall be installed and used in accordance with manufacturer instructions. Rationale: NSF has detailed evaluation and testing criteria to assess the material health safety, corrosion resistance, pressure safety and accuracy of flow meters. NSF has tested and certified flow meters that have met the +/-5% Level 1 criteria. -- Health, safety and performance issue and code compliance – REFERENCE: NSF/ANSI Standard 50 and other state codes such as California	Agree. Code revised.	4.7.1.9.1	A flow meter accurate to within +/- 5% of the actual design flow shall be provided for each filtration system.
Recirculation and Filtration	4.7.1.9.1	A flow meter accurate to within +/- 5% of the actual design flow shall be provided for each filtration system.	Add: Flow meters shall be tested& certified to NSF Standard 50 -- Anyone can make a claim but it needs to be validated for accuracy.	Agree. Code revised.	4.7.1.9.1	A flow meter accurate to within +/- 5% of the actual design flow shall be provided for each filtration system.
Recirculation and Filtration	4.7.1.9.2	All pumps shall be installed with a manual adjustable discharge valve to provide a backup means of flow control as well as for system isolation.	All pumps shall be installed with a manual adjustable discharge valve to provide a backup means of flow control as well as for system isolation -- suggest revising - New construction or improvements to the circulation system pump shall be installed with a manual adjustable discharge valve to provide a backup means of flow control as well as for system isolation	Disagree. All items in Section 4, unless otherwise stated, are only applicable to new construction or substantial alteration.	4.7.1.9.2	All pumps shall be installed with a manual adjustable discharge valve to provide a backup means of flow control as well as for system isolation.
Recirculation and Filtration	4.7.2	Filtration	Excellent Annex discussion establishing the case for slower filtration flow rates for granular media filters. However, sand filters have never been designed or marketed to remove pathogens. Slower filtration rates will be a hard sell as long as NSF 50 approves high rate sand filters to 20 gpm/sq ft. Including this discussion and the 12 gpm/sq ft requirement should be a large boost toward setting standards that are significantly better in single pass removal of human pathogens for granular media filters. (My editorial comment: I think that the dramatic increase of Cryptosporidium infection in this time period largely due to the dramatic improvement of detection and reporting and the education of the public. Crypto has always been there, perhaps with the same incidence, but health education and awareness has changed dramatically in our culture. Previous generations contracted illnesses from aquatic venues, but right or wrong suffered in silence perhaps because that was their culture. Now, no one suffers in silence. Everyone wants for find a cause and place blame.)	No change proposed by commenter.	4.7.2	Filtration

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2 ANNEX	Filtration	The filtration system should be designed to remove physical contaminants and maintain the clarity and appearance of the pool water. However, good clarity does not mean that water is microbiologically safe. With chlorine-tolerant human pathogens like Giardia and Cryptosporidium becoming increasingly common in pools, effective filtration is a crucial process in controlling waterborne disease transmission and protecting public health. The filtration system of U.S. swimming pools has traditionally been designed to remove physical contaminants and maintain the clarity and appearance of the pool water. Good clarity is important and will help prevent drowning and underwater collisions. Poor clarity can actually compromise the disinfection process as well as leaving chlorine-tolerant pathogens suspended in the water for longer periods of time. As a future recommendation for discussion, filtration systems should be capable of removing Cryptosporidium oocysts or an acceptable 4.5micron surrogate particle with an efficiency of at least 90% (i.e., a minimum of 1 log reduction) single pass. -- Globally speaking, a unified design approach should be evaluated for MAHC standards. A good example is the desire for 3 log reduction to address Crypto removal. While UV is required for all "increased risk" pools, as a previous module has already proposed, combined chloramine levels will not be allowed to exceed 0.4 ppm. This will almost certainly require UV for ALL indoor pools, regardless of type (studies have cited that over 96% of all current pools have combined chlorine levels greater than 0.6 ppm, let alone 0.4 ppm). Then there is the requirement for crypto removal in filter	Disagree. The likelihood that 96% of pools will have UV in the immediate future is pretty small. The MAHC also applies to outdoor pools and pools without UV systems. Redundant systems provide protection when another system fails.	4.7.2 Annex	Filtration (See Annex for full text)
Recirculation and Filtration	4.7.2.1.1.1	Filtration shall be required for all aquatic venues that recirculate water.	The Annex comment is good, but there is no mention of sufficient floor space in this section of the code. At least one section here needs to mention "sufficient floor space," perhaps in 4.7.2.1.2.1. Because of the myriad of sizes and shapes, I understand the difficulty of establishing an actual floor space requirement, let alone setting an option to increase this by 50%. What would a 50% increase in space actually do? Would this space be sufficient to add another filter? Would this space be sufficient to add two smaller filters? Just looking at adding sand filters and using a simple square to determine the footprint area, you need 4 sq ft for a 24" filter, 6.25 sq ft for a 30" filter, and 9 sq ft for a 36" filter. Having an additional 50% in area does not quite provide sufficient area to add the next size filter.	Partially agree. Corresponding code section should be 4.7.2.1.2.1. Clarification-annex doesn't state that the floor size should increase by 50% ; it says sufficient floor space to accommodate increase in filter surface area by 50%.	4.7.2.1.1	Filtration shall be required for all aquatic venues that recirculate water.
Recirculation and Filtration	4.7.2.1.1.1	Filtration shall be required for all aquatic venues that recirculate water.	(Move this section) 4.7.2.a Filtration shall be required for all aquatic venues that recirculate water. -- This section belongs under "Filtration" and not just under "Granular Media Filters" since it applies to all types of filtration.	Agree. Code revised	4.7.2.1.1	Filtration shall be required for all aquatic venues that recirculate water.
Recirculation and Filtration	4.7.2.1.1.1	Filtration shall be required for all aquatic venues that recirculate water.	Sufficient floor space should be available to accommodate installation of additional filters to increase the original filtration surface area by up to 50% should it be recommended by future regulations or to meet current water quality standards. This is part of the hydraulic flexibility recommendation of newly constructed pools. The idea is to recommend space for additional filters should they become necessary at some point in the future. The 'extra' space could be utilized to make equipment rooms safer and more functional. – I've never encountered a similar provision to this which is requiring 50% additional space for future expansion. If an engineer is being held to a filtration rate of 10 GPM/SF today, are we suggesting that 7.5 GPM/SF may be warranted in the future? What about other equipment? What if turnovers were to increase in the future, should we size buried piping to accept 150% of the current design flow? Should diving wells be constructed 50% deeper than current regulations to account for any future movement in the regulations? The filtration rate for sand filters, requirements for single log reduction, and the suggested mechanical room area increase (often around $120/SF) is likely going to drive every new pool towards regen media which can be cost prohibitive up front for many people.	*Partially agree. Annex revised*	4.7.2.1.1	Filtration shall be required for all aquatic venues that recirculate water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.1.3.2 & 5.7.2.1.2	4.7.2.1.3.2 -- The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing. 5.7.2.1.2 -- The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft² (36.7 m/h). – 1. Whilst it is commendable that an upper limit is proposed, there is ample case history to confirm that many pools can be effectively maintained when using "well-engineered" and proven granular filter, operating at average filter rate of 42m/h. 2. It's commercially naive to assume that all granular filters have equal capability. Amongst other things this can be noted with the ability maintain a level filter bed; to effectively detain solids; to provide/deliver laminar & stable water streams within the filter vessel, etc., 3. The proposed upper limit imposes restrictions on well-made filter brands, which have extensive & successful case history. It is conceded and accepted that slower filter rates will generally provide a higher process efficiency, which may be warranted by a particular application. This should be a consideration & a decision, made by a prequalified and experienced Designer, not a Standard. The converse also applies. – REFERENCE: WA Code of Practice (October 2004, Table 5, Page 30; promoting the concept that filter rate should be related to both load and application.	*Partially agree. Code revised.*	4.7.2.1.3.2 & 5.7.2.1.2	4.7.2.2.3.2 Backwash R&F The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing. 5.7.2.1.2 Backwashing Rates R&F The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.
Recirculation and Filtration	4.7.2.1.3.2 & 5.7.2.1.2	4.7.2.1.3.2 -- The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing. 5.7.2.1.2 -- The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft² (36.7 m/h). -- The proposed changes will simply add cost to facility design, construction and renovation. No data that supports 12 gpm/ft² over 15 gpm/ft² in performance has been submitted to other regulatory agencies. – REFERENCE: South Carolina Code 61-51. California Codes, Florida Draft Code, NSF/ANSI Standard 50	Partially agree. Code and annex revised.	4.7.2.1.3.2 & 5.7.2.1.2	4.7.2.2.3.2 Backwash R&F The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing. 5.7.2.1.2 Backwashing Rates R&F The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.
Recirculation and Filtration	4.7.2.1.1.3	Filtration accessories shall include the following items: 1) Influent pressure gauge, 2) Effluent pressure gauge, 3) Backwash sight glass (or viewing window), and Manual air relief system.	What if the backwash water is directly visible flowing into the wastewater sump? Suggest: 3) Means to view the backwash water clarity.	Agree. Code revised.	4.7.2.2.1.2	Filtration accessories shall include the following items: 1) Influent pressure gauge, 2) Effluent pressure gauge or other means to view backwash water clarity, 3) Backwash sight glass, and 4) Manual air relief system.
Recirculation and Filtration	4.7.2.1.1.4	All filters shall be currently listed in NSF/ANSI 50 – Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities (or an equivalent standard).	All filters shall be ~~currently listed in~~ certified to NSF/ANSI 50 ~~– Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities (or an equivalent standard).~~ by an ANSI-Accredited certification organization. -- Current wording implies that only NSF can list filters. This is not the case. Proposed wording permits certification by any ANSI-accredited certification organization	Agree. Code revised.	4.7.2.2.1.3	All filters shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.2.1.1.4	All filters shall be currently listed in NSF/ANSI 50 – Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities (or an equivalent standard).	NSF and other nationally recognized testing laboratories (NTRL) do not set the standard in and of themselves. They rely on funding by the industry. When the filter industry is convinced that they need to produce filters that can provide microbial reduction, then they will come to NSF to establish these standards. I don't think they are there yet.	No change proposed by commenter.	4.7.2.2.1.3	All filters shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.2.1.2.2	A means and access for easy removal of filter media shall be required.	An easy and accessible means shall be available for any filter container for inspection and repairs. Acceptable means would be a diameter of 3' or greater. Additionally all OSHA confined space protocol shall be adhered to in media removal. -- As currently written leaves to much interpretation of general access requirements – REFERENCE: OSHA 29-CFR-1910; Editorial Comment: Most current filter vessels have extremely small access ports which do not allow functional inspection, repair, or mtc. ability except for very diminutive individuals. A systemic change is needed on the manufacturer end as these are confined space as defined by OSHA	Disagree. Where practical, the Code is written to be performance-based instead of prescriptive.	4.7.2.2.2.2	A means and access for easy removal of filter media shall be required.
Recirculation and Filtration	4.7.2.1.2.2	A means and access for easy removal of filter media shall be required.	What risk is this mitigating? If this requirement stays in, it should be rewritten to require the designer/engineer define the means, access type and ease of removal.	Disagree. Where practical, Code written to be performance-based instead of prescriptive.	4.7.2.2.2.2	A means and access for easy removal of filter media shall be required.
Recirculation and Filtration	4.7.2.1.3.1	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h).	High-rate granular media filters shall be designed to operate at no more than 20 gpm/ft², or as approved in accordance with NSF Standard 50. – REFERENCE: CT Public Swimming Pool Design Guide Section 13.2 and NSF Standard 50.	Disagree. Sand filters do not work at 15 or 20 gpm/sf in terms of efficient pathogen removal and protecting public health; reducing filtration rates is the first step toward addressing this problem.	4.7.2.2.3.1	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 (29.3 m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.1.3.1	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h).	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft2 -- suggest staying at industry practice - 20 gpm/ft2 maximum -- Trouble here is the annex continues to display "drinking water" filtration practices. Drinking water has controlled variables because it is a closed system. Pools and spas have more uncontrollable variables including weather factors, open surface areas, and bathers. If there was practices existing common to all parks or venues, then this could be an option	Disagree. Sand filters do not work at 15 or 20 gpm/sf in terms of efficient pathogen removal and protecting public health; reducing filtration rates is the first step toward addressing this problem.	4.7.2.2.3.1	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 (29.3 m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	4.7.2.1.3.1	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h).	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft2 (29.3 m/h). -- If filters are held to NSF 50 (per 4.7.2.1.1.4) and they rate HRS filters to 20 GPM/SF, I would assume NSF's testing should hold some weight. Later in this module, regenerative media filters are allowed at 2.0 GPM/SF (NSF tests to this same filtration rate), yet most manufacturers only recommend RM filtration rates of 1.0 to 1.6 GPM/SF depending on the type and location (indoor or outdoor) of the pool. Every current filter manufacturer that I'm aware of recommends their filter operation at 15 GPM/SF. Later in this module (4.7.2.1.3.1 annex), it holds HRS systems to 12 GPM/SF only if you have 24" of sand bed depth, otherwise a maximum filtration rate of 10 GPM/SF is required. There are only three manufacturers that produce horizontal HRS vessels with these sand bed depths, all coming just in the 60" diameter filter tank line. So the vast majority would be held to this 10 GPM/SF threshold.	No change proposed by commenter. Sand filters do not work at 15 or 20 gpm/sf in terms of efficient pathogen removal and protecting public health; reducing filtration rates is the first step toward addressing this problem.	4.7.2.2.3.1	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 (29.3 m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	4.7.2.1.3.1	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h).	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft2 of filter surface. The minimum depth of filter media above the under-drains (or laterals) shall be set by the filter manufacturer. Filters with bed depths of 9"-12" shall operate at no greater than 12 gpm/ft2 of filter surface area. A minimum bed depth of 15" is required for flow rates greater than 12 gpm/ft2 to a maximum of 15 gpm/ft2. -- Allowable filter rate is directly related to bed depth.	Disagree. Sand filters do not work at 15 or 20 gpm/sf in terms of efficient pathogen removal and protecting public health; reducing filtration rates is the first step toward addressing this problem.	4.7.2.2.3.1	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 (29.3 m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	4.7.2.1.3.1	High-rate granular media filters shall be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h).	This requirement shall default to the manufacturer's requirements.	Disagree. Sand filters do not work at 15 or 20 gpm/sf in terms of efficient pathogen removal and protecting public health; reducing filtration rates is the first step toward addressing this problem.	4.7.2.2.3.1	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 (29.3 m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	4.7.2.1.3.1 ANNEX	Ideally, high-rate granular media filters should be designed to operate at no more than 12 gpm/ft^2 (29.3 m/h) for filters with a media depth above the laterals of at least 24 inches (0.61 m). Filters with less than 24 inches of media between the top of the laterals and the top of the filter bed should operate at no more than 10 gpm/ft^2 (24.4 m/h). The granular media filter system should be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (48.9 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer. Specially graded filter media should be recommended in filter systems backwashing at less than 20 gpm/ft^2 (48.9 m/h) to be able to expand the bed at least 20% above the fixed bed height at the design backwash flow rate, which is subject to approval by the local authority. Filtration and backwashing at the same flow rate is likely to lead to poor performance of both processes. Backwashing at double the filtration rate is not all that complicated with a 3-filter system, where the flow of two filters is used to backwash the third. Further, backwashing with unfiltered water is possible in a 2-filter system by backwashing with the entire recirculation flow through each filter individually. Variable drive pumping systems and accurate flow meters also contribute to the likelihood of successful backwashing as well as effective filtration.	Ideally, high-rate granular media filters should be designed to operate at no more than 12 gpm/ft2 (29.3 m/h) for filters with a media depth above the laterals of at least 24 inches (0.61 m). Filters with less than 24 inches of media between the top of the laterals and the top of the filter bed should operate at no more than 10 gpm/ft2 (24.4 m/h). The granular media filter system should be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (48.9 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer. Specially graded filter media should be recommended in filter systems backwashing at less than 20 gpm/ft2 (48.9 m/h) to be able to expand the bed at least 20% above the fixed bed height at the design backwash flow rate, which is subject to approval by the local authority. Filtration and backwashing at the same flow rate is likely to lead to poor performance of both processes. Backwashing at double the filtration rate is not all that complicated with a 3-filter system, where the flow of two filters is used to backwash the third. Further, backwashing with unfiltered water is possible in a 2-filter system by backwashing with the entire recirculation flow through each filter individually. Variable drive pumping systems and accurate flow meters also contribute to the likelihood of successful backwashing as well as effective filtration. Filtration at 10 gpm/ft2 is really pushing the envelope for attaining effective filtration and would not be recommended for a municipal drinking water system using sand filters due to doubts about the ability of such a filter to remove particulate contaminants reliably. -- Requiring 24 inches of sand bed depth, as previously mentioned, will have this 12 GPM/SF filtration rate apply to only three current manufacturer's	Agree. Annex revised.	4.7.2.2.3.1 Annex	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft^2 of filter surface. The minimum depth of filter media above the under-drains (or laterals) shall be set by the filter manufacturer. Filters with bed depths less than 15" shall operate at no greater than 12 gpm/ft^2 of filter surface area. A minimum bed depth of 15" is required for flow rates greater than 12 gpm/ft^2 to a maximum of 15 gpm/ft^2. -- Allowable filter rate is directly related to bed depth.
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	I am uncomfortable with "prohibited" because it sounds like it could be illegal. Suggest: …filter bed surface area, or at a different rate as specified by the manufacturer.	Disagree. Suggested change would alter intent.	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/ or approved at an alternate rate by NSF/ANSI 50 listing. – This requirement lacks the technical stipulations and qualifications that are necessary to provide value and credence. For example, the use of "air scouring" and "shunt pulse backwashing" can effectively maintain granular filter beds (of all types) whilst using substantially lower washwater rates. Lower washwater consumption (with effective BW) is also an important & relevant environmental issue.Ideally, the specification of "backwash efficiency" should relate to the media type & required bed expansion, according to temperature and specific gravity of the particular filter media. The efficiency of the backwash process is THE distinguishing factor between many different filter types & brands. It is commendable some minimum standards are specified. A minimum BW rate is not necessarily the best means to achieve the MAHC intent.	Disagree. Air scour can occur without any flow, but it is considered best practice to fully fluidize the media after air scouring. Air scoured filters can backwash for a shorter duration to conserve water as suggested	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	High-rate granular media filters shall be designed to operate at no more than 15 gpm/ft² (36.7 m/h). -- The proposed filter rates are not supported by most current or proposed codes. The proposed changes will add significant cost to new facility design and construction as well as any major renovation. To date we've seen no scientific evidence that supports 12 gpm/ft² over 15 gpm/ft² in performance. It is our opinion that no meaningful gains were demonstrated unless flow rates were reduced to 10 gpm/ft² in conjunction with a coagulant feed system. This type of change from current or proposed changes to existing codes should not be implemented without additional significant testing as well as proper filter standards development within NSF/ ANSI Standard 50. – REFERENCE: California Codes, Florida Draft Revisions to DOH Code, Alberta Building Code, Ontario Building Code, NSF/ANSI Standard 50	Partially agree. Code and annex revised.	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/ or approved at an alternate rate by NSF/ANSI 50 listing – While the proposed backwash rate may be effective for sand filters with an effective size range of .45mm, there are many other types of media that require a much lower backwash rate. There are many filters in operation that utilize an air scour system or air assist that have effectively demonstrated the ability to backwash properly at lower backwash rates. This should not be a prescriptive requirement however by current NSF/ANSI Standard 50 requirements would need to be validated by a third party testing agency whether at 15 gpm/ft² or any other backwash rate. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or their certification to NSF/ANSI 50. ~~listing.~~ —Minor edit for clarity	Agree. Code revised as suggested.	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.
Recirculation and Filtration	4.7.2.1.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing.	This requirement shall default to the manufacturer's requirements.	Partially agree. Code revised.	4.7.2.2.3.2	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.
Recirculation and Filtration	4.7.2.1.3.2 & 5.7.2.1.2	4.7.2.1.3.2 -- The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer or the NSF/ANSI 50 listing. 5.7.2.1.2 -- The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.	The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/ or approved at an alternate rate by NSF/ANSI 50 listing. -- There are many of types of media that require a lower backwash rate. There are also filters in utilizing an air scour or assist that backwash properly at lower rates. The backwash flow rate should be in accordance with NSF/ANSI 50 and should be validated by a third party testing agency to determine effective backwash rate for various types of media. – REFERENCE: NSF/ANSI Standard 50	*Partially agree. Code revised.*	4.7.2.2.3.2 & 5.7.2.1.2	4.7.2.2.3.2 Backwash R&F The granular media filter system shall be designed to backwash each filter at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing. 5.7.2.1.2 Backwashing Rates R&F The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.
Recirculation and Filtration	4.7.2.1.4.1	The minimum depth of filter media above the under-drains (or laterals) set by the filter manufacturer shall be used.	Delete and incorporate into 4.7.2.1.3.1	Disagree. Included as a separate section for clarity and emphasis.	4.7.2.2.4.1	The minimum depth of filter media cannot be less than the depth specified by the manufacturer.
Recirculation and Filtration	4.7.2.1.4.1	The minimum depth of filter media above the under-drains (or laterals) set by the filter manufacturer shall be used.	Should read that the minimum depth of the filter media cannot be less than the amount set by the manufacturer. -- Written for the common person.	Agree. Code revised as suggested.	4.7.2.2.4.1	The minimum depth of filter media cannot be less than the depth specified by the manufacturer.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.1.5.1	Influent and effluent pressure gauges shall have the capability to measure up to a 20 psi (138 KPa) increase in the differential pressure across the filter bed in increments of 1 psi (6.9 KPa) or less.	Suggest adding a minimum pressure differential between influent and effluent gauge here if it is not elsewhere (10 psi?) -- Gives basis for having an influent gauge.	Disagree. No change to this section needed; pressure differential included in operation & maintenance aspects in section 5.	4.7.2.2.5.1	Influent and effluent pressure gauges shall have the capability to measure up to a 20 psi (138 KPa) increase in the differential pressure across the filter bed in increments of 1 psi (6.9 KPa) or less.
Recirculation and Filtration	4.7.2.1.6.1	If coagulant feed systems are used, they shall be installed with the injection point located ahead of the filters and recirculation pump(s) with electrical interlocks in accordance with MAHC Section 4.7.3.2.5.4	I am not very clear about what this section requires for the location of the coagulant feed system. For a pressure filter, I understand that coagulant must be injected with a feed pump before the filter, but is this requiring the injection point on the suction side of the pump or the discharge side of the pump? The Annex does not clarify this either. The Annex builds a good case for coagulation, but it misses explaining the process.	Agree. Code revised for clarification.	4.7.2.2.6.1	If coagulant feed systems are used, they shall be installed with the injection point located before the filters and for pressure filters, on the suction side of the recirculation pump(s) with electrical interlocks in accordance with MAHC Section 4.7.3.2.1.3.
Recirculation and Filtration	4.7.2.2	Precoat Filters	What does this MAHC committee assume about how and where to measure the 2.0 gpm/sq ft? I had always assumed that you would establish a precoat media filter flow rate based on the uncoated area of the support septa. This is a good assumption as long as support septa have a large surface area. However, when small diameter tubes (such a 0.5 inch diameter) are used as support, NSF 50 allows a multiplier of 1.5 to be used. This is based on the difference in diameter between the uncoated tube and the diameter of the coated tube with 0.125" of media. The larger coated surface area is used and has an effective filtration rate of 3 gpm/sq ft. There is ongoing discussion about this topic.	Code revised to provide additional detail.	4.7.2.3	Precoat Filters
Recirculation and Filtration	4.7.2.2.1.1	All precoat, filters *(i.e., pressure and vacuum*) shall be currently listed in NSF/ANSI 50 – Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities.	All precoat, filters *(i.e., pressure and vacuum*) shall be ~~currently listed in~~ certified to NSF/ANSI 50 ~~– Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities.~~ by an ANSI-Accredited certification organization. -- Current wording implies that only NSF can list filters. This is not the case. Proposed wording permits certification by any ANSI-accredited certification organization.	Agree. Code revised.	4.7.2.3.1.1	All precoat, filters (i.e., pressure and vacuum) shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.2.2.1.2	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length.	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length providing the media is NSF/ANSI Standard 50 approved for use in the filter. -- Filter media should be individually listed to the current NSF/ANSI Standard or the filter should be tested with the alternate media. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	4.7.2.3.1.2	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length for aquatic venue use.
Recirculation and Filtration	4.7.2.2.1.2	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length.	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length providing the media is NSF/ANSI Standard 50 approved for use in the filter. -- The current silica sand requirement by NSF/ANSI Standard for granular media filters is #20 silica sand. There is a definition for #20 silica in NSF/ANSI Standard 50 and all other media will need to be individually listed to the standard or the filter will need to be tested with the alternate media. Filters installed without using proper media are technically not in compliance with the standard and would not carry the listing in that situation. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	4.7.2.3.1.2	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length for aquatic venue use.
Recirculation and Filtration	4.7.2.2.4.3	Diatomaceous earth or perlite shall be carefully graded and meet the media and filter manufacturer's recommendation for pool use.	If you mention DE and perlite, you should also mention cellulose fiber.	Partially agree. Code revised.	4.7.2.3.1.2	Filters should be used with the appropriate filter media as recommended by the filter manufacturer for maximum clarity and cycle length for aquatic venue use.
Recirculation and Filtration	4.7.2.2.4.3.1	Diatomaceous earth or perlite shall be in accordance with NSF Standard 50.	Diatomaceous earth or perlite shall be certified to NSF/ANSI ~~Standard~~ 50 by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	4.7.2.3.1.2.1	Filter media shall be certified to NSF/ANSI Standard 50 by an ANSI-accredited certification organization and within the size specifications provided by the filter manufacturer and NSF/ANSI 50.
Recirculation and Filtration	4.7.2.2.4.4.1	Alternate types of filter media shall be in accordance with NSF Standard 50.	Alternate types of filter media shall be certified to ~~in accordance with~~ NSF/ANSI ~~Standard~~ 50 by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	4.7.2.3.1.2.3	Alternate types of filter media shall be in accordance with NSF Standard 50.
Recirculation and Filtration	4.7.2.2.2.1	The design filtration rate for vacuum precoat filters shall not be either: 1) greater than 2.0 gallons per minute per square foot (4.9 m/h), or 2.5 gpm/sf (6.1m/h) when used with a continuous precoat media feed (commonly referred to as "body-feed").	Change writing to: "The design filtration rate for vacuum precoat filters shall not be greater than:" 1) remove the words "greater than" from this point in the text. -- Easier reading / understanding of intent.	Agree. Code revised.	4.7.2.3.2.1	The design filtration rate for vacuum precoat filters shall not be greater than either: 1) 2.0 gallons per minute per square foot (4.9 m/h), or 2) 2.5 gpm/sf (6.1m/h) when used with a continuous precoat media feed (commonly referred to as "body-feed").
Recirculation and Filtration	4.7.2.2.2.2	The design filtration rate for pressure precoat filters shall not be greater than 2.0 gallons per minute per square foot (4.9 m/h) of effective filter surface area.	The design filtration rate for pressure precoat filters shall not be greater than 2.0 gallons per minute per square foot (4.9 m/h) of effective filter surface area. -- See previous comment. Why are RM filters held to a different standard than HRS filters relative to NSF? Plus when it's contrary even to all of the manufacturer's recommendations.	Commenter questions why MAHC requirements for high rate sand filters is more restrictive than the NSF standards allow, while the MAHC accepts the NSF filtration standard for regenerative media even though the NSF standard is less restrictive than recommended by the manufacturers?	4.7.2.3.2.2	The design filtration rate for pressure precoat filters shall not be greater than 2.0 gallons per minute per square foot (4.9 m/h) of effective filter surface area.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.2.3.1	A means shall be provided on the suction side of the pump for pressure precoat filter systems to introduce clean filter media while flowing water through the filter without return to the pool (*unless filters are NSF Standard 50 certified to return water to pool during the precoating process*).	"System shall be designed such that media does not return to the pool". -- What health risk is this mitigating? Make this a performance requirement that states "system shall be designed such that media does not return to the pool".	Partially agree. Code revised.	4.7.2.3.3.1	The precoat process shall follow the manufacturer's recommendations and requirements of NSF/ANSI Standard 50.
Recirculation and Filtration	4.7.2.2.3.1	A means shall be provided on the suction side of the pump for pressure precoat filter systems to introduce clean filter media while flowing water through the filter without return to the pool (*unless filters are NSF Standard 50 certified to return water to pool during the precoating process*).	~~A means shall be provided on the suction side of the pump for pressure precoat filter systems to introduce clean filter media while flowing water through the filter without return to the POOL (unless filters are NSF Standard 50 certified to return water to POOL during the precoating process).~~ Should simply stipulate that the precoat process shall be per NSF.	Partially agree. Code revised.	4.7.2.3.3.1	The precoat process shall follow the manufacturer's recommendations and requirements of NSF/ANSI Standard 50.
Recirculation and Filtration	4.7.2.2.3.1	A means shall be provided on the suction side of the pump for pressure precoat filter systems to introduce clean filter media while flowing water through the filter without return to the pool (*unless filters are NSF Standard 50 certified to return water to pool during the precoating process*).	DELETE -- This requirement precludes the use of several mfg's precoat filters proven means of introducing media.	Agree. Code revised.	4.7.2.3.3.1	The precoat process shall follow the manufacturer's recommendations and requirements of NSF/ANSI Standard 50.
Recirculation and Filtration	4.7.2.2.3.1 ANNEX	Precoating of filters is done using a recirculated slurry in filters because the slurry gradually builds up on the septum and in early stages some of the filter aid passes through. Precoat has to be introduced ahead of the filter. Simply sending the water containing diatomite or perlite out to pool instead of closed-loop recirculation or waste it would result in filter aid being deposited in the pool. The recirculation setting on a multi port valve does not accomplish the goal of closed loop recirculation. Rather, it would return the media to the pool without passing through the filter.	Precoating of filters is done using a recirculated slurring in filters because the slurry gradually builds up on the septum and in early stages some of the filter aid passes through. Precoat has to be introduced ahead of the filter. Simply sending the water containing diatomite or perlite out to pool instead of closed-loop recirculation or waste is would result in filter aid being deposited in the pool. The recirculation setting on a multi-port valve does not accomplish the goal of closed loop recirculation. Rather, it would return the media to the pool without passing through the filter. -- NSF/ANSI Standard 50 has testing protocol for filters to precoat in the filter cycle. This testing requirement is very onerous and can only be met if the pore structure in the septum material of the filter is fine enough to retain the media in a single pass. There are literally 10,000s of precoat filters, manufactured by at least 3 different manufacturers that currently carry this certification, installed around the world. The potential to pass media to the pool with a filter certified to precoat in the filter mode, is far less a risk to pass media to the pool than a filter that requires sequencing of operational valves to prevent media from passing to the pool during a closed loop precoat (septum provides barrier to media rather than relying on valve timing). This information was provided to the Chair of this Technical Committee during the drafting of this module and has already been referenced in section 4.7.2.2.3.1 of this module. Noticeably absent from the Technical Committee for this module, was a reasonable cross section of filter manufacturers. There was certainly one filter manufacturer on the Committee, however, there wasn't a significant amount of filter design experience from others which has led to some misconception or misinterpretation of the actual products available and how they actually operate.	Partially agree. Code revised.	4.7.2.3.3.1	The precoat process shall follow the manufacturer's recommendations and requirements of NSF/ANSI Standard 50.
Recirculation and Filtration	4.7.2.2.3.1	A means shall be provided on the suction side of the pump for pressure precoat filter systems to introduce clean filter media while flowing water through the filter without return to the pool (*unless filters are NSF Standard 50 certified to return water to pool during the precoating process*).	The Annex mentions using the pump strainer to introduce the precoat slurry. I have never run across this. How does this work? If the strainer lid is open during the process, I am not sure how the pump would keep a prime or keep from drawing a lot of air. Would the strainer seal properly after precoating? Concerning using a skimmer, besides for the problems mentioned in the Annex, precoating often makes a mess with media being dumped directly into the pool. Michigan requires a separate precoat pot on the suction side of the pump. This keeps the mess in the equipment room and avoids problems with taking the lid off the strainer while the pump is operating.	Agree. Annex revised.	4.7.2.3.3.1 Annex	The precoat process shall follow the manufacturer's recommendations and requirements of NSF/ANSI Standard 50.
Recirculation and Filtration	4.7.2.3.1	Cartridge filters shall be installed in accordance with the filter manufacturer's recommendations and with NSF Standard 50.	Cartridge filters shall be installed in accordance with the filter manufacturer's recommendations and certified to ~~with~~ NSF/ANSI ~~Standard~~ 50 by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	4.7.2.4.1	Cartridge filters shall be installed in accordance with the filter manufacturer's recommendations and certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.2.3.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).	Good Annex discussion about cartridge filters, but I don't see who specifically the "consensus" is to not recommend them. The Annex still recommends 0.375 gpm/sq ft filtration rate for cartridge filters. I would rather see a stronger argument in the Annex supporting 0.3 gpm/sq ft or lower.	Agree. Annex revised.	4.7.2.4.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).
Recirculation and Filtration	4.7.2.3.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).	The design filtration rate for surface type cartridge filters shall not exceed 0.30 gallons per minute per square foot -- suggest staying with current standard - 0.375 gpm/ft2 -- Annex explanation makes sense but how do we formulate a way to determine when the absolute limit on these filters have been reached. If it's clean and white we would continue to use it.	Disagree. Annex provides rationale for requirement. Commenter did not provide data/ information to support proposed change.	4.7.2.4.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.2.3.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).	The design filtration rate for surface-type cartridge filter shall not exceed 0.375 gallons per minute per square foot. – REFERENCE: CT Public Swimming Pool Design Guide Section 13A.2 and NSF Standard 50	Disagree. Annex provides rationale for requirement	4.7.2.4.2	The design filtration rate for surface-type cartridge filter shall not exceed 0.30 gallons per minute per square foot (0.20 L/s/m^2).
Recirculation and Filtration	4.7.2.3.3 ANNEX	The pore size and surface area of replacement cartridges shall match the manufacturer's recommendations.	The pore size and surface area of replacement cartridges ~~shall~~ should match the manufacturer's recommendations. -- The word "shall" is not appropriate for the Annex. The text in the Annex is informational, not enforceable.	Agree. Annex revised.	4.7.2.4.3	The pore size and surface area of replacement cartridges shall match the manufacturer's recommendations.
Disinfection and Water Quality (DWQ)	4.7.3 ANNEX	Disinfection and Indoor Air Quality (SEE Annex for full text)\	*Are we basing these regulations around "may"? As mentioned previously, science should come before regulating, which I believe is the mission of the MAHC.* -- SECONDARY DISINFECTION SYSTEMS such as ozone and ultraviolet light may effectively destroy inorganic as well as some organic chloramines.	This is Annex language, not regulations. The science is somewhat weak at giving exact parameters regarding ozone's or UV's ability to destroy chloramines at specific CT values for ozone or dose values for UV. That is why it is Annex information and not a part of the CODE.	4.7.3	Disinfection and pH ControL (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3 ANNEX	Disinfection and Indoor Air Quality (SEE Annex for full text)\	*Published scientific studies. Note that though the paper I reference mostly investigated the use of MPS with a cobalt catalyst, it demonstrated that either way ammonia was only oxidized by chlorine (implication is that inorganic chloramines are also not oxidized by MPS, though that was not explicitly stated in this paper).* -- ~~Some research has been done that shows that non-CHLORINE shock oxidizers reduce the propensity to develop chloramines. However, this research has not been peer-reviewed to date.~~ Research has shown that the use of non-chlorine shock oxidizers is selective in oxidation and may not prevent nor reduce inorganic chloramines though may reduce some organic chloramines. – REFERENCE: Anipsitakis GP, Tufano TP, Dionysiou DD. Chemical and microbial decontamination of pool water using activated potassium peroxymonosulfate. Water Research. 2008 Jun;42(12):2899-2910.	Agree with new language, change as suggested. "Research has shown that the use of non-chlorine shock oxidizers is selective in oxidation and may not prevent nor reduce inorganic chloramines though may reduce some organic chloramines "	4.7.3	Disinfection and pH ControL (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3 ANNEX	Disinfection and Indoor Air Quality (SEE Annex for full text)\	*This is a critically important point in reducing disinfection by-products. However, the other aspect to this is to reduce active chlorine levels since it is the product of the active chlorine (HOCl) level with the precursors that form disinfection by-products, at least for rate-limiting steps. By having a lower active chlorine level, some precursors and some intermediate chlorinated chemicals persist longer giving the supplemental systems a chance to remove them. If the active chlorine level is higher, then this increases the initial and/or continued chlorination of precursors and intermediaries to continue on to the production of irritating, volatile or potentially detrimental end products such as nitrogen trichloride and trihalomethanes (THMs).* -- Levels of chloramines and other volatile compounds can be minimized by reducing contaminants that lead to their formation (e.g., urea, creatinine, amino acids and personal care products), as well as by supplemental water treatment.	The risk management assessment implicit in the code is to ensure protection against disease outbreaks and water-based irritations which are known and documented hazards. Although disinfection by-products are undesirable and the levels should be minimized by good personnel practices of users, the specific public health threat posed by such substances has yet to be demonstrated.	4.7.3	Disinfection and pH ControL (SEE ANNEX FOR FULL TEXT)
Recirculation and Filtration	4.7.3.1.1	Disinfection and pH control chemicals shall be automatically introduced through the recirculation system	DISINFECTION and PH control … outlined in MAHC Section 4.7.3.2.~~5.~~ -- Incorrect number	Disagree. No change. This section is only for chemical introduction methods (not the equipment).	4.7.3.1.1	Disinfection and pH control chemicals shall be automatically introduced through the recirculation system.
Recirculation and Filtration	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment that is tested and certified by an NRTL in conformance with ANSI/NSF Standard 50.	The POOL shall be equipped with chemical feed equipment that is tested and certified by an ~~NRTL~~ ANSI-Accredited certification organization in conformance with ~~ANSI/NSF Standard~~ NSF/ANSI 50. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment such as flow-through chemical feeders, electrolytic chemical generators, mechanical chemical feeders, chemical feed pumps, and automated controllers that is tested and certified by an ANSI-accredited certification organization in conformance with NSF.ANSI 50.
Recirculation and Filtration	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment that is tested and certified by an NRTL in conformance with ANSI/NSF Standard 50.	The POOL shall be equipped with chemical feed equipment such as flow through chemical feeders, electrolytic chemical generators, mechanical chemical feeders, chemical feeding pumps and automatic controllers that ~~is~~ have been tested and certified ~~by an NRTL~~ ~~in conformance with ANSI/~~to NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL). -- Health, safety and performance issue and code compliance -- NSF/ANSI Standard 50 is the industry standard for health and performance safety testing and certification of automatic controllers, chemical feeders, and chemical generators for the recreational pool and spa industry. NSF/ANSI Standard 50 is referenced in many state codes for these devices: CA, TX, FL, NY, NC, and many other state public health and safety codes for pool spa and waterpark applications.	Agree. Code revised.	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment such as flow-through chemical feeders, electrolytic chemical generators, mechanical chemical feeders, chemical feed pumps, and automated controllers that is tested and certified by an ANSI-accredited certification organization in conformance with NSF.ANSI 50.
Recirculation and Filtration	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment that is tested and certified by an NRTL in conformance with ANSI/NSF Standard 50.	The POOL shall be equipped with chemical feed equipment that is tested and certified by an ~~NRTL~~ ILAC approved laboratory in conformance with ANSI/NSF Standard 50. – There is no NRTL for such equipment.	Partially agree. Code revised.	4.7.3.2.1.1	The pool shall be equipped with chemical feed equipment such as flow-through chemical feeders, electrolytic chemical generators, mechanical chemical feeders, chemical feed pumps, and automated controllers that is tested and certified by an ANSI-accredited certification organization in conformance with NSF.ANSI 50.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.1.2	All chemical feed equipment shall be kept in safe working condition.	All chemical feed equipment shall be maintained per OSHA requirements or other federal or local chemical codes." -- Safe working condition is not defined and therefore is subjective	Partially agree. Code revised.	4.7.3.2.1.2	All chemical feed equipment shall be maintained in good working condition.
Recirculation and Filtration	4.7.3.2.1.3	All feed equipment shall be of durable construction and of materials which resistant to the environment to which the parts will be subjected.	"Feed equipment shall be designed and constructed from materials appropriate for the chemicals used in the system or stored in the vicinity." -- Durable construction is subjective. Materials resistant to the environment to which the parts will be subjected is also subjective as might be interpreted to include the external environment like equipment moving in the space.	This section deleted as NSF/ANSI 50 addresses materials.	4.7.3.2.1.3	All chemical feeders shall be provided with an automatic means to be disabled through an electrical interlock with at least two of the following: 1) Recirculation Pump Power, 2) Flow Meter/Flow switch in the return line, 3) Chemical Control Power and Paddle Wheel or Flow Cell on the chemical controller.
Recirculation and Filtration	4.7.3.2.1.3	All feed equipment shall be of durable construction and of materials which resistant to the environment to which the parts will be subjected.	Add the word "are" between "which" and "resistant"	This section deleted as NSF/ANSI 50 addresses materials.	4.7.3.2.1.3	All chemical feeders shall be provided with an automatic means to be disabled through an electrical interlock with at least two of the following: 1) Recirculation Pump Power, 2) Flow Meter/Flow switch in the return line, 3) Chemical Control Power and Paddle Wheel or Flow Cell on the chemical controller.
Risk Management (RM)	4.9.1.4	The chemical feed system shall be designed so that the chlorine and pH feed pumps will be deactivated when there is no flow in the recirculation system.	*Should this apply to all disinfectants, not just chlorine?* -- Suggest replacing "CHLORINE" with "Disinfectant""	Agree. More generic language has been used. We used "chemical feed system" instead of specifying what the system is pumping.	4.7.3.2.1.3	All chemical feeders shall be provided with an automatic means to be disabled through an electrical interlock with at least two of the following: 1) Recirculation Pump Power, 2) Flow Meter/Flow switch in the return line, 3) Chemical Control Power and Paddle Wheel or Flow Cell on the chemical controller.
Risk Management (RM)	4.9.1.4	The chemical feed system shall be designed so that the chlorine and pH feed pumps will be deactivated when there is no flow in the recirculation system.	The chemical feed system shall be designed so that the CHLORINE and PH feed pumps will be deactivated when there is no flow in the recirculation system. *Should this be inclusive for all chemical feed pumps?*	Agree. Modified content is inclusive by replacing "chlorine" with "chemical feed pumps." Also added "no or low flow" since the chemical mixing injuries that occur in these instances can be due to low flow as well as no flow scenarios.	4.7.3.2.1.3	All chemical feeders shall be provided with an automatic means to be disabled through an electrical interlock with at least two of the following: 1) Recirculation Pump Power, 2) Flow Meter/Flow switch in the return line, 3) Chemical Control Power and Paddle Wheel or Flow Cell on the chemical controller.
Recirculation and Filtration	4.7.3.2.1.5.1	A clear (Plexiglas) protective cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections.	A clear (Plexiglass) protective cover shall be installed around the chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections. -- suggest revising - recommend a physical barrier between feed equipment and other pool components. An optional protective cover shall be installed around the chemical feed pumps to shield from potential sprays from leaking connections. The covering shall not advance the deterioration of the equipment.	Partially agree. Code revised.	4.7.3.2.1.4.1	A physical barrier shall be installed between chemical feed pumps supplying acid or liquid hypochlorite solution and other pool components to shield staff and equipment from chemical sprays from leaking connections.
Recirculation and Filtration	4.7.3.2.1.5.1	A clear (Plexiglas) protective cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections.	I have not seen a protective cover as required in this section. Do the manufacturers supply these protective covers?	Partially agree. Code revised.	4.7.3.2.1.4.1	A physical barrier shall be installed between chemical feed pumps supplying acid or liquid hypochlorite solution and other pool components to shield staff and equipment from chemical sprays from leaking connections.
Recirculation and Filtration	4.7.3.2.1.5.1	A clear (Plexiglas) protective cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections.	A clear (Plexiglas) protective cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections. -- Would a Plexiglas cover encapsulate a pump for a cal hypo feeder? Understand the intent here, but this isn't a current requirement in any other standard. It seems to be written with just small metering pumps in mind that are used for liquid chlorine or acid feed.	Partially agree. Code revised.	4.7.3.2.1.4.1	A physical barrier shall be installed between chemical feed pumps supplying acid or liquid hypochlorite solution and other pool components to shield staff and equipment from chemical sprays from leaking connections.
Recirculation and Filtration	4.7.3.2.1.5.1	A clear (Plexiglas) protective cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections.	A clear ~~(Plexiglas) protective~~ polycarbonate cover shall be installed around chemical feed pumps to shield operating staff and equipment from potential sprays from leaking connections.	Partially agree. Code revised.	4.7.3.2.1.4.1	A physical barrier shall be installed between chemical feed pumps supplying acid or liquid hypochlorite solution and other pool components to shield staff and equipment from chemical sprays from leaking connections.
Recirculation and Filtration	4.7.3.2.10.5.1	High use facilities, such as water parks and health clubs, require a greater capacity of feed equipment and production. These facilities generally have higher recirculation rates and experience accelerated consumption and should be sized differently to provide the minimum dosing.	The numbering for this section in the Annex is very confusing since sections …10.4 and …10.5 are not in the code. This perhaps should be 4.7.3.2.10.4. Actually, this Annex section is quite ambiguous and does not seem to refer to controllers at all. It makes no sense here or in previous sections of the code. This should be eliminated.	Agree. Code and annex has been made consistent.	4.7.3.2.2 Annex	High use facilities, such as water parks and health clubs, require a greater capacity of feed equipment and production. These facilities generally have higher recirculation rates and experience accelerated consumption and should be sized differently to provide the minimum dosing
Recirculation and Filtration	4.7.3.2.2	Feeders shall be capable of supplying disinfectant and pH control chemicals to the pool to maintain the minimum required disinfection levels at all times in accordance with the MAHC	The manufacturers are touting sizing at around 0.4 lbs Cl/day /10,000 gal. I don't buy this, but I also strongly disagree with the feed rate for ECGs in this section. What is the difference between a peristaltic chemical feeder that feeds 2.0 lbs Cl/day and an ECG that produces 2.0 lbs Cl/day? Nothing at all. Except that the salt feeder generated the chlorine in the pool, which is a more efficient process than adding a chemical. Suggest: An ECG shall be capable of feeding a chlorine dosage equivalent to the feed rates in sections 4.7.3.2.2.2 or 4.7.3.2.2.2.1.	Agree. Code revised.	4.7.3.2.2.1	Feeders shall be capable of supplying disinfectant and pH control chemicals to the aquatic venue to maintain the minimum required disinfection levels at all times in accordance with the MAHC.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	The larger problem in these code and Annex sections are the very low chlorine feed rates. The old American Public Health Association and most states use a 10 ppm feed rate, which amounts to a feed rate of about 2.5 lbs Cl/day/10,000 gallons. This assumed a high bather load (high use) for all pools with 9 ppm of chlorine demand, leaving 1 ppm as a residual. This feed rate obviously produces a conservatively sized feeder, but a large feeder can be adjusted down much more easily than a minimum sized feeder can be adjusted up. I do recognize that unstabilized outdoor pools use more chlorine than an indoor pool does. I would suggest that all outdoor pools be at the 2.7 lbs Cl/day rate from section 4.7.3.2.2.2.1, and indoor pools would be around 1.67 – 2.0 lbs Cl/day.	Partially agree. Code and annex revised.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	1) Current dosing parameters are not enough to maintain MINIMUM SANITATION STANDARDS in SWIMMING POOLS. -- All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: i. 7.6ppm per hour dosage for a given size pool ii. Calculate as follows: - For Sodium hypochlorite…GPD (Gallons Per day)(Sodium Hypochlorite) = ((10.7 x (Pool Gallons /10,000) x 7.6) / 128) x 24 iii. For Cal Hypo – replace 10.7 with 2, and 128 with 16. iv. For Gas Chlorine/Salt Generation – Replace 10.7 with 1.3, and 128 with 16. REFERENCE: HCF SPECIFICATION (Attached) – by Link Automation.http://treatmentspecialties.net/uploads/3/0/2/7/3027453/hcf_spec.pdf	Partially agree. Code and annex revised.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	1) Outdoor POOLs (unstabilized): 1.25 lbs of FAC/day/FAC/10,000 gals. of POOL water; 2) Indoor POOLs: 1.0 lbs of FAC/day/FAC/10,000 gals. of POOL water; Outdoor POOLs (stabilized): 0.31 lbs of FAC/day/10,000 gals. of POOL water. -- Writing the units as "lbs of FAC/day" is clearer than "lbs/day/FAC". Also see Notes 1 and 2 below: Note 1: The calculation method for the required feeder capacity proposed in the Annex is not substantiated by any reference and thus appears to be arbitrarily chosen. This calculation method is unusual since it uses the number of turnovers/day as a factor. In particular, the values of 2.5 ppm FAC per turnover (outdoor pools, unstabilized) and 2.0 ppm FAC per turnover (indoor pools) do not appear to be based on any published data, and thus are not justified. This calculation appears to assume that all of the free available chlorine (FAC) is destroyed, and must be replenished, during each pass through the filtration system. This is certainly not the case, even when a UV system is being used. In fact, the chlorine demand of a pool does not depend on the turnover rate. Despite the unusual calculation method, the proposed capacities in the code appear to be reasonable. The specified capacity in 4.7.3.2.2.2 is equivalent to 15 ppm of FAC/day for unstabilized outdoor pools and 12 ppm of FAC/day for indoor pools. The specified capacity in 4.7.3.2.2.2.1 (High Use Facilities) is equivalent to 32.4 ppm of FAC/day for unstabilized outdoor pools and 15 ppm of FAC/day for indoor pools. For comparison, our 1999 field trial in Albany, New York, conducted in cooperation with the State of New York	Agree. Code revised.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following ~~minimum dosage~~ capacity: -- Change "minimum dosage" to "capacity", since this section is about sizing the feed system. The term "minimum dosage" could mislead pool operators into thinking these are the minimum feed rates allowed, which could lead to higher than desired FAC concentrations.	Agree. Code revised	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	Calculated minimum chemical feed rates feeders is too low. Value should be 4 lbs of FAC / 10,000 gals. It doesn't matter how the chlorine by what feed method the chlorine gets into the water the The qty required is the same. Refer to your calculation for generators at 4.7.3.2.8.5.1. If 1.25 lbs were to be used in hot weather states they will fall behind in the maintaining of HOCL in the water that they will become dangerous to use. -- 4.7.3.2.2.2, 4.7.3.2.2.2.1, & 4.7.3.2.8.5.1	Agree. Code revised.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water.	This requirement should be rewritten to a performance based requirement considering peak bather loads, gallons and strength of the chlorine created.	Disagree. Commenter did not provide suggested code language.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.2.2 & 4.7.3.2.2.2.1	4.7.3.2.2.2 All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0lbs/day/FAC/10,000 gals. of POOL water. 4.7.3.2.2.2.1 Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	1. 4.7.3.2.2.2 All CHLORINE dosing and generating equipment including erosion feeders shall be sized to provide the following minimum dosage: 1) Outdoor POOLs (unstabilized): 1.25lbs/day/FAC/10,000 gals. of POOL water. 2) Indoor POOLs: 1.0 lbs FAC/day/FAC/10,000 gals. of POOL water. 4.7.3.2.2.2.1 Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water --- Recommend changing the unit format from 1.0lbs/day/FAC/10,000 gals. of POOL water to 1.0 lbs FAC /day/10,000 gals. of POOL water. Reason for doing so is that in the former notation it appears that the Lb/day rate is divided by the FAC. (FAC in the pool in PPM? Clearly not. %FAC in product: possibly. The math would work out in this case for chemical products. However this would not then be general enough to apply to chlorine generating equipment alluded to in the initial paragraph of the section.) Thus a division by FAC is clearly not intended in this case and the expression should not be written in such a way as to create such confusion. An additional consideration - should there be minimum requirements for outdoor stabilized pools?	Agree. Code revised.	4.7.3.2.2.2	All CHLORINE dosing and generating equipment including erosion feeders, or in line electrolytic and brine/batch generators, shall be designed with a capacity to provide the following: 1) Outdoor AQUATIC VENUES (unstabilized): 4.0 lbs of FAC/day/10,000 gals. of POOL water; 2) Indoor AQUATIC VENUES: 2.5 lbs FAC/day/10,000 gals. of POOL water.
Recirculation and Filtration	4.7.3.2.4.1 & 4.7.3.2.4.2	4.7.3.2.4.1 All PH control chemicals, except coagulants if used, shall be fed into the return line after the pump, filters, and UV or ozone equipment, if provided. 4.7.3.2.4.2 Injection of DISINFECTION chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	contradicts all manufactures recommendations for chemical injection. Does this prematurely degrade the equipment such as pump impeller, filter, probes, etc.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	I cannot agree with the way this requirement is written. Requiring disinfection prior to the filter would void the warranty of just about all heaters. Suggest: The injection point of disinfectant chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing these chemicals in the piping during periods of interruption to recirculation system flow. All electrically operated chemical feed equipment shall be interconnected and energized with the filtration pump.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	This would result in overfeeding due to the stuff residing in the filter, and would ruin the equipment in the system (e.g. uv systems, filters, heat exchangers). What health risk is this requirement mitigating?	Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	DELETE -- Introducing disinfection chemicals prior to filtration can cause problems with filters, UV and Ozone systems which are typically located prior to any chemical introduction points.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	Delete -- This provision is counter to normal practice and design specifications. See CAT 2000 automated controller owners manual. This could cause damage to boilers.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	Injection of any chemical s are never to be injected prior to the equipment. Injection of chlorine in any form will result in the destruction of the heaters and other equipment. instead specify a minimum length of pipe between the injection of sanitizer and ph control chemicals.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	Injection of DISINFECTION chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow. -- Injecting chemicals before the filter? Why? These are typically injected post-filtration. Interlock is required per 4.7.3.2.1.4. So if recirculation flow is interrupted, there will be no chemical feed (since the chemical feeders are typically tied into the chemical controller which is interlocked with the recirc pump).	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.4.2	Injection of disinfection chemicals shall be prior to filtration to reduce the likelihood of disinfectants and acidic chemicals mixing inside of pipes during periods of interruption to recirculation system flow.	Injection to disinfection chemicals shall be after filter and heating systems on the return line to reduce and ensure the disinfectant properties or abilities of the chemicals are maintained as well as avoid corrosiveness of the chemicals on pool equipment. -- As stated does not follow current design practices or literature from major pool operator training courses -- REFERENCE: NSPF Certified Pool-Spa Operator course Handbook 2007 pg. 71, 2009 pg 111.	Agree. Code revised.	4.7.3.2.3.1	The injection point of disinfection chemicals shall be located before any pH control chemical injection point with sufficient physical separation of the injection points to reduce the likelihood of mixing of these chemicals in the piping during periods of interruption of recirculation system flow.
Recirculation and Filtration	4.7.3.2.6.1	Use of compressed chlorine gas shall be prohibited for new construction and for after substantial alteration/modification to existing facilities.	I completely agree. We haven't allowed chlorine gas in Michigan for 30 years.	Commenter did not propose a change.	4.7.3.2.4.1	Use of compressed chlorine gas shall be prohibited for new construction and after substantial alteration to existing aquatic facilities.
Recirculation and Filtration	4.7.3.2.6.1	Use of compressed chlorine gas shall be prohibited for new construction and for after substantial alteration/modification to existing facilities.	Compressed Chlorine gas shall be used as long as proper training is provided and documented -- We have used gas chlorine for 20+ years without incident and don't agree with change. As long as staff is trained it is not any more dangerous than handling other chemicals.	Disagree. The potential impact of a failure in the system (ie. catastrophic cylinder failure/release) is far greater and more extensive than for the other acceptable pool chemicals.	4.7.3.2.4.1	Use of compressed chlorine gas shall be prohibited for new construction and after substantial alteration to existing aquatic facilities.
Recirculation and Filtration	4.7.3.2.6.1	Use of compressed chlorine gas shall be prohibited for new construction and for after substantial alteration/modification to existing facilities.	Use of compressed CHLORINE gas shall be prohibited for new construction and ~~for~~ after substantial alteration/modification to existing facilities. -- Poorly worded sentence	Agree. Code revised.	4.7.3.2.4.1	Use of compressed chlorine gas shall be prohibited for new construction and after substantial alteration to existing aquatic facilities.
Recirculation and Filtration	4.7.3.2.7.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.	This Annex section on UV should be renumbered 4.7.3.7.2.7 as in the code section.	Agree. Annex revised/re-numbered.	4.7.3.2.5.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.
Recirculation and Filtration	4.7.3.2.7.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.	Liquid solution feeders shall include either positive displacement pumps or flow through venturi type -- NSF/ANSI Standard 50 – REFERENCE: http://info.nsf.org/Certified/Pools/Listings.asp?ProductType=50H&	Disagree. Liquid solution feeders are intended to feed a liquid chemical solution. The reference provided by the commenter is for "Flow Through" chemical feed equipment, such as erosion chemical feeders, and are covered in a different section.	4.7.3.2.5.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.
Recirculation and Filtration	4.7.3.2.7.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps. Liquid feed pumps shall be certified in accordance with NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL). Rationale: This section was poorly written and inconsistent with other sections as it relates to the actual performance quantification of chemical feeding and generation systems. NSF/ANSI 50 addresses the material safety, operational life testing, chemical resistance, chemical output accuracy, chemical output quantity, operator safety, as well as burst pressure safety of these products and it should be properly required and referenced. -- Health, safety and performance issue and code compliance – REFERENCE: NSF/ANSI Standard 50 is the industry standard for health and performance safety testing and certification of chemical feeding pumps, automatic controllers, and chemical generators for the recreational pool and spa industry. NSF/ANSI Standard 50 is referenced in many state codes for these devices: CA, TX, FL, NY, NC, and many other state public health and safety codes for pool spa and waterpark applications.	Agree. However, no change needed in this section as the requirement for certification in accordance with NSF/ANSI Standard 50 by an independent 3rd party nationally recognized testing laboratory (NRTL) is included in the Feed Equipment, General section 4.7.3.2.1.1.	4.7.3.2.5.1	Liquid solution feeders shall include positive displacement pumps such as peristaltic pumps, diaphragm pumps, and piston pumps.
Recirculation and Filtration	4.7.3.2.7.1.1	Feed rates shall be locally adjusted on the pumps and also on/off controlled using timers or chemical controllers.	What does "locally adjusted" mean? What is intended by allowing timers to adjust feed rates? I can envision an owner installing a timer (locally) which shuts off the feeder for 12 hours every day like a lamp in your living room. I can agree with the timers that are built into some feeders that adjust the number of minutes per hour that the feeder that runs, but I cannot agree with a timer that allows feeder shut off times of more than an hour.	Agree. Code revised.	4.7.3.2.5.1.1	Feed rates shall be locally adjusted on the pumps and also on/off controlled using chemical controllers.
Recirculation and Filtration	4.7.3.2.7.2	Dry chemicals shall be granules or tablets.	This is too prescriptive and might prevent use of new technologies that are developed.	Disagree. This is intended to address types of dry chemicals acceptable for use in erosion feeders. Code re-formatted/revised for clarity.	4.7.3.2.5.2.1	Dry chemicals shall be granules or tablets.
Recirculation and Filtration	4.7.3.2.7.3.1	Feeders located below pool water level shall have isolation valves on each side of the feeder to be closed before opening the unit.	All feeders should have isolation valves on each side of the feeders no matter if they are located below or above grade. -- safety	Agree. Code revised.	4.7.3.2.5.2.2	Feeders shall have isolation valves on each side of the feeder to be closed before opening the unit.
Recirculation and Filtration	4.7.3.2.7.4	Carbon dioxide and ozone use shall be permitted in aquatic facilities.	This requirement is not necessary.	Disagree. However, code revised for clarity.	4.7.3.2.5.3	Carbon dioxide and ozone are the only gas feed systems permitted in aquatic facilities.
Recirculation and Filtration	4.7.3.2.7.5	Proper ventilation shall be required for all gas systems.	Proper ventilation shall be required for all CHLORINE gas systems. -- For clarity.	Disagree. Applies to carbon dioxide and ozone gas feed systems .	4.7.3.2.5.4	Proper ventilation shall be required for all gas systems.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.7.7	Where used, Ultraviolet light (UV) systems shall be installed in the recirculation system after the filters and before the heater and chemical feed connections.	This seems to be counter to 4.7.3.2.4.2	Agree. Section 4.7.3.2.4.2 has been revised.	4.7.3.2.5.6	Where used, ultraviolet light (UV) systems shall be installed in the recirculation system after the filters .
Recirculation and Filtration	4.7.3.2.7.7	Where used, Ultraviolet light (UV) systems shall be installed in the recirculation system after the filters and before the heater and chemical feed connections.	Where used, Ultraviolet light (UV) systems shall be installed in the RECIRCULATION SYSTEM after the filters and before the heater and chemical feed connections. – I agree with the installation requirements here, but it conflicts with 4.7.3.2.4.2.	Agree. Section 4.7.3.2.4.2 has been revised.	4.7.3.2.5.6	Where used, ultraviolet light (UV) systems shall be installed in the recirculation system after the filters .
Recirculation and Filtration	4.7.3.2.7.7	Where used, Ultraviolet light (UV) systems shall be installed in the recirculation system after the filters and before the heater and chemical feed connections.	Why does this matter, the point is that the UV system is located in the system downstream of the filters upstream of the bather.	*Agree. Code revised.*	4.7.3.2.5.6	Where used, ultraviolet light (UV) systems shall be installed in the recirculation system after the filters .
Recirculation and Filtration	4.7.3.2.7.7.2	UV system operation shall be interlocked with the recirculation pump.	UV system operation shall be interlocked with the recirculation pump -- suggest rewording: UV system operation shall have a means to interrupt power should the recirculation pump stop, by means of interlocking, pressure switch, flow sensor, or other mechanical means that would help assure pump is operational NSF 50 does not specify the requirement for the UV unit to be interlocked	Agree. Code revised.	4.7.3.2.5.6.2	UV system operation shall be interlocked with the recirculation pump so that power to the UV system is interrupted when there is no water flow to the UV unit
Recirculation and Filtration	4.7.3.2.7.7.3	An inline strainer shall be installed after the UV unit to capture broken lamp glass or sleeves.	An inline strainer shall be installed after the UV unit to capture broken lamp glass or sleeves -- suggest revising - An inline strainer installed after the UV unit is recommended to capture broken lamp glass or sleeves by available mean necessary or acquiring from UV manufacturer. -- NSF 50 does not have this requirement listed for operating UV systems, however certain manufacturers have the options available. However running a unit according to manufacturers specifications and placements, would not cause any situation where bulb or sleeves could rupture. Now a service or repair, the unit should be isolated or pulled out of system path so in the event glass fragments are noticed, the proper cleaning could occur.	Disagree. Code language does not include "recommendations" .	4.7.3.2.5.6.3	An inline strainer shall be installed after the UV unit to capture broken lamp glass or sleeves.
Recirculation and Filtration	4.7.3.2.8.2	In-line generators shall use salt dosed into the pool to introduce chlorine into the pool vessel through an electrolytic chamber.	In-line generators shall use only pool-grade salt dosed into the POOL to introduce CHLORINE into the POOL vessel through an electrolytic chamber. -- Potential health risks associated with disinfection byproducts forming from salt impurities, including bromide and iodide. For example, Kristensen et al. (2010) directly correlated bursts of bromodichloro-methane formation to salt addition to pool water over a monitoring period of more than one year. In a comparison study of common disinfectant methods, Lee et al. (2006) found salt brine electrolysis formed the highest levels of bromodichloro-methane, dibromochloro-methane and bromoform. Zwiener et al. (2007) note that iodized table salt should not be used in salt pools because iodized disinfection byproducts, which are generally more toxic than chlorinated disinfection byproducts, could form. Additionally, there is a perception by some (see About.com reference) that salt water pools can be operated with table salt (which is commonly iodized). – REFERENCES: • "On-line monitoring of the dynamics of THM concentrations in a warm public swimming pool using an unsupervised membrane inlet MS system with off-site real-time surveillance," G. Kristensen, M. Klausen, V. Hansen, F. Lauritsen, Rapid Communications in Mass Spectrometry, 2010, 24(1) 30-34. CA 152:128058; • "The characteristics of THM production by different	Agree. Code and annex revised.	4.7.3.2.6.2	In-line generators shall use pool-grade salt dosed through an electrolytic chamber into the pool to introduce chlorine into the pool vessel.
Recirculation and Filtration	4.7.3.2.8.2	In-line generators shall use salt dosed into the pool to introduce chlorine into the pool vessel through an electrolytic chamber.	In-line generators shall use salt dosed through an electrolytic chamber into the POOL to introduce CHLORINE into the POOL vessel. ~~through an electrolytic chamber.~~ Revised wording is clearer and easier to read	Agree. Code revised.	4.7.3.2.6.2	In-line generators shall use pool-grade salt dosed through an electrolytic chamber into the pool to introduce chlorine into the pool vessel.
Recirculation and Filtration	4.7.3.2.8.2	In-line generators shall use salt dosed into the pool to introduce chlorine into the pool vessel through an electrolytic chamber.	In-line generators: are located in the mechanical room. This is specified regarding brine generators in 4.7.3.2.8.3.	Partially agree. Code revised to eliminate location requirement.	4.7.3.2.6.2	In-line generators shall use pool-grade salt dosed through an electrolytic chamber into the pool to introduce chlorine into the pool vessel.
Recirculation and Filtration	4.7.3.2.8.3	Brine (Batch) generators shall produce chlorine through an electrolytic cell that is located in the mechanical room.	Brine (Batch) generators shall produce CHLORINE through an electrolytic cell that is located in the mechanical room. CHLORINE shall be produced from brines composed of pool-grade salt. – Please see entry above.	Agree. Code revised.	4.7.3.2.6.3	Brine (Batch) generators shall produce chlorine through an electrolytic cell.
Recirculation and Filtration	4.7.3.2.8.3	Brine (Batch) generators shall produce chlorine through an electrolytic cell that is located in the mechanical room.	Brine (Batch) generators shall produce CHLORINE through an electrolytic cell ~~that is located in the mechanical room.~~	Agree. Code revised.	4.7.3.2.6.3	Brine (Batch) generators shall produce chlorine through an electrolytic cell.
Recirculation and Filtration	4.7.3.2.8.4	Electrolytic generators shall have a TDS readout and a low salt indicator.	Add: TDS or Salt (NACL) readout -- Addition to be inclusive of some of the meters available	Agree. Code revised.	4.7.3.2.6.4	Electrolytic generators shall have a TDS or salt (NaCl) readout and a low salt indicator.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.8.4	Electrolytic generators shall have a TDS readout and a low salt indicator.	Electrolytic generators shall have a TDS readout or a low salt indicator -- Suggest revising -- Electrolytic generators shall have indicators which display some or all of the following depending on manufacturers options; TDS, low salt, flow, and delivery %. -- NSF 50 does not require this to be listed as an approved device	Disagree. The two suggested items to add do not replace the initial requirement and could offer an unintended substitution of a "flow indicator" for a "TDS readout"	4.7.3.2.6.4	Electrolytic generators shall have a TDS or salt (NaCl) readout and a low salt indicator.
Recirculation and Filtration	4.7.3.2.8.5.1	The generator shall be capable of feeding a chlorine dosage equivalent to four and one-half (4.5) pounds of available chlorine per day for each ten thousand (10,000) gallons of pool capacity.	Where is the science behind requiring 4.5 lbs Cl/day/10,000 gal for an electrolytic chlorine generator? This is 3.6 to 4.5 times more Cl than required for an indoor pool under	Agree. Code revised.	4.7.3.2.6.6	The generator(s) shall be capable of providing a chlorine dosage equivalent to 100% of the total daily facility requirement.
Recirculation and Filtration	4.7.3.2.8.5.1	The generator shall be capable of feeding a chlorine dosage equivalent to four and one-half (4.5) pounds of available chlorine per day for each ten thousand (10,000) gallons of pool capacity.	Don't know the effective percentage of chlorine that you would put in as it would be different for different chlorine system. Feed rate will not provide consistent disinfection. The system should be sized to meet the disinfection requirements of the venue.	Code revised.	4.7.3.2.6.6	The generator(s) shall be capable of providing a chlorine dosage equivalent to 100% of the total daily facility requirement.
Recirculation and Filtration	4.7.3.2.8.5.1 & 4.7.3.2.8.6	4.7.3.2.8.5.1 The generator shall be capable of feeding a CHLORINE dosage equivalent to four and one-half (4.5) pounds of available CHLORINE per day for each ten thousand (10,000) gallons of POOL capacity. 4.7.3.2.8.6 The generator(s) shall be capable of providing a CHLORINE dosage equivalent to 100% of the total daily facility requirement.	The generator shall be capable of feeding a CHLORINE dosage equivalent to ~~four and one-half (4.5) pounds of available CHLORINE per day for each ten thousand (10,000) gallons of POOL capacity~~ the capacity specified in MAHC sections 4.7.3.2.2.2 and 4.7.3.2.2.2.1, or 100% of the total daily facility requirement, whichever is greater. ~~The generator(s) shall be capable of providing a CHLORINE dosage equivalent to 100% of the total daily facility requirement.~~ -- A generator should not be required to have a capacity different from other types of chlorine feeders. The requirements in 4.7.3.2.8.5.1 and 4.7.3.2.8.6 are different requirements for the capacity of the generator. The proposed change combines these into one requirement	Agree. Code revised.	4.7.3.2.6.6	The generator(s) shall be capable of providing a chlorine dosage equivalent to 100% of the total daily facility requirement.
Recirculation and Filtration	4.7.3.2.8.7	The generator unit shall be UL listed and conform to NSF 50 or third party testing to the NSF Standa\rd.	The generator unit shall be certified ~~UL listed and conform~~ to NSF/ANSI 50 ~~or third party testing to the NSF Standard.~~ by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification. It also addresses the issue noted in the previous code change proposal	Agree. However, change not needed as equipment certification already addressed in a previous section.	4.7.3.2.6.7	The generator unit shall be UL listed and third party certified in accordance with UL 1081 (for electrical/fire/shock safety).
Recirculation and Filtration	4.7.3.2.8.7	The generator unit shall be UL listed and conform to NSF 50 or third party testing to the NSF Standard.	It is not good enough to conform to the standard. The equipment must be tested and certified to NSF Standard 50 by an NRTL.	Agree. However, change not needed as equipment certification already addressed in a previous section.	4.7.3.2.6.7	The generator unit shall be UL listed and third party certified in accordance with UL 1081 (for electrical/fire/shock safety).
Recirculation and Filtration	4.7.3.2.8.7	The generator unit shall be UL listed and conform to NSF 50 or third party testing to the NSF Standard.	The generator unit shall be UL listed ~~and conform to NSF 50 or third party testing to the NSF Standard.~~ "Keyword" notation says "UL Approved". This is incorrect. Keyword should be "UL Certified" Also, the NSF portion does not belong here. I added a new section for it below.	Agree. Code revised.	4.7.3.2.6.7	The generator unit shall be UL listed and third party certified in accordance with UL 1081 (for electrical/fire/shock safety).
Recirculation and Filtration	4.7.3.2.8.7	The generator unit shall be UL listed and conform to NSF 50 or third party testing to the NSF Standard.	~~The generator unit shall be UL listed and conform to NSF 50 or third party testing to the NSF Standard.~~ The generator unit shall be third party certified in accordance with UL1081 (for electrical/fire/shock safety) and to NSF/ANSI Standard 50 (for health safety, performance, output, and operational safety) by an independent 3rd party, nationally recognized testing laboratory (NRTL). Rationale: This section was poorly written and inconsistent with other sections as it relates to the electrical safety let alone the actual performance quantification of chemical feeding and generation systems. UL1081 addresses electrical shock, fire risks. NSF/ANSI 50 addresses the material safety, operational life testing, chemical output accuracy, chemical output quantity, operator safety, as well as burst pressure safety. -- Health, safety and performance issue and code compliance -- NSF/ANSI Standard 50 is the industry standard for health and performance safety testing and certification of chemical generators for the recreational pool and spa industry. UL1081 is the industry standard for electrical safety of chemical generators. These two standards are also already referenced in various state codes. NSF/ANSI Standard 50 is referenced in CA, TX, FL, NY, NC, and many other state public health and safety codes for pool spa and waterpark applications.	Partially agree. Code changed regarding UL certification. No change needed for NSF/ANSI Standard 50 as equipment certification already addressed in a previous section.	4.7.3.2.6.7	The generator unit shall be UL listed and third party certified in accordance with UL 1081 (for electrical/fire/shock safety).
Recirculation and Filtration	4.7.3.2.9.1	Feeders for pH adjustment shall be provided on all pools.	If pH adjustment feeders are required, are controllers required? I can't find this in the code. Should a pH feeder be installed if there is no controller?	Agree. Code specifies controllers are required for all pools.	4.7.3.2.7.1	Feeders for pH adjustment shall be provided on all aquatic venues.
Recirculation and Filtration	4.7.3.2.9.2	Approved substances for pH adjustment shall be Muriatic (Hydrochloric) Acid, Sodium Bisulfate, Carbon Dioxide, Sulfuric Acid, and Soda Ash.	Approved substances for PH adjustment shall be Muriatic (Hydrochloric) Acid, Sodium Bisulfate, Carbon Dioxide, Sulfuric Acid, Sodium Bicarbonate and Soda Ash. – Sodium bicarbonate should be added to the list of chemicals approved for pH adjustment. Although it is primarily used for alkalinity adjustment, it can be used to raise the pH.	Agree. Code revised.	4.7.3.2.7.2	Approved substances for pH adjustment shall be muriatic (hydrochloric) acid, sodium bisulfate, carbon dioxide, sulfuric acid, sodium bicarbonate, and soda ash.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.9.2	Approved substances for pH adjustment shall be Muriatic (Hydrochloric) Acid, Sodium Bisulfate, Carbon Dioxide, Sulfuric Acid, and Soda Ash.	Sodium hydroxide shall be an approved substance for ph adjustment. -- Sodium hydroxide is no more dangerous than the use of muriatic acid and probably less so with they vapors that muriatic acid puts out. We have used soda ash before and not effective enough to keep up with the demand needed. Sodium hydroxide stabilizes the ph level much quicker and easier than soda ash without the mixing that clogs feed lines and the need to keep it mixed while dispensing	Disagree. Excluded on purpose due to increased risk of accidents.	4.7.3.2.7.2	Approved substances for pH adjustment shall be muriatic (hydrochloric) acid, sodium bisulfate, carbon dioxide, sulfuric acid, sodium bicarbonate, and soda ash.
Recirculation and Filtration	4.7.3.2.9.3	pH adjustment feeders shall be positive displacement type.	pH adjustment feeders shall be either positive displacement or flow through venturi type -- NSF/ANSI Standard 50 – REFERENCE: http://info.nsf.org/Certified/Pools/Listings.asp?ProductType=50H&	Disagree. Liquid solution feeders are intended to feed a liquid chemical solution. The reference provided by the commenter is for "Flow Through" chemical feed equipment, such as erosion chemical feeders, and are covered in a different section.	4.7.3.2.7.3	pH adjustment feeders shall be positive displacement type.
Recirculation and Filtration	4.7.3.2.5	Feeder Controls	4.7.3.2.5 Feeder Controls and 4.7.3.2.10 Controllers could be combined for clarity -- Health, safety and performance issue and code compliance – REFERENCE: NSF/ANSI Standard 50 is the industry standard for health and performance safety testing and certification of automatic controllers, chemical feeders, and chemical generators for the recreational pool and spa industry. NSF/ANSI Standard 50 is referenced in many state codes for these devices: CA, TX, FL, NY, NC, and many other state public health and safety codes for pool spa and waterpark applications.	Agree. Code revised.	4.7.3.2.8	Automated Controllers
Recirculation and Filtration	4.7.3.2.5	Feeder Controls	Standard controller programming is not enough to keep up with the needs of a swimming pool -- Please see link for Recommended specification: http://treatmentspecialties.net/uploads/3/0/2/7/3027453/hcf_spec.pdf	Commenter did not provide proposed change to code.	4.7.3.2.8	Automated Controllers
Recirculation and Filtration	4.7.3.2.5.1	Automated chemical feed control systems shall be used to turn on or off a chemical feeder.	Is the intention of this section to require chemical controllers for all pools? I would like to see this as a requirement, but there are many pools out there that operate very successfully without them.	Yes, controllers required for all new or substantially renovated venues.	4.7.3.2.8.1	Automated controllers shall be installed for monitoring and turning on or off a chemical feeder at all aquatic venues.
Recirculation and Filtration	4.7.3.2.5.1	Automated chemical feed control systems shall be used to turn on or off a chemical feeder.	Automatic chemical feed control systems shall be used to turn on or off a chemical feeder. -- suggest – Automatic chemical feed control systems are recommended to turn on or off a chemical feeder, but should mechanical interruption occur then manual control of feeder(s) is acceptable for a short duration until unit is replaced.	Disagree. Code language does not include "recommendations" .	4.7.3.2.8.1	Automated controllers shall be installed for monitoring and turning on or off a chemical feeder at all aquatic venues.
Recirculation and Filtration	4.7.3.2.10.1	All chemical controllers for pH and disinfectant monitoring/control shall conform to or be NSF 50 listed.	It is not good enough to conform to the standard. The equipment must be tested and certified to NSF Standard 50 by an NRTL.	Agree. Code revised.	4.7.3.2.8.2	All automated chemical controllers for pH and disinfectant monitoring/control shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.3.2.10.1	All chemical controllers for pH and disinfectant monitoring/control shall conform to or be NSF 50 listed.	All chemical controllers for PH and disinfectant MONITORING/control shall ~~conform to or~~ be certified to NSF/ANSI 50 ~~listed~~ by an ANSI-Accredited certification organization. -- Current wording specifies NSF as the only organization that can certify these products. This is inappropriate since there are other organizations that are accredited to certify these products as well. "Keyword" needs to be changed also.	Agree. Code revised.	4.7.3.2.8.2	All automated chemical controllers for pH and disinfectant monitoring/control shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	4.7.3.2.10.2	Operation manuals that give clear directions for cleaning and calibrating controller probes shall be provided in the same room as the controller.	Add: (sensors) like prior comment	Agree. Code revised.	4.7.3.2.8.3	Operation manuals or other instructions that give clear directions for cleaning and calibrating automated controller probes and sensors shall be provided in the same room as the automated controller.
Recirculation and Filtration	4.7.3.2.10.2	Operation manuals that give clear directions for cleaning and calibrating controller probes shall be provided in the same room as the controller.	Operational Manuals for cleaning and calibrating controller probes shall be available to all maintenance and inspection personnel -- Location is too specific and not always readily achievable. Need to base requirement on real world not ideal world. -- Editorial Comment based on real world realities not ideal world focus	Disagree. Commenters did not provide documentation/data to support proposed change.	4.7.3.2.8.3	Operation manuals or other instructions that give clear directions for cleaning and calibrating automated controller probes and sensors shall be provided in the same room as the automated controller.
Recirculation and Filtration	4.7.3.2.5.3	Operation manuals shall be provided that give clear directions for cleaning and calibrating the probes.	Ad in ( ) after "probes the word (sensors)	Agree. Code revised.	4.7.3.2.8.3	Operation manuals or other instructions that give clear directions for cleaning and calibrating automated controller probes and sensors shall be provided in the same room as the automated controller.
Recirculation and Filtration	4.7.3.2.10.3	The generator(s) shall be interlocked per MAHC Section 4.7.3.2.5.4	The generator(s) shall be interlocked per MAHC Section 4.7.3.2.5.4 -- possible typographical errors – The controller(s) shall be interlocked per MAHC Section 4.7.3.2.5.4	Agree. Code revised.	4.7.3.2.8.4	The automated controllers shall be interlocked per MAHC Section 4.7.3.2.1.4.
Recirculation and Filtration	4.7.3.2.10.3	The generator(s) shall be interlocked per MAHC Section 4.7.3.2.5.4	Change "generator(s)" to "chemical controller(s)"	Agree. Code revised.	4.7.3.2.8.4	The automated controllers shall be interlocked per MAHC Section 4.7.3.2.1.4.
Recirculation and Filtration	4.7.3.2.5.2	A set point shall be used to target the disinfectant level and the pH level.	This requirement is unnecessary as an automated chemical feed control system does not work without target levels.	Disagree. Some controllers have the ability to feed based on time (as opposed to a setpoint), and others offer manual feed options.	4.7.3.2.8.5	A set point shall be used to target the disinfectant level and the pH level
Disinfection and Water Quality (DWQ)	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)	*Define "young." This could impact a large number of more general leisure-type pools.* -- These facilities include therapy POOLS, and wading POOLS, water activity POOLS, interactive water features, spray pads, and other AQUATIC VENUEs designed primarily for young children including diaper-aged children.	Clarified the annex wording. Young children is defined in the code wording as children <5 years old.	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)	*4.7.3.3.2 in CODE is specific to circulatory oocyst inactivation, but what about chlorine dioxide which is a bulk water disinfectant with similar capabilities? It appears that it is allowed for use when bathers are not in the water, but that should be made more clear. Also, what about advanced oxidation systems, such as boron-doped diamond electrodes producing hydroxyl radicals? They are likely to be effective against Cryptosporidium parvum oocysts since hydroxyl radicals are a stronger oxidizer than ozone and they also oxidize more chemicals than ozone. In fact, the UV in sunlight that breaks down chlorine forms hydroxyl radicals directly from hypochlorous acid and indirectly from hypochlorite ion and helps explain the slower organic buildup and lower steady-state levels in outdoor pools relative to indoor ones.* -- Any treatment system that demonstrates this reduction in *Cryptosporidium* OOCYSTS specified herein is suitable for use. It is not the intent of the MAHC to limit technology only to UV and ozone as discussed in the CODE but rather to specify the outcome of the treatment. Examples of SECONDARY DISINFECTION SYSTEMS include but are not necessarily limited to: UV DISINFECTION and Ozone DISINFECTION. – REFERENCE: Rice RG. Chemistries of Ozone for Municipal Pool and Spa Water Treatment. Journal of the Swimming Pool and Spa Industry. 1995 Spring;1(1):25-44. ("Most organic compounds, particularly those which are refractory in nature (i.e. organo-nitrogen compound – urea, creatinine; organo-chlorine compounds – chloroisocyanurates, trihalomethanes), are only slightly reactive with ozone, and are not destroyed by ozonation, except under greatly extended reaction times (up to hours), which are not practical in pool and spa water treatment.") …… Feng Y, Smith DW, Rattan KP. Photolysis of aqueous free chlorine species (HOCl	• The option for chlorine dioxide is addressed in section 5.7.3.5.2 and has been reworded for clarity. Chlorine dioxide is not registered for any use in recreational water at this time. The mechanism for chlorine dioxide disinfection is entirely different than chlorine, and may result in unanticipated disadvantages (e.g., chlorate and chlorite production, safety considerations). The use of alternate disinfection systems must be shown to be technically effective and validated by a independent 3rd party. If alternate systems could meet these criteria they would be considered to be included in the MAHC. The MAHC has deleted lists of specific "banned compounds so that it only speaks to approved compounds.	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)
Disinfection and Water Quality (DWQ)	4.7.3.3 Annex	Secondary Disinfection Systems (See Annex for full text)	*Taking a sample of annex text from part of page 9 thru part of page 13, I measured the average reading level at 15.9. I doubt that many readers will have that level of reading expertise. In fact I had to read it several times to decipher what was being said. (I hope I understood it.)*— Needs to be written so anyone can understand it. Maybe a 6th to 8th grade reading level. Stick to the basic rationale and don't wander into vague theorizing about treatment philosophy. The first part and last parts of that section were much better. It would be more relevant if it was broken down to address each code section.	Some editing of the annex was done. This section is a start in explaining Secondary Disinfection System and explaining to pool operators the need for these systems. There is always going to be a struggle of explaining complex organic chemical reactions that seem to happen like magic to most pool operators while still adequately explaining the science to the level that scientists will not take issue with it. We will continue to work on reducing reading level after the MAHC is finalized	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)
Disinfection and Water Quality (DWQ)	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization.	*Most ANSI third party certifiers are acceptable. We have had some trouble with some certifiers over the years, and the AHJ needs to have that authority. (e.g.. Recent VGBPSSA drain cover testing debacle)* – SECONDARY DISINFECTION SYSTEMS shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization acceptable to the AHJ.	Recommendation implemented. Wording added "approved by the AHJ"	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization approved by the AHJ.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization.	*Why do we need an ANSI Accredited lab? What is it? What are some acceptable examples? Specific examples would be good. Otherwise the AHJ should be involved. (reference the CPSC drain cover debacle)* – SECONDARY DISINFECTION SYSTEMS shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization recognized and acceptable to the AHJ.	Recommendation implemented. Wording added "approved by the AHJ"	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization approved by the AHJ.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization.	*Add same requirement for EPA-registration for UV as is required for chlorine products to maintain consistency.* --- SECONDARY DISINFECTION SYSTEMS shall be ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization and only UV products that are EPA-REGISTERED for use as disinfectants in POOLS or spas in the United States are permitted.	There is no EPA registration system for UV as it is a physical process not chemical.	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization approved by the AHJ.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization.	SECONDARY DISINFECTION SYSTEMS ~~shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization~~ Certification: All testing and any certification of products to this standard shall be in accordance with ANSI/NSF 50 conducted by a certification body. -- REFERENCE: When I was working on review of the APSP 16 standard, there were emails presented that there is new language that moves the term for third party testing into this kind of format. I can't remember all of the particulars, but Carvin DiGiovanni is the one that presented the information. My suggestion is to contact Carvin for the rationale.	Current code language is common throughout various codes. There is no need to change current language.	4.7.3.3.1.1	Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization approved by the AHJ.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.4	If installed and labeled as secondary disinfection systems, then they shall conform to all requirements specified under 4.7.3.3.	*The basis for change is the section 4.7.3.3.4.15 Ozone is not held to the same validation standards.* -- If installed and labeled as secondary disinfection systems, then they shall conform to all requirements specified under 4.7.3.3. TO ADD: only if units are approved under validation standard (only those units should be recognized herein).	Add new language as noted below: SECONDARY DISINFECTION SYSTEMS shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization. SECONDARY DISINFECTION SYSTEMS shall achieve a minimum 3-log (99.9%) reduction in the number of infective Cryptosporidium parvum oocysts per pass through the SECONDARY DISINFECTION SYSTEM	4.7.3.3.1.1 & 4.7.3.3.2.1	4.7.3.3.1.1: Secondary disinfection systems shall be certified to ANSI/NSF 50 by an ANSI-Accredited third-party testing and certification organization approved by the AHJ. 4.7.3.3.2.1: SECONDARY DISINFECTION SYSTEMS shall be designed to achieve a minimum 3-log (99.9%) reduction in the number of infective Cryptosporidium parvum OOCYSTS per pass through the SECONDARY DISINFECTION SYSTEM.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*Substantial renovation is too wide and needs to be defined in a separate sentence or in the glossary terms of the module.* -- The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE:	Agreed. The definition of substantial alteration has been altered to be more quantitative.	4.7.3.3.1.2	The new construction or SUBSTANTIAL ALTERATION of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for DIAPER-AGED CHILDREN (children <5 years old), such as a. wading POOLS, b. INTERACTIVE WATER PLAY VENUES with no standing water, and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*"Water activity pools" is not clear and needs a better definition. If intent is sloped entry pools, state clearly. Suggest use of "zero depth entry" for sloped entry as these pools are easily accessible for at risk users (<5 years old).*-- 1)b Zero depth entry POOLS	Code language is not specific so that it can encompass any type of water activity pool, whether zero-depth entry or not. The requirement is based on design intent and usage (e.g, diaper-aged kids) so no changes needed to code language.	4.7.3.3.1.2	The new construction or SUBSTANTIAL ALTERATION of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for DIAPER-AGED CHILDREN (children <5 years old), such as a. wading POOLS, b. INTERACTIVE WATER PLAY VENUES with no standing water, and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*Aquatic venues include swimming pools also falls into the section 4.7.3.3.1.1 as defined in the glossary terms. If the definition is different from "such as" examples we need to re-define, water activity pools are generally not for diaper aged children … Also, Therapy pool is too vague* -- 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as limited to a. wading POOLS, ~~b. water activity POOLS, c. interactive water features with no standing water~~, d. SPRAY PADs, and 2) Therapy pools	Previously modified for consistency.	4.7.3.3.1.2	The new construction or SUBSTANTIAL ALTERATION of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for DIAPER-AGED CHILDREN (children <5 years old), such as a. wading POOLS, b. INTERACTIVE WATER PLAY VENUES with no standing water, and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*Secondary disinfection systems costly for small wading pools/spray parks -- (NO suggested wording….just wondering if there could be a variance procedure in place for systems that can demonstrate a history of no water quality problems.)*	Comment noted. TC prefers current code language since the increased risk venues are defined based on them likely having water quality issues with *Cryptosporidium* at some point. They are only required in new construction or substantial alteration.	4.7.3.3.1.2	The new construction or SUBSTANTIAL ALTERATION of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for DIAPER-AGED CHILDREN (children <5 years old), such as a. wading POOLS, b. INTERACTIVE WATER PLAY VENUES with no standing water, and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*Treating the water as if there were a diarrhea accident every night following the MAHC fecal accident response, should be as effective as UV or ozone and should be included as an option.* -- The new construction or substantial renovation of the following increased risk aquatic venues shall be required to use a secondary disinfection system, or nightly superchlorination to achieve a minimum 3-log (99.9%) reduction in the number of infective Cryptosporidium parvum oocysts, after adoption of this code:….." -- REFERENCE: MAHC module on fecal accident response.	The MAHC disagrees but understands the intent. Promoting routine hyperchlorination as standard operation to replace secondary disinfection would likely increase the risk of accidents and injuries since it can require large volumes of chemicals and likely requires someone to work through the night to keep measuring chlorine levels. In addition, one cannot guarantee that such actions will be taken every night. Therefore, the current code language is preferred.	4.7.3.3.1.2	The new construction or SUBSTANTIAL ALTERATION of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for DIAPER-AGED CHILDREN (children <5 years old), such as a. wading POOLS, b. INTERACTIVE WATER PLAY VENUES with no standing water, and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2 ANNEX	N/A	*While we need to push the need for secondary systems, I have concerns that the requirements for secondary systems are unrealistic for anything but very small systems or special venues. The required premise for treating the water places heavy demands on the treatment equipment sizing and turnover requirements. This is at a time when we are seeing quite a few pools forced to close due to lack of funding* -- In the real world, we are finding air quality to be an issue in every aquatic venue. An emphasis on the need to secondary systems might be appropriate to accompany the "may" language in the code.	No change in the annex wording. The requirement of Secondary Disinfection Systems is a paradigm shift for the majority of the pool operators but this is why there is a focus on new construction and renovation. It is also the reason why the MAHC defines increased risk based on user type so that we prioritize upgrading those facilities first. Air quality issues are addressed in another MAHC section. As with secondary disinfection, the MAHC feels that some action needs to be taken now to improve operations and others can be accomplished during new construction projects.	4.7.3.3.1.2	Due to the risk of outbreaks of recreational water illnesses (RWIs) associated with the disinfectant tolerant parasite *Cryptosporidium*, it is strongly recommended that all aquatic facilities include secondary disinfection systems to minimize the risk to the public associated with these outbreaks. (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3.3.1.5	If not labeled as secondary disinfection systems, then they shall be labeled as supplemental treatment systems and conform to requirements listed under 4.7.3.4.	*Supplemental systems need to have the same requirements as secondary as both system outcomes need to be the same.*-- If not labeled as SECONDARY DISINFECTION SYSTEMS, then they shall be labeled as SUPPLEMENTAL TREATMENT SYSTEMS and conform to requirements listed under 4.7.3.3	Disagree. Only venues that are classified as "increased risk" are required to have secondary systems installed that meet the requirements listed in the MAHC. If an operator wants to install a system in a venue that is not classified as an "increased risk" venue then they can choose to do so. Since it is not required and entirely voluntary, the MAHC has no part in requiring what the system does or that it meets certain criteria when there is no requirement for it to be installed in the first place. We hope the operator would understand the benefits of meeting the "secondary disinfection" benefits and strive to meet the same criteria but don't feel it can be mandated.	4.7.3.3.1.5	If not labeled as secondary disinfection systems, then they shall be labeled as supplemental treatment systems and conform to requirements listed under MAHC Section 4.7.3.4.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.2	3-log Inactivation and Oocyst Reduction	*Issue for consideration or clarification*. -- I'm probably missing something with my calculations, but I tried running a few scenarios with this formula and if I had a 30,000 gallon children's activity pool with a 3 hr turnover, the minimum flow needed for achieving the minimum Q for this would be 150% of the turnover rate. Running a similar check with a wading pool, it depends on what the minimum turnover required will be. If a one hour turnover is required it will be within the design flow, if a 2 hr turnover is allowed, this would again exceed the minimum turnover flows needed. I don't see how this time correlates with the other issue of reducing the total impact with a 10^8 down to 1 oocyst, when you are allowing a side stream for the secondary treatment.	Formula preferred by SC.	4.7.3.3.2	3-log Inactivation and Oocyst Reduction
Disinfection and Water Quality (DWQ)	4.7.3.3.2.1	Secondary disinfection systems shall be designed to achieve a minimum 3-log (99.9%) reduction in the number of infective *Cryptosporidium parvum* oocysts per pass through the Secondary disinfection system	*According to the USEPA UV Disinfection Guidance Manual that is used as the reference standard, a 3-log reduction in Cryptosporidium parvum only requires a Reduction Equivalent Dose of 12 mJ/cm^2. This value is far below the 40 mJ/cm^2 Dose level used in the NSF 50 certification referenced in section 4.7.3.3.1.1 and most state standards. Without an explicit reference to a Dose value, this section could allow dangerous under-sizing of UV systems.* -- SECONDARY DISINFECTION SYSTEMS shall be designed to achieve a minimum 4-log (99.99%) reduction in the number of infective Cryptosporidium parvum oocysts per pass through the SECONDARY DISINFECTION SYSTEM, but in all cases not less than a Dose of 40 mJ/cm^2 -- REFERENCE: Table 1.4 on pg. 1-7 of the EPA Ultraviolet Disinfection Guidance Manual; NSF 50; State Standards	99.99% makes a marginal difference to 99.9% in terms of overall reduction as turnover rate is more important once 99.9% reduction is achieved. The dose is 12 but this requires an RED bias of 1.73 to be added to the validation factor giving an effective RED dose of >20. It should be noted that an RED dose of >20 including all the validation factors is often GREATER than a calculated dose of 40mJ/cm^2. NSF 50 latest standard has a reference and certification program for >r 3 log in its validation. No Change.	4.7.3.3.2.1	Secondary disinfection systems shall be designed to achieve a minimum 3-log (99.9%) reduction in the number of infective *Cryptosporidium parvum* oocysts per pass through the secondary disinfection system.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.1	Secondary disinfection systems shall be designed to achieve a minimum 3-log (99.9%) reduction in the number of infective *Cryptosporidium parvum* oocysts per pass through the Secondary disinfection system	*NSF Standard 50 requires a 40 mJ/cm^2 dose and 3 log reduction equates to a 12 mJ/cm^2 dose.* -- SECONDARY DISINFECTION SYSTEMS shall be designed to achieve a minimum ~~3-log (99.9%)~~ reduction in the number of infective *Cryptosporidium parvum* oocysts per pass through the SECONDARY DISINFECTION SYSTEM per NSF standard 50.	99.99% makes a marginal difference to 99.9% in terms of overall reduction as turnover rate is more important once 99.9% reduction is achieved. The dose is 12 but this requires an RED bias of 1.73 to be added to the validation factor giving an effective RED dose of >20. It should be noted that an RED dose of >20 including all the validation factors is often GREATER than a calculated dose of 40mJ/cm^2. NSF 50 latest standard has a reference and certification program for >r 3 log in its validation. No Change.	4.7.3.3.2.1	Secondary disinfection systems shall be designed to achieve a minimum 3-log (99.9%) reduction in the number of infective *Cryptosporidium parvum* oocysts per pass through the secondary disinfection system.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.3	The Secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the pool or aquatic feature.	*All recirculated pool water needs to be treated prior to return to pool for safest water condition, not just a "portion". In addition, because recirculated water dilutes with the pool water, it takes 4 turnovers to treat 98% of pool water. A side stream treatment of UV will require additional turnovers to treat pool water and not the safest water condition* -- The SECONDARY DISINFECTION SYSTEM shall be located in the treatment loop (post filtration) and treat 100% of the recirculation flow prior to return of the water to the POOL or AQUATIC FEATURE. -- REFERENCE: NSPF Pool & Spa Operator Handbook, Chapter 10, Illustration 10-2.	The derivation of the formula is based on a mass balance of oocysts in a pool that relates time, flow rate and concentration of oocysts. There are 4 variables included : time; flow rate; pool volume; efficiency of UV reactor (i.e. 3-log reduction per pass). See annex discussion and example.	4.7.3.3.2.2	The secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the aquatic venue or aquatic feature.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.3	The Secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the pool or aquatic feature.	*If there isn't at least 50% of the water treated during turnovers, the lag time for protection is too slow* -- The SECONDARY DISINFECTION SYSTEM shall be located in the treatment loop (post filtration) and treat ~~a portion~~ a minimum of 50% and preferably ~~(up to~~ 100%~~)~~ of the recirculation flow prior to return of the water to the POOL or AQUATIC FEATURE -- REFERENCE: If requiring secondary disinfection and they can only treat 10% of the water, it may take an unreasonable time to achieve compliance with 4.7.3.3.2.2.	Disagree. Please see MAHC Annex 4.7.3.3.2.5 for further explanation about this equation.	4.7.3.3.2.2	The secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the aquatic venue or aquatic feature.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.3	The Secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the pool or aquatic feature.	*Is there anything precluding the use of varying doses or intensities depending on the time of day?* -- The SECONDARY DISINFECTION SYSTEM shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the POOL or AQUATIC FEATURE.	This will need to be considered at a future time once there is acceptance of the current recommendations.	4.7.3.3.2.2	The secondary disinfection system shall be located in the treatment loop (post filtration) and treat a portion (up to 100%) of the recirculation flow prior to return of the water to the aquatic venue or aquatic feature.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.5	The flow rate (Q) through the Secondary disinfection system shall be determined based upon the total volume of the aquatic venue or aquatic feature (V) and a prescribed dilution time (T) for reducing the number of theoretical infective *Cryptosporidium* oocysts from an initial total number of 100 million (10^8) oocysts to a concentration of 1oocyst/100 ml.	*If UV is going to be required, allowing less than 100% flow would not provide the desired intent of requiring UV.* -- DELETE	Disagree. Key is meeting the flow requirements of the formula, and if you can do this without meeting 100% filtration flow rate, then the desired treatment goal is met. See explanation and example in the Annex text. No change necessary.	4.7.3.3.2.4	The flow rate (Q) through the secondary disinfection system shall be determined based upon the total volume of the aquatic venue or aquatic feature (V) and a prescribed dilution time (T) for reducing the number of assumed infective *Cryptosporidium* oocysts from an initial total number of 100 million (10^8) oocysts to a concentration of 1oocyst/100 ml.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.2.5	The flow rate (Q) through the Secondary disinfection system shall be determined based upon the total volume of the aquatic venue or aquatic feature (V) and a prescribed dilution time (T) for reducing the number of theoretical infective *Cryptosporidium* oocysts from an initial total number of 100 million (10^8) oocysts to a concentration of 1oocyst/100 ml.	*That's not the way a UV-C systems can be specified. The goal is to achieve 3 log reductions on crypto for instance; to achieve this, the UV-C is designed for a specific dose. It should be part of the NSF standards of the units; it is not for the MAHC to statute on. The manner of displaying the doses and other parameters are not important here in the MAHC; again this is more for the manufacturing standards.* -- The flow rate (Q) through the SECONDARY DISINFECTION SYSTEM shall be determined based upon the UV dose, the transmissivity, the intensity. ~~the total volume of the AQUATIC VENUE or AQUATIC FEATURE (V) and a prescribed dilution time (T) for reducing the number of theoretical infective Cryptosporidium oocysts from an initial total number of 100 million (108) oocysts to a concentration of 1oocyst/100 ml.~~	The NSF latest validation standard meshes with the MAHC. NSF should be a test and approval protocol for a code requirement. We think this comment is in error	4.7.3.3.2.4	The flow rate (Q) through the secondary disinfection system shall be determined based upon the total volume of the aquatic venue or aquatic feature (V) and a prescribed dilution time (T) for reducing the number of assumed infective *Cryptosporidium* oocysts from an initial total number of 100 million (10^8) oocysts to a concentration of 1oocyst/100 ml.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.2	The Secondary disinfection system shall also be designed to reduce a theoretical total number of infective *Cryptosporidium* oocysts in the total volume of the aquatic venue from an assumed 100 million (10^8) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution.	*This must be deleted because it is nonsense; to require 3 log reduction is sufficient to say. It is confusing since taken out of context.* -- ~~The SECONDARY DISINFECTION SYSTEM shall also be designed to reduce a theoretical total number of infective Cryptosporidium oocysts in the total volume of the AQUATIC VENUE from an assumed 100 million (108) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution~~	Agree. Added crossed-out language to Annex.	4.7.3.3.2.4 Annex	The secondary disinfection system is to be designed to reduce an assumed total number of infective *Cryptosporidium* oocysts in the total volume of the aquatic venue from an assumed 100 million (10^8) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.6	Accounting for a 3 log (99.9%) reduction of infective Cryptosporidium oocyst through the SECONDARY DISINFECTION SYSTEM with each pass, the SECONDARY DISINFECTION SYSTEM flow rate (Q) shall be: Q = V x (14.8 – ln (V) / (60 x T)), where: • Q = SECONDARY DISINFECTION SYSTEM flow rate (gpm) • V = Total water volume of the aquatic venue or aquatic feature, including surge tanks, piping, equipment, etc. (gals) T = Dilution time (hrs)	*Should be deleted. UV-C is measured in doses not in dilution time* -- Same as before – Should be deleted.	Disagree. Please see MAHC Annex Section 4.7.3.3.2.5 for further explanation about this formula.	4.7.3.3.2.5	Accounting for a 3 log (99.9%) reduction of infective Cryptosporidium OOCYST through the SECONDARY DISINFECTION SYSTEM with each pass, the SECONDARY DISINFECTION SYSTEM flow rate (Q) shall be: Q = V x ((14.8 – ln (V))} / (60 x T)), where: • Q = SECONDARY DISINFECTION SYSTEM flow rate (gpm) • V = Total water volume of the AQUATIC VENUE or AQUATIC FEATURE, including surge tanks, piping, equipment, etc. (gals) • T = Dilution time (hrs.)
Disinfection and Water Quality (DWQ)	4.7.3.3.2.6	Accounting for a 3 log (99.9%) reduction of infective Cryptosporidium oocyst through the SECONDARY DISINFECTION SYSTEM with each pass, the SECONDARY DISINFECTION SYSTEM flow rate (Q) shall be: Q = V x (14.8 – ln (V) / (60 x T)), where: • Q = SECONDARY DISINFECTION SYSTEM flow rate (gpm) • V = Total water volume of the aquatic venue or aquatic feature, including surge tanks, piping, equipment, etc. (gals) T = Dilution time (hrs)	*The formula is confusing. Require a minimum 40 mJ/cm^2 dose using the maximum flow rate for respective units is more appropriate.* -- The SECONDARY DISINFECTION SYSTEM flow rate shall not exceed the maximum flow rate providing a minimum 40 mJ/cm^2 dose.	Formula requires 3 log-reduction and any UV dose must be sufficient to achieve this. Specifying 40 mJ/cm^2 may not meet this requirement. "The derivation of the formula is based on a mass balance of oocysts in a pool that relates time, flow rate and concentration of oocysts. There are 4 variables included: time; flow rate; pool volume; efficiency of UV reactor (ie. 3-log reduction per pass. Annex discussion under keyword "Equation" Section 4.7.3.3.2.5 does a good job explaining what the formula is intended to accomplish. See explanation and example in the Annex text.	4.7.3.3.2.5	Accounting for a 3 log (99.9%) reduction of infective Cryptosporidium OOCYST through the SECONDARY DISINFECTION SYSTEM with each pass, the SECONDARY DISINFECTION SYSTEM flow rate (Q) shall be: Q = V x ((14.8 – ln (V))} / (60 x T)), where: • Q = SECONDARY DISINFECTION SYSTEM flow rate (gpm) • V = Total water volume of the AQUATIC VENUE or AQUATIC FEATURE, including surge tanks, piping, equipment, etc. (gals) • T = Dilution time (hrs.)
Disinfection and Water Quality (DWQ)	4.7.3.3.2.6 ANNEX	N/A	*For clarity, the ANNEX can describe some more detail as to how the Secondary Disinfection System flow rate (Q) is derived.* -- The assumption of continuous dilution implies that on each turnover 100%*e^{-1} = 36.79% of the water does not go through the circulation system while 100%*(1-e^{-1}) = 63.21% goes through at least once. A 3 log (99.9%) reduction during each pass would reduce the oocysts to no more than 0.6321/1000 + 0.3679 = 36.85% or a reduction of at least 63.14% for each turnover. The initial concentration of oocysts is assumed to be 100,000,000/V where V is the volume in gallons and the goal is to reduce this to 1oocyst/100ml or 37.85 oocysts/gallon. The required number of turnovers may be found from (100,000,000/V)*0.3685^{turnover} = 37.85 so ln(100,000,000) – ln(V) + turnover*ln(0.3685) = ln(37.85) so turnover = 14.8 – ln(V) since ln(0.3685) = 0.998 which is close to 1. The required flow rate (GPM) is the product of the flow rate for one turnover times the required number of turnovers just calculated.	MAHC Committees are trying to avoid confusion of the term "turnover rate" with the necessary flow rate through UV reactors. Have included a real-world pool example for clarification in the MAHC Annex.	4.7.3.3.2.5 Annex	In considering the potential for outbreaks, it was decided that a treatment system should be designed to limit the outbreak to a reasonable period of time, preferably to a single day of operation. By this, it is meant that all pathogens of concern that may still be present at infective concentrations at the close of operations are reduced to below a level of infectivity by the opening time of the following day. This approach has been recommended because numerous multi-day outbreaks have been well documented. (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3.3.2.7	The dilution time shall be the lesser of 9 hours or 75% of the uninterrupted time a venue is closed in a 24 hour period.	NO LONGER NEEDED – DELETE	Disagree. Please see MAHC Annex Section 4.7.3.3.2.5 for an explanation of time necessary for reduction.	4.7.3.3.2.6	The dilution time shall be the lesser of 9 hours or 75% of the uninterrupted time an aquatic venue is closed in a 24 hour period.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.7	The dilution time shall be the lesser of 9 hours or 75% of the uninterrupted time a venue is closed in a 24 hour period.	*Idem. UV-C is measured in doses not in dilution time* -- Same as before – should be deleted	Disagree. Please see MAHC Annex Section 4.7.3.3.2.5 for further explanation about this formula.	4.7.3.3.2.6	The dilution time shall be the lesser of 9 hours or 75% of the uninterrupted time an aquatic venue is closed in a 24 hour period.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.2.8	The Secondary disinfection system shall include a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst and the minimum flow rate as prescribed above.	*NSF Standard 50 requires a 40 mJ/cm^2 dose and 3 log reduction equates to a 12 mJ/cm^2 dose.* -- The SECONDARY DISINFECTION SYSTEM shall include a means to confirm the required flow rate to maintain a minimum ~~3 log (99.9%) reduction of infective *Cryptosporidium* oocyst~~ dose required by NSF and the minimum flow rate as prescribed above.	TC does not understand this comment. This section is concerned with verification and not certification. 4.7.3.3.2.7 has been reworded.	4.7.3.3.2.7	Where a secondary disinfection system is installed, a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst at the minimum flow rate as prescribed above.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.8	The Secondary disinfection system shall include a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst and the minimum flow rate as prescribed above.	*A minimum flow rate should not be allowed for health and safety reasons. Revised 4.7.3.3.2.1 has requirement.* -- DELETE	Disagree. Please see MAHC Annex Section 4.7.3.3.2.4, 4.7.3.3.2.5, and 4.7.3.3.2.6 for an explanation of the importance of flow rate in addition to 3-log reduction. No changes.	4.7.3.3.2.7	Where a secondary disinfection system is installed, a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst at the minimum flow rate as prescribed above.
Disinfection and Water Quality (DWQ)	4.7.3.3.2.8	The Secondary disinfection system shall include a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst and the minimum flow rate as prescribed above.	*That is part of certification process and hints strongly at influence from a specific manufacturer. This is determined by Standards and not MAHC. A flow sensor or a flow meter cannot measure the 3-log reduction.* -- The secondary disinfection system shall include a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective Crypto and the minimum flow rate as prescribed.	TC does not understand this comment. This section is concerned with verification and not certification. 4.7.3.3.2.7 has been reworded.	4.7.3.3.2.7	Where a secondary disinfection system is installed, a means to confirm the required flow rate to maintain a minimum 3 log (99.9%) reduction of infective *Cryptosporidium* oocyst at the minimum flow rate as prescribed above.
Disinfection and Water Quality (DWQ)	4.7.3.3.3 ANNEX	*Ultraviolet Disinfection(See Annex for full text)*	*Define the terms here. They are defined in the code, but reading the annex is confusing without specifying and defining the terms.*-- "Validation must follow one of the approved validation systems, preferably the USEPA DGM 2006, MUST have been carried out be a genuine third party, and MUST include all the required validation factors and RED bias." This section again very hard to read and probably not understandable to many EHS staff. Can it be simplified?	Added RED bias definition to the Glossary section. Not clear how to make this more understandable to designers so please give us a specific comment about how to address your comment.	4.7.3.3.3	Ultraviolet Light Systems (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3.3.3 ANNEX	*Ultraviolet Disinfection(See Annex for full text)*	*I saw no discussion of any of the side effects of using UV. I believe there should be at least some discussion of the trade-offs. Otherwise, the proposal to use UV as a secondary disinfectant appears biased.* -- The use of UV is not without consequences. UV irradiation destroys some chlorinated N-DBPs but also promotes several reactions in the formation of N-DBPs. UV may also increase chlorine demand through destruction of FC either directly or indirectly. – REFERENCE: Weng S, Li J, Blatchley ER 3rd. Effects of UV254 irradiation on residual chlorine and DBPs in chlorination of model organic-N precursors in swimming pools. Water Research. 2012 May 15;46(8):2674-2682.	See additional language to this effect in the annex. The purpose of the MAHC is to outline acceptable options in technological approaches that have been demonstrated to be effective and not to conduct a technical evaluation. The cited reference provide by the reviewer notes some of the detrimental characteristics of UV utilization, but none of the observations cited were significant enough to eliminate this option as secondary disinfection method.	4.7.3.3.3	Ultraviolet Light Systems (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.	*UV treatment use the wave length call UV-C (different from A & B). It is extremely important to make the distinction.* -- All "UV", "Ultraviolet" shall be replaced by "UV-C", "Ultraviolet-C"	Not sure if it is so important as UVA and UVB generators will not meet the disinfection requirements. No change necessary in the code language.	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.	*The 3-log reduction for crypto creates a UV-C Dose entirely effective at disinfection and removing chloramines. If a State wants 40 mJ R.E.D (more than 3-log) then their decision pertains to their specific prerequisites and this should not impact the rest of the code or standards. Many in the scientific community and experts do not see the interest for more than 3-log treatment in pool water. Moreover, we could have a system with 10-log 250 mJ which still does not eliminate two bathers in close proximity from being infected locally. Furthermore, pool water is linked to the turnover and recirculates through a closed circulating system. If by misfortune there is a crypto contamination with UV-C system installed on the pool it will be because 2 swimmers will be close together and the UV-C in the technical room will not do anything irregardless of the dose even with 200 mJ or 10-log reduction. What is the basis for the Secondary disinfection? Only the US EPA 2006? NSF-50 required?* -- ~~UV equipment shall be third party validated~~…. NSF 50 requirements are recognized as fully compliant.	Not sure what the point is here other than the requirement is designed to reduce the oocysts over a set time based on the formula. No change necessary in the code language.	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.	*The US EPA Ultraviolet Disinfection Guidance Manual (UVDDGM) was specifically designed to address treatment of surface waters for drinking water. As a contributor to the US EPA UVDGM, this reviewer can attest first hand that the drinking water standard is not appropriate for use in swimming pool applications. By its use it could allow for dangerously low UV Dose values to be used. By ensuring that the UV Dose is always above 40 mJ/cm2, then not only will protection for 3-log reduction of Cryptosporidium be comfortably achieved, but it will also ensure that this code remains in alignment with both the current NSF 50 standard referenced in section 4.7.3.3.1.1, but also a number of US state standards. Creating an entirely new, less stringent standard will create confusion and potential safety issues. In addition the operational protocols outlined in the UVDGM are extremely onerous and will cause massive cost implications to a pool operator.* -- The UV equipment shall provide a minimum 40 mJ/cm^2 dose for outdoor pools. A minimum 60 mJ/cm^2 dose for indoor pools is recommended. –REFERENCE: NSF 50; Texas and New York state disinfection standards	The issue here is complex. A dose of 40 or 60 by calculation can be overstated by more than double the actual validated dose. Existing pool units installed throughout the USA, working functionally will NOT meet the requirement in most cases of a validated dose of 40. >99.9% is not required and it will have chlorine consumption issues. 'Safely' more than is required in a recirculation does have consequences. The code does not require installation in accordance with the USEPA DGM, it simply requires the validation element. This is needed as a minimum standard. No change necessary in the code language.	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.	*This EPA manual is a drinking water and not a swimming pool standard which allows for lower UV doses as previously mentioned. NSF should be the standard for swimming pools. The UVDGM includes a detailed description of reactor validation. Collectively, the procedures that are defined in the UVDGM represent one of several reactor validation approaches that have been subjected to peer review. If you settle on a target dose or treatment objective, then any of the peer-reviewed procedures should be acceptable. These include UVDGM, NSF, ONORM, and Lagrangian Actinometry.* -- UV equipment shall be third party validated in accordance with NSF ~~the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.~~	DVGW and Onorm are referenced in the USEPA. They will also meet the minimum requirement of 3 log. The NSF-50 standard does meet this requirement but ONLY if the additional testing is carried out. No change necessary in the code language.	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.	*US EPA is one of the certifying bodies, but this code should not be limited to only the US EPA.* -- UV equipment shall be NSF 50 certified and third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007 or in the practices outlined in the DVGW (DVGW W294 (parties 1, 2 et 3)) or in the practices outlined in the Onorm (ÖNORM M5873-1 :2001 ET M5973-2 :2003)	It already does (4.7.3.3.3.12.1.). DVGW and Onorm are covered in alternative validation protocols. No change necessary in the code language.	4.7.3.3.3.1	UV equipment shall be third party validated in accordance with the practices outlined in the US EPA Ultraviolet Disinfectant Guidance Manual dated November, 2006, publication number EPA 815-R-06-007.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1.1	The manual US EPA Ultraviolet Disinfectant Guidance Manual shall be considered a recognized national standard in this code.	*The NSF 50 standard is referenced in section 4.7.3.3.1.1 and should be used consistently throughout the CODE. Referencing a second standard that is less stringent from a disinfection perspective will create un-necessary confusion and potential non-compliance with a number of state standards.* -- The NSF 50 standard shall be considered a recognized national standard in this CODE.	Agreed, however, it should be noted though that NSF-50 approval does NOT imply meeting the validation requirements. No change necessary in the code language.	4.7.3.3.3.1.1	The US EPA Ultraviolet Disinfectant Guidance Manual shall be considered a recognized national standard in the MAHC.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.1.1	The manual US EPA Ultraviolet Disinfectant Guidance Manual shall be considered a recognized national standard in this code.	*This EPA manual is a drinking water and not a swimming pool standard which allows for lower UV doses as previously mentioned. NSF should be the standard for swimming pools. The UVDGM includes a detailed description of reactor validation. Collectively, the procedures that are defined in the UVDGM represent one of several reactor validation approaches that have been subjected to peer review. If you settle on a target dose or treatment objective, then any of the peer-reviewed procedures should be acceptable. These include UVDGM, NSF, ONORM, and Lagrangian Actinometry.* -- NSF ~~The manual US EPA Ultraviolet Disinfectant Guidance Manual~~ shall be considered a recognized national standard in this CODE.	Noted above. We are not sure about Lagrangian Actinometry and its future role. We assume when it is developed to an acceptable standard it will be referenced in the US EPA and therefore will be accepted. No change necessary in the code language.	4.7.3.3.3.1.1	The US EPA Ultraviolet Disinfectant Guidance Manual shall be considered a recognized national standard in the MAHC.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.10.1	This dose shall be inclusive of validation factors and Reduction Equivalent Dose (RED) bias.	*With revised 4.7.3.3.1.1 requiring NSF, this is not necessary as NSF validation testing accounts for uncertainty factors.* – DELETE	ONLY if the latest NSF tests are applied. It is essential that the uncertainty factors are included, even if it is covered should NSF recent validation standards be used. No change necessary in the code language.	4.7.3.3.3.10.1	This dose shall be inclusive of validation factors and Reduction equivalent dose (RED) bias.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.10.2	System performance curves that do not include such factors are not considered validated systems.	*With revised 4.7.3.3.1.1 requiring NSF, this is not necessary.* – DELETE	As above. Should alternative validation procedures be developed it is essential to ensure they are included. No change necessary in the code language.	4.7.3.3.3.10.2	System performance curves that do not include such factors are not considered validated systems.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.12.1	Based on the recommended validation protocol presented in the US EPA Disinfection Guidance Manual, UV reactors certified by ÖNORM and DVGW for a *Bacillus subtilis* RED of 40mJ/cm2 shall be granted 3-log *Cryptosporidium* and 3-log *Giardia* inactivation credit as required in this code.	*With revised 4.7.3.3.1.1 requiring NSF, this is not necessary. Note that the ÖNorm and DVGW certifications are also Drinking Water standards from Austria and Germany respectively. They are not appropriate for pool applications – in fact they are not even allowed for pool use in Austria or Germany!* -- DELETE	We are using UV in pools to achieve a drinking water outcome; therefore, aspects of drinking water standards are applicable and essential. Note not all requirements of drinking water systems are included, just the performance testing aspects. No change necessary in the code language.	4.7.3.3.3.12	Based on the recommended validation protocol presented in the US EPA Disinfection Guidance Manual, UV reactors certified by ÖNORM and DVGW for a *Bacillus subtilis* RED of 40mJ/cm2 shall be granted 3-log *Cryptosporidium* and 3-log *Giardia* inactivation credit as required in this code.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.3.3	The UV equipment shall be installed after the filtration and before addition of primary disinfectant.	*Prevent inaccuracies of primary disinfectant levels.* -- Add the following: The placement of the UV unit shall be downstream of pickup points for monitoring levels of chemical controllers used for monitoring primary disinfectant levels.	The pickup points should be located after the UV or ozone. No change necessary in the code language.	4.7.3.3.3.3	The UV equipment shall be installed after the filtration and before addition of primary disinfectant.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.3.1	UV equipment shall be labeled with maximum flow rate, minimum transmissivity, minimum intensity, minimum dosage, and maximum gallons of water disinfected by the unit.	*Redundancy of some items which are expensive; this follows a manufacturer's specifications and cannot be imposed upon this code.* -- UV equipment shall be labeled with maximum flow rate, minimum transmissivity, minimum intensity, minimum dosage, and maximum gallons of water disinfected by the unit.	Comment noted TC prefers to use code language as modified.	4.7.3.3.3.3.1	UV equipment shall be labeled with the following design specifications: maximum flow rate, minimum transmissivity, minimum intensity, minimum dosage, and maximum gallons of water disinfected by the unit.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.6.1	Where multiple lamps are fitted, sufficient sensors shall be provided to measure each lamp.	*One sensor/lamp is the only sure way to determine sufficient output of each lamp.* -- Where multiple lamps are fitted, each lamp shall have a dedicated UV sensor to measure respective lamp.	Not a requirement in the USEPA or the DVGW. Monitoring needs to be adequate. Low pressure is 1 per 10. Medium pressure 1 per 2. No change necessary in the code language	4.7.3.3.3.6.1	Where multiple lamps are fitted, sufficient sensors shall be provided to measure each lamp.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.6.1	Where multiple lamps are fitted, sufficient sensors shall be provided to measure each lamp.	*Who is going to determine what is sufficient or not? Only a recognized Standards certifier can determine the number and placement of sensors.* -- Where multiple lamps are fitted, sufficient sensors shall be provided to measure each lamp	The DVGW requires 1 sensor per two lamps for MP and 1 per 10 for LP. The US EPA does not specify 1 per lamp. Adequate monitoring is covered in the validation tests as the level of monitoring will influence the VF. No change necessary in the code language.	4.7.3.3.3.6.1	Where multiple lamps are fitted, sufficient sensors shall be provided to measure each lamp.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.6.2	If the design utilizes fewer sensors than lamps, the location of lamps and sensors shall be such that the output of all lamps is adequately measured.	*As written, this is ambiguous and open to abuse; "output of all lamps is adequately measured" - how is "adequately" determined? Use revised 4.7.3.3.3.6.1 and requirement is clear and the safest method. In fact the UVDGM, proposed as the reference standard for the CODE, requires one sensor per lamp (for MP lamps) and hence this section would be in direct conflict.* -- DELETE	The DVGW requires 1 sensor per two lamps for MP and 1 per 10 for LP. The US EPA does not specify 1 per lamp. Adequate monitoring is covered in the validation tests as the level of monitoring will influence the VF. No change necessary in the code language.	4.7.3.3.3.6.2	If the design utilizes fewer sensors than lamps, the location of lamps and sensors shall be such that the output of all lamps is adequately measured.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.13.1	Acceptable methods of meeting this equipment requirement include: 1) ISO9000:2000 accreditation, or 2) listing to NSF Standard 50, or both.	*State codes require NSF 50* -- The ozone equipment shall be NSF Standard 50 certified. -- REFERENCE -- State Codes	• Agreed. Changed as follows: Acceptable methods of meeting this equipment requirement shall be a listing to NSF Standard 50 include: 1) ISO9000:2000 accreditation, or 2) listing to NSF Standard 50, or 3) both.	4.7.3.3.3.7.1	An ISO9000:2000 accreditation or listings of NSF Standard 50 are both acceptable methods of meeting this equipment requirement.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.8	The automated shut down of the UV equipment for any reason shall initiate a visual alarm which can be seen by patrons and staff within the facility.	*Not necessary to include patrons who will not know what the alarms is for and could create panic and put them in danger.* -- The automated shut down of the UV equipment for any reason shall initiate a visual alarm which can be seen by patrons and staff within the facility	Agreed. Wording altered	4.7.3.3.3.8	The automated shut down of the UV equipment for any reason shall initiate a visual alarm or other indication which will alert staff on-site or remotely.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.8	The automated shut down of the UV equipment for any reason shall initiate a visual alarm which can be seen by patrons and staff within the facility.	*This seems excessive and costly, especially in the case of retrofits as previously mentioned. These are meant to be secondary disinfectant systems and I have not read in any of the MAHC modules where the primary disinfectant would be requiring any sort of audible/visual alarm in the event of a failure or when chlorine levels reached zero.* -- ~~The automated shut down of the UV equipment for any reason shall initiate a visual alarm which can be seen by patrons and staff within the facility.~~	Agreed to remove visual alarms seen by patrons. The primary disinfectant is being tested on a regular basis so is essentially on a check system and automatic feeders have an alarm.	4.7.3.3.3.8	The automated shut down of the UV equipment for any reason shall initiate a visual alarm or other indication which will alert staff on-site or remotely.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.8.1	Signage instructing staff or patrons to notify facility management shall be posted adjacent to the visual alarm. If the facility is not staffed, the sign shall include a means to contact management whenever the facility is in use.	*Not required with revised 4.7.3.3.3.8. Use for primary disinfectant if alarm is required.* -- DELETE	TC prefers to leave code as modified	4.7.3.3.3.8.1	Signage instructing staff or patrons to notify facility management shall be posted adjacent to the visual indication.
Disinfection and Water Quality (DWQ)	4.7.3.3.3.9	The UV equipment shall be supplied with the appropriate validation reports and documentation for that equipment model.	*Stating it in this manner is clear and unambiguous. Typical USEPA UVDGM validation reports are highly technical and over 100 pages in length. It is not reasonable that a typical pool designer would be qualified to review.* -- UV equipment shall be listed on ANSI accredited 3rd party database for the UV equipment model.	Correct. The pool designer will have to rely on the manufacturer to confirm this meets the requirement or engage a consultant. However, once accepted there will be an incentive for other approvers to list approved systems, e.g. latest NSF-50 validation test approvals. No change necessary in the code language.	4.7.3.3.3.9	The UV equipment shall be supplied with the appropriate validation reports and documentation for that equipment model.
Disinfection and Water Quality (DWQ)	4.7.3.3.4	Ozone	*Is it proper that Ozone is discussed here? As under 4.7.3.3. Secondary Disinfection Systems in section 4.7.3.3.4.15 defines that: "there currently is no recognized national standard of ozone equipment for inactivation of cryptosporidium". Why does the MAHC want to add ozone as a secondary if we don't know what it does and the objectives is to be on the safe side (such as what UV-C does).* -- Ozone section….	The NSF third-party validated study has been published since 2007; in addition the USEPA has a drinking water standard for ozone and Crypto as well. An additional article has been accepted for publication in the Journal of Water and Health. Section 4.7.3.3.4.15.1 "There currently is no recognized national standard for validation of ozone equipment for inactivation of cryptosporidium". Has been removed from this code.	4.7.3.3.4	Ozone Disinfection

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.4 ANNEX	N/A	*I saw no discussion of any of the side effects of using Ozone except in section 5.7.3.1.2 regarding bromates. I believe there should be at least some discussion of the trade-offs. Otherwise, the proposal to use Ozone as a secondary disinfectant appears biased.* – The use of Ozone is not without consequences. Ozone destroys some chlorinated N-DBPs but also creates chlorate and if bromide ions are present creates bromine and bromate as well. Ozone also increases chlorine demand through destruction of hypochlorite ion. -- REFERENCE: Haag WR, Hoigné J. Kinetics and products of the Reactions of Ozone with Various forms of Chlorine and Bromine in Water. Ozone: Science & Engineering. 1984;6(2):103-114.	For the purpose of this Annex, we're not sure that these data are appropriate. We do not talk about the vast chemistry of all the other chemicals added to pool water at this level, so we question the necessity of adding this information. Already addressed the issue of using bromine with ozone. The purpose of the Code is to outline acceptable options in technological approaches that have been demonstrated to be effective and not to conduct a technical evaluation.	4.7.3.3.4	Ozone Disinfection
Disinfection and Water Quality (DWQ)	4.7.3.3.4.1	SECONDARY DISINFECTION SYSTEMS using ozone shall provide the required inactivation of Cryptosporidium parvum in the full flow of the SECONDARY DISINFECTION SYSTEM after any side-stream has remixed into the full flow of the SECONDARY DISINFECTION SYSTEM.	*Then aren't we getting ahead of ourselves with these requirements? Doesn't this then contradict 4.7.3.3.2.1? Science should come before codifying. This module seems to not be taking into account filtration systems. It seems as though the main objective of this Disinfection & Water Quality module is the elimination of crypto. And some of the regenerative media filter manufacturers state that they can eliminate 99.9% of crypto on a single pass. Even though there is debate on the size of crypto, which could make some of these filtration claims suspect, not allowing filtration as a potential solution (through some third party validation) seems shortsighted.* -- There currently is no recognized national standard for validation of ozone equipment for inactivation of cryptosporidium.	Previously addressed. Should be in monitoring & testing module. Automatic feeders do have a visual alarm.	4.7.3.3.4.1	Secondary disinfection systems using ozone shall provide the required inactivation of *Cryptosporidium* in the full flow of the Secondary disinfection system after any side-stream has remixed into the full flow of the Secondary disinfection system.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.11.1	The equipment shall be electrically interlocked with feature pump(s) or automated feature supply valves, such that when the ozone equipment fails to produce the required dosage as measured by ORP, the water features do not operate.	*Since work on the ozone is required, the pool should be closed if the pumps are shut off.* -- The ozone equipment shall be electronically interlocked with feature pump(s) or automated feature supply valves, such that when the ozone equipment fails to produce the required dosage as measured by ORP, the water features do not operate and the pool shall close until situation is rectified.	The original language proposed by the TC is appropriate and should remain.	4.7.3.3.4.10.1	The equipment shall be electrically interlocked with aquatic feature pump(s) or automated feature supply valves, such that when the ozone equipment fails to produce the required dosage as measured by ORP, the aquatic features do not operate.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.12	If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) an audible and visual alarm which can be seen and heard by facility staff and patrons within the facility shall be immediately initiated.	*This seems excessive and costly, especially in the case of retrofits as previously mentioned. These are meant to be secondary disinfectant systems and I have not read in any of the MAHC modules where the primary disinfectant would be requiring any sort of audible/visual alarm in the event of a failure or when chlorine levels reached zero.* -- ~~If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) an audible and visual alarm which can be seen and heard by facility staff and patrons within the facility shall be immediately initiated.~~	Agreed. Alarm visible to patrons has been removed. Should be in monitoring & testing module. Automatic feeders do have a visual alarm.	4.7.3.3.4.11	If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) a visual alarm or other indication shall be initiated that will alert staff on-site or remotely.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.12	If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) an audible and visual alarm which can be seen and heard by facility staff and patrons within the facility shall be immediately initiated.	*Why do we want to spread fear and panic for the supplemental disinfection system? It would be more appropriate to have a visual alarm for patrons if the free chlorine level is low as free chlorine is the primary disinfectant.* __ If the ORP reading for the ozone system drops below 600 mV (regardless of the cause), an audible and visual alarm shall be provided to notify staff to close the pool; the pool shall not reopen until the ozone equipment has been serviced.	Agreed. Changed as follows: If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) a visual alarm or other indication shall be initiated that will alert staff on-site or remotely.	4.7.3.3.4.11	If the ORP reading for the ozone system drops below 600 mV (regardless of the cause) a visual alarm or other indication shall be initiated that will alert staff on-site or remotely.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.7	The ozone system shall be installed after the filtration and before primary disinfectant dosing.	*Redundant. Merge with 4.7.3.3.4.7.* -- ~~The ozone injection point shall be located in the POOL return line after the filtration and heating equipment, prior to the primary disinfectant injection point.~~	Agreed. Wording merged.	4.7.3.3.4.7	The ozone system injection point shall be located in the aquatic venue return line after the filtration and heating equipment, prior to the primary disinfectant injection point.
Disinfection and Water Quality (DWQ)	4.7.3.3.4.7.1	For generators that produce ozone under pressure and utilize a negative pressure (Venturi) ozone delivery system, or introduce ozone under pressure (such as a pressurized diffuser into an atmospheric holding tank), any leak or break in the system will immediately cause the release of ozone gas.	*Seems like this language is best suited as annex language for 4.7.3.3.4.7.2.* -- ~~For generators that produce ozone under pressure and utilize a negative pressure (Venturi) ozone delivery system, or introduce ozone under pressure (such as a pressurized diffuser into an atmospheric holding tank), any leak or break in the system will immediately cause the release of ozone gas.~~	Agree. Moved to the Annex.	4.7.3.3.4.7.2 Annex	For generators that produce ozone under pressure and utilize a negative pressure (Venturi) ozone delivery system, or introduce ozone under pressure (such as a pressurized diffuser into an atmospheric holding tank), any leak or break in the system will immediately cause the release of ozone gas.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.4.10	At the time the ozone generating equipment is installed, again after 24 hours of operation and annually thereafter, the air space within 6 (six) inches of the pool water shall be tested to determine compliance of less than 0.1 PPM (mg/L) gaseous ozone.	0.1 PPM is too high for bather safety --…shall be tested to determine ozone produced by the generate will not exceed 0.05 PPM (mg/L) compliance of less than 0.1 PPM (mg/L) gaseous ozone. -- REFERENCE: FDA has established a maximum output of 0.05 ppm into the atmosphere of ozone generating equipment; http://www.epa.gov/iaq/pubs/ozonegen.html Long-term consequences of Exposure to Ozone: Toxicology and Applied Pharmacology 72, 111-118 (1984); "Health effects of Ozone" JAPAA May, 1989, Volume 39.5; .DOH Guidance for use of ozone in pools. Per WAC 246-260-111(3)(a)(ii)(C) Levels of 0.08 ppm demonstrate in tests that collagen thickens in the lungs preventing cilia from removing microorganisms, increasing susceptibility to infections. Competitive swimmers breathe deeply and right at the interface zone where they are pulling air from the liquid gas phase from the water. They may sustain permanent loss of vital capacity at fairly low levels of ozone and 0.1 ppm off-gassing produced by the ozone equipment is not much margin.	Ozone manufacturers have installed hundreds and hundreds of ozone systems in indoor and outdoor recreational swimming venues for over twenty years and we are not aware of any reports of off-gas events or issues from the pool water surface. With the proper use of undissolved ozone degas and destruct systems (which are always part of an ozone system in order to have an NSF Standard 50 listing), an ozone off-gas event is effectively impossible. Since ozone is an extremely unstable molecule, anything in the water (including bather load, chlorine, sundry chemicals, environmental load, heat, etc.) will cause its breakdown into oxygen. The actual measured off-gas amount in any given swimming venue is always 0.0 PPM. Code language is based on OSHA PEL The language will stay the same.	4.7.3.3.4.9	At the time the ozone generating equipment is installed, again after 24 hours of operation and annually thereafter, the air space within 6 (six) inches of the aquatic venue water shall be tested to determine compliance of less than 0.1 PPM (mg/L) gaseous ozone.
Disinfection and Water Quality (DWQ)	4.7.3.4.1.2	Supplemental treatment systems are not required on any venues.	*Rapid fluctuations in water quality due to small quantities of water, high bather load ratio, impacts of high temperature, water action all working to reduce the level of the primary disinfectant*-- SUPPLEMENTAL TREATMENT SYSTEMS are ~~not~~ required on ~~any venues~~, spa pools -- REFERENCE: While I would encourage this, if the industry is not ready for this, perhaps at the next revision.	Keeping the code language as is. We think that the industry should consider how to move forward in an effort to have multiple layers of protection rather than only one treatment system for pathogens.	4.7.3.4.1.2	Supplemental treatment systems shall not be required on any aquatic venues.
Disinfection and Water Quality (DWQ)	4.7.3.4.1.3	It shall be clearly noted in the facility operating instructions that these supplemental treatment systems do not meet the requirements of a secondary disinfection system, and as such, are only considered supplemental treatment systems.	*Why would we not require pools that have a supplemental system to provide the same safety requirements as the secondary?* -- SUPPLEMENTAL TREATMENT SYSTEMS shall meet the same requirements of SECONDARY DISINFECTION SYSTEM.	Only venues that are classified as "increased risk" are required to have secondary systems installed that meet the requirements listed in the MAHC. If an operator wants to install a system in a venue that is not classified as an "increased risk" venue then they can choose to do so. Since it is not required and entirely voluntary, the MAHC has no part in requiring what the system does or that it meets certain criteria when there is no requirement for it to be installed in the first place. We hope the operator would understand the benefits of meeting the "secondary disinfection" benefits and strive to meet the same criteria but don't feel it can be mandated.	4.7.3.4.1.3	It shall be clearly noted in the aquatic facility operating instructions that these supplemental treatment systems do not meet the requirements of a secondary disinfection system, and as such, are only considered supplemental treatment systems.
Disinfection and Water Quality (DWQ)	4.7.3.4.1.4	SUPPLEMENTAL TREATMENT SYSTEMS shall meet all of the requirements of this CODE, except: 1) They do not need to achieve a 3-log (99.9%) inactivation of Cryptosporidium parvum as required in Section 4.7.3.3, 2) They do not need to be able to reduce the total number of infective oocysts to 1oocyst per 100 ml as required in Section 4.7.3.3, and 3) Except as noted in Sections 4.7.3.4.2 and 4.7.3.4.3 below.	*With revised 4.7.3.4.1.3, the requirements would be the same.*— DELETE	Disagree. See comment above.	4.7.3.4.1.4	SUPPLEMENTAL TREATMENT SYSTEMS shall meet all of the requirements of this CODE, except: 1) They do not need to achieve a 3-log (99.9%) inactivation of Cryptosporidium parvum as required in MAHC Section 4.7.3.3, 2) They do not need to be able to reduce the total number of infective OOCYSTS to 1OOCYST per 100 ml as required in MAHC Section 4.7.3.3, and 3) Except as noted in MAHC Sections 4.7.3.4.2 and 4.7.3.4.3 below.
Disinfection and Water Quality (DWQ)	4.7.3.4.1.5	Each system shall be clearly labeled: "Supplemental Water Treatment System—Not to be Used for Disinfection."	*As it will not meet requirements for primary disinfectant which will leave a residual to continue working on contaminants in the recirculation system and pool, it is only a supplemental system. It is still a disinfectant and as such must meet requirements for disinfectants.* -- Each system shall be clearly labeled: "Supplemental Water Treatment System—Not to be Used for Primary Disinfection	Addressed above	4.7.3.4.1.5	Each system shall be clearly labeled, "Supplemental Water Treatment System—Does Not meet the requirements for Secondary Disinfection."
Disinfection and Water Quality (DWQ)	4.7.3.4.1.5	Each system shall be clearly labeled: "Supplemental Water Treatment System—Not to be Used for Disinfection."	*The rationale for stating this is unclear. It will be used for disinfection. Why would we say that a supplemental disinfection system is not to be used for disinfection?* -- DELETE	Modified language as noted in code. The system may be used for water clarity or chloramine control vs. disinfection. It is not a required system rather than voluntary.	4.7.3.4.1.5	Each system shall be clearly labeled, "Supplemental Water Treatment System—Does Not meet the requirements for Secondary Disinfection."
Disinfection and Water Quality (DWQ)	4.7.3.4.2.1	When UV is used as a supplemental treatment system, all requirements of 4.7.3.3.3.2 thru 4.7.3.3.3.4 must be met.	*Requirements should be the same; different requirements make no sense.* -- When UV is used as a SUPPLEMENTAL TREATMENT SYSTEM, all requirements of a SECONDARY TREATMENT SYSTEM shall be met.	Disagree. This is a voluntary decision by the pool operator to install so the validation, etc. should not be required. This is about having an OPTION to fit a supplemental system without meeting the secondary treatment requirements.	4.7.3.4.2.1	When UV is used as a supplemental treatment system, all requirements of MAHC Section 4.7.3.3.3.2 thru 4.7.3.3.3.4 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.2.1	When UV is used as a supplemental treatment system, all requirements of 4.7.3.3.3.2 thru 4.7.3.3.3.4 must be met.	*If it's "not to be used for disinfection" why does all of the requirements of 4.3.3.2 apply regarding 3 log reduction, etc?* -- When UV is used as a SUPPLEMENTAL TREATMENT SYSTEM, all requirements of 4.7.3.3.3.2 thru 4.7.3.3.3.4 must be met.	No change in the code language. This section only requires mechanical and electrical safety issues and does not include disinfection, validation parameters.	4.7.3.4.2.1	When UV is used as a supplemental treatment system, all requirements of MAHC Section 4.7.3.3.3.2 thru 4.7.3.3.3.4 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.2.2	When UV is used as a supplemental treatment system, all other sections of 4.7.3.3.3 are not required.	*Not required with revised 4.7.3.4.2.1.* -- DELETE	Agreed. This is covered in 4.7.3.4.2.1	4.7.3.4.2.1	When UV is used as a supplemental treatment system, all requirements of MAHC Section 4.7.3.3.3.2 thru 4.7.3.3.3.4 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.2.3	Water features do not need to be shut off if the UV system does not produce the required dosage.	*Not required with revisions recommended.* -- DELETE	Disagree. Not a mandatory system so why would we require this?	4.7.3.4.2.3	Water features do not need to be shut off if the UV system does not produce the required dosage.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.4.2.4	The equipment is exempt from the validation requirements of Section 4.7.3.3.3.1.1.	*Not required with revisions recommended.* -- DELETE	Disagree. Not a mandatory system so why would we require this?	4.7.3.4.2.4	The equipment is exempt from the validation requirements of MAHC Section 4.7.3.3.3.1.1.
Disinfection and Water Quality (DWQ)	4.7.3.4.3.1	When ozone is used as a supplemental treatment system all requirements of 4.7.3.3.4.3 thru 4.7.3.3.4.10 must be met.	*(Continuing for the comments to 4.7.3.4.2.1) Why is 3 log reduction not required for supplemental ozone systems (when it is for UV)?* -- When ozone is used as a SUPPLEMENTAL TREATMENT SYSTEM all requirements of 4.7.3.3.4.3 thru 4.7.3.3.4.10 must be met.	3-log reduction is not required for either UV or ozone for "Supplemental Treatment"; only for "Secondary Disinfection". This section only requires mechanical and electrical safety issues and does not include disinfection, validation parameters.	4.7.3.4.3.1	When ozone is used as a supplemental treatment system all requirements of MAHC Section 4.7.3.3.4.3 thru 4.7.3.3.4.9 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.3.1	When ozone is used as a supplemental treatment system all requirements of 4.7.3.3.4.3 thru 4.7.3.3.4.10 must be met.	*Requirements should be the same; different requirements make no sense.* -- When ozone is used as a SUPPLEMENTAL TREATMENT SYSTEM, all requirements of a SECONDARY TREATMENT SYSTEM shall be met	The rationale for adding Supplemental Treatment (in lieu of Secondary Disinfection) was to allow any swimming venue the option to add extra treatment of the water, with either UV or ozone as opposed to doing nothing because of cost restraints.	4.7.3.4.3.1	When ozone is used as a supplemental treatment system all requirements of MAHC Section 4.7.3.3.4.3 thru 4.7.3.3.4.9 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.3.2	All other sections of 4.7.3.3.4 are not required.	*Not required with revisions recommended.* -- DELETE	Disagree. Not a mandatory system so why would we require this?	4.7.3.4.3.1	When ozone is used as a supplemental treatment system all requirements of MAHC Section 4.7.3.3.4.3 thru 4.7.3.3.4.9 shall be met.
Disinfection and Water Quality (DWQ)	4.7.3.4.4 ANNEX	Copper/Silver Ion The scientific data available on efficacy of these systems is predominantly for bacterial inactivation and always includes FREE AVAILABLE CHLORINE. , There is insufficient scientific literature that documents the efficacy of these systems on viruses and parasites. Given the importance and frequency of recreational water illnesses associated with these other microorganisms (viruses and parasites), it is essential that DISINFECTION chemicals / systems are also effective against such microorganisms as well.	• There are many of these studies on copper or silver alone without chlorine for a variety of pathogens. I will put in as many as possible, but suggest you read my post about this here: http://www.troublefreepool.com/converting-my-ecosmarte-system-to-chlorine-t24194.html - p205939 -- The scientific data available on efficacy of these systems is predominantly for bacterial inactivation and always includes FREE AVAILABLE CHLORINE. There is insufficient scientific literature that documents the efficacy of these systems on viruses and parasites. Copper ions alone do not inhibit nor kill fecal bacteria at the 1.3 mg/L level of copper ions maximum level allowed in pools by the EPA (and typical copper levels are usually lower to prevent metal staining). Copper and silver in combination kill some bacteria but more slowly than chlorine. They have limited efficacy on viruses and parasites though the scientific literature is sparse. – REFERENCE: i. Yahya MT, Straub TM, Gerba CP. Inactivation of coliphage MS-2 and poliovirus by copper, silver, and chlorine. Canadian Journal of Microbiology. 1982 May;38(5):430-5. ii. Horie M, Ogawa H, Yoshida Y, Yamada K, Hara A, Ozawa K, Matsuda S, Mizota C, Tani M, Yamamoto Y, et al. Inactivation and morphological changes of avian influenza virus by copper ions. Archives of Virology. 2008;153(8):1467-1472 iii. Cassells JM, Yahya MT, Gerba CP, Rose JB. Efficacy of a combined system of copper and silver and free chlorine for inactivation of Naegleria fowleri amoebas in water. Water Science and Technology. 1995;31(5-6):119-122. iv. Hasman H, Kempf I, Chidaine B, Cariolet R, Ersbøll AK, Houe H, Bruun Hansen HC, Aarestrup FM. Copper resistance in Enterococcus faecium, mediated by the tcrB gene, is selected by supplementation of pig feed with copper sulfate	We are aware of the publications related to copper and silver ion in microbial inhibition and inactivation. However, this section is only considering copper-silver systems that have been developed for use in aquatic venues. The MAHC is not intending to cover the individual ions. Language changed from "insufficient" to "limited".	4.7.3.4.4	Copper/Silver Ion System The scientific data available on efficacy of these systems is predominantly for bacterial inactivation and usually includes FREE AVAILABLE CHLORINE. There is limited scientific literature that documents the efficacy of these systems on viruses and parasites. Given the importance and frequency of recreational water illnesses associated with these other microorganisms (viruses and parasites), it is essential that DISINFECTION chemicals / systems are also effective against such microorganisms as well.
Disinfection and Water Quality (DWQ)	4.7.3.4.5.1	Ultraviolet Light / Hydrogen Peroxide systems shall be prohibited.	*Either remove UV-C from this prohibited chemical or remove this mention as it is defined in section 5.7.4.3.3.4. that "hydrogen peroxide shall be prohibited for use as disinfectant"* -- ~~Ultraviolet light / Hydrogen Peroxide systems shall be prohibited.~~	Revise by adding "combination" before "systems."	4.7.3.4.5.1	Ultraviolet Light / Hydrogen Peroxide combination systems shall be prohibited.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	4.7.3.7 ANNEX – 2nd Paragraph	It is important for an operator to use equipment that is easy to read and as objective as possible. The current, common means of testing pools using a colorimeter test is highly subjective because the color and intensity must be compared. Titration testing for free and combined chlorine is an objective test, which is accurate to 0.2 mg/L with an easily recognizable start and end point. Titration testing is recommended over colorimetric testing. Due to the use of inconsistent concentration gradations (i.e., the difference in concentration between adjacent color blocks) and the subsequent rapid darkening of the color blocks (e.g., above 1.5 mg/L), the accuracy of colorimetric test methods is likely to be lower than for titration test methods. Colorimetric methods are accurate only to +/- half the difference between the adjacent color blocks, and thus the confidence limits for these methods are wider at higher concentrations (e.g., above 1.5 mg/L). Where portable spectrophotometer test kits are affordable, these are the most accurate kits available for use at poolside.	*The word "colorimeter" contains "meter" and is usually associated with an electronic device, a meter that measures color. These are commonly used in the pool industry for testing water. They are sometimes called photometers. Colorimeter test can be accurate to 0.1 mg/L. They are not "portable spectrophotometers" as implied in the last sentence. Though portable spectrophotometers do exist they are not commonly used in the pool industry. Therefore, both titration and colorimeters should be considered "objective" and "visual color matching" or "visual color comparators" should be considered "highly subjective".*-- It is important for an operator to use equipment that is easy to read and as objective as possible. The current, common means of testing pools using a ~~colorimeter~~ visual color comparator *or* visual color matching test is highly subjective because the color and intensity must be compared. Titration testing for free and combined chlorine is an objective test, which is accurate to 0.2 mg/L with an easily recognizable start and end point. Titration testing is recommended over colorimetric testing. Due to the use of inconsistent concentration gradations (i.e., the difference in concentration between adjacent color blocks) and the subsequent rapid darkening of the color blocks (e.g., above 1.5 mg/L), the accuracy of colorimetric test methods is likely to be lower than for titration test methods. Colorimetric methods are accurate only to +/- half the difference between the adjacent color blocks, and thus the confidence limits for these methods are wider at higher concentrations (e.g., above 1.5 mg/L). Where portable spectrophotometer test kits are affordable, these are the most accurate kits available for use at poolside.	Changed as suggested.	4.7.3.5, Paragraph 2	It is important for a qualified operator to use equipment that is easy to read and as objective as possible. The current, common means of testing pools using colorimetric test kits is highly subjective because the color and intensity must be compared. Titration testing for free and combined chlorine is an objective test, which is accurate to 0.2 mg/L with an easily recognizable start and end point. Titration testing is recommended over colorimetric testing. Due to the use of inconsistent concentration gradations (i.e., the difference in concentration between adjacent color blocks) and the subsequent rapid darkening of the color blocks (e.g., above 1.5 mg/L), the accuracy of colorimetric test methods is likely to be lower than for titration test methods. Visual colorimetric methods are accurate only to +/- half the difference between the adjacent color blocks, and thus the confidence limits for these methods are wider at higher concentrations (e.g., above 1.5 mg/L). Where portable colorimeter test kits are affordable, these are the most accurate kits available for use at poolside.
Monitoring and Testing (M&T)	4.7.3.10.1.1	Conformity with NSF/ANSI Standard 50 shall be evidenced by the certification, listing, and/or testing by a third party NRTL.	*Inability to determine product in compliance.* -- Conformity with NSF/ANSI Standard 50 shall be evidenced by the certification, listing, and/~~or~~ testing by a third party NRTL – REFERENCE: Same conditions and concerns as above. We have approved devices and a couple of years later the product no longer is certified. We need to ensure current and ongoing testing occurs and that we have access to the information.	Agreed	4.7.3.5.1	Water quality testing devices and kits shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization .
Monitoring and Testing (M&T)	4.7.3.7.1	Conformity with NSF/ANSI Standard 50 shall be evidenced by the certification, listing, and/or testing by a third party Nationally Recognized Testing Laboratory (NRTL).	*Inability to determine product in compliance.* -- Conformity with NSF/ANSI Standard 50 shall be evidenced by the certification, listing, and/~~or~~ testing by a third party Nationally Recognized Testing Laboratory – REFERENCE: All three conditions are needed to allow state and local health to have assurance that the product in consideration is "currently" certified, listed and tested. Manufacturers decide which products maintain listings and we need to have access to current listings to determine compliance.	Agreed	4.7.3.5.1	Water quality testing devices and kits shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization
Monitoring and Testing (M&T)	4.7.3.9	Microbiological Testing Equipment	Pool and spa water is ingested and reliance on a consistent level of disinfectant, especially during times of high bather load, is unrealistic. Weekly Microbiological monitoring should be added to increase bather protection and compare microbiological data with chemical data. The CDC acknowledges that "1 in 8 public pool inspections resulted in pools being closed immediately due to serious code violations such as improper chlorine levels" To rely only on a proper disinfection level puts bathers at risk since: (1) disinfectant levels cannot be continuously monitored, (2) some bacteria are resistant to disinfection and (3) biofilm can protect and promote bacterial growth. **Please see references supporting disease testing/monitoring* and references to other rules and guidance that support microbiological monitoring ** Include language on minimal microbiological testing. This will align this MAHC module with US State rules and other countries that accept microbiological monitoring as an important tool to protect public health. Recommended language to add or modify at section 4.7.3.9 : ADD: A. 4.7.3.9.1 Tests are to be performed using EPA-approved methods, methods listed in Standard Methods for the Examination of Water and Wastewater (APHA, AWWA, WEF; 2012), or an alternative method that has been validated by a 3rd party organization or process.	Changed as noted.	4.7.3.6	Microbiological Testing Equipment

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	4.7.3.9.1	Microbiological testing equipment and methods shall be EPA-Approved or conforming to Standard Methods.	*Reference to "Standard Methods" alone is unclear.* -- Microbiological testing equipment and methods shall be EPA-Approved or conforming to ~~Standard Methods~~ APHA et al. (2012) *Standard Methods for the Examination of Water and Wastewater,* 22nd Ed. E.W. Rice, R.B. Baird, A.D. Eaton, and L.S. Clesceri (Eds). New York: American Public Health Association. General Comment: Does EPA *approve* equipment and methods?	Revised text to say "latest edition of Standard Methods for the Examination of Water and Wastewater, or conforming to the most recent version of NSF/ANSI Standard 50".	4.7.3.6.1	Microbiological testing equipment and methods shall be EPA-Approved, EPA-Accepted, EPA-Equivalent, conforming to the latest edition of Standard Methods for the Examination of Water and Wastewater, or certified to NSF/ANSI 50 by an ANSI-accredited certification organization
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	"High Chlorine Effects" section immediately after the table – General Comments: 1) Chlorine Testing The addition of double the quantity of DPD reagent during testing can minimize this interference or use a smaller sample size or dilute with DI water. Follow manufactures instructions.	Agreed.	4.7.3.7 Table	See annex for Table
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	1) "Metals:" and "Metals of calcium testing:" a. This should not be a sub-topic of High Chlorine effects b. The word "of" in "Metals of calcium testing" should be "in".	Changed as suggested.	4.7.3.7 Table	See annex for Table
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	1) High calcium effects on chlorine testing: a. This should not be a sub-topic of High Chlorine effects b. This section only applies to liquid DPD reagents not to tablets or powders which are not affected by this.	Changed as suggested.	4.7.3.7 Table	See annex for Table
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	1) pH Testing a. There are chlorine inhibitors available that do not shift the pH of the sample 2) Total Alkalinity Testing a. Add a chlorine inhibitor to minimize chlorine interference	WQTD instruction manuals should provide instructions on addition of chlorine inhibitor to minimize interference.	4.7.3.7 Table	See annex for Table
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	6) Potassium Monopersulfate shock: This should not be a sub-topic of High Chlorine effects	Changed as suggested.	4.7.3.7 Table	See annex for Table
Monitoring and Testing (M&T)	4.7.3.8 ANNEX TABLE	See Annex for Table	Chlorine Testing, High Calcium -- High calcium causing a cloudy sample "when adding DPD #1" under chlorine test should only apply to liquid DPD reagents and not to DPD tablets or DPD powders.	Agreed. Add "liquid reagent" after "DPD #1".	4.7.3.7 Table	See annex for Table
Recirculation and Filtration	4.7.4	Water Disposal and Replenishment System	In addition to cost factors, drought conditions in the west, including Colorado, make any specific requirement difficult to undertake – especially when based solely on attendance, not actual water quality in each venue.	Disagree. All bathers add wastes that cannot be removed by sand filters and chlorine. This section of the MAHC addresses contaminants that cannot be removed cost-effectively by other means to help control water quality and air quality for pools.	4.7.4	Water Replenishment System
Recirculation and Filtration	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged pool water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.	The sections in the Annex about the wastewater air gap and precoat media discharge should be moved back to 4.7.4.1 of the Annex. Actually, the air gap requirement here conflicts with the requirements in section 4.11 of the code.	Agree. Code and annex revised.	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged aquatic venue water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.
Recirculation and Filtration	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged pool water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.	What does "intentionally discharging" mean? This seems to suggest draining water from the pool for the purpose of water replenishment as discussed in the Annex. This is a good idea, but I do not find a section requiring automatic water supply to resupply the water drained out. Although this is a good idea, the code should not require water replenishment when the Annex indicates that the science is not there and that the operator should experiment with replenishment rates. Suggest: … result) should be installed. Are there other reasons to measure the volume of wastewater flow from a pool?	Disagree. Admittedly, the exact amount of water to discharge is not known and will likely vary between pools (based on location, source water, bather density, temperatures, ect.). It is generally accepted that some water must be discharged to remove contaminants that will otherwise accumulate in pools over time. The starting point is a system to measure the discharge and a minimal rate to start with	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged aquatic venue water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.
Recirculation and Filtration	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged pool water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.	A means of intentionally discharging and measuring the volume of both discharged Pool water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed. -- suggest clarification on this topic – Is this an automatic water leveler?	Partially agree. Code revised for clarity. Note-annex provides explanation as to intent.	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged aquatic venue water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.
Recirculation and Filtration	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged pool water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.	When readily achievable… then continue with current language -- This is only due to the undefined "substantial renovation" indicated 4.7.1.2.2 -- Editorial Comment: It is impossible to know if the measurement can occur with current systems that may be forced into this code dependent on interpretation of "substantial renovation" definition/interpretation	Disagree. Measuring flow and duration during backwash is not that difficult. Substantial renovation has been defined.	4.7.4.2	A means of intentionally discharging and measuring the volume of both discharged aquatic venue water and filter backwash wastewater (or alternate means of achieving the same result) shall be installed.
Recirculation and Filtration	4.7.4.2.1	An alternate system capable of removing an equivalent amount of small organic compounds and salts shall also be acceptable.	I have no idea what this section or section 4.7.4.2.2 means. Please include an Annex discussion of this.	Agree. Code and annex revised for clarity.	4.7.4.2.1	An alternate system capable of removing an equivalent amount of small organic compounds and salts shall also be acceptable.
Recirculation and Filtration	4.7.4.2.2	The product water from the alternate system shall maintain salt and total organic carbon concentrations that are less than or equal to tap water.	Should not refer to TOC's unless requiring a TOC meter be installed to measure concentration.	Disagree. This is a system design specification/consideration.	4.7.4.2.1.1	If applicable, the return water from the alternate system shall maintain salt and total organic carbon concentrations that are less than or equal to tap water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.4.2.3	This system shall be designed to discharge (or treat and reuse) pool water at a rate of up to 4 gallons (15 L) per bather per day per aquatic venue.	This should not be included because although dilution is an important part of water quality it doesn't necessarily mean that there is science that substantiates this requirement. If you cannot measure number of bathers effectively than how can you require it.	Disagree. Admittedly, the exact amount of water to discharge is not known and will likely vary between pools (based on location, source water, bather density, temperatures, etc.). It is generally accepted that some water must be discharged to remove contaminants that will otherwise accumulate in pools over time. The starting point is a system to measure the discharge and a minimal rate to start with.	4.7.4.2.3	This system shall be designed to discharge (or treat and reuse) aquatic venue water at a rate of up to 4 gallons (15 L) per bather per day per aquatic venue.
Recirculation and Filtration	4.7.4.2.3	This system shall be designed to discharge (or treat and reuse) pool water at a rate of up to 4 gallons (15 L) per bather per day per aquatic venue.	This system shall be designed to discharge (or treat and reuse) pool water at a rate of up to 4 gallons (15 L) per BATHER per day per aquatic venue. Where alternate systems are used to automatically maintain TDS levels in the water, the TDS level shall not exceed 3 cycles above the makeup water TDS. -- Ontario Health Standards currently require 20 L per BATHER per day to be discharged from the system. While this has proven to be effective there isn't really any research supporting this specific number. More recently some deviation has been allowed to monitor TDS in lieu of a specific dilution number. This has proven very effective even in pools where Bromine is used as the primary sanitizer. While we agree with dilution being an important factor for successful operation, there doesn't really seem to be any research supporting the 4 gallon number. This could prove to be very prohibitive for drought stricken states and could lead to pool closures. – REFERENCE: Ontario Health Code	Disagree. TDS is not the critical issue. Total organics is very important to water and air quality. Admittedly, the exact amount of water to discharge is not known and will likely vary between pools (based on location, source water, bather density, temperatures, ect.). It is generally accepted that some water must be discharged to remove contaminants that will otherwise accumulate in pools over time. The starting point is a system to measure the discharge and a minimal rate to start with.	4.7.4.2.3	This system shall be designed to discharge (or treat and reuse) aquatic venue water at a rate of up to 4 gallons (15 L) per bather per day per aquatic venue.
Recirculation and Filtration	4.7.5.1.1	Spas shall conform to the design, operation, and maintenance requirement of pools except as required below.	Spas shall conform to the design, operation, and maintenance requirement of POOLs except as required below. GENERAL COMMENT: Exceptions may also be needed for small spas; however more research/input is needed to determine what size limit to use for these exceptions.	Commenter did not propose a change. The MAHC affords the opportunity for the AHJ to issue a variance, upon request , to a requirement of the code.	4.7.5.1.1	Spas shall conform to the design, operation, and maintenance requirement of aquatic venues except as required below.
Recirculation and Filtration	4.7.5.2.1	All SPA VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25 hrs. for spa volumes less than 10,000 gallons or 0.5 hrs. for spa volumes greater than or equal to 10,000 gallons	All spa venues as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25hrs for spas volumes less than 10,000 gallons or 2) 0.5hrs for spa volumes greater than or equal to 10,000 gallons -- suggest several changes based on common practices -- ANSI/APSP recommendations for spas is 0.5 hrs for spa volumes typically meeting a true classification of spa. Therefore based on volume, units under 5,000 gallons would be more influenced by ANSI/APSP recommendations Spas greater than or equal to 5001 gallon spa pools should be equipped to have adequate filtration and recirculation of the system to minimize the opportunities for contamination. Larger volume spas would have a lower chance of contamination than smaller volume spas. Based on volume you should pursue turnover in the range of 1-2hrs	Partially agree. The turnover rates for all pools including spas have been revised.	4.7.5.2.1	All spas as defined in the MAHC shall be designed to have a maximum allowable turnover time of 0.5 hour or less.
Recirculation and Filtration	4.7.5.2.1	All SPA VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25 hrs. for spa volumes less than 10,000 gallons or 0.5 hrs. for spa volumes greater than or equal to 10,000 gallons	I oppose these turnover time requirements for spas. Although we often achieve these turnover times for spas less than 2000 gallons, is there science to back up a requirement for a flow rate of 333 gpm for a 5000 gallon spa? This spa would require a pump with a 10 hp motor and five 36-inch diameter sand filters at 10 gpm/sq ft. The pump suction and discharge piping would need to be 6" to meet the proposed pipe velocity requirements. I would suggest 0.5 hr turnover or less for spas less than 2000 gallons and 1.0 hr or less for larger spas.	Partially agree. The turnover rates for all pools including spas have been revised.	4.7.5.2.1	All spas as defined in the MAHC shall be designed to have a maximum allowable turnover time of 0.5 hour or less.
Recirculation and Filtration	4.7.5.2.1	All SPA VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25 hrs. for spa volumes less than 10,000 gallons or 0.5 hrs. for spa volumes greater than or equal to 10,000 gallons	(CT turnover rate for whirlpool spas is 1 hour.)	The turnover rates for all pools including spas have been revised.	4.7.5.2.1	All spas as defined in the MAHC shall be designed to have a maximum allowable turnover time of 0.5 hour or less.
Recirculation and Filtration	4.7.5.2.1	All SPA VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25 hrs. for spa volumes less than 10,000 gallons or 0.5 hrs. for spa volumes greater than or equal to 10,000 gallons	All SPA VENUES as defined in the MAHC shall comply with the following maximum allowable turnover times: 1) 0.25 hrs. for spa volumes less than 1100 gallons. 2) 0.5 hrs. for spa volumes more than 1100 gallons. -- The proposed turnover rates are not supported by most current or proposed codes. The proposed changes will add significant cost to new facility design and construction as well as any major renovation. What scientific evidence was presented to support these changes from current or proposed changes to existing codes? – REFERENCE: California Codes, Florida Draft Revisions to DOH Code, Alberta Building Code, Ontario Building Code	Partially agree. The turnover rates for all pools including spas have been revised.	4.7.5.2.1	All spas as defined in the MAHC shall be designed to have a maximum allowable turnover time of 0.5 hour or less.
Recirculation and Filtration	4.7.5.2.2	The turnover time shall be calculated based on the total volume of water divided by the flow rate through the filtration process.	What is the difference between this section and section 4.7.5.2.4? They both require the spa flow turnover time to be based on the filtration rate only. Delete one section.	Agree. This section deleted.	4.7.5.2.3	Turnover times shall be calculated based solely on the flow rate through the filtration system.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.8.1	Decks	*4.8 is "Decks and Equipment" and 5.8 is "Spectator Areas (Decks)". This is confusing when referencing 4.8.1.2.2 versus 5.8.1.2.2 when determining deck surface requirements.* – Aquatic Venue Surfaces and Equipment.	*Agree. Have reorganized the section for clarity.*	4.8.1	Decks
Design & Construction (D&C)	4.8.1.1	General Standards for All Decks	*American Concrete Institute* -- Expansion and / or construction joints should be required to utilize additional water proofing strategies such as water stops and flexible joints materials; as they are subject to failure of water tight integrity. In addition, they should be regularly inspected for signs of failure. – REFERENCE: ACI 504R-90 (Guide to Sealing Joints in Concrete Structures)	This language has been moved to the annex, but the recommendation has been implemented there.	4.8.1.1	General Standards for All Decks
Design & Construction (D&C)	4.8.1.1.5	Where concrete is used as a deck material, it shall be installed in accordance with the latest edition of the American Concrete Institute (ACI) Standards.	Add: "… and in accordance with local building code."	Recommendation implemented.	4.8.1.1.6	Where concrete is used as a deck material, it shall be installed in accordance with the latest edition of the American Concrete Institute (ACI) Standards and in accordance with local building codes.
Design & Construction (D&C)	4.8.1.1.5	Where concrete is used as a deck material, it shall be installed in accordance with the latest edition of the American Concrete Institute (ACI) Standards.	*Should be in accordance with local building code.* – Delete	Recommendation not implemented. Pool decks are not addressed by most building code and are currently in most local pool codes.	4.8.1.1.6	Where concrete is used as a deck material, it shall be installed in accordance with the latest edition of the American Concrete Institute (ACI) Standards and in accordance with local building codes.
Risk Management (RM)	4.8.1.2	Materials/Slip Resistance	*No standard* -- All walking surfaces shall be designed to have a cooefficient of friction or at least 0.6. (Alternate "shall be 'slip resistant.'" This is legally defensible) – Reference: Use ADA standards	*Disagree. After much discussion, a value was excluded due to the slip industry having many different meters that measure quite differently giving very different results. At this time, there is a definition provided for guidance. Product manufacturer's can provide details on their products that are most appropriate for an aquatic environment. We encourage more data collection to better address this issue.*	4.8.1.2	Standards for Perimeter Decks
Design & Construction (D&C)	4.8.1.2	*Standards for Perimeter Decks*	What is reasoning for requiring perimeter deck… if it is for drainage and water removal then some considerations apply, if it is for access by staff/guests then another set applies, if both then there has not been enough thought here.	It is primarily from a drainage / water removal standpoint to evaluate slopes, acceptable finishes, etc. Refer to the annex.	4.8.1.2	Standards for Perimeter Decks
Design & Construction (D&C)	4.8.1.2.3.1	Joints shall be at least 3/16 inches (0.48 cm) in continuous width. The maximum allowable vertical differential across a joint is 1/4 inches (0.64 cm).	4.8.1.1.2.1 above says 3/16 maximum and 1/2 inch differential … this is confusing	4.8.1.1.2.1 changed from ½" to ¼".	4.8.1.2.3.2	The maximum allowable vertical differential across a joint shall be ¼ inches (6.5 mm).
Design & Construction (D&C)	4.8.1.3	*Drains*	The specific language provided in the code directing that deck drains shall discharge to sanitary sewer should direct readers to 4.11.3.2 from this section.	Internal reference added.	4.8.1.3	Drains
Risk Management (RM)	4.8.1.1.1	There shall be no direct connection between the aquatic venue deck drains and the sanitary sewer system, or the aquatic venue gutter or recirculation system.	*Some jurisdictions require outdoor pool drains to discharge to a storm sewer.* -- …the sanitary sewer, or the aquatic venue gutter or recirculation system. If the agency with regulatory jurisdiction requires an outdoor pool to have deck drains, they shall discharge to a storm sewer system, ground surface, or holding pond, through an air-gap. – Reference: Some waste water systems do not allow outdoor pools to discharge to sanitary. All deck drains should have air-gaps to prevent the buildup of organisms and slime passed from the disposal system.	Agree. Added "storm" and last sentence to content.	4.8.1.3.3	There shall be no direct connection between the deck drains and the sanitary or storm sewer system, or the aquatic venue gutter or recirculation system. If the AHJ requires an outdoor pool to have deck drains that discharge to a storm sewer system, ground surface, or holding pond, they shall be plumbed through an air-gap, backflow preventer or other approved device as allowed by the AHJ.
Design & Construction (D&C)	4.8.1.3.3	Direct connection between the pool deck drains and the sewer or plumbing drainage systems shall be prohibited.	Not even with a backflow preventer?	Exception granted when used in conjunction with a backflow preventer and allowed by the AHJ.	4.8.1.3.3	There shall be no direct connection between the deck drains and the sanitary or storm sewer system, or the aquatic venue gutter or recirculation system. If the AHJ requires an outdoor pool to have deck drains that discharge to a storm sewer system, ground surface, or holding pond, they shall be plumbed through an air-gap, backflow preventer or other approved device as allowed by the AHJ.
Design & Construction (D&C)	4.8.1.3.3	Direct connection between the pool deck drains and the sewer or plumbing drainage systems shall be prohibited.	*Connection of deck drains to the pool should be specifically prohibited for clarity* -- Direct connection between the POOL DECK drains and the swimming pool, sewer or plumbing drainage systems shall be prohibited.	4.8.1.3.3.1 states that deck drains are not allowed to drain to the pool, pool gutter, or pool recirculation system.	4.8.1.3.3.1	Deck drains shall not drain to the pool, pool gutter, or recirculation systems.
Design & Construction (D&C)	4.8.1.3.4	Drain receptacle shall consist of non-corrosive or corrosion-resistant materials.	*Typo* -- Change "receptacle" to "receptacles"	Recommendation implemented.	4.8.1.3.4	Drain receptacles shall consist of non-corrosive or corrosion-resistant materials.
Design & Construction (D&C)	4.8.1.3.5	Drain covers shall be suitable for bare foot traffic and easily removable with a simple tool to facilitate regular cleaning.	*Need to clarify storm drain covers with openings of 1 inch or greater are not appropriate for bare foot traffic.* -- Drain covers shall be suitable for bare foot traffic with openings no wider than one-half inch and easily removable with a simple tool to facilitate regular cleaning.	Recommendation implemented.	4.8.1.3.5	Drain covers shall be suitable for bare foot traffic with openings no greater than one-half inch and easily removable with a simple tool to facilitate regular cleaning.
Design & Construction (D&C)	4.8.1.4.1	Perimeter deck and pool deck shall be constructed with a uniform, easily cleaned, and impervious material, such as concrete.	Truthfully, concrete is not impervious...	Recommendation implemented. "impervious material" deleted.	4.8.1.4.1	Perimeter deck and pool deck shall be constructed with a uniform, and easily cleaned, surface such as concrete.
Risk Management (RM)	4.8.1.2.1	All walking surfaces shall be designed to reduce tripping hazards.	*Consider defining "tripping hazard"* -- I didn't see anything defining what would constitute a "tripping hazard" but find the notation in the ANNEX for this subsection to be discussing "slip resistance" and not some maximum height difference and/or maximum gap distance between walking surfaces. – Reference: WAC 246-260-031(3)(d)	Agree. Content included in annex, "ANSI defines where a trip hazard is considered as a level change that is greater than 1/4 inch. Other definitions include an abrupt or unexpected level change in surfaces."	4.8.1.4.2	All decks shall have slip-resistant textured finishes, which are not conducive to slipping under contact of bare feet in wet or dry conditions.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.8.1.2.2	All walking surfaces in the aquatic venue area shall have a textured surface which is not conducive to slipping under contact of bare feet in wet or dry conditions.	All walking surfaces in the AQUATIC VENUE area shall have a textured surface which is not conducive to slipping under contact of bare feet in wet or dry conditions. *The textured surface on the deck areas should allow for proper drainage of water on the deck to deck drains. _ Reference:* DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT/ Water Quality Control Division / 5 CCR 1003-5 / STATE BOARD OF HEALTH / REGULATIONS PERTAINING TO SWIMMING POOLS AND MINERAL BATHS	*Agreed. Drainage is covered in Design and Construction. As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	4.8.1.4.2	All decks shall have slip-resistant textured finishes, which are not conducive to slipping under contact of bare feet in wet or dry conditions.
Risk Management (RM)	4.8.1.2.3	The walking surface shall not be rough so as to cause injury or discomfort to bathers.	The walking surface shall not be rough so as to cause injury or discomfort to BATHERs. *Discomfort is subjective* .	*Agree; moved this section to the annex as a suggestion or tip. This was also addressed in an above comment.*	4.8.1.4.2	All decks shall have slip-resistant textured finishes, which are not conducive to slipping under contact of bare feet in wet or dry conditions.
Design & Construction (D&C)	4.8.1.4.3	Carpet and artificial turf are prohibited materials for perimeter deck and pool deck.	*Carpeting is a suitable material for Pool Decks and has been used in the waterpark industry for decades without problem.* -- Delete "POOL DECK"	Recommendation not implemented. Refer to annex.	4.8.1.4.3	Carpet and artificial turf shall be prohibited materials for perimeter deck and pool deck.
Design & Construction (D&C)	4.8.1.4.3 ANNEX	Carpet and artificial turf have been found to be inappropriate finish materials for the wettest area immediately around the pool, i.e. perimeter deck. Although the materials that carpet is manufactured from are durable and do not support mold growth, when they are installed over a relatively impermeable surface, water flows very slowly through the carpet. Soil and contaminants entering into the carpet are not easily removed. Since the carpet stays wet longer, and soil and contaminants remain in the carpet mold and algae growth is observed. Therefore carpeting is not an acceptable finish material in the wet perimeter deck. Finish materials for the perimeter deck should not block deck drains or impair water flowing to deck drains. Carpeting can be installed beyond the deck drains, i.e. dry deck.	*How would rubber surfaces typically found on splashpads or spraygrounds and their perimeters be viewed under this section? I suggest it gets examined by the committee and addressed in this section.* -- Carpet and artificial turf have been found to be inappropriate finish materials for the wettest area immediately around the pool, i.e. perimeter deck. Although the materials that carpet is manufactured from are durable and do not support mold growth, when they are installed over a relatively impermeable surface, water flows very slowly through the carpet. Soil and contaminants entering into the carpet are not easily removed. Since the carpet stays wet longer, and soil and contaminants remain in the carpet mold and algae growth is observed. Therefore carpeting is not an acceptable finish material in the wet perimeter deck. Finish materials for the perimeter deck should not block deck drains or impair water flowing to deck drains. Carpeting can be installed beyond the deck drains, i.e. dry deck.	This standard is not intended to list all approved materials, only those which are prohibited or not permitted. Rubber surfacing could be submitted for review and approval by the AHJ.	4.8.1.4.3	Carpet and artificial turf have been found to be inappropriate finish materials for the wettest area immediately around the POOL, i.e. PERIMETER DECK. Although the materials that carpet is manufactured from are durable and do not support mold growth, when they are installed over a relatively impermeable surface, water flows very slowly through the carpet. Soil and CONTAMINANTS entering into the carpet are not easily removed. Since the carpet stays wet longer, and soil and CONTAMINANTS remain in the carpet mold and algae growth is observed. Therefore carpeting is not an acceptable finish material in the wet PERIMETER DECK. Finish materials for the PERIMETER DECK should not block DECK drains or impair water flowing to DECK drains. Carpeting can be installed beyond the DECK drains, i.e. DRY DECK.
Design & Construction (D&C)	4.8.1.5.1	Perimeter Deck [Size/Width]	What is reasoning for requiring perimeter deck… if it is for drainage and water removal then some considerations apply, if it is for access by staff/guests then another set applies, if both then there has not been enough thought here.	Perimeter decks are defined separately in this standard to address drainage / water removal standpoint to evaluate slopes, acceptable finishes, etc. Refer to the annex. However, perimeter decks are generally required for lifeguarding and safety purposes. Much of this section speaks to these requirements.	4.8.1.5.1	Perimeter Deck
Design & Construction (D&C)	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.	*For many non-traditional pools, there is no need for perimeter deck on all sides. Many of these pools have enclosures/barriers that do not allow for perimeter decking.* -- PERIMETER DECK areas of pools used primarily for recreational bathing …	Exemptions are given in a few areas throughout the code for "non-traditional" pools and unguarded pools.	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.
Design & Construction (D&C)	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.	*Existing State regulation* -- PERIMETER DECKS shall be 5 feet (1.524 m) minimum in unobstructed width around the POOL perimeter as prescribed in this section. – REFERENCE: Colorado Regulations	Jurisdictions across the U.S. are divided on this issue. Some state that 3 feet is acceptable, while others require 4 feet, 5 feet, 6 feet, and even 8 feet. 4 feet is the most widely used nationwide and was therefore adopted by the committee.	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.
Design & Construction (D&C)	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.	I can see requiring if there is access to the deck, but it is not needed where there is no access. Simply require slope away and drainage, why is 4 feet needed? Is there no provision for theming or rockwork adjacent to pool, or where features are provided? Slide or attraction columns are often within that 4 feet area, and unobstructed is not always feasible.	For lifeguarding and general safety. Refer to annex. Refer also to 4.8.1.5.2.1 for equipment exemptions to the unobstructed deck requirement.	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.
Design & Construction (D&C)	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.	Perimeter Decks shall be 5 feet minimum……. -- CT Public Swimming Pool Design Guide Section 17.1	Jurisdictions across the U.S. are divided on this issue. Some state that 3 feet is acceptable, while others require 4 feet, 5 feet, 6 feet, and even 8 feet. 4 feet is the most widely used nationwide and was therefore adopted by the committee.	4.8.1.5.1.1	Perimeter decks shall be 4 feet (1.22 m) minimum in unobstructed width around the pool perimeter as prescribed in this section.
Design & Construction (D&C)	4.8.1.5.1.1.2	Perimeter deck areas shall be flush with pool walls/copings except where special conditions exist as permitted by other sections of this code	*This provision is too over reaching. There are conditions where a raised beam is desirable and safe. Seating or transfer tier for example.* -- <Delete>	Recommendation implemented.	4.8.1.5.1.1.2	Perimeter deck areas shall be flush with pool walls/copings except where special conditions exist, such as elevated beam or parapet, raised transfer walls, or as permitted by other sections of this code.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.1.5.1.2	Perimeter decks shall be provided around 100% of the pool perimeter except where special conditions exist as permitted by other sections of this code.	· *Pools are sometimes built over bluffs or on high-rises. The rule as written is too restrictive for all conditions.* -- Perimeter decks shall be constructed around at least seventy five percent (75%) of the pool perimeter. Perimeter decks shall provide means of access to all portions of the pool. However, decks need not be contiguous with the pool perimeter and may divert around other pool structures such as water falls, landscape, diving boards, slides, and vanishing edges and the plunge basins associated with vanishing edges. EXCEPTIONS: Perimeter decks are not required for pools built against natural or man-made obstacles or where a perimeter deck would afford no improved access to the pool. Slide catch pools are required to have perimeter deck only on the egress side of the pool.	Recommendation not implemented. The AHJ has authority to grant exemptions (and they may be warranted for shallow water or narrow pools), but this module gives additional guidelines for equipment, slides, etc.	4.8.1.5.1.2	Perimeter decks shall be provided around 100% of the aquatic venue perimeter except where special conditions exist as permitted by other sections of this code.
Design & Construction (D&C)	4.8.1.5.1.2	Perimeter decks shall be provided around 100% of the pool perimeter except where special conditions exist as permitted by other sections of this code.	*For many non-traditional pools, there is no need for perimeter deck on all sides. Many of these pools have enclosures/barriers that do not allow for perimeter decking. Do not find any exceptions for non-traditional pools* -- PERIMETER DECK areas of pools used primarily for recreational bathing …	Exemptions are given in a few areas throughout the code for "non-traditional" pools and unguarded pools.	4.8.1.5.1.2	Perimeter decks shall be provided around 100% of the aquatic venue perimeter except where special conditions exist as permitted by other sections of this code.
Design & Construction (D&C)	4.8.1.5.1.3	For Unguarded Pools: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.	*Any obstacle on the deck should have a walkway around it so people can move quickly around the pool without having to reverse course. This is not limited to unguarded pools.* -- PERIMETER DECKS shall provide a walkway completely around the pool and provide sufficient access that the entire perimeter and depth is readily reachable by a pole and hook from the perimeter deck.	Recommendation not implemented. Refer to annex.	4.8.1.5.1.3	For Unguarded POOLS: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or 2) Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.
Design & Construction (D&C)	4.8.1.5.1.3	For Unguarded Pools: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.	Why is the requirement different for an unguarded pool? This is unjustly requiring more from a guarded facility	This is typical of many current standards. The logic often is that the perimeter deck is needed for lifeguards and access which wouldn't apply for these types of pools.	4.8.1.5.1.3	For Unguarded POOLS: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or 2) Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.
Design & Construction (D&C)	4.8.1.5.13	For Unguarded Pools: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.	*It appears an exception is made here for unguarded pools. Why?* -- <Delete>	Perimeter deck is required for guarding, therefore unguarded pools are viewed through a different lense. "Class C" unguarded pools have historically been viewed similarly.	4.8.1.5.1.3	For Unguarded POOLS: PERIMETER DECKS shall be provided in compliance with at least one of two options: 1) Provide PERIMETER DECK around 100% of the of the POOL perimeter; or 2) Provide PERIMETER DECK such that the entire perimeter and depth of the POOL is readily reachable by a pole and hook from the PERIMETER DECK.
Design & Construction (D&C)	4.8.1.5.2.1	Unobstructed deck area 4 feet (1.22m) minimum in width shall be provided for access around diving equipment, special feature stairways (such as a waterslide), and similar deck equipment.	Not always possible as columns or supports, cue line rails, may obstruct this area. Also do not want a deck to go under low stairs as this creates a striking hazard.	An exemption has been added for structural columns.	4.8.1.5.2.1	Unobstructed DECK area 4 feet (1.22m) minimum in width shall be provided for access around 1) diving equipment, 2) special feature stairways (such as a WATERSLIDE), 3) lifeguard stands, 4) diving boards, 5) similar DECK equipment, and 6) structural columns.
Design & Construction (D&C)	4.8.1.5.2.1	Unobstructed deck area 4 feet (1.22m) minimum in width shall be provided for access around diving equipment, special feature stairways (such as a waterslide), and similar deck equipment.	*Add structural columns to the list.* -- Unobstructed deck area 4 feet (1.22m) minimum in width shall be provided for access around diving equipment, special feature stairways (such as a WATERSLIDE), structural columns, and similar deck equipment.	Recommendation implemented.	4.8.1.5.2.1	Unobstructed DECK area 4 feet (1.22m) minimum in width shall be provided for access around 1) diving equipment, 2) special feature stairways (such as a WATERSLIDE), 3) lifeguard stands, 4) diving boards, 5) similar DECK equipment, and 6) structural columns.
Design & Construction (D&C)	4.8.1.5.2.4	Free area around equipment may consist of perimeter deck and/or pool deck, as applicable.	Add "dry deck" here as many stairs are not in areas where either perimeter deck or pool deck exists …	Recommendation not implemented. An example of where the immediate area around the equipment will be dry deck cannot be thought of. The area around noted equipment will always be trafficked by wet bathers and used for lifeguard / patron access.	4.8.1.5.2.4	Free area around equipment may consist of perimeter deck and/or pool deck, as applicable.
Design & Construction (D&C)	4.8.1.5.3.1	A continuous and unobstructed circulation path shall be provided in conformance with ADAAG requirements for an accessible route.	*Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.* – Delete	This is intending to reference general accessibility (building) and not pool which doesn't speak to deck. Reference changed to simply "ADA".	4.8.1.5.3.1	A continuous and unobstructed circulation path shall be provided in conformance with ADA requirements for an accessible route.
Design & Construction (D&C)	4.8.1.5.3.1	A continuous and unobstructed circulation path shall be provided in conformance with ADAAG requirements for an accessible route.	Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.	Recommendation not implemented. This is not intended to speak to pool ADA requirements, rather general building ADA requirements which address grade slopes.	4.8.1.5.3.1	A continuous and unobstructed circulation path shall be provided in conformance with ADA requirements for an accessible route.
Design & Construction (D&C)	4.8.1.5.3.2	Fixed equipment, loose equipment, and deck furniture shall not intrude upon the circulation path.	Again this is not necessary and/or practical. Think about lifeguard chairs as an example...	Lifeguard stand exemption would fall under the umbrella of 4.8.1.5.2.1 along with slides, diving boards, etc. 4.8.1.5.3.2 is intended to apply to lounge chairs, tables, etc. Clarifications have been made to both of these paragraphs.	4.8.1.5.3.2	Deck furniture shall not intrude upon the circulation path.
Design & Construction (D&C)	4.8.1.5.3.3	Circulation path(s) shall connect all site amenities, entrances and exits as required by ADAAG.	*Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.* -- Delete all after "exits"	This is intending to reference general accessibility (building) and not pool which doesn't speak to deck. Reference changed to simply "ADA".	4.8.1.5.3.3	Circulation path(s) shall connect all site amenities, entrances and exits as required by ADA.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.1.6	Wing Walls or Peninsulas	Proposed addition: 4.8.1.6.7. Wing walls or peninsulas shall not be used by the public. If walls are less than 18 inches in width, no one shall use the wall and it shall be so designed to eliminate any walking surface with rounding or cantilevered surfaces. In addition, raised guardrails shall be incorporated and signs or markings noting "keep off" or "stay off wall" provided.	Recommendation not implemented. Wing walls less than 18 inches are not allowed for anyone's access per 4.8.1.6.1. The majority of wing walls are very narrow and short and primarily used to truncate stairs or reconcile slopes between adjacent portions of the pool and are allowed by nearly every local and state jurisdictions currently. And the vast majority of those do not require a handrail or something similar.	4.8.1.6	Wing Walls or Peninsulas
Design & Construction (D&C)	4.8.1.6.1	Wing walls or peninsulas less than 18 inches (45.7 cm) in width shall not be considered a part of the perimeter deck.	*If peninsulas are not designed to prevent them being walked on, they will be walked on and are part of the deck.* -- WING WALLS or PENINSULAS less than 18 inches (45.7 cm) in width shall not be considered a part of the PERIMETER DECK where the wall is capped by a handrail or otherwise constructed to prevent it being used as a walking surface.	Recommendation not implemented. The majority of wing walls are very narrow and short and primarily used to truncate stairs or reconcile slopes between adjacent portions of the pool and are allowed by nearly every local and state jurisdictions currently. And the vast majority of those do not require a handrail or something similar.	4.8.1.6.1	Wing walls or peninsulas less than 18 inches (0.45 m) in width shall not be considered a part of the perimeter deck.
Design & Construction (D&C)	4.8.1.6.3	Wing walls and peninsulas shall be considered part of the pool. While they don't contribute to the overall pool area, they should not be accounted for in calculating the pool perimeter.	The statement in the second sentence is conflicting. Should the sentence start with "Since" instead of "While"? Also, the explanation provided may be more suitable for the annex.	Divided into separate provisions	4.8.1.6.3	4.8.1.6.3 Pool Perimeter D&C WING WALLS and PENINSULAS shall be considered part of the POOL. 4.8.1.6.3.1 Calculating D&C WING WALLS and PENINSULAS shall not be accounted for in calculating the POOL perimeter.
Design & Construction (D&C)	4.8.1.6.5	Deck drainage is not required for wing walls or peninsulas as they are considered part of the pool. The tops should be crowned to prevent standing water and sloped to the pool or overflow system.	The tops of the peninsulas "should be" crowned, or "SHALL" be crowned? A more definitive guidance is preferred.	Recommendation implemented.	4.8.1.6.5	Deck drainage is not required for wing walls or peninsulas as they are considered part of the pool.
Design & Construction (D&C)	4.8.1.6.6	Vertical depth markers shall be provided around wing walls and peninsulas in accordance with section 4.5.19	Add: "…with at lest 1 per side at a minimum."	Recommendation not implemented. One may not be necessary in all instances depending on spacing and use.	4.8.1.6.6	Vertical depth markers shall be provided around wing walls and peninsulas in accordance with MAHC Section 4.5.19.
Design & Construction (D&C)	4.8.1.7.1	An island not more than 18 inches (45.7 cm) in width shall be designed to prevent a person from walking on the island.	*"Prevent" will be difficult, especially if it's allowed to be accessed by lifeguard personnel. The result would be barriers that would likely impact lifeguard observation.* -- An ISLAND not more than 18 inches (45.7 cm) in width shall be designed to discourage prevent a person from walking on the ISLAND by not providing stairs or bridges to the ISLAND.	Recommendation implemented	4.8.1.7.1	An island not more than 18 inches (0.45 m) in width shall be designed to discourage a person from walking on the island by not providing stairs, ladders, or bridges to the island.
Design & Construction (D&C)	4.8.1.7.4	Vertical depth markers shall be provided around islands in accordance with section 4.5.19.	Add: "…with at least 1 visible from 360 degrees."	Recommendation implemented. Section changed to require that they are "visible from all sides."	4.8.1.7.4	Vertical depth markers shall be provided around islands in accordance with MAHC Section 4.5.19 and visible from all sides.
Design & Construction (D&C)	4.8.1.7.4	Vertical depth markers shall be provided around islands in accordance with section 4.5.19.	Should apply only when accessible to patrons - not needed if only for lifeguard use.	Recommendation not implemented. The vertical markings are provided for patrons in the water regardless if it's used by lifeguards.	4.8.1.7.4	Vertical depth markers shall be provided around islands in accordance with MAHC Section 4.5.19 and visible from all sides.
Design & Construction (D&C)	4.8.1.7.5	Horizontal depth markings and warning signs shall also be required per section 4.5.19 if the island is designed to be accessible.	*Clarify that accessible does not refer to ADA.* -- Change to "if the ISLAND is designed for bather use.	Recommendation implemented.	4.8.1.7.5	Horizontal depth markings and warning signs shall also be required per MAHC Section 4.5.19 if the island is designed for bather use.
Design & Construction (D&C)	4.8.1.7.6	An island designed for bather traffic shall be accessible by bridge or stairway from the pool.	*A ladder or ramp can safely provide access to an island.* -- <Add> " a ramp or ladder"	Recommendation implemented.	4.8.1.7.6	An island designed for bather traffic shall be accessible by bridge, ramp, ladder, or stairway from the pool.
Design & Construction (D&C)	4.8.1.7.6	An island designed for bather traffic shall be accessible by bridge or stairway from the pool.	How do you bridge from the pool to the island? This will create 1 million hazards and is a poor entry for this code. Deck access by bridge possibly, but also not necessary. Ladders are best access from pool and not even mentioned	Bridges would be from the deck, spanning the pool, to the island. Changes describing ramps and ladders also noted as means of access in this section.	4.8.1.7.6	An island designed for bather traffic shall be accessible by bridge, ramp, ladder, or stairway from the pool.
Design & Construction (D&C)	4.8.1.7.7	All bridges spanning a pool or any other structures not intended for interactive play shall have a minimum clearance of 7 feet (2.13 m) from the bottom of the pool to any structure overhead.	Must also address clearance from water surface to structure and visibility for lifeguards to see underneath.	Lifeguarding is a separate module of the MAHC. The clearance between the water surface and the bridge would only apply due to floatables and was considered when drafting this standard into the 7 ft requirement.	4.8.1.7.7	All bridges spanning a pool or any other structures not intended for interactive play shall have a minimum clearance of 7 feet (2.1 m) from the bottom of the pool to any structure overhead.
Design & Construction (D&C)	4.8.1.7.7	All bridges spanning a pool or any other structures not intended for interactive play shall have a minimum clearance of 7 feet (2.13 m) from the bottom of the pool to any structure overhead.	Proposed addition: Minimum distance between the top of the water and the bottom of the bridge shall not be less than 48". – REFERENCE: The limitations of the current proposal don't consider potential with shallow depths.	Recommendation not implemented. If there were shallow water depths, then the required minimum clearance between the water surface and the bridge would be even greater.	4.8.1.7.7	All bridges spanning a pool or any other structures not intended for interactive play shall have a minimum clearance of 7 feet (2.1 m) from the bottom of the pool to any structure overhead.
Design & Construction (D&C)	4.8.1.7.8	Any bridge that does not have guard rails, ropes, or a barrier shall require no diving markings consistent with section 4.5.19.4.	*Grammatical; could be misread.* -- Any bridge that does not have guard rails, ropes or a barrier shall require "NO DIVING" markings . . .	This section has been rewritten to require barriers due to the inherent elevations.	4.8.1.7.8	Any bridge shall have a minimum 42 inch (1.1 m) high barrier on both sides.
Design & Construction (D&C)	4.8.1.7.8	Any bridge that does not have guard rails, ropes, or a barrier shall require no diving markings consistent with section 4.5.19.4.	Proposed modification: Any bridge going over a water feature shall be designed and operated to deter jumping or diving into the water below. – REFERENCE: Ordinary height handrails would not prevent a teenager from easily jumping from the bridge to the water below.	This section has been rewritten to require a minimum 42" high barrier due to its inherent elevation over the pool. Motivated teenagers may still be able to jump with some effort; however, a 42" high barrier will be consistent with most building code requirements.	4.8.1.7.8	Any bridge shall have a minimum 42 inch (1.1 m) high barrier on both sides.
Design & Construction (D&C)	4.8.1.7.8	Any bridge that does not have guard rails, ropes, or a barrier shall require no diving markings consistent with section 4.5.19.4.	Why would this even be permissible? Must have perimeter barrier on any bridge structure…	Recommendation implemented. Minimum 42" high barriers required on both sides.	4.8.1.7.8	Any bridge shall have a minimum 42 inch (1.1 m) high barrier on both sides.
Design & Construction (D&C)	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a maximum 100 foot (30.5 m) long hose.	*100 foot hose max is not a reasonable limit* -- Delete all after "POOL DECK"	Section modified to read "a hose of adequate length." The intent is just to ensure that all areas of the perimeter deck and pool deck can be washed down properly with a hose.	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a hose of adequate length.
Design & Construction (D&C)	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a maximum 100 foot (30.5 m) long hose.	*Existing State regulation* -- Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down PERIMETER DECK and POOL DECK areas using a maximum 50 foot (15.24 m) long hose. – REFERENCE: Colorado Regulations	Modification to the section which requires a hose of adequate length to easily wash all perimeter deck and pool deck. Allows longer hoses if available and practical.	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a hose of adequate length.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a maximum 100 foot (30.5 m) long hose.	Overly burdensome for large waterparks. Too prescriptive, make it objective…. "so that the entire deck may be cleaned as needed." Who cares how much hose is used?	This section has been modified to read "a hose of adequate length." The intent remains that all perimeter and pool deck need to be able to be reached by a hose for sufficient cleaning.	4.8.1.9.1	Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down perimeter deck and pool deck areas using a hose of adequate length.
Design & Construction (D&C)	4.8.1.9.2	All water source points shall be equipped with backflow prevention devices.	Change "water source points" to "hose bibs".	Recommendation implemented.	4.8.1.9.2	All hose bibbs shall be equipped with backflow prevention devices.
Design & Construction (D&C)	4.8.2.1	Diving Envelope	It would be hard to determine the lifelong use of a diving facility at point of construction. Pools go from non-competitive use to competitive use without any formal notification. Thus designing a diving well based on use could be difficult. In CT we base the design standards on the length of the boards. Boards less than 14 feet have one set of standards and boards greater than 14 feet must comply with NCAA Standards. – REFERENCE: CT Public Swimming Pool Design Guide Section18.1- 18.5	True, but NCAA standards for instance are less stringent than NFSHSA in many aspects. If it is difficult to project the anticipated use during design for the life of the facility, then the designers and owners should argue for the most conservative standard.	4.8.2.1	Diving Envelope
Design & Construction (D&C)	4.8.2.1	Diving Envelope	*No change; supporting comment. Editorial Comment : Separating recreational swimming from competitive swimming is the most effective way to facilitate a practical minimum water depth for competitive use of starting platforms. Prohibiting and preventing use of starting platforms by recreational swimmers is paramount. Starting platforms should only be used by trained and proficient swimmers under the supervision of a trained coach.* -- Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.	Agreed, wording added to clarify.	4.8.2.1	Diving Envelope
Design & Construction (D&C)	4.8.2.1	Diving Envelope	*No change; supporting comment: Editorial Comment : Separating recreational swimming from competitive swimming is the most effective way to facilitate a practical minimum water depth for competitive use of starting platforms. Prohibiting and preventing use of starting platforms by recreational swimmers is paramount.* -- Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.	Agreed. Wording kept intact. (actually referring to 4.8.3.1)	4.8.2.1	Diving Envelope
Design & Construction (D&C)	4.8.2.1.2	If the venue does not have competitive diving, then the diving envelope must conform to the diving envelope standards of Table 1 and the Figure.	*Add figure reference.* -- If the venue does not have competitive diving, then the diving envelope must conform to the diving envelope standards of Figure 4.8.2.2.4.1.	Recommendation implemented	4.8.2.1.2	If the aquatic venue does not have competitive diving, then the diving envelope must conform to the diving envelope standards of MAHC Table 4.8.2.2.4.1: Diving Platform Areas, MAHC Figure 4.8.2.2.4.2: Diving Platform Longitudinal Section, and MAHC Figure 4.8.2.2.4.3: Diving Platform Cross Section.
Design & Construction (D&C)	4.8.2.2.1	Diving stands higher than 21 inches (53.3 cm) measured from the deck to the top of the butt end of the board shall have steps or a ladder and handrails.	Change to: "… butt end of the board or platform shall have steps…"	Recommendation implemented.	4.8.2.2.1	Diving stands higher than 21 inches (0.5 m) measured from the deck to the top of the butt end of the board or platform shall have steps or a ladder and handrails.
Design & Construction (D&C)	4.8.2.2.3	Diving stands or platforms that are 1 meter (3.28 ft) or higher must be protected with guard rails at least 30 inches (76.2 cm) above the board, extending at least to the edge of the water along with intermediate rails.	Should extend 1 foot beyond the edge of the coping and over the pool…	Recommendation not implemented because it is not consistent with current industry standards.	4.8.2.2.3	Diving stands or platforms that are 1 meter (3.38 ft) or higher must be protected with guard rails at least 30 inches (0.76 m) above the board, extending at least to the edge of the water along with intermediate rails.
Design & Construction (D&C)	4.8.2.2.4	Diving stands or platforms that are 2 meters (6.56 m) or higher must have guard rails with the top rail at least 36 inches (91.4 cm) above the board and a second rail approximately half the distance from the platform to the upper rail.	"6.56 ft." not "6.56m"	Recommendation implemented.	4.8.2.2.4	Diving stands or platforms that are 2 meters (6.6 ft) or higher must have guard rails with the top rail at least 36 inches (0.9 m) above the board and a second rail approximately half the distance from the platform to the upper rail.
Design & Construction (D&C)	4.8.2.2.4.1 FIGURE	Figure 4.8.2.2.4.1: Diving Platforms (see Code for Figure)	Modify value J for 0.5 and 0.75 meter to 16 feet. – REFERENCE: From work presented from CNCA in their previous standards	Recommendation not implemented. The length of these boards are shorter and refer to the lengths of dimension "J" for 1 meter and 3 meter boards for comparison.	4.8.2.2.4.1 Table	See Code for Table
Design & Construction (D&C)	4.8.3	Starting Platforms	Question – Will this, in the future, be applied to existing pools? If so, it will end many small college, HS, & club programs, as they will not be able to afford the required expense to make the necessary change. If for only new construction, then it is understandable. I believe there is miswording in the text of the proposed document, when referring to "springboards" and "jumpboards". Are you talking about an actual diving springboard (diving board) or to competitive swimming starting blocks? Improper training and reckless, individual horse-play is responsible for nearly all starting block injuries. When trained correctly, an athlete, regardless of size can execute a safe competitive start into water as shallow as 3 feet. Obviously, 3 ft. is not safe for beginners. NCAA and USA Swimming are currently at 4 ft. for minimum depth. But, to go to 6'7" is an extreme.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3	Starting Platforms

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.1	Starting platforms shall be installed and conform to Federation Internationale de Natation (FINA), U.S.A. Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High Schools Associations (NFSHSA) or other sanctioning body.	*It appears that the MAHC committee has selected a minimum depth recommendation for starting platforms that is tied to the minimum swimming pool depth established by FINA for the conduct of the Olympic Games. Please be aware that the 2 meter minimum depth for pools for the Olympic Games is a performance consideration specified for the elite levels of international competition. This dimension is a "fast pool" consideration not a safety factor. Experience has demonstrated that deep water allows for faster performances because the deep water significantly reduces turbulence in the pool. As the chair of the FINA Technical Rules Committee, I want you to know that this statement is incorrect. The only reference in the FINA rulebook to a minimum depth for starting blocks is Rule FR 2.3 which specifically requires a minimum depth of 1.35 meters (4 feet 6 inches) for pools with starting blocks. This dimension is consistent with the minimum depth standard of 4-feet to 5-feet utilized by the major competitive swimming governing bodies in the USA. It is important that the committee understand the intent and purpose of the 2-meter depth required for Olympic competition. Utilizing this "fast pool" performance factor as a required minimum depth for starting platforms is taking the FINA rule out of context. --* (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.1	Starting platforms shall be installed and conform to applicable SAFETY STANDARDs established by 1) Federation Internationale de Natation (FINA), 2) U.S.A. Swimming, 3) National Collegiate Athletic Association (NCAA), 4) National Federation of State High Schools Associations (NFSHSA), 5) YMCA, or 6) other sanctioning body.
Design & Construction (D&C)	4.8.3.1	Starting platforms shall be installed and conform to Federation Internationale de Natation (FINA), U.S.A. Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High Schools Associations (NFSHSA) or other sanctioning body.	Starting platforms shall be installed and conform to <u>applicable safety standards established by YMCA of the USA</u>, the Federation Internationale de Natation (FINA), USA Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High School Associations (NFHS), or other sanctioning bodies.	Agreed, wording changed.	4.8.3.1	Starting platforms shall be installed and conform to applicable SAFETY STANDARDs established by 1) Federation Internationale de Natation (FINA), 2) U.S.A. Swimming, 3) National Collegiate Athletic Association (NCAA), 4) National Federation of State High Schools Associations (NFSHSA), 5) YMCA, or 6) other sanctioning body.
Design & Construction (D&C)	4.8.3.1	Starting platforms shall be installed and conform to Federation Internationale de Natation (FINA), U.S.A. Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High Schools Associations (NFSHSA) or other sanctioning body.	*To better clarify the intent of the section.* -- Starting platforms shall be installed and conform to <u>applicable standards established by the</u> Federation Internationale de Natation (FINA), USA Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High School Associations (NFHS), <u>YMCA</u> or other sanctioning bodies.	Agreed. Wording added to section	4.8.3.1	Starting platforms shall be installed and conform to applicable SAFETY STANDARDs established by 1) Federation Internationale de Natation (FINA), 2) U.S.A. Swimming, 3) National Collegiate Athletic Association (NCAA), 4) National Federation of State High Schools Associations (NFSHSA), 5) YMCA, or 6) other sanctioning body.
Design & Construction (D&C)	4.8.3.1 Annex	Starting Platforms (Please see Annex for full text)	Correction: FINA's minimum starting depth is 4 feet 6 inches. Editorial Comment: Instruction and supervision is the primary key to safety. It is important that the Code and Annex recommend that coaches use proper training/teaching progressions when teaching swimmers competitive racing starts. Starting platforms should only be used by trained and proficient swimmers during practice and competition under the supervision of a certified coach. Coaches should also enforce safe starting skills. There is no definitive documentation or research that supports the statement "this depth is unsafe for high school age beginners. Five feet (1.52m) is on the edge of safety for a high school age male to make a starting error." There is no research to support the claim that 6 feet 7 inches is the safest starting depth. Also, 6'7" depth is not the recommended minimum starting depth for Olympic competition. FINA's minimum starting depth is 4 feet 6 inches. 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. We strongly suggest that you remove the final paragraph in this section since the referenced 1990 study actually reviewed the use of springboards and jumpboards and not starting platforms. The angle of entry for dives off of jumpboards and diving boards is entirely different than for racing starts. This study has no bearing whatsoever on racing start safety. -- (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed to alter wording. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. (**SEE PUBLIC COMMENT FOR TEXT)	4.8.3.1 ANNEX	Conform to Standard Codes (See annex for current language)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.1 ANNEX	Starting Platforms (Please see Annex for full text)	Correction: FINA's minimum starting depth is 4 feet 6 inches. Editorial Comment: Instruction and supervision is the primary key to safety. It is important that the Code and Annex recommend supervision of a certified coach. There is no definitive documentation or research that supports the statement "this depth is unsafe for high school age beginners. Five feet (1.52m) is on the edge of safety for a high school age male to make a starting error." There is no research to support the claim that 6 feet 7 inches is the safest starting depth. Also, 6'7" depth is not the recommended minimum starting depth for Olympic competition. We strongly suggest that you remove the final paragraph in this section since the referenced 1990 study actually reviewed the use of springboards and jumpboards and not starting platforms. The angle of entry for dives off of jumpboards and diving boards is entirely different than for racing starts. This study has no bearing whatsoever on racing start safety. -- (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.1 ANNEX	Conform to Standard Codes (See annex for current language)
Design & Construction (D&C)	4.8.3.1 Annex	Starting Platforms (Please see Annex for full text)	*See our comments for 4.8.3.3 (above).* -- This section should be withdrawn pending further study by the technical Committee. – REFERENCE: See our citations for 4.8.3.3 (above).	Agreed to Annex rewording	4.8.3.1 ANNEX	Conform to Standard Codes (See annex for current language)
Design & Construction (D&C)	4.8.3.1 ANNEX	Starting Platforms (Please see Annex for full text)	*The recommended Olympic competition depth of 6'-7" is not for safety purposes, rather for "fast water". FINA supports starting blocks for the majority of their facilities under 5 feet of water depth.* -- The intent is to require 6 feet 7 inches (2 m) water depth unless there is a governing body (e.g. FINA, USA Swimming, NCAA, NFSHSA, etc.) that is applicable. FINA and NCAA allow 4 feet (1.22 m) at starting platforms. As is well documented in case histories and litigation, this depth is unsafe for high school age beginners. Five feet (1.52 m) is on the edge of safety for a high school age male to make a starting error. The most conservative and safest starting depth is 6 feet 7 inches or 2-meters. This is consistent with the recommended minimum starting depth for Olympic competition.	Disagree. Recent data is limited on competitive diving starts and injuries since progressive training for shallow dives has been implemented. The MAHC has altered the MAHC based on this and public comment but recommends further data collection and analysis to inform future decision making. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.1 ANNEX	Conform to Standard Codes (See annex for current language)
Design & Construction (D&C)	4.8.3.1 Annex	Starting Platforms (Please see Annex for full text)	*This section contains misleading information that we would like to bring to your attention where it references use of "springboards and jumpboards". These two pieces of equipment are different from starting blocks that are used for competitive purposes. Springboards relate to diving boards that are used in a separate diving area and jumpboards are recreationally used devices that are more common in commercial pools and have little or no use in a competitive facility. The statistical information regarding these two pieces of equipment should not be misconstrued or otherwise misused when determining depths for starting blocks. References referring to the litigation and "the most conservative and safest" starting depth should be cited.* -- This section requires significant revision and study by the technical committee based on recent published research. – REFERENCE: Racing Start Safety: Head Depth and Head Speed During Competitive Starts into a Water Depth of 1.22m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2010, 4, 365-378. ********* Competitive Swimmers Modify Racing Start Depth Upon Request. White, Cornett, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 187-198. ********** Racing Start Safety: Head Depth and Head Speed During Competitive Swim Starts into a Water Depth of 2.29m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 14-31.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (***SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.1 ANNEX	Conform to Standard Codes (See annex for current language)
Design & Construction (D&C)	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	Add following: "only used by competitive swimmers trained in proper use of starting blocks." – REFERENCE: WAC 246-260-041(6)(b)	Agreed on rewording. Wording altered.	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	*Recent research and injury data shows that proper supervision and instruction, both of which are particular emphases of the NFHS, are more significant limiters of injury potential due to competitive racing starts than pool depth. Based on the above-referenced data from UNC, OSU and the Counsilmen Center for the Science of Swimming , the technical committee should start over on this section.* -- Starting platforms ~~shall~~ should be used only for competitive swimming competition and training under the supervision of a trained coach or instructor. -- REFERENCE: Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. …… Excerpted from research data compiled by Dr. Dawn Comstock, Principal Investigator, Center for Injury Research and Policy. …… White, J. C., Cornett, A. C., Wright, B. V., Willmott, A. P., & Stager, J. M. (2011). Competitive Swimmers Modify Racing Start Depth Upon Request. *International Journal Of Aquatic Research & Education* , *5* (2), 187-198.	Agreed. Wording changed.	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.
Design & Construction (D&C)	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	*Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor* . -- Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor. – REFERENCE: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf	Agreed. Wording added.	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.
Design & Construction (D&C)	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	*The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Joel Stager, Director, reports that the critical link to safe starting block starts is education. Editorial Comment: Proper supervision and instruction has and will continue to prevent more injuries than arbitrarily increasing the minim* -- Starting platforms shall be used only for competitive swimming competition and training only and only under the direct supervision of a coach or instructor. – REFERENCE: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed.	Agreed. Wording added.	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.
Design & Construction (D&C)	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Joel Stager, Director, reports that the critical link to safe starting block starts is education. -- Starting platforms shall be used only for competitive swimming competition and training only and only under the direct supervision of a coach or instructor. – REFERENCE: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf	Agreed. Wording altered.	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor* . -- Starting platforms shall be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). – REFERENCE: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.2	Starting platforms shall only be used for competitive swimming competition and training.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.2.1	Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.	Consider modifying: "If water depth is less than nine feet, staring blocks must be removed or covered with protective equipment unless used by competitive swimmers trained in proper use of starting blocks" – REFERENCE: WAC 246-260-041(6)(b)(ii)	Disagree. Prefer not to add a depth. Blocks should be used by recreational swimmers regardless of depth.	4.8.3.2.1 & 4.8.3.2.2	4.8.3.2.1 Supervision D&C Starting platforms shall only be used under the direct supervision of a coach or instructor. 4.8.3.2.2 Removed or Restricted D&C Starting platforms shall be removed if possible or prohibited from use during all recreational or non-competitive swimming activity.
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	· USA Swimming facilities development pool certification program guidelines. USA swimming is the leading swimming authority in the world. To mandate an increase in pool depth would have a devastating impact on competitive swim programs in America. The current USA Swimming standard of 4 ft water depth at the starting blocks is safe. Please consider consultation with USA Swimming before implementing these overly restrictive rules. -- Starting platforms shall be installed in a minimum water depth of 4 feet. – REFERENCE: Section 103.2 Water Depth in document - http://www.usaswimming.org/_Rainbow/Documents/3811efc7-eea6-4e32-a770-94b782a797d3/P-Flash%20certification%20process%20for%20pools%20is%20on%20our%20web%20site.pdf	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	• Dear Officers of CDC, I do not believe 6 feet and 7 inches is necessary for depth of pool for starting end or turn end. Swimmers may injure themselves in 6 feet of water as easy as in 4 to 5 feet, bases on the angle and propulsion of the dive. Such greater depth will result in delay in future pool building due to lack of funding for additional concrete / excavation costs / water treatment costs.This will trickle down to less overall pool water, and less opportunities for children to learn to swim, as well as compete. Such excessive limitations on the minimum depth (e.g. proposal of 6 ft , 7 inches) will direclty take away swimming pool capacity,, and this may result in INCREASED rate of drowning, due to this nationally generated curb on the development of new pools that may have blueprints for 5 feet of water in the start and turn ends. Thank you of rreconsidering this limitation. David Strider, RN, CCRN, MSN, MSB, ACNP. DNP General Chairperson - Virginia Swimming	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	2m is the depth specified by USA Swimming and FINA for championship meets for the sake of maximum speed, not safety. Testing has demonstrated that diving off blocks into 4 feet of water is just as safe as deeper water. -- Starting platforms shall be installed in a minimum water depth of 6 4 feet and 7 inches (2.01 m). -- The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*FINA does not require a depth of 6'7" for competition pools.* -- Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m) or in accordance with Competition Sanctioning Body such as FINA or NCAA. – REFERENCE: FR 2.3 Depth - A minimum depth of 1.35 metres, extending from 1.0 metre to at least 6.0 metres from the end wall is required for pools with starting blocks. A minimum depth of 1.0 metre is required elsewhere.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	-- Diving platforms shall be installed in a minimum water depth of 4 feet 6 inches. – REFERENCE: CT Public Swimming Pool Design Guide Section 16.6	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	-- Starting platforms shall be installed in a minimum water depth of 4 feet.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	Consider modifying: "conforming to the minimum nationally recognized starting block height of the sponsoring organization. Standards nationally recognized currently include: NFSHSA, NCAA, USS, FINA, -- REFERENCE: The reviewing authorities sponsoring the swim meets are moving to deeper depths. For swim teams to be able to continue there needs to be room for the changes needed for existing facilities.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Consistent with USA Swimming regulations* -- Change to, "In pools with water depth 4 feet (1.22 meters) or more at starting end, starting platforms shall not be higher than 2 feet 6 inches (.762 meters) above surface of water." – REFERENCE: USA Swimming Rule Book page 46, 103.13 Starting Platforms, Short Course Yards	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Delete Section. Point of Information : 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). Editorial Comment : The proposed 6'7" minimum depth arbitrarily changes standards set by governing bodies with no definitive research or analysis to support that 6'7" is safer than any other depth. Editorial Comment : More research is needed to establish a minimum uniform water depth. Currently no data or research exists. (**SEE PUBLIC COMMENT FOR FULL TEXT)*	Agreed on rewording, section not deleted. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Every sanctioning body of competitive swimming has implemented policies regarding minimum depth. Since implementation, there have been no reports of bottom strikes. It is important to note that increasing the minimum to over 6 feet would eliminate so many facilities that the impact on competitive swimming in the US would be catastrophic.* -- Starting platforms shall be installed in a minimum water depth of 4 feet and 0 inches.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*It is safe for competitive swimmers.USA Swimming doesn't have enough swimming pools for competitions deeper than 4 feet. Only beginners need deeper pools for practices.* -- New language in the main document: Starting platforms shall be installed in a minimum water depth of 4 feet (1.33 m) for competitive swimming competition. Minimum water depth for starts from starting platforms used for training only should be at least 6 feet and 7 inches (2.01 m). In the annex: FINA and NCAA allow 4 feet (1.22 m) at starting platforms. It is less than the best Olympic regulations, therefore the requirements for the swimmers starting from blocks have to be enforced: any competing swimmer has to maintain document signed by the coach about the proficiency in starting from the block. Only platforms at the side of the pool not less deep as 6 feet 7 inches (2 m) can be used for any training, for beginners practice of any age. – REFERENCE: USA Swimming National Convention report by Mick Nelson (from USA Swimming) about safe use of 4' pools in competitions. My own experience as 3 year practice as a stroke and turn judge.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Modify to be consistent with 4.5.1.9.4, and defer to governing bodies per annex and similar to the diving section.* -- Starting platforms shall be installed according to the governing body having jurisdiction or in a minimum water depth of 5 feet where no governing body applies ~~6 feet and 7 inches~~ (2.01 m).	Partially agree. The "No Diving' Markers are required at 5 ft and pertain to non-competitive diving---few pools cater only to competitive swimming. Starting block depths have been altered for competitive diving. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*National Collegiate Athletic Association ("NCAA") Rule 1-1-2-b-2 states in part "The water depth shall not be less than 4 feet (1.22 m) at the starting end of the racing course and should not be less than 3.5 feet (1.07 m) at the opposite end". This is the current playing rule that the NCAA Swimming & Diving committee has adopted, in light of what it considers to be a safe starting environment for starting off blocks by student-athletes of the collegiate age. NCAA Rule 1-1-2-a-1 states in part "a minimum water depth of 7 feet (2.13 m) is desirable for competition. " The NCAA Swimming & Diving committee adopted that language mainly for pools being constructed (with architectural plans after 9/1/1996) to allow for premium competition. Based upon information available and shared within the swimming community and other federations, it was determined that the 7 foot depth recommendation referred to was to allow elite competitors proper depth as it related to underwater swimming/kicking and for reducing water turbulence. (**SEE PUBLIC COMMENT FOR FULL TEXT)*	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*No empirical evidence of increased danger at that depth, nor empirical evidence showing a change to 2m will decrease any casualties.* -- Depth of water for competition starting blocks should follow FINA and USA Swimming recommendations of 1.35 meters. – REFERENCE: FINA guidelines and US Swimming's Risk Management firm.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Proposed change shall cause irreparable harm to many businesses, children, and the livelihood of many individuals depending on the use of aquatics facilities for their employment. The proposed changes will also do so much harm to the sport of swimming in the United States. Last year alone over 1,100 pools closed in the US. This rule change will force many more facilities to either move forward with extremely costly renovations or close their doors (at least for competitions) as well. We, in Middle Atlantic Swimming, are desperately trying to find more competitive opportunities for our athletes. This proposed rule change will only take competitive opportunities away. Likewise, Risk Management Services, the insurance company which provides coverage for all USA Swimming affiliated teams, has stated that the current allowable depth for starting platforms is more than enough to provide a safe depth for racing starts when a swimmer has been certified as being able to perform a racing start by a USA Swimming Coach Member.*-- Maintain current depth for use of starting platforms but require a depth of 6 feet for the teaching of racing starts until the swimmer is certified as proficient as per USA Swimming current standards.	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Safety, pools remaining open. -- Currently the minimum depth to use blocks in competition is 4.0 feet and according to Risk Management Services, there have been no bottom strikes since going to this depth. The US has lost over 1,100 pools in the country last season (2011-2012). Going to the new proposed depth will cause even more pools to go off line and be unusable for swim meets. If these new minimum depth requirements are passed, many of our existing pools will be useless for holding swim meets without major costly renovation.* -- Starting Block Depth should be 4 ft (1.2921m) for competitive swimming meets and competitions	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Same reference as above. Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). This also is a pool manufactures spec based on standard depth for steel pool walls and is not a safety feature backed up by any research. Editorial Comment: The proposed minimum depth arbitrarily changes the current industry standard with no research or analysis to support that 6'7" is safer than 4'. (**SEE PUBLIC COMMENT FOR FULL TEXT)*	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	Starting platforms shall be installed in a minimum water depth of 4 feet (1.22m).	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	Starting platforms shall be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). This also is a pool manufactures spec based on standard depth for steel pool walls and is not a safety feature backed up by any research. Editorial Comment: The proposed minimum depth arbitrarily changes the current industry standard with no research or analysis to support that 6'7" is safer than 4'. Editorial Comment: Greater pool depth does not guarantee racing start safety. (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m). This ruling will render many of the pools in the NJ, DE and PA area useless for swim competitions. There are not enough pools available already for all the swimmers in the Middle Atlantic LSC. USA Swimming requires us to certify that all our swimmers who step up on the blocks are racing start certified, so that they don't dive too deep. Renovation costs will probably force many of the affected pools to stop hosting swim meets. This includes high school swim meets and the summer rec leagues that are very popular in the Tri-State area. Please keep the pool depth for the blocks at the current 4.0 feet.*	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*The current depth of 4'0" is sufficient to safely use starting platforms. No injuries have been reported at that depth in our pool.* -- Starting Platforms shall be installed with a minimum depth of 6'7".	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	The FINA requirement of 6 feet 7 inches is based upon the dimensions of a "fast pool" designed for competitive swimming, and is based on a performance factor, not a safety factor. All other similar national swimming governing bodies that have safety as a paramount concern have established a minimum water depth of 4 feet. Moreover, recent study and injury data completed after the promulgation of safety based rules changes reveals data in contrast to the 1990 Gabrielson study. Specifically, research conducted by Dr. Fred Mueller of University North Carolina reveals that, since the NFHS changed its minimum starting depth to 4 feet over a decade ago, there have been no reported catastrophic injuries or fatalities related to racing starts. Dr. Dawn Comstock of The Ohio State University tracks noncatastrophic injury data at the high school level and has reported only 1 injury (a hand contusion suffered in practice) that resulted from contact with the bottom of the pool after diving off of a board, platform, or block over the same time period. Indeed, proper supervision and instruction are more significant limiters of injury potential due to competitive racing starts than pool depth. (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	The industry standard in the United States is 4 feet as evidenced by NCAA, NFHS, and USA Swimming rules. Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). Editorial Comment: The proposed 6'7" minimum depth arbitrarily changes the current industry standard with no definitive research or analysis to support that 6'7" is safer than 4' or any other depth. (**SEE PUBLIC COMMENT FOR FULL TEXT)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*The proposed depth change is drastic and renders many existing recreational pools out of compliance. Frequently, depth was determined by height of platform.* -- Starting platforms shall be permitted only where the pool depth in front of the platform is at least 5 feet for a distance of 16.5 feet from the pool end wall. – REFERENCE: USA Swim Regulations for Facilities Article 103.2 (5 feet); NCAA Rules and Regulations for Competitive Swimming and Diving (4 feet); National Federation of State High School Associations (4 feet)	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	This is much deeper than current requirement and many pools for competition are not even this deep? This will close many competition pools	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	*This will hurt many club, high school and college programs who cannot afford to reconstruct their pools to adhere to that depth.* -- Do not implement the 6'7" requirement for starting blocks	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	USA Swimming -- The minimum depth in most states for competitive high school swimming is 5.0 feet. Therefore, it is not recommended to have the minimum depth of water for starting platforms at 6 foot 7 inches. – REFERENCE: Facility Standards Section 103.2.2	Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. (**SEE PUBLIC COMMENT FOR FULL TEXT)	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.2 m).
Design & Construction (D&C)	4.8.3.6	Starting platforms shall be firmly secure and stable when in use.	*Industry Standards* -- Clarification of this statement is recommended. There are a variety of manufacturers that utilize a single moment type post connections; which do not constitute as, "firmly secure and stable when in use" because of the potential for flexing under load. If this type of system is acceptable then perhaps it should be given its own criteria.	The MAHC agrees that the draft code language ("starting platforms shall be firmly secure and stable when in use") could be worded better and each starting block manufacturer will have their own tolerances for installation which can be different for different starting blocks (single post, double post, etc.). Deferred to the manufacturers here and re-worded 4.8.3.6 to state "Starting platforms shall be installed and secured per manufacturer's recommendations at all times when in use."	4.8.3.6	Starting platforms shall be installed and secured per manufacturer's recommendations at all times when in use.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.6.11.5.1	N/A	*If the aquatic facility is properly staffed there is no need for the public to have direct access to an emergency telephone. This will also reduce occasions for false reports* -- Exception (a): The telephone required by 4.6.11.1 does not need to be accessible to AQUATIC VENUE users where sufficient AQUATIC VENUE non-safety/lifeguard staff are present to make any required emergency communication in a timely manner.	Agree. Created MAHC Section 4.6.11.1.1 and added language in annex. The MAHC now addresses the unstaffed venues as well as venues that would have trained emergency responders.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Risk Management (RM)	4.6.11.5.2	N/A	*Waterparks typically have trained EMS personnel, supervisors and alternative methods of communication (including cell phones and radios) to deal with emergencies that can effectively take the place of the telephone.* -- Exception (b): The requirements of 4.6.11.2 may be waived for aquatic facilities containing multiple AQUATIC VENUES if adequate alternative means of emergency communication are provided.	Agree. Created MAHC Section 4.6.11.1.1 and added language in annex.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	*This is going to be very expensive, particularly on apartment complexes and hotel/motels. It will also be abused w/o proper supervision.* -- A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	Partially agree. Code revised to accept alternate communication systems. See Annex for rationale for requirement.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	*"hard wired phones"* constitute an unfunded mandate.	Code revised to accept alternate communication systems.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	*Enhanced 911 systems use ANI and ALI to download location to the on-board navigation system in response vehicles so driving directions are provided to the location of the telephone. Sometimes corporate addresses are given instead of the address of the phone and that may need to be checked and corrected. Some cell phones and internet phone systems are unable to communicate ANI and ALI and are inferior communication systems that should not be allowed.* -- A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible to all pool users. In areas where enhanced 911 service is available, emergency telephones shall automatically communicate the Automatic Number Identification and Automatic Locator Information to the Enhanced 911 Computer System. The Automatic Locator Information shall provide the correct address or geographic location of the telephone. Other emergency notification systems shall be answered by a telecommunicator who only answers emergency calls and shall be capable of contacting 911 on its emergency trunk line to establish two-way communication between the caller and 911 – REFERENCE: Enhanced 911 Communication Protocol	Partially agree. Changes made regarding access by aquatic facility users	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	*Specify who it should be accessible to, otherwise it implies that someone could be able to summon someone else who has access.* -- A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible to the general public at the venue.	Agree. Changes made.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	Suggested Addition: *5.8.5.3.3.3: Unguarded Aquatic Facilities shall be required to have emergency procedures signage posted throughout the facility directing patrons to the emergency communication system location and outlining the process for summoning help.*	Agree. Code revised to include directions to location of emergency communication system in signage requirements.	4.8.5.1.1	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	*"…in a direct line of travel."* Does this mean it can be on the outside of a fence within 20ft of the venue, even if you have to walk 1000 feet to get outside to use it?	This was an internal Annex comment. Annex has been revised.	4.8.5.1.1 Annex	Emergency Communication Equipment (See annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	How can this say *"in no case…"* then follow that up with *"about 100 feet"*? How can anyone determine what that even means let alone enforce it? At a minimum remove the word *"about"*.	Agree. Annex comment. Annex revised.	4.8.5.1.1 Annex	Emergency Communication Equipment (See annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	Is this realistic for hotel/motel pools or home owner pools etc.	Revisions made including option for acceptance of alternative communication systems. Refer to Annex for rationale for requirement.	4.8.5.1.1 Annex	Emergency Communication Equipment (See annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.3.3	A hard wired emergency telephone or comparable alternative emergency communication system shall be required at all unguarded aquatic facilities and be immediately accessible.	Telephones do not need to be wired. Cell phones and radios are acceptable forms of communication.	Partially agree. Code revised to accept alternate communication systems. See Annex for rationale for requirement.	4.8.5.1.1 Annex	Emergency Communication Equipment (See annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.3.2	A permanent, indelible, and legible sign shall be posted and maintained at the emergency telephone with aquatic facility address, and emergency contact directions.	This is listed for "aquatic facilities without lifeguards", but should be included for aquatic facilities with lifeguards as well.	Agree. Changes made.	4.8.5.1.1.3	A sign shall be posted at the telephone providing dialing instructions, address and location of the aquatic venue location, and the telephone number.
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*In many waterpark situations, it is more of a nuisance than a help to use a stand or chair. Perhaps there should be language suggesting chair/stand use at a certain water depth.* - When Chairs/Stands are used, they shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	This should be accomplished without the use of secondary monitoring devices (i.e. mirrors or underwater cameras, etc.) Suggest: *"…to provide an unobstructed, direct line of sight, view of the entire zone of patron surveillance…"*	Disagree. There are other technologies unidentified today that could be very effective at facilitating an unobstructed view. What matters is that the location of an elevated stand, when used, should be placed to have an unobstructed view since the guard cannot move easily when in an elevated stand.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*While lifeguard chairs do provide ideal coverage in many cases, the code does not seem to "allow for or speak to" ground-level stations where the lifeguard is standing and/or roving. This is an important factor in many waterpark lifeguard stations as well as in splash pads or even shallow water baby pools, etc. It is also a recognized industry best practice to have ground level stations. In some cases, glare can only be cut down if there is a ground level station.* -- Suggest acknowledgement of alternative lifeguard stations, to include ground level stations. (Suggest also included in annex) – REFERENCE: I have had to create ground-level stations to guard floating features in a competition pool. The elevated station could not see through the glare and the ground level was the only answer.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*"Chairs/Stands MUST"* …the MUST should be removed. Suggest replacing *"Chairs/Stands MUST"* with: *"When chairs or stands are used"*	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*"Minimize the effects of glare. Where glare is a problem the venue may want to consider higher stands to help reduce/minimize the effects of the glare."* Higher chairs/stands may or may not help with glare issues and most definitely will result in increased risk to the lifeguards. Suggest deleting this and simply stating glare must be addressed.	Agreed. Annex wording modified.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*"The chairs/stand must: Provide a raised observation area for the lifeguard…"* Again, Think about wave pools, sky ponds, in water "assistive" positions, and similar venues that would, by code, now require these.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*"The chairs/stands must be designed: To be safe…"* How do you define *"safe"* and can anything truly be ensured safe?	Wording altered to define requirements. Refer to the Annex for guidelines.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*"The location of the chairs must give the lifeguards complete visibility to all parts of the pool area."* Change pool area to: *"zone of patron surveillance"*	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	Chairs/stands, minimum 4 feet in height, shall be venue appropriate… -- REFERENCE: CT Public Health Code Section 19-13-B33b(c)(2).	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*Editorial – Use of "zone specific structures" is unclear.* -- When determined to be appropriate for an aquatic venue, chairs/stands shall be positioned to provide…lifeguard station.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*Lack of work by committee to present material agreed upon and congruent with the code -- "The number of chairs is determined by the water surface size, the anticipated bather load, and the ability to provide complete surveillance of the zone…"* This is neither true nor supported by the code. Number of chairs is determined by number of lifeguards, which is determined based upon the lifeguard's ability to view the entire zone.	Wording modified. Refer to the Annex for guidelines.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*Not all guard zones are best surveyed from a chair or stand. Some zones are best supervised by a roving guard or lifeguard in the water.* -- Delete "Chairs/Stands" and replace with "Lifeguard Placement shall be venue appropriate and zone specific and be positioned so as to have an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station."	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	Remove ALL use of the word MUST…Shall or other objective words desired.	Annex is not code language but rationale, so the term MUST is not an issue.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	The section is vague. Who determines what is venue appropriate? A less ambiguous way of phrasing this would be to say "deemed appropriate by the facility's management."	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*The word must change to should. Do not feel that a higher stand will help reduce/minimize glare. This section is about the stands BUT feel that the section should be about lifeguard stations of which chairs/stand could be a part of that. The location of chairs/stations should be based on visibility, with response time a factor. Response time has been indicated here in the code so the number and locations of the stations need to reflect that.* -- The chairs/stand should: Minimize the effects of glare. Where glare is a problem, the venue should consider repositioning the lifeguard station (elevated or ground level) to allow complete visibility to all parts of the zone of patron surveillance. The location of the lifeguard stations must give the lifeguards complete visibility to all areas of the water (top, middle, bottom) for each zone of patron surveillance responsibility. The number of lifeguard stations is influenced by such factors as water surface size, ability of each lifeguard to see all areas of the each zone (top, middle, bottom), maximum bather load and types of activities. Each lifeguard station must allow for the lifeguard to respond quickly, within 30 seconds, to victims in the water.	Annex is not code language but rationale, so the term MUST is not an issue. The other items in this comment have been addressed for placement of lifeguards based on zones of patron surveillance and requiring positions based on performance to reach the edge of a zone in 20 seconds.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*There does not appear to be the ability to use a walking/standing guard for lifeguarding coverage.* -- Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station. On-foot lifeguards are permitted for additional surveillance responsibility should the venue require more lifeguards than what the minimum chair/stand requirement would dictate based on pool size.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*This is more of a definition not a requirement. It implies, because by the way it is written that all positions should have a chair/stand and such is not the case.* -- Chairs/stands, where required for adequate supervision and surveillance	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*This is more of a definition, not a requirement. It implies, because of the way that it is written that all positions should have a chair/stand and such is not the case. Should read: Chairs/stands, where required for adequate supervision and surveillance,* -- Standard should begin with: Chairs/stands, where required for adequate supervision and surveillance,	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	This is ridiculous; many lifeguard positions must be moving (roving) positions in order to see the entirety of the zone of protection. Why require a chair/stand in these instances.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	We disagree that every lifeguard chair/stand must have an unobstructed view of the entire zone of protection. In some cases, secondary monitoring devices such as a mirror or camera can be used to accomplish the same result. These devices (mirrors, cameras) are useful and effective tools for zone coverage. Also, there is no reference made or exception made for pools with roving guards or splash pools where lifeguards are in the water.	The code and annex have been revised and restructured. The design section for lifeguard chairs now only addresses criteria for permanently installed chairs . Zones of patron surveillance responsibilities are addressed in the Aquatic Facility Management section.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	*While chairs/stands provide a location that oftentimes improves a guard's field of vision, they are not always required, nor are they always a desirable station.* -- When lifeguard stands/chairs are provided, chairs/stands shall be venue appropriate and zone B specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station. – REFERENCE: Our rules removed previous citation for lifeguard chairs in 2004. Lifeguards do not always belong in the chair. If veiling reflections keep them from seeing their assigned area they need to get out of the chair and move to where they can see. This changes throughout the day and seasons.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1 ANNEX	Please see Annex for full text	Different venues pose different challenges. One type of chair, such as an elevated chair, may be beneficial in some circumstances, but not in other circumstances. The management should determine which type of station works best, whether it is a walking station, a lifeguard chair, or an elevated lifeguard chair.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1 ANNEX	Please see Annex for full text	*Editorial – this section does not take into account roaming positions. Design specs include preventing vandalism, fire, weather, and graffiti all of which may cause damage and difficult to prevent. Normal wear and tear is not possible to prevent but must be corrected.* -- Remove.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1 ANNEX	Please see Annex for full text	Requires pools that provide lifeguards should provide chairs or stands. No comment or exception made for pools with roving guards or splash pools where lifeguards are in the water.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.1	The designer shall consider impact on patron zone surveillance for placement of chairs and stands designed to be permanently installed so as to provide an unobstructed view of the patron surveillance zones
Lifeguard & Bather Supervision (LG)	4.8.5.1.1 #1	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	Lifeguard chairs should not be considered a *"base of operations"* this is in direct conflict to 6.3.4.1.7	Wording modified. Refer to the Annex for guidelines.	4.8.5.2.1 Annex	This line item refers to only those chairs that are permanently installed and does not indicate that a permanent chair or stand is required. The location of the chairs must give the qualified lifeguard complete visibility to all parts of the zone of patron surveillance. The number of chairs is determined by the ability to provide surveillance of the aquatic venue by creating zones of patron surveillance. It is intended that the designer should be working with an aquatic consultant or the owner/operator to make sure the location of chairs and stands allow for clear line of sight.
Lifeguard & Bather Supervision (LG)	4.8.5.1.1 #2	Chairs/Stands shall be venue appropriate and zone specific structures positioned as to provide an unobstructed view of the entire zone of patron surveillance responsibility for that lifeguard station.	Fixed position elevated stands/chairs have been proven to be not the best choice for lifeguards in all situations. In many instances glare can be increased by an elevated position and the risk of injury to lifeguards may be increased. The industry has worked hard at getting this stricken from pool codes, why would we want it as a requirement here? It can only be an option.	Section 4.8.5 is related to the design of chairs and stands. This section was reworded to clarify the design of the locations of chairs and stands to follow the plan for zones of patron surveillance, to provide unobstructed view per the plan, and to provide UV protection. It is also clarified to indicate only when elevated chairs are used so as not to presume an elevated chair would always be used.	4.8.5.2.2 Annex	Chairs and stands are exposed to elements; therefore, they should be made to withstand the environment. The intent for such a chair is to facilitate better surveillance and such the chair should be elevated sufficiently above the heads of bathers to have a better view and combat glare. Considerations for the safety of qualified lifeguards using these chairs should include access and egress as well as barriers to unauthorized access if installed at an elevation.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*Overly broad, incomplete, and vague* -- Needs clarification. As written, one cannot tell if the intention is a shade structure (such as an umbrella) or if the availability of lotion would be sufficient. Suggest adding: *4.8.5.1.2.1: Where stationary chairs/stands are concerned, a physical barrier (umbrella, shade structure) shall be provided. 4.8.5.1.2.2: For roving positions or positions in the water, operational controls (t-shirt, rash guards, sunscreen) shall be maintained…"* - or- consider an objective based statement such as: *"…Lifeguards must have face, eyes and upper torso protection at all times while performing on-duty lifeguard tasks."*	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*Chairs and Stands should only be used when they are practical. Kiddie areas and catch pools may require a guard to be in the water for increased safety. It is nearly impossible to keep these guards shaded at all times.* -- Means to reduce exposure to ultraviolet radiation should be provided where practical/possible.	Sections only speak to chairs when required vs. requiring them in all instances.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*Again, This may be impossible to adhere to in some positions. The UV may reflect up off of the water surface making this standard the way it is currently written impossible to meet. Not to mention the fact that the height of the chair may be problematic as the chair is too high and injuries are likely from entering the water from these elevated positions for LG's and patrons.* -- In the Annex, This standard states that it the chairs can be raised to minimize the effects of glare. Delete these suggestions.	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*Delete, as I have no idea what this means.* -- Delete: Provide in those situations where sun is a factor, the ability to use with sun protective devices	Agree. Annex has been revised.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Lifeguards shall be provided with a form of ultraviolet protection	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Needs clarification. As written, one cannot tell if the intention is a shade structure (such as an umbrella) or if the availability of lotion would be sufficient. Suggest adding: *4.8.5.1.2.1: Where stationary chairs/stands are concerned, a physical barrier (umbrella, shade structure) shall be provided. 4.8.5.1.2.2: For roving positions or positions in the water, operational controls (t-shirt, rash guards, sunscreen) shall be provided…"*	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Needs clarification. As written, one cannot tell if the intention is a shade structure (such as an umbrella) or if the availability of lotion would be sufficient. Suggest adding: (1) *4.8.5.1.2.1: Where stationary chairs/stands are concerned, a physical barrier (umbrella, shade structure) shall be provided. (2) 4.8.5.1.2.2: For roving positions or positions in the water, operational controls (t-shirt, rash guards, sunscreen) shall be maintained…"* - or- consider an objective based statement such as: *"For all positions where Lifeguards can be exposed to ultraviolet radiation, Lifeguards must have face, eyes and upper torso protection at all times while performing on-duty lifeguard tasks."*	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Not all lifeguard positions need a specific shade structure as natural or constructed elements can serve this purpose in some cases. Suggest re-wording so lifeguard positions where lifeguards that are be exposed to ultraviolet radiation, they must have face, eyes and upper torso protection while performing on-duty lifeguard tasks.	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Published scientific study -- Concerned about language. Is this referring to umbrellas? What about light reflection off the water. Does this mean we will need to find a way to protect against sun reflection off of the water? – REFERENCE: http://www.cdc.gov/cancer/skin/basic_info/prevention.htm	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	Suggest the following as replacement: *"For all positions where Lifeguards can be exposed to ultraviolet radiation, Lifeguards must have face, eyes and upper torso protection at all times while performing on-duty lifeguard tasks."*	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*This may be impossible to adhere to in some lifeguard positions. Also, wind can be a safety factor in providing protection from ultraviolet radiation exposure protection in wind-prone areas* -- Add "if possible or if safe".	Disagree. Lifeguards should be provided with UV protection where possible. Protection could be designed to withstand wind. Keep in mind, this is only for design of newly constructed elevated stands.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*This may be impossible to adhere to in some positions. Additionally, UV may reflect up off of the water surface making this standard the way it is currently written impossible to meet. Also in very windy locations, the use of umbrellas can be hazardous to the LG and patrons* -- Rewrite this code to: Means to reduce exposure to ultraviolet radiation should be provided where practical/possible.	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	*This section does not address roaming positions. No form of protection can eliminate all UV exposure due to time of day and positioning of chair/stand.* -- Remove.	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Lifeguard & Bather Supervision (LG)	4.8.5.1.2	All chairs/stands where lifeguards can be exposed to ultraviolet radiation shall be equipped with protection from such ultraviolet radiation exposure.	What is the intent? Is the intent for lifeguards to be protected ONLY when in a chair? This is a major liability exposure for the code and operators.	Agreed. The chair should have UV protection but this may be afforded by surrounding features. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	4.8.5.2.3	When provided, permanently installed chairs/stands, where qualified lifeguards can be exposed to ultraviolet radiation, shall include protection from such ultraviolet radiation exposure.
Design & Construction (D&C)	4.8.6.3.5	Exit gates or doors shall be allowed to swing outward.	*Children outside a pool area attempting to push open an unlatched gate should close, rather than swing open the gate.* -- Exit gates or doors shall ~~be allowed to~~ swing ~~outward~~ away from the swimming pool except where emergency egress codes require them to swing into the pool enclosure	Recommendation implemented.	4.8.5.3.5	Exit doors or gates shall swing away from the aquatic venue enclosure except where emergency egress codes require them to swing into the aquatic venue enclosure.
Design & Construction (D&C)	4.8.6.3.5	Exit gates or doors shall be allowed to swing outward.	*current language sounds permissive and not required.* -- Exit doors or gates shall swing outward from the pool enclosure.	Recommendation implemented.	4.8.5.3.5	Exit doors or gates shall swing away from the aquatic venue enclosure except where emergency egress codes require them to swing into the aquatic venue enclosure.
Design & Construction (D&C)	4.8.6.3.5	Exit gates or doors shall be allowed to swing outward.	*Current MAHC language is inadequate and fails to state what is required. This section should state the requirement, not what is"allowed." Should refer to the ISPSC.* -- Exit gates or doors shall open outward away from the aquatic venue ~~be allowed to swing outward~~. -- REFERENCE: ISPSC, Section 305.3	This section has been modified with alternate language.	4.8.5.3.5	Exit doors or gates shall swing away from the aquatic venue enclosure except where emergency egress codes require them to swing into the aquatic venue enclosure.
Design & Construction (D&C)	4.8.6.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical pool area including individual pools and/or grade levels.	*Not sure what is meant by "a logical pool area" or "exit door". What is the door exiting to? In waterparks, there a few if any barriers between pools – where would these gates/doors be placed?* – Delete	Recommendation not implemented. Additional language added to the annex. This section is intended to address large facilities where there may either be multiple pools, multiple grade elevations, or both. Exit gates must be provided to permit adequate emergency egress. For example, a facility with 10 pools split between different grade elevations should have the required number of exits spaced reasonably around the perimeter and not all at one grade elevation.	4.8.5.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical aquatic venue area including individual pools or grade levels or both.
Design & Construction (D&C)	4.8.6.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical pool area including individual pools and/or grade levels.	And/or" is a meaningless term. It can always be defined as "and" or "or." Do they need to do both things ("and'), or one of the things ("or").	Recommendation implemented. Changed to "individual pools or grade levels or both."	4.8.5.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical aquatic venue area including individual pools or grade levels or both.
Design & Construction (D&C)	4.8.6.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical pool area including individual pools and/or grade levels.	Delete this entire entry as it makes no sense and says nothing of value. If anything say exit must be provided.	Recommendation not implemented. Additional language added to the annex. This section is intended to address large facilities where there may either be multiple pools, multiple grade elevations, or both. Exit gates must be provided to permit adequate emergency egress. For example, a facility with 10 pools split between different grade elevations should have the required number of exits spaced reasonably around the perimeter and not all at one grade elevation.	4.8.5.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical aquatic venue area including individual pools or grade levels or both.
Design & Construction (D&C)	4.8.6.1.1	All pools, chemical storage spaces, and pool mechanical spaces shall have secure perimeter barriers preventing unauthorized entry.	Change "Pool" to "Facility/Venue"	Recommendation implemented. Changed to aquatic facilities	4.8.6.1.1	All aquatic facilities, chemical storage spaces, and pool mechanical spaces shall have secure perimeter enclosures preventing unauthorized entry.
Design & Construction (D&C)	4.8.6.1.1	All pools, chemical storage spaces, and pool mechanical spaces shall have secure perimeter barriers preventing unauthorized entry.	The use of the terms "Barriers" and "Enclosures" need to be consistent in this section. This should say Enclosure.	Recommendation implemented.	4.8.6.1.1	All aquatic facilities, chemical storage spaces, and pool mechanical spaces shall have secure perimeter enclosures preventing unauthorized entry.
Design & Construction (D&C)	4.8.6.1.3	Barriers shall be provided between chemical storage/ pool mechanical spaces and areas accessible to the public, in accordance with local building codes.	Change "Pool" to "Facility/Venue"	Recommendation not implemented.	4.8.6.1.3	Barriers shall be provided between chemical storage, pool, mechanical spaces, and areas accessible to the public, in accordance with local building codes.
Design & Construction (D&C)	4.8.6.1.3	Barriers shall be provided between chemical storage/ pool mechanical spaces and areas accessible to the public, in accordance with local building codes.	*Typically small pools (hotel) typically do not have separate rooms for chemical storage and pool equipment.* -- ~~BARRIERS shall be provided between CHEMICAL STORAGE/ POOL mechanical spaces and areas accessible to the public, in accordance with local building CODEs.~~	Acknowledged, but this section is stating that pool chemicals and equipment need to prevent public access.	4.8.6.1.3	Barriers shall be provided between chemical storage, pool, mechanical spaces, and areas accessible to the public, in accordance with local building codes.
Design & Construction (D&C)	4.8.6.2.1	Barriers shall be constructed in accordance with the state or local Building Code.	Modify: BARRIERS shall be constructed in accordance with the ~~state or local Building~~ AHJ CODE.	Recommendation implemented.	4.8.6.1.3	Barriers shall be provided between chemical storage, pool, mechanical spaces, and areas accessible to the public, in accordance with local building codes.
Design & Construction (D&C)	4.8.6.2.3	Enclosures shall be constructed in such a way as to discourage climbing. Horizontal mid-rails are not permissible. Chain-link fencing constructed with standard 2 inches (5.08 cm) mesh is considered climbable and is therefore not permitted. Chain-link fencing constructed of 1 1/4 inches (3.18 cm) mesh is permissible.	2-inch chain link is ok if slats installed to prevent climbing.	Recommendation not implemented. With the slats envisioned, the 2" chain link could still provide enough space for a toe-hold and unintended access.	4.8.6.2.2	Enclosures shall discourage climbing by not allowing nearby structures to simplify climbing over it, such as: light poles, site furnishings, overhanging tree limbs or other obvious footholds or handholds.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.6.2.3	Enclosures shall be constructed in such a way as to discourage climbing. Horizontal mid-rails are not permissible. Chain-link fencing constructed with standard 2 inches (5.08 cm) mesh is considered climbable and is therefore not permitted. Chain-link fencing constructed of 1 1/4 inches (3.18 cm) mesh is permissible.	*The MAHC should confine itself to the dimensional or construction requirements. The current language fails to provide a maximum and is therefore not enforceable. ISPSC Section 305.27 states the maximum opening formed by a chain-link fence shall not be more than 1.75".* -- ENCLOSURES shall be constructed in such a way as to discourage climbing. Horizontal mid-rails are not permissible. ~~Chain-link fencing constructed with standard 2 inches (5.08 cm) mesh is considered climbable and is therefore not permitted. Chain-link fencing constructed of 1 1/4 inches (3.18 cm) mesh is permissible.~~ Chain-link fencing shall have a maximum opening of 1-3/4 inches (4.4 cm). – REFERENCE: ISPSC Section 305.27	Recommendation implemented.	4.8.6.2.2	Enclosures shall discourage climbing by not allowing nearby structures to simplify climbing over it, such as: light poles, site furnishings, overhanging tree limbs or other obvious footholds or handholds.
Design & Construction (D&C)	4.8.6.2.4	Where a required emergency egress path runs through an area occupied by a POOL the emergency exit pathways from the building(s) shall be separated from unguarded POOL areas. Such separation must meet the requirements of an ENCLOSURE. Temporary or seasonal ENCLOSURES may be used as applicable, subject to the same physical requirements of permanent ENCLOSURES. Exception: Unguarded Pools.	What do you do with a guarded pool that is not being used and the emergency egress out of a building runs persons past the pool? This shouldn't be an emergency egress area.	There are many large facilities, or facilities that are in an open courtyard of a larger building that have to emergency egress in similar manners. They must pass through a separate defined enclosure if unguarded. It is only intended for emergency egress to continue and pass through, and if guarded, the lifeguards can help to manage this egress.	4.8.6.2.4.1	Where a required emergency egress path enters an area occupied by an outdoor aquatic venue, emergency exit pathways from the building(s) shall continue on deck of least equally unencumbered width, and continue to the enclosure and through gates.
Design & Construction (D&C)	4.8.6.2.4	Where a required emergency egress path runs through an area occupied by a POOL the emergency exit pathways from the building(s) shall be separated from unguarded POOL areas. Such separation must meet the requirements of an ENCLOSURE. Temporary or seasonal ENCLOSURES may be used as applicable, subject to the same physical requirements of permanent ENCLOSURES. Exception: Unguarded Pools.	Define "Unguarded" … is this no lifeguard or is this without a barrier?	No lifeguard.	4.8.6.2.4.1	Where a required emergency egress path enters an area occupied by an outdoor aquatic venue, emergency exit pathways from the building(s) shall continue on deck of least equally unencumbered width, and continue to the enclosure and through gates.
Design & Construction (D&C)	4.8.6.2.4	Where a required emergency egress path runs through an area occupied by a POOL the emergency exit pathways from the building(s) shall be separated from unguarded POOL areas. Such separation must meet the requirements of an ENCLOSURE. Temporary or seasonal ENCLOSURES may be used as applicable, subject to the same physical requirements of permanent ENCLOSURES. Exception: Unguarded Pools.	*I think the present language is in violation of IFC requirements. The pathway cannot pass through a door that might be locked while the building is occupied, per the IFC. This means the pool is off-limits for exiting any part of the building other than the pool, pool area and areas within the pool enclosure. This is applicable for either guarded or unguarded pools.* -- Isn't it simpler to say that "emergency egress pathways from building areas not part of the pool enclosure may not pass through the swimming pool enclosure? "Areas with locked doors within the pool area must be provided hardware allowing escape, exiting in the direction of the pool's fire exits."	This section does not speak to doors at all, so it is not in conflict with IFC. Doors and gates are scoped elsewhere. This section has been reworded to read: "Pool ENCLOSURES must not block or encumber a required emergency egress path from other structures. Where a required emergency egress path enters ~~runs through~~ an area occupied by an outdoor pool, ~~the~~ emergency exit pathways from the building(s) shall ~~be~~ continue on DECK of least equally unencumbered width, and continue to the ENCLOSURE and through GATES. Exit pathways shall be separated from ~~unguarded~~ poolS ~~areas~~ not in operation. Such separation must meet the requirements of an enclosure. ~~Temporary or~~ Seasonal separation ~~enclosures~~ may be ~~used as applicable~~ employed at seasonally operated POOLS, subject to the same physical requirements of permanent enclosures."	4.8.6.2.4.1	Where a required emergency egress path enters an area occupied by an outdoor aquatic venue, emergency exit pathways from the building(s) shall continue on deck of least equally unencumbered width, and continue to the enclosure and through gates.
Design & Construction (D&C)	4.8.6.2.4	Where a required emergency egress path runs through an area occupied by a POOL the emergency exit pathways from the building(s) shall be separated from unguarded POOL areas. Such separation must meet the requirements of an ENCLOSURE. Temporary or seasonal ENCLOSURES may be used as applicable, subject to the same physical requirements of permanent ENCLOSURES. Exception: Unguarded Pools.	Why would unguarded pools be exempt?	Different standards and considerations have been applied here and historically to unguarded pools and the attempt is not to deviate too far from the industry standard set forth by ANSI and other industry codes in this regard. Unguarded Pools (Class C pools) are not required to provide separated paths of egress, but must maintain unencumbered exit paths to and through the ENCLOSURE.	4.8.6.2.4.1	Where a required emergency egress path enters an area occupied by an outdoor aquatic venue, emergency exit pathways from the building(s) shall continue on deck of least equally unencumbered width, and continue to the enclosure and through gates.
Design & Construction (D&C)	4.8.6.2.5	Upper level building balconies shall not come to within ten feet horizontally of any POOL edge without a BARRIER of its own that is at least equal in height to that of the required POOL ENCLOSURE. Exception: Spectator areas, refer to 4.6.10 for further information.	Modify the distance from 10 feet to 15 feet. -- An average healthy adult doing a standing broad jump on level ground is able to go 7.5 feet. Provide the elevation above the pool and the 10 feet is not enough.	Recommendation not implemented. 10 feet is standard adopted from the state of Michigan's current standards.	4.8.6.2.5	Upper level building balconies shall not come to within ten feet horizontally of any pool edge without a barrier of its own that is at least equal in height to that of the required pool enclosure.
Design & Construction (D&C)	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall not be operable by patrons.	*– Does this mean, as the operator, I would be allowed to open the windows? If so, how far? What about if they are 10 feet above an accessible surface?*	Section modified to read, "where windows can be opened, they shall not open more than 4" and have a non-removable screen."	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall have a maximum opening width not to exceed 4 inches.
Design & Construction (D&C)	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall not be operable by patrons.	Modify: Windows on a building that forms part of a POOL ENCLOSURE shall have a maximum opening width not to exceed 4 inches ~~not be operable by patrons~~. – REFERENCE: A building manager is just as likely to open a window too wide as a patron, unless restricted.	Recommendation implemented.	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall have a maximum opening width not to exceed 4 inches.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall not be operable by patrons.	*No need to restrict windows and balcony doors on upper floors and ground-level windows could open to 4 inches without providing access to the pool.* -- Ground floor Windows on a building that forms part of a POOL ENCLOSURE shall ~~not be operable by patrons.~~ be child protected to prevent them being opened to provide more than a 4-inch opening.	Recommendation implemented. Where windows can be opened, they shall not open more than 4" and have a non-removable screen.	4.8.6.2.6	Windows on a building that forms part of a pool enclosure shall have a maximum opening width not to exceed 4 inches.
Design & Construction (D&C)	4.8.6.2.7	For the purposes of this section, height is measured from finished grade to the top of the barrier. Where a change in grade occurs at a barrier, height is measured from the uppermost grade to the top of the barrier.	Modify: For the purposes of this section, barrier height is measured from the side outside the pool enclosure area. Owners shall ensure that surrounding ground levels, structures, or landscaping do not reduce the effective barrier height. ~~finished grade to the top of the BARRIER. Where a change in grade occurs at a BARRIER, height is measured from the uppermost grade to the top of the BARRIER~~ -- REFERENCE: WAC 246-260-31(4)(i)	Recommendation implemented. Requirements on landscaping, structures, etc. is addressed in 4.8.6.2.2.	4.8.6.2.7	For the purposes of this section, height is measured from finished grade to the top of the barrier on the side outside of the aquatic venue Enclosure.
Design & Construction (D&C)	4.8.6.2.7.1	Enclosures shall not be less than 6 feet (1.83 m) in height.	*ISPSC Section 305.2.1 and IBC Section 3109.3 require public pools to be completely enclosed by a fence not less than 4 feet(1290mm) in height or a screen enclosure* -- Enclosures shall not be less than 4 ~~6~~ feet (1.22m) ~~(1.83m)~~ in height. General Comment, See Basis for change – REFERENCE: ISPSC and IBC.	Recommendation not implemented. Current state and local standards have a fair amount of disagreement on the preferred minimum height. Many allow 4 feet for unguarded pools (with higher minimum requirements for guarded public pools). However, it was felt that even unguarded pools have some hours of use and entry should be discouraged when it's not intended. 4 foot high fences are generally climbable, even with chain links of 1.75".	4.8.6.2.7.2	Enclosures shall not be less than 6 feet (1.83 m) in height.
Design & Construction (D&C)	4.8.6.2.7.2	All Other Barriers (Not Serving as Enclosures): Except where otherwise noted, all other barriers shall not be less than 42 inches in height.	*A 4-foot barrier is sufficient to prevent inadvertent entry by small children. Should use ICC pool fence requirement* -- Enclosures shall not be less than ~~6~~ 4 feet (1.83 m) in height.	Recommendation not implemented. Refer to annex.	4.8.6.2.7.3	All Other Barriers (Not Serving as Enclosures): Except where otherwise noted, all other barriers shall not be less than 42 inches in height.
Design & Construction (D&C)	4.8.6.2.7.2	All Other Barriers (Not Serving as Enclosures): Except where otherwise noted, all other barriers shall not be less than 42 inches in height.	*– I'm all for higher fences, but I can see that a 6-foot solid wood fence would restrict any possible emergency assistance from seeing into the pool to see the problem.* -- Any thought about outdoor pools and maintaining sight lines from outside the pool enclosure to the water surface? Suggest that at least a side of the pool enclosure be of an enclosure material and design that allows persons outside the enclosure to observe the pool for the purposes of emergency assistance and supervision. This could be important for moms, spectators, security guards, maintenance personnel and pool supervisors. It might also discourage some of the unintended use of the pool by less well behaved persons for swimming after-hours, partying and vandalism	Recommendation not implemented. The main purpose of enclosures is to discourage unintended access. It would be the designers and owners prerogative whether or not any part of the enclosure should be "see-through" for emergency assistance and supervision. There are many facilities whose main target demographic may want the privacy provided by a more solid enclosure to an outdoor pool discouraging voyeurism, etc.	4.8.6.2.7.3	All Other Barriers (Not Serving as Enclosures): Except where otherwise noted, all other barriers shall not be less than 42 inches in height.
Design & Construction (D&C)	4.8.6.3.1	All gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position.	*Pool enclosure may be much different in a waterpark versus a traditional pool. Not all gates/doors in a waterpark outer enclosure are or should be self-closing – especially when staffed during operational hours.* -- Need to define "pool enclosure"	Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.	4.8.6.3.1	All primary public access gates or doors serving as part of an aquatic venue enclosure shall be self-closing and self-latching from any open position.
Design & Construction (D&C)	4.8.6.3.1	All gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position.	*No language about lockable? I have to lock mainteance gates, but other gates can remain unlocked when the pool is closed?*-- You require it for indoor pools (4.8.6.4.2). Pools need to be locked when closed. I'm not picky about how as long as it is effective. Pools with keys, key cards or keypads should also be able to be locked when closed. I have to deal with continuing problems at condo association pools, as an example, where the residents have access 24 hours a day because they have a key. There should be a way to disable the lock or have a chain and padlock to assure security	Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.	4.8.6.3.1	All primary public access gates or doors serving as part of an aquatic venue enclosure shall be self-closing and self-latching from any open position.
Design & Construction (D&C)	4.8.6.3.1	All gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position.	NO, this must be removed … This is not possible when talking about emergency vehicle access points in waterpark/pool fences, or maintenance gates… Perhaps public access gates/doors as a clarifier	Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.	4.8.6.3.1	All primary public access gates or doors serving as part of an aquatic venue enclosure shall be self-closing and self-latching from any open position.
Design & Construction (D&C)	4.8.6.3.1.2	Propping open gates or doors is prohibited.	Change to: "Propping open perimeter enclosure gates/doors is prohibited."	Recommendation implemented.	4.8.6.3.1.4	Propping open perimeter enclosure gates or doors shall be prohibited.
Design & Construction (D&C)	4.8.6.3.1.2	Propping open gates or doors is prohibited.	*Not all gates/doors serve as pool/facility enclosures.* -- Except where staffed during operational hours, propping open gates or doors of an enclosure is prohibited	Recommendation not implemented. It's not believed that the code should state this.	4.8.6.3.1.4	Propping open perimeter enclosure gates or doors shall be prohibited.
Design & Construction (D&C)	4.8.6.3.3	Turnstiles may not form a part of a pool enclosure.	*Waterparks may have turnstiles that do form part of the overall facility enclosure. These are staffed and work quite well.* -- Delete	Recommendation not implemented. Concern is not while they are staffed but when they aren't staffed or during closed hours. It's not intended to prohibit turnstiles, but a secure enclosure that meets the requirements of this standard are necessary either before or after the turnstiles to complete a secure pool enclosure.	4.8.6.3.3	Turnstiles shall not form a part of a pool enclosure.
Design & Construction (D&C)	4.8.6.3.7	For Unguarded pools, self-latching mechanisms must be located not less than 3 ½ feet above finished grade and shall not be operable by small children on the outside of the pool enclosure.	Conflicts with other code entries requiring 48 inches	Noted, but unguarded pools have different standards.	4.8.6.3.7	For unguarded aquatic venues, self-latching mechanisms must be located not less than 3 ½ feet above finished grade.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.8.6.3.7	For Unguarded pools, self-latching mechanisms must be located not less than 3 ½ feet above finished grade and shall not be operable by small children on the outside of the pool enclosure.	*Uses non-mandatory (may). Further, there is a conflict in height of self-latching devices above finish grade between this section and the IPSC. Suggest using ISPSC Section 305.3 language.* – REFERENCE: ISPSC, Section 305.3	Recommendation not implemented. "May" is not used in this paragraph. It is felt that a latch 3" from the top of a 4 ft high gate, which would be allowed by ISPSC is not safe since small children can operate the gate from outside of the pool enclosure.	4.8.6.3.7	For unguarded aquatic venues, self-latching mechanisms must be located not less than 3 ½ feet above finished grade.
Design & Construction (D&C)	4.8.6.4.3	Where separate indoor and outdoor POOLS are located on the same site, a POOL ENCLOSURE shall be provided between them. Exception: Where all POOLS are operated continuously 12 months a year.	*The exception does not take into account two pools operating at different times of the day. Temporary emergencies can be compensated for. Routine operation should have permanent provisions to secure a pool separately* -- Reword or eliminate the exception. I can operate two pools continuously for 12 months per year, and have them open at different hours (e.g. Close outdoor pool at dusk, indoor open until 10:00 pm.)	Exception reworded so that only pools operating 12 months a year and on the same schedule have relief.	4.8.6.4.3	Where separate indoor and outdoor aquatic venues are located on the same site, an aquatic venue enclosure shall be provided between them.
Design & Construction (D&C)	4.8.6.5	Multiple Pools	Do wading pools need to be separated from other pools with a barrier? This section should direct readers to 4.12.9.2	Recommendation implemented	4.8.6.5.2	Wading pools do not need to be separated from other wading pools by a barrier. Reference MAHC Section 4.12.9.
Design & Construction (D&C)	4.8.6.5.2	Wading pools do not need to be separated from other wading pools by a barrier.	*A barrier is needed between separate children's activity areas and swimming pools* -- Wading pools shall be separated from deeper pools by a fence or barrier. Gates on wading pool barriers shall open away from the deeper pool. Wading pools do not need to be separated from other wading pools by a BARRIER.	Refer to 4.12.9 for barrier requirements between a wading pool and a swimming pool.	4.8.6.5.2	Wading pools do not need to be separated from other wading pools by a barrier. Reference MAHC Section 4.12.9.
Design & Construction (D&C)	4.8.7.3	Use of integral vacuum systems is prohibited.	*Industry Standards* -- Please clarify why the use of integral vacuum systems are prohibited.	For suction entrapment concerns.	4.8.7.3	Use of integral vacuum systems shall be prohibited.
Design & Construction (D&C)	4.8.7.3	Use of integral vacuum systems is prohibited.	*Integral vacuum fittings should not be prohibited, but should have a self-closing cap unless there is evidence of injuries from that type of fitting* -- When used, integral vacuum fittings shall comply with IAPMO SPS 4 – *Special use suction fitting for swimming pools, spas and hot tubs (for suction side automatic swimming pool cleaners).*	Recommendation not implemented.	4.8.7.3	Use of integral vacuum systems shall be prohibited.
Design & Construction (D&C)	4.8.7.3	Use of integral vacuum systems is prohibited.	Other parts of this code allow for this?	Don't believe this is accurate. This was prohibited at the SC's request.	4.8.7.3	Use of integral vacuum systems shall be prohibited.
Design & Construction (D&C)	4.8.7.4	Where portable vacuum cleaning equipment is used, they shall be powered by circuits having ground-fault circuit interrupters.	Not really a design/construction issue as required in MAHC. If anything say all circuits within the facility enclosure must be GFI protected.	Recommendation not implemented. Power requirements and infrastructure would fall under the lens of design.	4.8.7.4	Where portable vacuum cleaning equipment is used, they shall be powered by circuits having ground-fault circuit interrupters.
Design & Construction (D&C)	4.8.7.5	Separation between receptacles shall be a maximum of 100 feet (30.5 m).	Undue burden on large facilities such as waterparks, and quite frankly not necessary. Too Prescriptive make it objective…	Recommendation implemented.	4.8.7.5	Separation between receptacles shall be spaced so that all areas of the aquatic venue can be cleaned using a portable vacuum without the use of extension cords.
Design & Construction (D&C)	4.8.7.6	Any robotic cleaners shall utilize low voltage for all components that are immersed in the pool water.	Robotic cleaner not a design/construction issue … requirement belongs elsewhere	Recommendation not implemented. Specific cleaners are specified by the design community or furnished by the contractor.	4.8.7.6	Any robotic cleaners shall utilize low voltage for all components that are immersed in the pool water.
Design & Construction (D&C)	4.8.7.7	Any robotic cleaner power supply should be connected to a circuit equipped with a ground fault interrupter, and should not be operated using an extension cord.	*Add SHALL. current "should" language is permissive and not mandatory.* -- Any robotic cleaner power supply shall be connected . . .	Recommendation implemented.	4.8.7.7	Any robotic cleaner power supply shall be connected to a circuit equipped with a ground fault interrupter, and should not be operated using an extension cord.
Design & Construction (D&C)	4.8.6.8	The power cord length needs to be shorter than the distance between the receptacle and the edge of the pool in order to prevent the power supply from accidentally entering the pool water while connected.	*If this is current industry or NEC standard, then I'm unaware of it. If not, are there documented cases where this has been an issue? Would we be infringing upon the regulatory scope of the NEC? This could also be difficult to achieve and/or costly for many facilities since the solution would be different for each pool.* -- The power cord length needs to be shorter than the distance between the receptacle and the edge of the pool in order to prevent the power supply from accidentally entering the pool water while connected.	Recommendation not implemented. Viewed as a safety concern, and reasonably implemented for new facility design moving forward	4.8.7.8	The power supply power cord length shall be shorter than the distance between the receptacle and the edge of the closest aquatic venue.
Design & Construction (D&C)	4.8.7.8	The power supply power cord length shall be shorter than the distance between the receptacle and the edge of the pool.	Change to "…between the receptacle and the nearest edge of the closest pool."	Recommendation implemented.	4.8.7.8	The power supply power cord length shall be shorter than the distance between the receptacle and the edge of the closest aquatic venue.
Risk Management (RM)	4.9.1.1.1	In the absence of local codes, all chemical storage areas shall meet NFPA 5000: Building Construction and Safety Code requirements.	*The vast majority of jurisdictions use the International Building Code instead of NFPA 5000. Referencing the applicable section of the IBC is necessary.* -- In the absence of local CODEs, all chemical STORAGE areas shall meet NFPA 5000: Building Construction and Safety Code requirements, or IBC Section 307. -- *Reference* : IBC Section 307	*Agreed. Added text.*	4.9.1.1.1	The equipment enclosure, area, or room floor shall be of concrete or other suitable material having a smooth slip resistant finish and shall have positive drainage, including a sump pump if necessary.
Design & Construction (D&C)	4.9.1.1.1	The equipment enclosure, area, or room floor shall be of concrete or other nonabsorbent material having a smooth slip resistant finish and shall have positive drainage, including a sump pump if necessary.	Concrete is not non-absorbent, nor is it smooth unless finished that way which in turn is not non-slip	Recommendation implemented. Nonabsorbent changed to suitable.	4.9.1.1.1	The equipment enclosure, area, or room floor shall be of concrete or other suitable material having a smooth slip resistant finish and shall have positive drainage, including a sump pump if necessary.
Design & Construction (D&C)	4.9.1.1.2	Floors shall have a slope toward the floor drain adequate to prevent standing water at all times.	Should a minimum/maximum slope be specified?	Recommendation not implemented. Eliminating standing water is the objective. Specific minimum and maximum slopes would depend on several parameters including finish and texture of the floor.	4.9.1.1.2	Floors shall have a slope toward the floor drain adequate to prevent standing water at all times.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room or area.	*IPC thoroughly addresses hose bibbs, and MAHC should reference same to ensure consistency.* -- 4.9.1.1.4 At least one (1) hose bibb ~~with backflow preventer~~ shall be located in the equipment room or area and shall be installed in accordance with the International Plumbing Code.	A reference to the International Plumbing Code has been added.	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room.
Design & Construction (D&C)	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room or area.	*No need for the fixture to be indoors if one is nearby.* -- At least one (1) hose bibb with backflow preventer shall be located in the equipment room or accessible within 50 feet of the equipment room door.~~area.~~	Recommendation implemented.	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room.
Design & Construction (D&C)	4.9.1.2	*Construction*	This should be governed by local building code. No need for this specificity in this Code.	Not governed by all local codes. Some current pool standards speak to spacing, ventilation, lighting, and other requirements for the equipment room.	4.9.1.2	Construction
Design & Construction (D&C)	4.9.1.2	*Construction*	Should minimum clearances from the standard specified in annex be included in the code?	Other standards are referenced where applicable rather than excerpting certain parts of these standards for use in the MAHC.	4.9.1.2	Construction
Design & Construction (D&C)	4.9.1.2	*Construction*	*This should be governed by local building code. No need for this specificity in this Code.* -- Delete entire section	Recommendation not implemented.	4.9.1.2	Construction
Design & Construction (D&C)	4.9.1.3.1	All electrical wiring shall conform to the edition of NEC adopted by the local jurisdiction.	Replace local jurisdiction with AHJ. This should be wording throughout entire document.	Recommendation implemented.	4.9.1.3.1	All electrical wiring shall conform to the edition of NEC adopted by the AHJ.
Design & Construction (D&C)	4.9.1.3.2	Equipment, components, and their application and installation shall conform to the NRTL listing.	Spell out NRTL	Recommendation implemented.	4.9.1.3.2	Equipment, components, and their application and installation shall conform to the National Recognized Testing Laboratories (NRTL) listing.
Design & Construction (D&C)	4.9.1.8	Separation from Chemical-Storage Spaces	*Should be in accordance with local building code.* -- Delete entire section	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable	4.9.1.7	Separation from Chemical Storage Spaces
Design & Construction (D&C)	4.9.1.8.2	Doors and Openings	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.1.7.2	Doors and Openings
Design & Construction (D&C)	4.9.1.8.2.1	A door or doors shall not be installed in a wall between such equipment rooms and an interior chemical-storage space.	*This is VERY common in practice.* -- ~~A door or doors shall not be installed in a wall between such equipment rooms and an interior chemical-storage space.~~	Recommendation not implemented. It may be common in practice, but it shouldn't be continued as it's not best practice and can pose a significant health/safety concern. Combustion equipment will eventually result in leaking carbon monoxide if chemical doors are left open and fumes are able to get to the combustion equipment.	4.9.1.7.2.1	A door or doors shall not be installed in a wall between such equipment rooms and an interior chemical storage space.
Design & Construction (D&C)	4.9.1.8.2.3	Spaces containing combustion equipment, air-handling equipment, and/or electrical equipment and spaces sharing air distribution with spaces containing such equipment shall be isolated from natatorium air.	*This section ignores the ventilation requirements of the International Fire Code (IFC) and International Building Code. . See: 2012 IFC - Section 5004.3 Ventilation. Indoor storage areas and storage buildings shall be provided with mechanical exhaust ventilation or natural ventilation where natural ventilation can be shown to be acceptable for the materials as stored. Exception: Storage areas for flammable solids complying with Chapter 59.* -- 4.9.1.8.2.3 There shall be no ducts, grilles, pass-throughs, or other openings connecting such equipment rooms to chemical-storage spaces except as permitted by the International Fire Code and International Building Code. – REFERENCE: IFC, Section 5004.3	Recommendation implemented. Reference to the International Fire Code added	4.9.1.7.2.3	Spaces containing combustion equipment, air-handling equipment, and/or electrical equipment and spaces sharing air distribution with spaces containing such equipment shall be isolated from natatorium air.
Design & Construction (D&C)	4.9.1.7.3.1 ANNEX	Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room should slope back into the equipment room in such a way as to prevent any equipment-room spills from running under the door into the natatorium. Exceptions may include: 1) This may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor. 2) This may be met by a continuous dike not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor. Note: Equipment-room floor drains may be required and all designs shall be compliant with ADA as they may be applicable. Even if pool chemicals and cleaning supplies are not in the equipment room, there is a very good chance that other fluids may be, e.g. ethylene-glycol heating fluids, petroleum refrigeration oils, polyol-ester refrigeration oils, alkyl-benzene refrigeration oils, other lubricants, caustic or acidic coil cleaners, etc.	*This may be viewed by authorities as either a safety hazard and/or an ADA issue.* -- Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room should slope back into the equipment room in such a way as to prevent any equipment-room spills from running under the door into the natatorium. Exceptions may include: 1) This may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor. 2) This may be met by a continuous dyke not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor. *Note: Equipment-room floor drains may be required.* Even if pool chemicals and cleaning supplies are not in the equipment room, there is a very good chance that other fluids may be, e.g. ethylene-glycol heating fluids, petroleum refrigeration oils, polyol-ester refrigeration oils, alkyl-benzene refrigeration oils, other lubricants, caustic or acidic coil cleaners, etc.	Recommendation implemented. Note added that all designs shall be compliant with ADA as they may be applicable.	4.9.1.7.3.1	Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room should slope back into the equipment room in such a way as to prevent any equipment-room spills from running under the door into the natatorium. Exceptions may include: (SEE ANNEX FOR FULL TEXT)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.9.1.8.3.1.1	Exception 1. This requirement may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor.	*This section ignores the IBC Section 1003.5 or as part of the accessible route requirements of Section 1104, including Section 1104.3.1) and Section 5004 of the International Fire Code regarding storage of hazardous material or equipment.* -- 4.9.1.8.3.1.1 Exception 1. This requirement may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor. General Comment – REFERENCE: IBC Section 1003.5, Section 5004 of the International Fire Code	Recommendation not implemented. Mechanical spaces are exempt from accessibility requirements.	4.9.1.7.3.1.1	Exception 1: This requirement may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor.
Design & Construction (D&C)	4.9.1.8.3.1.2	Exception 2. This requirement may be met by a continuous dyke not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor.	*Although dyke is acceptable spelling it has social implications.* -- (Replace dyke with dike.)	Recommendation implemented.	4.9.1.7.3.1.2	Exception 2. This requirement may be met by a continuous dike not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor.
Design & Construction (D&C)	4.9.1.8.3.2.1	The door, frame, and automatic closer shall be installed and maintained so as to ensure that the door closes completely and reliably without human assistance.	*The section should require that the door closes and 'latches'.* -- The door, frame, and automatic closer shall be installed and maintained so as to ensure that the door closes completely and ~~reliably~~ latches without human assistance.	Recommendation implemented.	4.9.1.7.3.2.1	The door, frame, and automatic closer shall be installed and maintained so as to ensure that the door closes completely and latches without human assistance.
Design & Construction (D&C)	4.9.1.9	Other Equipment Room Guidance	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.1.8	Other Equipment Room Guidance
Design & Construction (D&C)	4.9.1.9.3	Where an equipment room contains equipment requiring regular service or maintenance, the room shall be so designed and constructed as to minimize the hazards of such maintenance and/or service.	"and/or" is not the appropriate use. Use either "and" or "or." I believe "and" works here.	Recommendation implemented.	4.9.1.8.3	Where an equipment room contains equipment requiring regular service or maintenance, the room shall be so designed and constructed as to minimize the hazards of such maintenance and service.
Risk Management (RM)	4.9.1.1	All chemical storage areas shall meet local building and fire codes.	*Outdoor Storage Areas.* -- All chemical Storage areas shall meet local building codes and / or fire Codes	*Agreed. Changed language to state* "All chemical storage areas shall meet applicable local building and fire codes."	4.9.2	Note: Nothing in this section shall be construed as providing relief from applicable requirements of fire codes, mechanical codes, electrical codes, etc.
Design & Construction (D&C)	4.9.2.1	Outdoor / Indoor Storage	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.1	Outdoor / Indoor Storage
Design & Construction (D&C)	4.9.2.1 to 4.9.9.2	See Code for full Text	This should be governed by local building code. No need for this specificity in this Code	MAHC defers to the local building codes and AHJ throughout, especially if requirements are more stringent. Not all jurisdictions nationwide follow the same practices, so the best practices are adopted here especially for those locales that don't have the regulations.	4.9.2.1 to 4.9.9.2	See Code for full Text
Design & Construction (D&C)	4.9.2.1.1	Pool chemicals, acids, fertilizers, salt, de-icing chemicals, oxidizing cleaning materials, other corrosive or oxidizing chemicals, and pesticides should be stored outdoors or in a well-ventilated structure not intended for occupation.	*Pool chemicals should not be stored outdoors unless they are kept in a protective enclosure to prevent access by the public and protect the chemicals from sunlight, heat, rain, etc.* -- Pool chemicals, acids, fertilizers, salt, de-icing chemicals, oxidizing cleaning materials, other corrosive or oxidizing chemicals, and pesticides should be stored outdoors in a protective enclosure such as ~~or in~~ a well-ventilated structure not intended for occupation.	"In a protective enclosure" added.	4.9.2.1.1	Pool chemicals, acids, fertilizers, salt, de-icing chemicals, oxidizing cleaning materials, other corrosive or oxidizing chemicals, and pesticides should be stored outdoors in a well-ventilated protective enclosure.
Risk Management (RM)	4.9.1.6	Chemical storage and pump rooms shall be equipped with an appropriate emergency shower and eyewash station in proximity to the chemical storage rooms in accordance with ANSI Z358.1-2004 (Standard for Emergency Eyewashes and Shower Equipment).	*Would these be required in semi-public facilities (hotels, motels, etc.)? if so … good luck in trying to get them to put them in!* -- Delete entire section.	Disagree. This is an OSHA requirement. These can be plumbed or portable but it is required to protect employees.	4.9.2.1.6	In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided.
Risk Management (RM)	4.9.1.6	Chemical storage and pump rooms shall be equipped with an appropriate emergency shower and eyewash station in proximity to the chemical storage rooms in accordance with ANSI Z358.1-2004 (Standard for Emergency Eyewashes and Shower Equipment).	*Not necessary with chlorine tablets. Costly addition for the smaller pools.* -- Chemical storage and pump rooms, where liquid chemicals are used, shall be equipped with an appropriate emergency shower and eye wash station…	Disagree. We do not agree that this is just about liquid chemicals. Dust, particulate, and fragments of solid chemicals, including pucks/briquettes can also cause serious eye and other injury. Mixing accidents can also expose workers regardless of whether the chemical was solid or liquid. However, eyewash stations must be provided depending on the manufacturer's MSDS so we have modified this statement by adding the following to the existing statement: "when required by the manufacture's MSDS".	4.9.2.1.6	In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided.
Design & Construction (D&C)	4.9.2.1.6	In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided. If more stringent requirements are dictated by the AHJ, then those shall govern and be applicable.	*The eyewash station should be allowed outside of the chemical room if desired, especially to keep functional and away from harsh chemicals.* -- In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided. The eyewash station may be provided outside of the chemical room as an alternative. If more stringent requirements are dictated by the AHJ, then those shall govern and be applicable.	Recommendation implemented.	4.9.2.1.6	4.9.2.1.6 In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided. 4.9.2.1.6.1 Outside D&C Eyewash stations may be provided outside of the CHEMICAL STORAGE SPACE as an alternative. 4.9.2.1.6.2 AHJ Requirements D&C If more stringent requirements are dictated by the AHJ, then those shall govern and be applicable.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.9.2.10.1	An ozone equipment room shall not be used for storage of chemicals, solvents or any combustible materials, other than those required for the operation of the re-circulation and ozone generating equipment	*MAHC requires emergency ventilation in Section 4.9.2.10.2. The IFC also requires continuous ventilation but at a much lower exchange rate. It could be possible for only the emergency system to be installed since the user may see that is all that is stated in this document. Adding the new section will meet the IFC/IBC/IMC requirements. Then the 'emergency ventilation' system will kick in at 60 air changes per hour.* -- Ozone equipment rooms shall be equipped with an emergency ventilation system capable of 60 air changes per hour. Suggest adding a new section as follows: 4.9.2.10.1.1 The ozone equipment room shall be provided with continuous ventilation of 6 air changes per hour. – REFERENCE: See Section 6005.3.2 of the IFC	Recommendation implemented. This was a typo in the draft. 6 air changes were intended, not 60.	4.9.2.10.1	An ozone equipment room shall not be used for storage of chemicals, solvents or any combustible materials, other than those required for the operation of the re-circulation and ozone generating equipment.
Design & Construction (D&C)	4.9.2.10.1	An ozone equipment room shall not be used for storage of chemicals, solvents or any combustible materials, other than those required for the operation of the re-circulation and ozone generating equipment	*Why does ozone require its own room? Ozone DIN side stream needs to be defined.* -- Ozone ~~Rooms~~	Section modified to attempt to clarify that a dedicated room is not required. DIN side stream should be addressed by the Disinfection & Water Quality module.	4.9.2.10.1	An ozone equipment room shall not be used for storage of chemicals, solvents or any combustible materials, other than those required for the operation of the re-circulation and ozone generating equipment.
Design & Construction (D&C)	4.9.2.10.2 & 3	4.9.2.10.2 Ozone equipment rooms shall be equipped with an emergency ventilation system capable of 60 air changes per hour. 4.9.2.10.3 Ozone rooms which are below grade shall be equipped with forced-draft ventilation capable of 60 air changes per hour.	· *Typographical errors.*-- "60 air changes per hour" in sections 4.9.2.10.2 and 4.9.2.10.3 are typographical errors, it should be "6 air changes per hour" (per Uniform and International Fire Codes). – REFERENCE: Uniform and International Fire Codes	Recommendation implemented.	4.9.2.10.2 & 4.9.2.10.3	4.9.2.10.2 Emergency Ventilation D&C Rooms which are designed to include ozone equipment shall be equipped with an emergency ventilation system capable of 6 air changes per hour. 4.9.2.10.3 Below Grade D&C Ozone rooms which are below grade shall be equipped with forced-draft ventilation capable of 6 air changes per hour.
Design & Construction (D&C)	4.9.2.10.3.2	Such ventilation system shall be so arranged as to 1) run automatically concurrent with the ozone equipment and for at least a time allowing for 15 air changes after the ozone equipment is stopped, and 2) run on command of a manual switch.	*IFC requires that the ventilation system operate when the ozone detection system is activated. Section 4.9.2.10.2.2 also requires the emergency ventilation system to operate when the ozone detection system is activated. This recommended change ensures consistency with the IFC requirements.* -- Such ventilation system shall be so arranged as to 1) run automatically concurrent with the ozone equipment and for at least a time allowing for 15 air changes after the ozone equipment is stopped, ~~and~~ 2) run upon activation of the ozone detection and alarm system, and 3~~2~~) run on command of a manual switch. – REFERENCE: See IFC Section 502.9.9 Ozone gas generators. Ozone cabinets and ozone gas-generator rooms for systems having a maximum ozone-generating capacity of 1/2 pound (0.23 kg) or more over a 24-hour period shall be mechanically ventilated at a rate of not less than six air changes per hour. For cabinets, the average velocity of ventilation at makeup air openings with cabinet doors closed shall be not less than 200 feet per minute (1.02 m/s).	Recommendation implemented.	4.9.2.10.3.2	Such ventilation system shall be so arranged as to: 1) Run automatically concurrent with the ozone equipment and for at least a time allowing for 15 air changes after the ozone equipment is stopped, 2) Run upon activation of the ozone detection and alarm system, and 3) Run on command of a manual switch.
Design & Construction (D&C)	4.9.2.10.5.2	The ozone sensor shall be located at a height of 5 feet above floor level and shall be capable of measuring ozone in the range of 0.0125 parts per million.	*Incorrect information* -- should be 18-24" above the floor (not 5 feet) as ozone is heavier than air, and the measurement parameters are 0-2 PPM not 0.0125 range – REFERENCE: Industry Standards	Recommendations implemented.	4.9.2.10.5.2	The ozone sensor shall be located at a height of 18-24 inches above floor level and shall be capable of measuring ozone in the range of 0-2 parts per million (ppm).
Design & Construction (D&C)	4.9.2.10.5.2 & 5.3	4.9.2.10.5.2 The ozone sensor shall be located at a height of 5 feet above floor level and shall be capable of measuring ozone in the range of 0.0125 parts per million. 4.9.2.10.5.3 The alarm system shall alarm when the ozone concentration equals or exceeds 0.1ppm in the room.	One of these sections uses "parts per million" and the other uses "ppm". They should either be the same or the first to use it should say "parts per million (ppm)" and then all subsequent references can be "ppm"	Recommendation implemented.	4.9.2.10.5.2& 4.9.2.10.5.3	4.9.2.10.5.2 Sensor D&C The ozone sensor shall be located at a height of 18-24 inches above floor level and shall be capable of measuring ozone in the range of 0-2 parts per million (ppm). 4.9.2.10.5.3 Ozone Concentration D&C The alarm system shall alarm when the ozone concentration equals or exceeds 0.1ppm in the room.
Design & Construction (D&C)	4.9.2.11.7.4	Personal protective equipment, consisting of at least a gas mask approved by NIOSH for use with chlorine atmospheres, shall be stored directly outside one entrance to an indoor gaseous-chlorination space.	A minimum of two (2) SCBA systems on hand at all times and two (2) qualified operators are to be involved in the changing of the tanks. No exceptions. One of the operators should be stationed OUTSIDE the chemical room where the operator inside can be seen at all times. An emergency direct line telephone should be located by the door.	Recommendation implemented.	4.9.2.11.7.4	Personal protective equipment, consisting of at least a gas mask approved by NIOSH for use with chlorine atmospheres, shall be stored directly outside one entrance to an indoor gaseous-chlorination space.
Design & Construction (D&C)	4.9.2.12	*Windows in Chemical Storage Spaces*	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.12	Windows in Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.12	*Windows in Chemical Storage Spaces*	This should be governed by local building code. No need for this specificity in this Code.	MAHC defers to the local building codes and AHJ throughout, especially if requirements are more stringent. Not all jurisdictions nationwide follow the same practices, so the best practices are adopted here especially for those locales that don't have the regulations.	4.9.2.12	Windows in Chemical Storage Spaces

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.9.2.12.2	Where a window is to be installed in an interior wall, ceiling, or door of a chemical-storage space, such window 1) shall have a corrosion-resistant frame, and 2) shall not be operable or capable of being opened.	Safety glass should be specified for all window and door glass in the pool and chemical storage environments.	Recommendation implemented. Requirement added that the glass be either tempered or plasticized.	4.9.2.12.2	Where a window is to be installed in an interior wall, ceiling, or door of a CHEMICAL STORAGE SPACE, such window shall have the following components: 1) tempered or plasticized glass, 2) a corrosion-resistant frame, and 3) shall not be operable or capable of being opened.
Design & Construction (D&C)	4.9.2.2	Construction	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.2	Construction
Design & Construction (D&C)	4.9.2.2, 4.9.2.3, 4.9.2.4, & 4.9.2.6	4.9.2.2 -- Construction 4.9.9.3 - Exterior Chemical Storage Spaces 4.9.2.4 -- Chemical Storage Space Doors 4.9.2.6 -- Air Ducts in Interior Chemical Storage Spaces	*The construction of chemical storage rooms are thoroughly addressed in NFPA 400, the IFPC, and the IBC* – REFERENCE: See NFPA and I-codes	Annex additions made for 4.9.2.2, 4.9.2.3, 4.9.2.4, and 4.9.2.5. As applicable, the standards of NFPA 400, the IFPC, and the IBC shall prevail. This standard is not intended to provide relief from these other regulations, but to provide best practice where these regulations are not adopted or enforced. The more stringent standard shall prevail as applicable.	4.9.2.2, 4.9.2.3, 4.9.2.4, & 4.9.2.6 ANNEX	SEE ANNEX FOR FULL TEXT
Design & Construction (D&C)	4.9.2.2.2	The construction of the chemical-storage space shall, to the extent practical, protect the stored materials against tampering, wild fires, unexpected exposure to water, etc.	The construction of the chemical-storage space shall, to the extent practical, protect the stored materials against tampering, wild fires, unintended ~~unexpected~~ exposure to water, etc.	Recommendation implemented.	4.9.2.2.2	The construction of the chemical storage space shall, to the extent practical, protect the stored materials against tampering, wild fires, unintended exposure to water, etc.
Design & Construction (D&C)	4.9.2.2.3	The floor or deck of the chemical-storage space shall be protected against substantial chemical damage by the application of a coating or sealant capable of resisting attack by the chemicals to be stored.	*Delete "by the application of a coating or sealant capable of resisting attack by the chemicals to be stored."* -- The floor or deck of the chemical-storage space shall be protected against substantial chemical damage. ~~by the application of a coating or sealant capable of resisting attack bythe chemicals to be stored.~~	Recommendation implemented.	4.9.2.2.3	The floor or deck of the chemical storage space shall be protected against substantial chemical damage.
Design & Construction (D&C)	4.9.2.2.6	Other than a possible door, there shall be no permanent or semi-permanent opening between a chemical-storage space and any other interior space of a building intended for occupation.	Doors are not permissible as above entry states. Why include it here?	Recommendation implemented. "Other than a possible door" deleted	4.9.2.2.6	There shall be no permanent or semi-permanent opening between a chemical storage space and any other interior space of a building intended for occupation.
Design & Construction (D&C)	4.9.2.3	Exterior Chemical Storage Spaces	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.3	Exterior Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.4	Chemical Storage Space Doors	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.4	Chemical Storage Space Doors
Design & Construction (D&C)	4.9.2.4.4	Where a chemical-storage space door must open to an interior space, the door shall not open to a space containing combustion equipment, air-handling equipment, or electrical equipment.	*This is VERY common in practice.* -- ~~Where a chemical-storage space door must open to an interior space, the door shall not open to a space containing combustion equipment, air-handling equipment, or electrical equipment.~~	Recommendation not implemented. It may be common in practice, but it shouldn't be continued as it's not best practice and can pose a significant health/safety concern. Combustion equipment will eventually result in leaking carbon monoxide if chemical doors are left open and fumes are able to get to the combustion equipment.	4.9.2.4.4	Where a chemical storage space door must open to an interior space, the door shall not open to a space containing combustion equipment, air-handling equipment, or electrical equipment.
Design & Construction (D&C)	4.9.2.4.5.6	Such doors shall be equipped with an automatic door closer that will completely close the door without human assistance.	*Same change as 4.9.1.8.3.2.1, this section should require that the door closes and "latches."* -- Such doors shall be equipped with an automatic door closer that will completely close the door and latch without human assistance.	Recommendation implemented.	4.9.2.4.5.6	Such doors shall be equipped with an automatic door closer that will completely close the door and latch without human assistance.
Design & Construction (D&C)	4.9.2.4.5.7.1	This alarm shall have a minimum output level of 85 dbA at 10 feet.	*I'm not aware of any current jurisdiction where anything close is required in the industry.* -- ~~This alarm shall have a minimum output level of 85 dbA at 10 feet.~~	Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to do everything to make it as uncomfortable as possible for the doors to remain open under any unintended circumstances.	4.9.2.4.5.7.1	This alarm shall have a minimum output level of 85 dbA at 10 feet.
Design & Construction (D&C)	4.9.2.5	Interior Chemical Storage Spaces	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.5	Interior Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.5.2.2.1	The exhaust airflow rate shall be the greater of: 1) the OSHA requirements for working in such enclosed spaces, or 2) the amount needed to maintain the concentration of vapors or fumes below the PEL for the expected exposure time (defined by 29 CFR 1910.1000 (OSHA)) for each stored chemical, or 3) the amount specified by International Mechanical Code Sec. 502, or the amount needed to maintain the specified pressure difference.	*There are other national codes in use by jurisdictions in addition to the IMC. They all should be noted in this section.* -- The exhaust airflow rate shall be the greater of: 1) the OSHA requirements for working in such enclosed spaces, or 2) the amount needed to maintain the concentration of vapors or fumes below the PEL for the expected exposure time (defined by 29 CFR 1910.1000 (OSHA)) for each stored chemical, or 3) the amount specified by International Mechanical Code Sec. 502, or 4) the amount specified by the Uniform Mechanical Code Sec. 403.7, or 5) the amount needed to maintain the specified pressure difference	Recommendations implemented.	4.9.2.5.2.3.1	The exhaust airflow rate shall be the greater of: 1) the OSHA requirements for working in such enclosed spaces, or 2) the amount needed to maintain the concentration of vapors or fumes below the PEL for the expected exposure time (defined by 29 CFR 1910.1000 (OSHA)) for each stored chemical, or 3) the amount specified by INTERNATIONAL MECHANICAL CODE Sec. 502, or 4) the amount specified by the Uniform Mechanical Code Sec. 403.7, or 5) the amount needed to maintain the specified pressure difference.
Design & Construction (D&C)	4.9.2.5.2.3	Function of this exhaust system shall be monitored continuously by an audible differential-pressure alarm system which shall sound if the specified differential air pressure is not maintained for a period of thirty minutes.	*I'm not aware of any current jurisdiction where anything close is required in the industry.* -- ~~Function of this exhaust system shall be monitored continuously by an audible differential-pressure alarm system which shall sound if the specified differential air pressure is not maintained for a period of thirty minutes.~~	Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to address the situation when a blower fails.	4.9.2.5.2.4	Function of this exhaust system shall be monitored continuously by an audible differential-pressure alarm system which shall sound if the specified differential air pressure is not maintained for a period of thirty minutes.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.9.2.6	Air Ducts in Interior Chemical Storage Spaces	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.6	Air Ducts in Interior Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.6.2.2.2	This duct must end at a point on the exterior of the building, at least 20 feet from any air intake for breathing air, cooling air, or combustion air.	*I don't believe this to be true. Should read that the intake must be 20ft from any exhaust duct.* -- ~~This duct must end at a point on the exterior of the building, at least 20 feet from any air intake for breathing air, cooling air, or combustion air.~~	Recommendation not implemented.	4.9.2.6.2.2.1	This duct must end at a point on the exterior of the building, at least 20 feet from any air intake for breathing air, cooling air, or combustion air.
Design & Construction (D&C)	4.9.2.7	Pipes and Tubes in Interior Chemical Storage Spaces	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.7	Pipes and Tubes in Interior Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.8	Combustion Equipment in Interior Chemical Storage Spaces	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.8	Combustion Equipment in Interior Chemical Storage Spaces
Design & Construction (D&C)	4.9.2.9	*Electrical Equipment in Chemical-Storage Spaces*	*Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely	Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.	4.9.2.9	Electrical Equipment in Chemical Storage Spaces
Regulatory (REG)	5.0.	Operation and Maintenance	Model doc makes no reference to employment of automated tools and sensors to monitor, measure, and apply corrections to water chemistry, such as the ORP practice of measuring chlorine concentration. Allowance of these automated tools permits operators to provide dozens of samples per hour instead of one, and enables corrective adjustments to be made with far smaller quantities.	Nothing in this chapter prohibits the use of automated tools and sensors. Automated controllers are covered in other modules	5.0.	Operation and Maintenance
Regulatory (REG)	5.0.	Operation and Maintenance	Model document is far too heavy-handed on AHJ power and enforcement; far too light on useful good operating practices and standards… It seems draconian, rather than pro-active and actually intended to improve safety	The purpose of this chapter is to list the administrative and permit requirements for operating an aquatic venue.	5.0.	Operation and Maintenance
Regulatory (REG)	5.0.	Operation and Maintenance	Reference to a bound book belongs in the sixties. There is NO NEED to be so restrictive. Owner Operators should and must be able to collect and keep the required records in whatever form they wish, provided they are made conveniently available when needed.	Agree. A bound book was initially listed because it is difficult to alter written statements after they are entered, but we agree that more flexibility in recording is needed so this requirement has been removed.	5.0.	Operation and Maintenance
Regulatory (REG)	5.1.1.3.1	Prior to issuing the permit, the AHJ shall determine that: 1) The AQUATIC FACILITY is in compliance with the requirements of this CODE, 2) All required application fees have been paid, and 3) The AQUATIC FACILITY has been approved by the building official.	*Modifies basis for reviewing authority* -- Prior to issuing the permit, the AHJ shall determine that: 1) The AQUATIC FACILITY is in compliance with the requirements of this CODE, 2) All required application fees have been paid, and 3) The AQUATIC FACILITY has been approved by the ~~building official~~ AHJ providing the construction permit, and 4) After the AHJ has received a certificate of completion from the design professional verifying information submitted and approved is installed per approved plans. -- This position is hard for state health department support. Most of the states AHJ's are health departments not building departments for the rules that this is covering. This rule appears to be moving the authority of the rules for construction permits to the building authority. Washington State Department of Health does not support this change.	Section was unnecessary and therefore deleted.	5.1.1.3	Before a permit (license) is issued, the AQUATIC FACILITY owner shall supply information showing that: 1) The AQUATIC VENUE is in compliance with the requirements of this CODE, 2) All required application fees have been paid, and 3) The AQUATIC VENUE has been approved by the AHJ.
Regulatory (REG)	5.1.1.3.1	Prior to issuing the permit, the AHJ shall determine that: 1) The AQUATIC FACILITY is in compliance with the requirements of this CODE, 2) All required application fees have been paid, and 3) The AQUATIC FACILITY has been approved by the building official.	The AQUATIC FACILITY owner, before a permit(license) is issued, shall supply information showing that:…1),2),3)	Modified content.	5.1.1.3	Before a permit (license) is issued, the AQUATIC FACILITY owner shall supply information showing that: 1) The AQUATIC VENUE is in compliance with the requirements of this CODE, 2) All required application fees have been paid, and 3) The AQUATIC VENUE has been approved by the AHJ.
Regulatory (REG)	5.1.2	Permits	Operating Permit	Section defined as Operating permits	5.1.2	Operating Permits
Hygiene (HYG)	5.10.4.5.4	Wooden racks, also known as duckboards, and mats are prohibited on hygiene facility and dressing area flooring.	The way this is worded, all mats could be interpreted as prohibited. Is the intent to only prohibit wooden mats? (I think so) The latter is reasonable. The former is not.	Clarified as suggested. Wood has been included as being prohibited.	5.10.4.6.4.1	Wooden racks, duckboards, and wooden mats are prohibited on hygiene facility and dressing area flooring.
Hygiene (HYG)	4.10.7.2	A biohazard action plan shall also be on file as required by LAW.	"LAW" is capitalized, but not defined.	LAW was removed and the language was changed to "as in accordance with local, state or federal regulation"	5.10.4.7.1	A biohazard action plan shall also be on file as required by local, state or federal regulations and as part of the aquatic facility safety plan.
Hygiene (HYG)	5.10.5.1.1	Used suits and towels shall be kept separate from clean suits and towels and kept in good repair.	~~Used~~ Soiled suits and towels shall be kept separate from clean suits and towels and kept in good repair.	Changed language to: "all suits and towels furnished or rented shall be washed with detergent and warm water, rinsed, and thoroughly dried after each use." We felt the term "used" is more appropriate.	5.10.5.1.2	Suits provided by the aquatic facility shall be washed in accordance with the fabric label or manufacturer's instructions.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Hygiene (HYG)	5.10.5.1.2	Receptacles shall be provided for collection of used suits and towels.	*Nothing specified about what type of receptacle.* -- Receptacles shall be provided for collection of ~~used~~ soiled suits and towels. Receptacles shall be non-absorbent, easily cleanable, covered containers or covered laundry bags intended for laundry storage. -- Reference: West Virginia General Sanitation Rule 64 CSR 18 11.2. Soiled laundry shall be stored in non-absorbent, easily cleanable, covered containers or covered laundry bags intended for laundry storage.	Added "non absorbent, easily cleanable". Omitted covered as it seems excessive.	5.10.5.2	Non-absorbent, easily cleanable receptacles shall be provided for collection of used suits and towels.
Hygiene (HYG)	5.10.5.2	Shared equipment, including but not limited to snorkels, nose clips and goggles, fins, kick boards, and noodles, provided by the facility shall be cleaned, sanitized, and thoroughly dried after each usage.	*Aquatic centers that facilitate ongoing swim lesson, fitness classes and swim teams cannot stock enough equipment nor have enough room to sterilize and dry each piece of equipment prior to the next class. This would take several hours to dry a noodle or kickboard.* -- Include nightly cleaning and sterilization of items such as kickboards, noodles, and fins. Scratch cleaned, sanitized and thoroughly dried after each use from the above items. -- Reference: Shared equipment, including but not limited to snorkels, nose clips and goggles, fins, kick boards, and noodles, provided by the facility shall be cleaned, sanitized, and thoroughly dried after each usage.	This section has been updated to separate items that need sanitizing and those items that need to be clean and potentially scrubbed to remove biofilms that are not removed by pool water immersion alone.	5.10.5.3	Equipment provided by the aquatic facility that comes into contact with bather's eyes, nose, ears, and mouth (including but not limited to snorkels, nose clips, and goggles) shall be cleaned, sanitized, and stored in a manner to prevent biological growth.
Hygiene (HYG)	5.10.5.2	Shared equipment, including but not limited to snorkels, nose clips and goggles, fins, kick boards, and noodles, provided by the facility shall be cleaned, sanitized, and thoroughly dried after each usage.	*Chlorine sanitizes them!* -- Shared equipment, such as kickboards and pull buoys do not need to be sanitized.	Data published and referenced in Annex (Davis et al. 2009) suggests the items even in chlorinated water were found to harbor bacteria. Likely in biofilms or scum layers. Biofilms on these items also make cleaning more difficult. Changed language to require sanitization of shared equipment that comes in contact with bathers eyes, ears, nose and mouth. Other equipment such as noodles and kickboards do not need to be sanitized but do need to be cleaned, scrubbed and stored in a manner to prevent biological growth.	5.10.5.4	Other shared equipment provided by the facility, including but not limited to fins, kickboards, tubes, and noodles, shall be cleaned, scrubbed, and stored in a manner to prevent biological growth.
Lifeguard & Bather Supervision (LG)	5.10.5.2	N/A	*Disinfecting noodles and kickboards after each use would create a situation where the items would have to be strictly monitored after each use and then the items would not be able to be used for hours or a day afterward – this could place a severe financial burden on facilities to try to staff and/or have a huge stockpile of equipment* -- Remove item 5.10.5.2	Comment not relevant to Lifeguard/Bather supervision module	5.10.5.4	Other shared equipment provided by the facility, including but not limited to fins, kickboards, tubes, and noodles, shall be cleaned, scrubbed, and stored in a manner to prevent biological growth.
Hygiene (HYG)	5.10.5.2.1	Shared equipment shall be in good repair.	"Shared equipment shall be maintained in good repair or replaced."	FDA Food Code uses "shall be maintained in good repair", and does not include replaced, as it is not necessary, but rather implied. No change.	5.10.5.5	Shared equipment shall be maintained in good repair.
Hygiene (HYG)	5.10.5.2.3	Receptacles shall be provided for collection of used shared equipment.	*Nothing specified about what type of receptacle.* -- Receptacles shall be provided for collection of used shared equipment. Receptacles shall be non-absorbent, and easily cleanable. -- Reference: West Virginia General Sanitation Rule 64 CSR 18	Agreed. Changed as suggested.	5.10.5.6.1	Non-absorbent, easily cleanable receptacles shall be provided for collection of used shared equipment.
Facility Maintenance and Operation (FMO)	5.12.3.2	When a moveable floor is installed into a diving pool, and the minimum water depth for diving is shallower than the minimum required water depth of 114 inches (3m), the diving boards shall be not be used.	*Concern with catastrophic injuries with the depths noted.* -- When a moveable floor is installed into a diving POOL, and the minimum water depth for diving is shallower than the minimum required water depth ~~of 114 inches (3m),~~ established by the current standards in FINA, US Diving, or USFHS then the diving boards shall be not be used. – REFERENCE: "Head and Neck Injuries in Sports" (Earl Horner) pg 66.	This section has been moved to Facility Design and Construction where it is being altered to be consistent with revised MAHC guidance on diving depths	5.12.3.2	When a moveable floor is installed into a diving pool, diving shall be prohibited unless the diving pool depth meets criteria set in MAHC Section 4.8.2.1.1.
Facility Maintenance and Operation (FMO)	5.12.5.2	When cleaning the sprayground, all materials and contaminants on the surface of the sprayground shall be flushed to waste and not discharged into the sprayground treatment tank.	This code for spraygrounds insinuates that all spraygrounds have a drain that strictly drains to storm/sanitation. This is not the case for most spray grounds, at least I have yet to see a spray ground constructed in this manner. This code should indicate that if no storm/sanitation drain is available on a sprayground, then debris or matter that is cleaned should be washed/rinsed to the nearest deck drain or removed in another manor that prevents the contaminates from entering the treatment tank.	Agreed. Addressed to clarify where water should drain.	5.12.5.2	When cleaning the Interactive water aquatic venue contaminants shall be removed or washed to the sanitary sewer. If no sanitary sewer drain is available then debris shall be washed/rinsed to the nearest deck drain or removed in a manner that prevents CONTAMINANTS from reentering the spray ground.
Facility Maintenance and Operation (FMO)	5.12.5.2	When cleaning the sprayground, all materials and contaminants on the surface of the sprayground shall be flushed to waste and not discharged into the sprayground treatment tank.	*This is physically very difficult and/or will require double piping with plugs or some other system.* -- When cleaning the SPRAYGROUND, all materials and CONTAMINANTS on the surface of the SPRAYGROUND shall be flushed to waste and not discharged into the SPRAYGROUND treatment tank.	Addressed to read "When cleaning the sprayground contaminants shall be removed or washed to the sanitary sewer. If no sanitary sewer drain is available then debris shall be washed/rinsed to the nearest deck drain or removed in a manner that prevents CONTAMINANTS from reentering the spray ground."	5.12.5.2	When cleaning the Interactive water aquatic venue contaminants shall be removed or washed to the sanitary sewer. If no sanitary sewer drain is available then debris shall be washed/rinsed to the nearest deck drain or removed in a manner that prevents CONTAMINANTS from reentering the spray ground.
Recirculation and Filtration	5.7.5.1	Spa filtration systems shall be operated 24 hours per day except for periods of draining, filling, and maintenance.	Why can't facilities reduce or eliminate flow in periods of closure to reduce energy consumption. For pools in daily operation, there should be 1 venue turnover following closing and 1 venue turnover prior to opening. Performed in conjunction with validated water quality test.	Disagree. Turbidity removal through filtration is based on consecutive dilutions assuming/requiring continuous/24 hr/day operation. In addition, in spas due to higher temperatures and elevated concentrations of organic matter, biofilms will form inside of the pipe during the period while the spa shut down. Biofilms can be very difficult to remove once they form leading to frequent or recurrent outbreaks in some cases. Temperatures of the spa can be reduced to reduce energy consumption while unoccupied	5.12.7.1	Spa filtration systems shall be operated 24 hours per day except for periods of draining, filling, and maintenance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.5.2	Spas shall be drained and cleaned when needed, but at least once every week.	*Items 5.7.5.2; 5.7.5.4.2; and 5.7.5.5 are contradictory. In one place you are asking to drain the Spa weekly. Then you follow up with a calculation on determining when to drain. This is followed up with the statement that you drain and clean as necessary -- Delete and re-number or delete 5.7.5.4.2 and 5.7.5.5 .*	Agree. Code revised, consolidating and re- numbered.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.2	Spas shall be drained and cleaned when needed, but at least once every week.	Spas shall be drained and cleaned as needed -- Should not set a time parameter of 1 week etcetera it should be based around usage. factors as defined in CPO course. Also redundant with 5.7.5.2 – REFERENCES: NSPF Certified Pool-Spa Operator Handbook 2007 pg. 172, 2009 pg 171; MAHC 5.7.5.2	Disagree. Water replacement based on usage is also addressed however, minimum interval maintained due to documented water quality problems and outbreaks associated with spas. Code revised for clarity.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.2	Spas shall be drained and cleaned when needed, but at least once every week.	Spas shall be drained and cleaned when needed, but at least once every two weeks. -- You already say it needs to be drained as needed, if it a low use spa then once every two week, as we recommend in CT, should be sufficient. No need to waste water	Disagree. Should there be a low use spa where the calculated frequency for draining based on volume and documented bather load is greater than 1 week, the owner/operator can request a variance from the AHJ.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.2	Spas shall be drained and cleaned when needed, but at least once every week.	SPAS shall be drained and cleaned when needed, but at least once every week. -- How does one determine "when needed"	Agree. Code revised for clarity.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.2	Spas shall be drained and cleaned when needed, but at least once every week.	SPAS shall be drained and cleaned when needed, but at least once every week. -- This does not take into account bather load. Current NSPF / CPO requirements call for draining based on the calculation of spa volume divided by 3 divided by the average number of bathers per day. If we were to achieve one drain per week, it would certainly be an improvement in most instances. Perhaps state that whichever frequency is greater is the one that should be adhered to. Should consider deleting 5.7.5.5 or folding it into the final language for 5.7.5.2.	Partially agree. Code revised.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.5	Spas shall be drained and cleaned whenever needed.	(Isn't this section basically the same as 5.7.5.2) -- Redundant – do not need.	Agree. Code revised, consolidating and re- numbered.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.5	Spas shall be drained and cleaned whenever needed.	SPAS shall be drained and cleaned whenever needed. -- See 5.7.5.2	Agree. Code revised, consolidating and re- numbered.	5.12.7.2	Spas shall be drained, cleaned, and water replaced when needed to maintain water quality, but at least once every week.
Recirculation and Filtration	5.7.5.4	Water shall be replaced at the required interval as outlined in MAHC Section 5.7.5.5.2.	Delete -- Redundant with 5.7.5.2 and references 5.7.5.5.2 which does not exist – REFERENCE: MAHC 5.7.5.2	Agree. Code revised, consolidating and re- numbered.	5.12.7.3	Water shall be replaced at the required interval as outlined in MAHC Section 5.12.7.2 or as calculated as follows in MAHC section 5.12.7.3.1, whichever interval is shorter.
Recirculation and Filtration	5.7.5.4, 5.7.5.4.1, & 5.7.5.4.2	5.7.5.4 Water shall be replaced at the required interval as outlined in MAHC Section 5.7.5.5.2. 5.7.5.4.1 Water replacement shall be performed either all at once or incrementally on a daily basis. 5.7.5.4.2 The water replacement interval (in days) shall be calculated by dividing the SPA volume (in gallons) by 3 and then dividing by the average number of users per day.	5.7.5.4 Water shall be replaced at the required interval as outlined in MAHC Section 5.7.5.5.2. 5.7.5.4.15.7.5.2.1 Water replacement shall be performed either all at once or incrementally on a daily basis. 5.7.5.4.25.7.5.2.2 The water replacement interval (in days) shall be calculated by dividing the SPA volume (in gallons) by 3 and then dividing by the average number of users per day. – • Section 5.7.5.4 is redundant to section 5.7.5.2. • Renumber 5.7.5.4.1 to 5.7.5.2.1. • Renumber 5.7.5.4.2 to 5.7.5.2.2.	Agree. Code revised, consolidated, and re- numbered.	5.12.7.3 & 5.12.7.3.1	5.12.7.3 Water Replacement R&F Water shall be replaced at the required interval as outlined in MAHC Section 5.12.7.2 or as calculated as follows in MAHC section 5.12.7.3.1, whichever interval is shorter. 5.12.7.3.1 Calculated R&F The water replacement interval (in days) shall be calculated by dividing the SPA volume (in gallons) by 3 and then dividing by the average number of users per day.
Recirculation and Filtration	5.7.5.4.2	The water replacement interval (in days) shall be calculated by dividing the spa volume (in gallons) by 3 and then dividing by the average number of users per day.	This requirement is not practical as there is no way to know how many people when into a spa throughout the day.	Partially agree. However, no change, calculation is based on average number of users/day.	5.12.7.3.1	The water replacement interval (in days) shall be calculated by dividing the spa volume (in gallons) by 3 and then dividing by the average number of users per day.
Recirculation and Filtration	5.7.5.4.2	The water replacement interval (in days) shall be calculated by dividing the spa volume (in gallons) by 3 and then dividing by the average number of users per day.	Water replacement calculation should be used for pools as well as spas. Pools: use prior calculation or this calculation whichever is greater.	Agree that a pool calculation would be helpful. Because of the temperature and contamination burden difference between pools and spas, the calculation would likely not be the same.	5.12.7.3.1	The water replacement interval (in days) shall be calculated by dividing the spa volume (in gallons) by 3 and then dividing by the average number of users per day.
Recirculation and Filtration	5.7.5.5.1	Spa surfaces, including interior of skimmers, shall be scrubbed or wiped down, and all water drained prior to refilling at an interval not to exceed the water replacement interval.	What are the requirements that determine when it is needed?	Agree. Code revised for clarity.	5.12.7.4	Spa surfaces, including interior of skimmers, shall be scrubbed or wiped down, and all water drained prior to refill.
Regulatory (REG)	5.2.1.1	An aquatic facility seeking an initial exemption or an existing facility claiming to be exempt according to applicable regulations shall contact the AHJ for application details/forms.	*I am not aware this is the industry standard. This could be a huge burden for most health departments particularly for sessional facilities. This could result in pool closures because the HD is understaffed.* -- A pre-operational inspection shall be conducted annually on each seasonal AQUATIC FACILITY.	All sections relating to the AHJ were removed from the Code and placed in a separate document. As such, this section was moved to the HD recommendations, so it is not a code mandate.	5.2.2.1	An aquatic facility seeking an initial exemption or an existing aquatic facility claiming to be exempt according to applicable regulations shall contact the AHJ for application details/forms.
Regulatory (REG)	5.2.1.1	An aquatic facility seeking an initial exemption or an existing facility claiming to be exempt according to applicable regulations shall contact the AHJ for application details/forms.	*This intent of the preoperational inspection was primarily related to new construction when discussed in committee. If want another application for existing facilities, suggest language provided.* -- A pre-operational inspection shall be conducted annually on each seasonal AQUATIC FACILITY for newly constructed pools. Seasonal AQUATIC VENUES with outstanding critical violations shall require pre-operational inspection before issuance of operating permit.	Discussed the financial burden this would place on many AHJ's and decided to move it to separate AHJ document.	5.2.2.1	An aquatic facility seeking an initial exemption or an existing aquatic facility claiming to be exempt according to applicable regulations shall contact the AHJ for application details/forms.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	5.2.3	Variances	*The section on variances should be moved so that it applies to both construction design and operational requirements.*	This section and the exemption section apply to all code requirements including construction design. It states the AHJ may grant a variance to requirements of the CODE.	5.2.3	Variances
Regulatory (REG)	5.2.3.2	An AQUATIC FACILITY that seeks a variance shall apply in writing with the appropriate forms to the AHJ. The application shall include but not be limited to: 1) A citation of the CODE section to which the variance is requested; 2) A statement as to why the applicant is unable to comply with the CODE section to which the variance is requested; 3) The nature and duration of the variance requested; 4) A statement of reasons why the public health or safety would not be jeopardized if the variance was granted, and 5) A full description of any policies, procedures or equipment that the applicant proposes to use to rectify any potential increase in health or safety risks created by granting the variance.	*Burden of variance justification is the responsibility of the applicant.* -- An AQUATIC FACILITY that seeks a variance shall apply in writing with the appropriate forms to the AHJ. The application shall include but not be limited to: 1) A citation of the CODE section to which the variance is requested; 2) A statement as to why the applicant is unable to comply with the CODE section to which the variance is requested; 3) The nature and duration of the variance requested; 4) A compilation of research or mitigating measures providing reasonable justification that statement of reasons why the public health or safety would not be jeopardized if the variance was granted, and 5) A full description of any policies, procedures or equipment that the applicant proposes to use to rectify any potential increase in health or safety risks created by granting the variance	Statement number 4 in this section was reworded to further emphasize that the applicant needs to demonstrate why the proposed variance will still meet the safety requirements of the code.	5.2.3.2	5.2.3.2 Applying for a Variance REG An AQUATIC FACILITY that seeks a variance shall apply in writing with the appropriate forms to the AHJ. 5.2.3.2.1 Application Components The application shall include but not be limited to: 1) A citation of the CODE section to which the variance is requested; 2) A statement as to why the applicant is unable to comply with the CODE section to which the variance is requested; 3) The nature and duration of the variance requested; 4) A statement of how the intent of the CODE will be met and the reasons why the public health or SAFETY would not be jeopardized if the variance was granted, and 5) A full description of any policies, procedures or equipment that the applicant proposes to use to rectify any potential increase in health or SAFETY risks created by granting the variance.
Facility Maintenance and Operation (FMO)	5.4.1.1.1	The aquatic facility shall be maintained in safe condition during planned or seasonal closures of more or less than seven days	*Current language is not clear, either will need to be, "A closure of 7 days or less" or "7 days or more" since that 7th day would be an un-described day.* – "The AQUATIC FACILITY shall be maintained in safe condition during planned or seasonal closures of more or less than seven days." another option would be: "The AQUATIC FACILITY shall be maintained in safe condition during planned or seasonal closures of more or less than seven days."	Addressed to clarify provisions for "Short closures" (less than 7 days) and "long closures" (7 days or more).	5.4.1.1.1	The water in an aquatic venue closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.1.1.1	The aquatic facility shall be maintained in safe condition during planned or seasonal closures of more or less than seven days	*If "less than" 7 days is included, there is no reason to include any time frame in the section. Also correlates better with subsequent sections.* -- The AQUATIC FACILITY shall be maintained in safe condition during planned or seasonal closures of more ~~or less~~ than seven days.	Agreed. Addressed to clarify provisions for "Short closures" (less than 7 days) and "long closures" (7 days or more).	5.4.1.1.1	The water in an aquatic venue closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.1.1.1	The aquatic facility shall be maintained in safe condition during planned or seasonal closures of more or less than seven days	*No definition. No real manner of enforcement of opinion* -- What constitutes "safe condition"- too vague need a definition or remove.	Addressed. Clarified with "free of hazards to workers and secured during off hours."	5.4.1.1.1	The water in an aquatic venue closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.1.1.4	The water in an aquatic facility closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this code.	*Is there any data to indicate that there is a problem with water in a closed pool that is properly secured? If this is going to be a requirement, a minimum turnover rate should be required. It's estimated that on average, operating costs annually for chemical and utility costs in the off season would be $20,000.* -- ~~The water in an AQUATIC FACILITY closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this CODE.~~	Agreed. If you can control the access to the venue, then there is no need to maintain the water chemistry. The code has been changed to specify facilities "with uncontrolled access."	5.4.1.1.1	The water in an aquatic venue closed for seven days or less shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.1.1.4 ANNEX	It is important for the operator to be aware that when closed for even short periods of time, the venue distribution system, including drinking fountains and other potable water sources, may become stagnated. It is important to adequately ensure that all features should be adequately flushed and disinfected prior to reopening. Standing water, including closed swimming pools, can be a source of mosquitoes. Although mosquitoes can carry many diseases such as dengue fever, malaria, and encephalitis, one of the most common diseases today is the West Nile encephalitis. Additionally, closed pools can be a safety concern, especially for small children. When the pool is not drained or covered tightly to prevent entry, children may knowingly or accidentally enter the pool and drown. Because of the slime that often builds on the wall of these abandoned pools, it may be impossible for those that enter the pool to climb out. While fence barriers or safety covers can create a "safe condition" for the pool, these methods will not prevent the potential mosquito problems mentioned above. If the aquatic venue system becomes non-operational, such as during a power outage, the venue should be cleared of bathers. Prior to reopening, the operator should confirm that all systems are operational as required by the MAHC. For example, recoating DE filters will be necessary.	If the MAHC is going to be concerned about mosquitoes, then a gravity drain system will likely be required for most outdoor pools because a sump pump will certainly risk failing during the winter and rain water and snow melt will not be able to be kept out of the pool and from creating ponding. Also, many new facilities have detention ponds that would be just as likely, if not more so, to harbor disease carrying mosquitoes. -- It is important for the operator to be aware that when closed for even short periods of time, the venue distribution system, including drinking fountains and other potable water sources, may become stagnated. It is important to adequately ensure that all features should be adequately flushed and disinfected prior to reopening. Standing water, including closed swimming pools, can be a source of mosquitoes. Although mosquitoes can carry many diseases such as dengue fever, malaria, and encephalitis, one of the most common diseases today is the West Nile encephalitis. Additionally, closed pools can be a safety concern, especially for small children. When the pool is not drained or covered tightly to prevent entry, children may knowingly or accidentally enter the pool and drown. Because of the slime that often builds on the wall of these abandoned pools, it may be impossible for those that enter the pool to climb out. While fence barriers or safety covers can create a "safe condition" for the pool, these methods will not prevent the potential mosquito problems mentioned above.	The MAHC thinks there is enough information to get operators thinking about the issue of what is happening to water quality during closures when stagnant water is likely to occur. No new wording added at this time.	5.4.1.1.1	It is important for the qualified operator to be aware that when closed for even short periods of time, the aquatic venue distribution system, including drinking fountains and other potable water sources, may become stagnated. It is important to adequately ensure that all aquatic features should be adequately flushed and disinfected prior to reopening. (SEE ANNEX FOR FULL TEXT)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.4.1.1.2	The water in an aquatic facility closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.	*If the intention of this requirement is to prevent drownings, then if a fence with a locked gate is sufficient protection during the off-hours of summer nights, it should be sufficient during extended times of closure as well.* -- The water in an AQUATIC FACILITY closed for more than seven days shall be drained or, an approved safety cover that meets ASTM F1346-91 shall be installed, or access to the pool area should be limited to employees working at the facility.	Agreed. Clarified to say "…facilities with uncontrolled access…"	5.4.1.2.1	The water in an aquatic venue with uncontrolled access and closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.
Facility Maintenance and Operation (FMO)	5.4.1.1.2	The water in an aquatic facility closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.	*This cover language can have significant impact on pool operations. There are a number of locations in the country that based on expansive soils and high water tables would create a dangerous condition if the pools are required to be emptied regularly. Many of these pools are significant in size and a mandated solution such as a pool cover could have significant financial impact. To design a pool structure to ACI3 350 structural standards (to help prevent a pool shell from "floating"), the approximate cost premium would be 30%. And if the pool would be required to be drained then a sight sump or other dewatering system would need to be designed into place for most pools. For a traditional 60' x 75' pool, this cost premium would be around $130,000 per pool. If this is expanded nationally assuming only 500 outdoor pools are built each year, that would be an additional $65M in construction costs. I want to use our resources wisely and I'm concerned that we may be pricing ourselves out of building future facilities due to regulations like these. Is there any data to cite on drownings in outdoor pools in the winter? I would suspect that the vast majority would occur in the summer months which this code section is not addressing. Logically, I would not assume that many kids are breaking into facilities during the winter to go for a swim in 45 degree water. This issue may also be addressed through the fencing requirements of the facility.* -- The water in an AQUATIC FACILITY closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.	Agreed. Changed similar to suggested wording.	5.4.1.2.1	The water in an aquatic venue with uncontrolled access and closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.
Facility Maintenance and Operation (FMO)	5.4.1.1.2	The water in an aquatic facility closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.	*We have several facilities that have a spa open year around and an adjacent swimming pool that is closed for part of the year in the same enclosure area* -- Add following: "or is posted with a sign stating that the pool is closed; and the pool meets water clarity standards. – REFERENCE: WAC 246-260-141(2).	Added "with uncontrolled access" to code item to clarify access parameters. There must be an appropriate enclosure or operators must maintain water clarity standards.	5.4.1.2.1	The water in an aquatic venue with uncontrolled access and closed for more than seven days shall be drained or an approved safety cover that meets ASTM F1346-91 shall be installed.
Facility Maintenance and Operation (FMO)	5.4.1.1.3	The water in an aquatic facility closed for more than seven days that is not drained shall be recirculated and treated to assure water quality parameters meet the criteria of this code.	Cost analysis is needed to consider the ramifications.	Addressed. Language changed to specify "uncontrolled access". If venue is secure, the water quality requirements are not necessary.	5.4.1.2.2	The water in an aquatic venue with uncontrolled access closed for more than seven days that is not drained shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.1.1.3	The water in an aquatic facility closed for more than seven days that is not drained shall be recirculated and treated to assure water quality parameters meet the criteria of this code.	*Is there any data to indicate that there is a problem with water in a closed pool that is properly secured? If this is going to be a requirement, a minimum turnover rate should be required. It seems logical to have a turnover rate slower than when the pool is occupied to maximize efficiency. It's estimated that on average, operating costs annually and 8 lane 25 yard pool would have chemical and utility costs in the off season in the $20,000 range.* -- ~~The water in an AQUATIC FACILITY closed for more than seven days that is not drained shall be recirculated and treated to assure water quality parameters meet the criteria of this CODE.~~	Agreed. If you can control the access to the venue, then there is no need to maintain the water chemistry. The code has been changed to specify facilities "with uncontrolled access."	5.4.1.2.2	The water in an aquatic venue with uncontrolled access closed for more than seven days that is not drained shall be recirculated and treated to assure water quality parameters meet the criteria of this code.
Facility Maintenance and Operation (FMO)	5.4.2 ANNEX	A preventive maintenance plan is a necessary and important part of any pool operation. The best maintenance plan is one that follows the manufacturer's and pool designer/engineer's recommendations for all equipment. A pool maintenance plan is similar in many ways to the purchase of a new vehicle. With the purchase of a new vehicle, and manufacturer's maintenance schedule is included. The schedule list the maintenance items that should be followed such as rotating tires changing all and performing major tune-ups. Likewise, the swimming pool operator should perform an inventory of all equipment used in the pool operation. For each piece of equipment the operator should develop a list and schedule of maintenance items. By following this maintenance schedule, the operator can help prevent costly repairs in the future. Aquatic facilities need increased sophistication in plan maintenance and monitoring.	*Do pool designers have a requirement based on engineering industry standard to provide a maintenance plan?* -- A preventive maintenance plan is a necessary and important part of any pool operation. The best maintenance plan is one that follows the manufacturer's ~~and pool designer/engineer's~~ recommendations for all equipment.	Disagree. Yes, designers are required to provide a maintenance plan. Disagree with suggested change. No change made to Annex.	5.4.2	A preventive maintenance plan is a necessary and important part of any aquatic facility operation. The best maintenance plan is one that follows the manufacturer's and pool designer/engineer's recommendations for all equipment. A pool maintenance plan is similar in many ways to the purchase of a new vehicle. With the purchase of a new vehicle, a manufacturer's maintenance schedule is included. The schedule lists the maintenance items that should be followed such as rotating tires and performing major tune-ups. (SEE ANNEX FOR FULL TEXT)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.4.2 ANNEX	A preventive maintenance plan is a necessary and important part of any pool operation. The best maintenance plan is one that follows the manufacturer's and pool designer/engineer's recommendations for all equipment. A pool maintenance plan is similar in many ways to the purchase of a new vehicle. With the purchase of a new vehicle, and manufacturer's maintenance schedule is included. The schedule list the maintenance items that should be followed such as rotating tires changing all and performing major tune-ups. Likewise, the swimming pool operator should perform an inventory of all equipment used in the pool operation. For each piece of equipment the operator should develop a list and schedule of maintenance items. By following this maintenance schedule, the operator can help prevent costly repairs in the future. Aquatic facilities need increased sophistication in plan maintenance and monitoring.	*The entry is opinionated and presumptuous* -- Omit "Aquatic facilities need increased maintenance and monitoring"… What is the basis of the submitted language??	Not in current version; this code section has been removed.	5.4.2	A preventive maintenance plan is a necessary and important part of any aquatic facility operation. The best maintenance plan is one that follows the manufacturer's and pool designer/engineer's recommendations for all equipment. A pool maintenance plan is similar in many ways to the purchase of a new vehicle. With the purchase of a new vehicle, a manufacturer's maintenance schedule is included. The schedule lists the maintenance items that should be followed such as rotating tires and performing major tune-ups. (SEE ANNEX FOR FULL TEXT)
Facility Maintenance and Operation (FMO)	5.4.2.1.2	The aquatic facility maintenance plan shall include details and frequency of owner's or operator's planned routine facility inspection, maintenance or servicing, and recirculation and water treatment component replacement.	Overly broad. Has anyone considered that the amount of information that would be required to meet this entry at a large water park would be an issue	Disagree. Large water parks still need to have this information available. TC considers this is an industry standard practice.	5.4.2.1.2	The aquatic facility preventive maintenance plan shall include details and frequency of owner's or operator's planned routine facility inspection, maintenance or servicing, and recirculation and water treatment component replacement.
Facility Maintenance and Operation (FMO)	5.4.2.2.2	A comprehensive inventory of all equipment associated with each aquatic facility shall be available at the aquatic venue.	Way too broad….could include toilet paper dispenser like items. Define it down or remove	Addressed. Clarified to mean mechanical equipment associated with the aquatic facility.	5.4.2.2.2	A comprehensive inventory of all mechanical equipment associated with each aquatic venue shall be available at the aquatic facility.
Facility Maintenance and Operation (FMO)	5.4.2.2.4	Operation manuals for all equipment associated with each aquatic facility shall be available at the aquatic venue.	How does this account for items that do not have Operations manuals, in-house made equipment and/or older equipment with no manual available?	Addressed. Code section added to provide for this issue.	5.4.2.2.4	Operation manuals for all mechanical equipment associated with each aquatic venue shall be available at the aquatic facility.
Facility Maintenance and Operation (FMO)	5.4.2.2.4	Operation manuals for all equipment associated with each aquatic facility shall be available at the aquatic venue.	Same as above…define what equipment	Addressed. Clarified to mean mechanical equipment associated with the aquatic facility	5.4.2.2.4	Operation manuals for all mechanical equipment associated with each aquatic venue shall be available at the aquatic facility.
Design & Construction (D&C)	5.5.6.1.1	Cracks exhibiting any of the following characteristics shall be evaluated by a structural engineer: 1) Cracks with vertical displacement; 2) Cracks of varying width; 3) Cracks concentrated to a specific area; 4) Cracks exposing any reinforcement; 5) Cracks obviously recurring from previous patches; 6) Cracks in corners; 7) Cracks drawing a defined line; and 8) Surface cracking over 1/8 inch in width.	*Industry Standards* -- It is recommended that any cracks in a concrete or shortcrete pool that could potentially be the source of water loss or intrusion be grounds to warrant the shutdown of the pool for immediate repairs.	Recommendation not implemented. While likely not intended, a majority of pools leak and are not a detriment to the health and safety of bathers. All structural cracks defined by this section will require the evaluation of a structural engineer for their determination on the safety of the pool.	5.5.6.1.1	CRACKS exhibiting any of the following characteristics shall be evaluated by a structural engineer: 1) CRACKS with vertical displacement; 2) CRACKS of varying width; 3) CRACKS concentrated to a specific area; 4) CRACKS exposing any reinforcement; 5) CRACKS obviously recurring from previous patches; 6) CRACKS in corners; 7) CRACKS drawing a defined line; and 8) Surface CRACKING over 1/8 inch (3.2mm) in width.
Facility Maintenance and Operation (FMO)	5.6.1.1.4	Cracked lenses on all lights shall be replaced before the pool reopens to patrons.	Cracked lenses on all lights shall be replaced before the POOL reopens to patrons. – Does this suggest that the pool has to be closed when lenses are cracked on lights? This should be clarified	Agreed. Clarified	5.6.1.1.4	Cracked lenses that are physically intact on lights shall be replaced before the aquatic venue reopens to bathers.
Facility Maintenance and Operation (FMO)	5.6.1.2.1	The operator shall assess and document glare conditions throughout operating hours during the day and season.	As written there is no guidance on frequency of documentation or what "access" means. The paragraph as written makes little sense and is not enforceable. -- The operator shall assess and document glare conditions throughout operating hours during the day and season.	Addressed. Added language to specify seeing main drain or bottom of the pool; and removed requirement to document glare. In Annex, suggested that operators may adjust guard chair position.	5.6.1.2.1	The qualified operator shall assess glare conditions throughout operating hours to ensure the aquatic venue bottom and objects in the pool are clearly visible.
Facility Maintenance and Operation (FMO)	5.6.1.2.1	The operator shall assess and document glare conditions throughout operating hours during the day and season.	General section does not specify how to assess, how to document, for what purpose, etc. -- The operator shall assess and document glare conditions throughout operating hours during the day and season.	Addressed. Added language to specify seeing main drain or bottom of the pool; and removed requirement to document glare. In Annex, suggested that operators may adjust guard chair position.	5.6.1.2.1	The qualified operator shall assess glare conditions throughout operating hours to ensure the aquatic venue bottom and objects in the pool are clearly visible.
Facility Maintenance and Operation (FMO)	5.6.1.2.1	The operator shall assess and document glare conditions throughout operating hours during the day and season.	How do you "assess glare"? Suggest that the LG/Bather supervision staffing criteria is used here. Glare in this case would be eliminated due to staffing criteria to allow LG full vision of zone of protection.	Addressed. Added language to specify seeing main drain or bottom of the pool; and removed requirement to document glare. In Annex, suggested that operators may adjust guard chair position.	5.6.1.2.1	The qualified operator shall assess glare conditions throughout operating hours to ensure the aquatic venue bottom and objects in the pool are clearly visible.
Facility Maintenance and Operation (FMO)	5.6.1.2.1	The operator shall assess and document glare conditions throughout operating hours during the day and season.	The operator shall assess and document glare conditions throughout operating hours during the day and season. Do these documents need to be maintained in any fashion for any length of time? If they do find glare conditions, what standard should they be assessing against and what glare mitigation should take place?	Agreed. Clarified to say "assess" instead of "document"	5.6.1.2.1	The qualified operator shall assess glare conditions throughout operating hours to ensure the aquatic venue bottom and objects in the pool are clearly visible.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.6.1.2.2	Windows and lighting equipment shall be adjusted to mitigate glare and excessive reflection on the pool surface.	What is excessive? Need to be objective not subjective here.	Addressed. Added language to specify seeing main drain or bottom of the pool; and removed requirement to document glare. In Annex, suggested that operators may adjust guard chair position.	5.6.1.2.2	Windows and lighting equipment shall be adjusted to minimize glare and excessive reflection on the water surface.
Facility Maintenance and Operation (FMO)	5.6.1.2.2	Windows and lighting equipment shall be adjusted to mitigate glare and excessive reflection on the pool surface.	*As written the instruction is completely subjective and impossible to enforce.* -- Windows and lighting equipment shall be adjusted to mitigate glare and excessive reflection on the POOL surface.	Addressed. Added language to specify seeing main drain or bottom of the pool; and removed requirement to document glare. In Annex, suggested that operators may adjust guard chair position.	5.6.1.2.2	Windows and lighting equipment shall be adjusted to minimize glare and excessive reflection on the water surface.
Risk Management (RM)	5.6.1.3.1	Night swimming shall be considered one half hour before sunset to one half hour after sunrise	While our department has not defined dusk, we have used other state definitions (Motor Vehicle rules) and several states follow a similar definition. It is defined "dusk" as ½ hour after sunset to ½ hour before sunrise or any other time when, due to insufficient light or unfavorable atmospheric conditions, … persons are not clearly discernible . Reference: RCW 46.37.020(**)	Disagree. We prefer to use the common definition for dusk/dawn exists that sets the time at 30 minutes before sunset and after sunrise and not use the word dusk vs. "night swimming".	5.6.1.3.1	Night swimming shall be considered one half hour before sunset to one half hour after sunrise.
Facility Maintenance and Operation (FMO)	5.6.10.1	Diving Boards and Platforms	Suggest an entry to have a fixed fulcrum for recreational use.	Not addressed. This comment not applicable to MAHC Operation and Maintenance. Diving comments fall under the MAHC Facility Design and Construction code provisions.	5.6.10.1	Diving Boards and Platforms
Facility Maintenance and Operation (FMO)	5.6.10.1.2	Diving boards shall be inspected daily for cracks and loose bolts with cracked boards removed and loose bolts tightened immediately.	Diving boards shall be inspected daily for cracks and loose bolts with cracked boards removed and loose bolts tightened immediately. Does a record of this need to be maintained in the facility?	Addressed in Annex	5.6.10.1.2	Diving boards shall be inspected daily for cracks and loose bolts with cracked boards removed and loose bolts tightened immediately.
Facility Maintenance and Operation (FMO)	5.6.10.1.2	Diving boards shall be inspected daily for cracks and loose bolts with cracked boards removed and loose bolts tightened immediately.	Omit. What evidence supports this?	The MAHC TC was unclear about what this comment is asking. As listed, the section discusses cracked diving boards and loose bolts – an important safety hazard that must be attended to immediately.	5.6.10.1.2	Diving boards shall be inspected daily for cracks and loose bolts with cracked boards removed and loose bolts tightened immediately.
Facility Maintenance and Operation (FMO)	5.6.10.3.2	Starting blocks shall only be used for swimmer training or competitive swimming activities	*ARC establishes a minimum 9 feet as a safe diving depth. The training provided for swim coaches is very thorough on a progressive training regimen to ensure persons are properly trained before entering the starting blocks. Current language is not as definitive.* -- Suggest following replacement language: "If water depth is less than 9 feet, starting blocks must be removed or covered with protective equipment unless used by competitive swimmers trained in proper use of starting blocks." – REFERENCE: WAC 246-260-041(6)(b)(ii) American Red Cross Safety Training for Swim Coaches	This section of the code discusses use of starting blocks by non-competitive swimmers, not depth. To clarify, the ways to close the blocks for use have been made sub-bullets under 5.6.10.3.2.	5.6.10.3.2	5.6.10.3.2 Restrictions FMO Starting platforms shall only be used for competitive swimming competition and training and shall only be used under the direct supervision of a coach or instructor. 5.6.10.3.2.1 Covers or Cones FMO Covers or cones shall be used to prohibit access and designate when use of permanent starting platforms is prohibited. 5.6.10.3.2.2 Removable Blocks FMO Starting platforms designed to be removable shall be removed at all times when use is prohibited.
Facility Maintenance and Operation (FMO)	5.6.10.3.4	Covers or cones shall be used to deter access and designate when use of starting blocks is prohibited.	*There is confusion here as to whether blocks can prohibit use by covers/cones or if they must be removed.* -- Covers or cones shall be used to deter access and designate when use of starting blocks is prohibited <u>or blocks shall be removed per 5.6.10.3.5.</u>	Agree. Language added to this section to specify "permanent" blocks. If blocks are removable, they should be removed per 5.6.10.3.5.	5.6.10.3.2.1	Covers or cones shall be used to prohibit access and designate when use of permanent starting platforms is prohibited.
Facility Maintenance and Operation (FMO)	5.6.10.3.5	Removable starting blocks shall be removed at all times when use is prohibited.	Define "removable". Most starting blocks are capable of being removed but are not removed each time programming changes.	Code changed to read, "Starting blocks designed to be removable shall be removed at all times when use is prohibited."	5.6.10.3.2.2	Starting platforms designed to be removable shall be removed at all times when use is prohibited.
Facility Maintenance and Operation (FMO)	5.6.10.3.5	Removable starting blocks shall be removed at all times when use is prohibited.	*There is confusion here as to whether blocks can prohibit use by covers/cones or if they must be removed.* -- Removable starting blocks shall be removed at all times when use is prohibited <u>or blocks shall have cones or covers placed on top per 5.6.10.3.4.</u>	Addressed. Covers can still be stood and climbed on. Language changed to state, "Starting platforms designed to be removable shall be removed at all times when use is prohibited.	5.6.10.3.2.2	Starting platforms designed to be removable shall be removed at all times when use is prohibited.
Facility Maintenance and Operation (FMO)	5.6.10.4.4	Disinfectant levels shall be maintained in all slide lines susceptible to holding stagnant water.	*The use of the term "slide lines" is confusing. Does this include slide piping, slide runouts?* -- Disinfectant levels shall be maintained in all slide lines susceptible to holding stagnant water.	*Addressed. Wording has been removed from this section.*	5.6.10.4.4	Waterslide lines susceptible to holding stagnant water shall maintain disinfectant throughout the lines as per MAHC Section 5.7.3.1.1.3.
Facility Maintenance and Operation (FMO)	5.6.10.5.2	Gates, locks and alarms, if required, shall be tested daily prior to opening.	Add documentation requirement	MAHC TC does not feel this is a necessary item to document; however, facilities may choose to document this if they please.	5.6.10.5.2	Gates, locks and alarms, if required, shall be tested daily prior to opening.
Facility Maintenance and Operation (FMO)	5.6.10.6.2	Vacuuming shall only be done when the aquatic facility is closed.	*It is not prudent for a facility with multiple venues to close the entire facility to remedy a situation that might occur at a single venue pool* -- Vacuuming shall only be done when the Aquatic Venue within the Facility is closed	Agreed. Changed "facility' to "venue".	5.6.10.6.2	Vacuuming shall only be done when the aquatic venue is closed.
Ventilation (VEN)	5.6.2.1.1	Indoor aquatic facility building ventilation systems shall be maintained and operated to protect the health of the building's occupants.	~~INDOOR AQUATIC FACILITY building ventilation systems shall be maintained and operated to protect the health of the building's occupants.~~ -- First a question. What is the difference between the space conditioning system and the ventilation system? Second, it seems quite self serving to only have the system worried about the occupants, most space conditioning systems are concerned with the building's health as well. If there is a difference between the two systems, where does one stop and the other begin? They are not normally totally separate systems.	Partially Agree. Code revised . " Ventilation System " changed to "Air Handling System" and is defined and "safety" added to address maintenance of the building.	5.6.2.1	Air handling systems shall be maintained and operated by the owner/operator to protect the health and safety of the facility's patrons.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	5.6.2.1.2	Indoor aquatic facility building ventilation systems shall be maintained and operated to comply with all requirements of the original system design, construction and installation.	INDOOR AQUATIC FACILITY building ventilation systems shall be maintained and operated by the facility operator to comply with all requirements of the original system design, construction and installation. -- The designer has absolutely no control over either the maintenance or the operation of the system. The added words make it clear who is supposed to do this. While I don't actually believe that you can mandate (the word Shall) this, you can certainly try.	Disagree. Unnecessary as compliance with the operation and maintenance section of the MAHC is the responsibility of the aquatic facility owner/operator.	5.6.2.2	Air handling systems shall be maintained and operated to comply with all requirements of the original system design, construction and installation.
Ventilation (VEN)	5.6.2.1.3	The ventilation operation and maintenance requirements shall apply to an indoor aquatic facility including the aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	~~The ventilation operation and maintenance requirements shall apply to an INDOOR AQUATIC FACILITY including the AQUATIC VENUES, the surrounding BATHER and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the AQUATIC FACILITY.~~ -- This is really confusing because section 4 specifically eliminated this and there is no other reference on how to design the ventilation system. It doesn't belong here.	Agree. Code revised .	5.6.2.3	The ventilation operation and maintenance requirements shall apply to an indoor aquatic facility including the aquatic venues, the surrounding bather and spectator/stadium seating area, but does not include mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.
Ventilation (VEN)	5.6.2.1.6	Indoor aquatic facility operator shall implement a ventilation system cleaning program to remove contaminants within the equipment in accordance with the aquatic facility ventilation system design engineer's and/or the ventilation system manufacturer's recommendations.	This should not be the responsibility of the design engineer -- INDOOR AQUATIC FACILITY operator shall implement a ventilation system cleaning program to remove CONTAMINANTs within the equipment in accordance with the AQUATIC FACILITY ~~ventilation system design engineer's and/or the~~ ventilation system manufacturer's or installer's recommendations.	Partially Agree. This section deleted as cleaning/maintenance already included in another section.	5.6.2.4	The indoor aquatic facility owner/operator shall develop and implement a program of standard air handling system operation, maintenance, cleaning, testing, and inspection procedures with detailed instructions, necessary equipment and supplies, and oversight for those carrying out these duties, in accordance with the air handling system design engineer and/or manufacturer's recommendations.
Ventilation (VEN)	5.6.2.1.6	Indoor aquatic facility operator shall implement a ventilation system cleaning program to remove contaminants within the equipment in accordance with the aquatic facility ventilation system design engineer's and/or the ventilation system manufacturer's recommendations.	~~INDOOR AQUATIC FACILITY operator shall implement a~~ The design engineer shall recommend an air distribution ~~ventilation~~ system cleaning program to remove CONTAMINANTs within the equipment. ~~in accordance with the AQUATIC FACILITY ventilation system design engineer's and/or the ventilation system manufacturer's recommendations.~~ -- This would add significant cost to the maintenance of the facility since the air distribution systems are often nearly inaccessible as they may be 30 ft off the deck or over the pool itself. The best you can hope for is to have the design engineer supply information that will aid the operator in maintaining the cleanliness of the air distribution system.	Partially Agree. This section deleted as cleaning/maintenance already included in another section.	5.6.2.4	The indoor aquatic facility owner/operator shall develop and implement a program of standard air handling system operation, maintenance, cleaning, testing, and inspection procedures with detailed instructions, necessary equipment and supplies, and oversight for those carrying out these duties, in accordance with the air handling system design engineer and/or manufacturer's recommendations.
Ventilation (VEN)	5.6.2.1.7	Indoor aquatic facility operator shall maintain the aquatic facility ventilation system design engineer's original operating manuals and commissioning reports, updates and modification specifications for any modifications.	The design engineer may not be the entity providing the manuals and reports. -- Delete "design engineer's"	Partially Agree. Code revised.	5.6.2.5	The qualified operator shall maintain a copy of the air handling system design engineer and/or manufacturer original operating manuals, and commissioning reports, updates and specifications for any modifications at the facility.
Ventilation (VEN)	5.6.2.1.7	Indoor aquatic facility operator shall maintain the aquatic facility ventilation system design engineer's original operating manuals and commissioning reports, updates and modification specifications for any modifications.	This should not be the responsibility of the design engineer. -- INDOOR AQUATIC FACILITY operator shall maintain the AQUATIC FACILITY ventilation system ~~design engineer's~~ manufacturer's or installer's original operating manuals and commissioning reports, updates and modification specifications for any modifications.	Agree. Code revised.	5.6.2.5	The qualified operator shall maintain a copy of the air handling system design engineer and/or manufacturer original operating manuals, and commissioning reports, updates and specifications for any modifications at the facility.
Ventilation (VEN)	5.6.2.1.7	Indoor aquatic facility operator shall maintain the aquatic facility ventilation system design engineer's original operating manuals and commissioning reports, updates and modification specifications for any modifications.	INDOOR AQUATIC FACILITY operator shall maintain a copy of the AQUATIC FACILITY ventilation system design engineer's original operating manuals and commissioning reports, including updates and modification specifications for any modifications. -- I presume you really mean that the operator has to have a copy available.	Agree. Code revised.	5.6.2.5	The qualified operator shall maintain a copy of the air handling system design engineer and/or manufacturer original operating manuals, and commissioning reports, updates and specifications for any modifications at the facility.
Ventilation (VEN)	5.6.2.1.5	Indoor aquatic facility operator shall monitor, log and maintain ventilation system set-points and other operational parameters as specified by the aquatic facility ventilation system design engineer and/or the ventilation system manufacturer.	~~INDOOR AQUATIC FACILITY operator shall monitor, log and maintain ventilation system set-points and other operational parameters as specified by the AQUATIC FACILITY ventilation system design engineer and/or the ventilation system manufacturer.~~ -- What is the use of logging information if you are not going to do anything with it? This section is just busywork for the pool operator unless there is something for them to do with the information.	*Disagree. Logs to be maintained and available for review by the AHJ.*	5.6.2.6	The qualified operator shall monitor, log and maintain air handling system set-points and other operational parameters as specified by the air handling system design engineer and/or manufacturer.
Ventilation (VEN)	5.6.2.1.5	Indoor aquatic facility operator shall monitor, log and maintain ventilation system set-points and other operational parameters as specified by the aquatic facility ventilation system design engineer and/or the ventilation system manufacturer.	This should not be the responsibility of the design engineer. -- INDOOR AQUATIC FACILITY operator shall monitor, log and maintain ventilation system set-points and other operational parameters as specified by the AQUATIC FACILITY ~~ventilation system design engineer and/or the~~ ventilation system manufacturer or installer.	Incorporated into revised section wording	5.6.2.6	The qualified operator shall monitor, log and maintain air handling system set-points and other operational parameters as specified by the air handling system design engineer and/or manufacturer.
Ventilation (VEN)	5.6.2.4.1	Indoor aquatic facility operator(s) shall replace or clean, as appropriate, ventilation system air filters in accordance with the aquatic facility ventilation system design engineer's and/or the ventilation equipment manufacturer's recommendations, whichever is most frequent.	This should not be the responsibility of the design engineer -- INDOOR AQUATIC FACILITY operator(s) shall replace or clean, as appropriate, ventilation system air filters in accordance with the AQUATIC FACILITY ~~ventilation system design engineer's and/or the~~ ventilation equipment manufacturer's manufacturer's or installer's recommendations, whichever is most frequent.	Incorporated into revised section wording	5.6.2.7	The qualified operator(s) shall replace or clean, as appropriate, air handling system air filters in accordance with the air handling system design engineer and/or manufacturer's recommendations, whichever is most frequent.
Ventilation (VEN)	5.6.2.2.1	Indoor aquatic facility operator shall develop and implement a plan to reduce combined chlorine compounds introduced into the building from operation of aquatic venues.	"Reduce" is too vague. To what degree? A baseline standard should be defined as acceptable. -- INDOOR AQUATIC FACILITY operator shall develop and implement a plan to reduce combined chlorine compounds introduced into the building from operation of AQUATIC VENUES.	*Agree. Code revised.*	5.6.2.8	The qualified operator shall develop and implement a plan to minimize combined chlorine compounds in the indoor aquatic facility from the operation of aquatic venues.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	5.6.2.2.1	Indoor aquatic facility operator shall develop and implement a plan to reduce combined chlorine compounds introduced into the building from operation of aquatic venues.	1) Grammar, Clarification -- (depending on the intent of the committee) (Possibility 1) INDOOR AQUATIC FACILITY operator shall develop and implement a plan to reduce combined chlorine compounds minimize the amount of disinfection by-products from being introduced into other parts of the building from operation of AQUATIC VENUES. (Possibility 2) INDOOR AQUATIC FACILITY operator shall develop and implement a plan to reduce combined chlorine compounds minimize the amount of disinfection by-products from being introduced into the building natatorium air from operation of AQUATIC VENUES through compliance with the pool-chemistry requirements of this code.	*Partially Agree(Possibility 2). Code revised . Annex provides clarification.*	5.6.2.8	The qualified operator shall develop and implement a plan to minimize combined chlorine compounds in the indoor aquatic facility from the operation of aquatic venues.
Ventilation (VEN)	5.6.2.2.1	Indoor aquatic facility operator shall develop and implement a plan to reduce combined chlorine compounds introduced into the building from operation of aquatic venues.	INDOOR AQUATIC FACILITY operator shall develop and implement a plan to reduce combined chlorine compounds introduced into the building from operation of AQUATIC VENUES. -- What 'building'? I don't know what to change here. If you mean parts of the building that are connected to the aquatic venues then that is a function of the aquatic venue ventilation system. If you mean the aquatic venue itself then it would be more appropriate to talk about maintaining pool chemistry as the words as written are pretty wishy- washy.	Agree. Code revised.	5.6.2.8	The qualified operator shall develop and implement a plan to minimize combined chlorine compounds in the indoor aquatic facility from the operation of aquatic venues.
Ventilation (VEN)	5.6.2.2.1 ANNEX	See original Annex for full text	Air Quality can also affect water chemistry. Quoting the CDC, "Fresh air is important; super chlorination can be an effective way to rid the pool water of these by-products but will not work if the air is saturated with irritants and ventilation is not adequate." This takes the water chemistry further from the acceptable range. – REFERENCE: CDC Article on Irritants (Chloramines) and Indoor Pool Quality	No change proposed by the commenter	5.6.2.8 Annex	Water chemistry affects air quality: • The amount of disinfectant in the water should always be at sufficient level to disinfect properly, but high residual levels in an indoor environment contribute to the development of DBPs. A higher ratio of CHLORINE to nitrogen content in the water results in the formation of TRICHLORAMINE. Lower levels of CHLORINE/bromine in the POOL results in lower levels of DBPs in the presence of organic and inorganic CONTAMINANTS. • High residual levels have been a requirement for outdoor AQUATIC VENUEs that have sunlight exposure, but that requirement may not be necessary for INDOOR AQUATIC FACILITIES. • Free CHLORINE levels could likely be maintained at a lower level due to the absence of dechlorination due to sunlight. • Lower pH levels increase the effectiveness of CHLORINE and by maintaining pH less than 7.5, less CHLORINE is required to achieve effective DISINFECTION . The water quality will affect the air quality in INDOOR AQUATIC FACILITIES. Also BATHER practices will determine not only the water quality but also the air quality. Therefore, if air handling equipment is installed, INDOOR AQUATIC FACILITY operators should develop and implement a program to operate, monitor and maintain the equipment as designed to reduce combined CHLORINE compounds introduced into the building from the AQUATIC FEATURES in accordance with the INDOOR AQUATIC FACILITY AIR HANDLING SYSTEM design engineer's and/or the AIR HANDLING SYSTEM equipment manufacturer's recommendations.
Ventilation (VEN)	5.6.2.5.1	Operator shall develop an action plan including procedures for purging the building if necessary.	Refer to above 4.6.2.5.1 suggestion……..	Partially Agree. Code revised.	5.6.2.9	The qualified operator shall develop an air quality action plan with procedures for purging the indoor aquatic facility for chemical emergencies or other indicators of poor air quality.
Ventilation (VEN)	5.6.2.5.1	Operator shall develop an action plan including procedures for purging the building if necessary.	The word "building" is overly inclusive. -- Operator shall develop an action plan including procedures for purging the natatorium ~~building~~ if necessary.	Agree. Code revised.	5.6.2.9	The qualified operator shall develop an air quality action plan with procedures for purging the indoor aquatic facility for chemical emergencies or other indicators of poor air quality.
Ventilation (VEN)	5.6.2.5.1	Operator shall develop an action plan including procedures for purging the building if necessary.	~~Operator shall develop an action plan including procedures for purging the building if necessary.~~ -- Action plan? What is that supposed to mean? Certainly isn't code language. This portion would not be applicable if my suggestion that section 4.6.2.5.1 is eliminated. How would some code official be able to interpret this requirement? There is no way they could know what a useful plan would be. The text as written only says you have to have a plan, nothing about using the plan for anything.	Partially Agree. Section revised.	5.6.2.9	The qualified operator shall develop an air quality action plan with procedures for purging the indoor aquatic facility for chemical emergencies or other indicators of poor air quality.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.6.3	Electrical	Electrical: While our statutory authority includes safety in the requirements, we generally recognize the state electrical inspection process through our department of Labor and Industry as having primary authority in this area. When we find a problem at a facility that we believe may be a violation of electrical codes, we send a letter to the chief electrical inspector and they will evaluate and take actions. If the intent of this portion is to raise our level of awareness of electrical issues, that has some value, but I think in our state to enforce on these issues will cross a line of authority.	Unclear what the commenter is asking. The MAHC also defers to electrical code but wants to include specific wording to highlight key issues..	5.6.3	Electrical
Facility Maintenance and Operation (FMO)	5.6.3.1.3	Overhead electrical wiring, whether permanent or temporary, done for maintenance, repair, or display shall comply with the National Electrical Code (NEC) Article 225 and Article 680 and other applicable sections, or with applicable local code.	Strike "done for maintenance, repair, or display"	Agreed. Changes made as suggested	5.6.3.1.3	Electrical wiring, whether permanent or temporary, shall comply with the National Electrical Code (NEC) Article 225 and Article 680 and other applicable sections, or with applicable local code.
Facility Maintenance and Operation (FMO)	5.6.3.1.3	Overhead electrical wiring, whether permanent or temporary, done for maintenance, repair, or display shall comply with the National Electrical Code (NEC) Article 225 and Article 680 and other applicable sections, or with applicable local code.	Why is overhead wiring distinguished from any other wiring associated with a pool? All wiring should code	Agreed. Changed to include all electrical wiring.	5.6.3.1.3	Electrical wiring, whether permanent or temporary, shall comply with the National Electrical Code (NEC) Article 225 and Article 680 and other applicable sections, or with applicable local code.
Facility Maintenance and Operation (FMO)	5.6.3.2.1	The installation of new electrical receptacles shall be deemed new construction, and thus subject to electrical-construction requirements of this code and applicable local code.	The installation of new electrical receptacles shall be deemed new construction, and thus subject to electrical-construction requirements of this CODE and applicable local CODE. Is this anywhere in the aquatic facility, or near the aquatic venue, or in the mechanical room?	Agreed. Deleted "considered new construction" to clarify that putting a new receptacle in does not incur all new upgrades needed for new construction. Yes, this provision applies to anywhere in the facility.	5.6.3.2.1	The installation of new electrical receptacles shall be subject to electrical-construction requirements of this code and applicable local code.
Facility Maintenance and Operation (FMO)	5.6.3.2.3	Replacement receptacles shall be of the same type as the previous ones, e.g. grounding-type receptacles shall be replaced only by grounding-type receptacles, with all grounding conductors connected and proper wiring polarity preserved.	As written would exclude the ability to upgrade or improve. Suggest…"similar or improved type"	Disagree. Same type means replacing GFCI w another GFCI outlet. Not concerned about whether it is a better quality or not.	5.6.3.2.3	Replacement receptacles shall be of the same type as the previous ones, e.g. grounding-type receptacles shall be replaced only by grounding-type receptacles, with all grounding conductors connected and proper wiring polarity preserved.
Facility Maintenance and Operation (FMO)	5.6.3.3.1 ANNEX	GFCI testing shall follow the manufacturer's recommendations. However, the minimum test procedure shall include: (SEE ANNEX FOR COMPLETE TEXT)	*Conduit can be properly and safely run through these spaces. This shouldn't be in the annex for fear of misinterpretation or enforcement.* -- ~~Pool chemicals, acids, and fertilizers, salt, oxidizing cleaning materials and other corrosive or oxidizing chemicals shall not be stored in interior spaces where electrical conduits enter or pass through the space~~	Agreed. Changed "shall" to "should" in Annex.	5.6.3.3.1	GFCI testing should follow the manufacturer's recommendations. However, the minimum test procedure should include: (SEE ANNEX FOR FULL TEXT)
Facility Maintenance and Operation (FMO)	5.6.3.3.1 ANNEX	GFCI testing shall follow the manufacturer's recommendations. However, the minimum test procedure shall include: (SEE ANNEX FOR COMPLETE TEXT)	*In my opinion this is not the industry standard and there is no science referenced to suggest this requirement. This shouldn't be in the annex for fear of misinterpretation or enforcement.* -- ~~Where the isolation of an interior storage space containing such chemicals from other interior spaces containing combustion devices depends on an interior door, such door shall be gasketed to prevent the passage of air, fumes, or vapors, and shall be equipped with an automatic door closer and an alarm that will give notice if the door remains open for more than five minutes. Function of this alarm shall be confirmed monthly as part of scheduled maintenance. Failures of door gasketing, or of the door closer, or of the alarm shall be repaired immediately.~~	Addressed. All "shalls" have been changed to "should"	5.6.3.3.1	GFCI testing should follow the manufacturer's recommendations. However, the minimum test procedure should include: (SEE ANNEX FOR FULL TEXT)
Facility Maintenance and Operation (FMO)	5.6.3.3.1 ANNEX	GFCI testing shall follow the manufacturer's recommendations. However, the minimum test procedure shall include: (SEE ANNEX FOR COMPLETE TEXT)	*Requiring chemical feed pumps to have a GFI could be problematic due to failure because of corrosion.* -- Exception (c): Otherwise approved chemical storage spaces containing small motors and the associated controllers, such as those for exhaust-blowers and peristaltic pumps shall be acceptable where such motor circuits are protected by GFCI.	Unclear what change is suggested. MAHC TC feels it is not best practice to have chemicals in an equipment room.	5.6.3.3.1	GFCI testing should follow the manufacturer's recommendations. However, the minimum test procedure should include: (SEE ANNEX FOR FULL TEXT)
Facility Maintenance and Operation (FMO)	5.6.3.3.2 & 5.6.3.3.3	(5.6.3.3.2) For permanent aquatic facilities, required GFCI devices shall be tested monthly as part of scheduled maintenance. (5.6.3.3.3) For temporary aquatic facilities, required GFCI devices shall be tested on the first day of operation, and monthly thereafter until the body of water is drained and the equipment is prepared for storage.	For permanent aquatic facilities, required GFCI devices shall be tested monthly as part of scheduled maintenance. Does any record need to be maintained for this or is it included for general best practice?	Addressed in Annex	5.6.3.3.2	For permanent aquatic facilities, required GFCI devices shall be tested monthly as part of scheduled maintenance.
Facility Maintenance and Operation (FMO)	5.6.3.4.6	The aquatic facility where damaged grounding conductors or grounding electrodes, associated with recirculation or disinfection equipment or with underwater lighting systems, shall be closed until repairs are completed and inspected by the local building code authority.	Close the entire facility? Close the attractions? Overly broad.	Agreed. "Facility" has been changed to "venue"	5.6.3.4.6	The aquatic venue with damaged grounding conductors or grounding electrodes, that are associated with recirculation or disinfection equipment or with underwater lighting systems, shall be closed until repairs are completed and inspected by the AHJ.
Facility Maintenance and Operation (FMO)	5.6.3.5.5	Bonding conductors, where accessible, shall be inspected semi-annually as part of scheduled maintenance.	Bonding conductors, where accessible, shall be inspected semi-annually as part of scheduled maintenance. Does any record need to be maintained for this or is it included for general best practice?	Addressed in Annex	5.6.3.5.5	Bonding conductors, where accessible, shall be inspected semi-annually as part of scheduled maintenance.
Facility Maintenance and Operation (FMO)	5.6.3.6.1	Extension cords shall not be used as a substitute for a required receptacle.	Extension cords shall not be used as a substitute for a required receptacle. What is a required receptacle – what dictates how many receptacles should be provided and where? Should this say: Extension cords shall not be used as a substitute for a permanent and accessible receptacle?	Agreed. Clarified	5.6.3.6.1	Temporary extension cords and power connectors shall not be used as a substitute for permanent wiring.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.6.3.6.1	Extension cords shall not be used as a substitute for a required receptacle.	Suggest defining what a "required receptacle" is.	Addressed – clarified use of extension cords.	5.6.3.6.1	Temporary extension cords and power connectors shall not be used as a substitute for permanent wiring.
Facility Maintenance and Operation (FMO)	5.6.3.6.3	*An extension cord may be used within 6 feet (1.8m) of the nearest edge of a body of water if a permanent floor, wall, ceiling, or roof exists between the body of water and the extension cord.*	Unclear. What is the intent?	Agreed. Intent is to prevent the extension cord from reaching the water. Code language was modified to make this clear.	5.6.3.6.3	An extension cord may be used within 6 feet (1.8m) of the nearest edge of a body of water if a permanent wall exists between the body of water and the extension cord.
Facility Maintenance and Operation (FMO)	5.6.7.1.2	Potable water shall be available at all times to bathers.	Potable drinking water shall be available at all times to BATHERS.	Agreed. Redundant wording removed	5.6.7.1.2	Potable water shall be available at all times to patrons.
Facility Maintenance and Operation (FMO)	5.6.7.3 ANNEX	Add discussion about treatment of backwash water for reintroduction to the pool as a water conservation effort – still done in accordance to local building codes… as future potential code implementation In some venues backwash water may be recycled instead of wasted in order to conserve water. This water must be treated in accordance with local code requirements prior to being introduced back into the venue.	*This could have negative consequences regarding TDS and organic loading. Is there science behind this practice? I've never seen it done and the MAHC shouldn't be experimenting if there aren't sound implementations in the field. This may be better tackled on a variance application basis.* -- Add discussion about treatment of backwash water for reintroduction to the pool as a water conservation effort – still done in accordance to local building codes… as future potential code implementation. In some venues backwash water may be recycled instead of wasted in order to conserve water. This water must be treated in accordance with local code requirements prior to being introduced back into the venue.	Agreed. Wording has been added to clarify that re-cycling does not mean back into the pool vs. other uses such as irrigation or other non-potable uses.	5.6.7.3	In some aquatic facilities, backwash water may be recycled for other purposes instead of wasted in order to conserve water. This water must be treated in accordance with local code requirements prior to being re-used. Backwash water is likely to be routinely contaminated with pathogens so its use should be carefully considered and health issues planned for prior to re-use. It should not be re-used in aquatic venues, but may be used in landscaping or other non-potable water uses.
Facility Maintenance and Operation (FMO)	5.12.6.1	Drainage shall not be returned to an adjacent pool or its water treatment facilities.	Is it the intent of this section to ban wading pools from having a common filtration system with an adjacent vessel? I would be opposed to this intention.	This code provision applies only to wastewater and has been moved elsewhere in the MAHC. It does not apply to co-filtration, which is covered in the MAHC Recirculation and Filtration code provisions.	5.6.7.3.2	Waste water and backwash water shall not be returned to an aquatic venue or the aquatic facility's water treatment system.
Recirculation and Filtration	5.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.	5.7.4.1 requires removal of water to maintain water quality. That is sufficient. This requirement should be deleted as it is prescriptive and might not meet the performance requirement of 5.7.4.1.	Disagree. Section 5.7.4.1 is the performance standard. Section 5.7.4.2 is the minimum standard, which by definition might not meet the needs of all pools and all situations.	5.6.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.
Recirculation and Filtration	5.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.	A volume of water totaling at least 4 gallons (15 L) per bather per day per facility is recommended shall be…… -- Set as a recommendation since depending on bather load the replenishment of water might not be necessary. Would dumping 4 gallons of water, if only one person used the spa that day, really make a difference. I think not!	Disagree. Admittedly, the exact amount of water to discharge is not known and will likely vary between pools (based on location, source water, bather density, temperatures, ect.). It is generally accepted that some water must be discharged to remove contaminants that will otherwise accumulate in pools over time. The starting point is a system to measure the discharge and a minimal rate to start with	5.6.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.
Recirculation and Filtration	5.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.	A volume of water totaling at least 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused, or 3) Use an alternate system to automatically maintain TDS levels in water, the TDS level shall not exceed 3 cycles above the makeup water TDS.-- Ontario Health Standards currently require 20 L per BATHER per day to be discharged from the system. While this has proven to be effective there isn't really any research supporting this specific number. More recently some deviation has been allowed to monitor TDS in lieu of a specific dilution number. This has proven very effective even in pools where Bromine is used as the primary sanitizer. While we agree with dilution being an important factor for successful operation, there doesn't really seem to be any research supporting the 4 gallon number. This could prove to be very prohibitive for drought stricken states and could lead to pool closures.	Disagree. TDS is not the critical issue. Total organics is very important to water and air quality. Admittedly, the exact amount of water to discharge is not known and will likely vary between pools (based on location, source water, bather density, temperatures, ect.). It is generally accepted that some water must be discharged to remove contaminants that will otherwise accumulate in pools over time. The starting point is a system to measure the discharge and a minimal rate to start with	5.6.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.
Recirculation and Filtration	5.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.	In addition to cost factors, drought conditions in the west, including Colorado, make any specific requirement difficult to undertake – especially when based solely on attendance, not actual water quality in each venue. Many persons in attendance at a waterpark use only a few aquatic venues – not all such venues.	Disagree. All bathers add wastes that cannot be removed by sand filters and chlorine. This section of the MAHC addresses contaminants that cannot be removed cost-effectively by other means to help control water quality and air quality for pools.	5.6.7.4.2	A volume of water totaling at least to 4 gallons (15 L) per BATHER per day per facility shall be either 1) Discharged from the system, or 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4.2.1 and reused.
Recirculation and Filtration	5.7.4.3	In multi-recirculation system facilities, water replenishment shall be proportional to the number of bathers in each system.	This requirement should be deleted. It is not practical as there is no way to determine how many bathers have gone into each venue in a water park.	Disagree. The requirement is based on 4 gallons per bather per day per facility. The intent is that all of the water should not be wasted from a single venue in a multi-venue facility. While exact numbers are not required, some venues are clearly more popular than others and should get more fresh water.	5.6.7.4.3	In multi-recirculation system facilities, water replenishment shall be proportional to the number of bathers in each system.
Facility Maintenance and Operation (FMO)	5.6.10.1.2	Patrons shall not eat or drink while in or partially in the aquatic facility's body of water.	Is it the intent of this code to ban swim-up bars?	Swim-up bars are not prohibited in the MAHC, but the committee does prohibit eating and drinking inside the aquatic venue water outside designated areas. Wording has been added to clarify .	5.6.9.1.2	Patrons shall not eat while in or partially in the aquatic venue water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Facility Maintenance and Operation (FMO)	5.6.10.1.2	Patrons shall not eat or drink while in or partially in the aquatic facility's body of water.	This would eliminate any swim up type bar. Overly restricted delete.	Swim-up bars are not prohibited in the MAHC, but the committee does prohibit eating and drinking inside the aquatic venue, "outside designated areas" (added). Supporting rationale added to the Annex.	5.6.9.1.2	Patrons shall not eat while in or partially in the aquatic venue water.
Facility Maintenance and Operation (FMO)	5.6.10.1.2	Patrons shall not eat or drink while in or partially in the aquatic facility's body of water.	*The entry is opinionated and presumptuous* -- Omit "drinking" Omit " Some venues now have to consider "swim-up" bars which can also contribute to drowning caused by excessive alcohol consumption." What is the basis that this occurs in controlled licensed facilities where patrons are served by certified attendants?	*Agree partially. Have altered wording to discuss alcohol use in the pool in designated areas and suggestions for bathroom breaks to limit combined chlorine formation. Altered "can" to "may". Alcohol is well documented to increase risk of drowning and injury so highlighting this for lifeguards is suggested and warranted.*	5.6.9.1.2 & 5.6.9.1.3	5.6.9.1.2 Eating FMO PATRONS shall not eat while in or partially in the AQUATIC VENUE water. 5.6.9.1.3 Drinking FMO PATRONS shall not drink while in or partially in the AQUATIC VENUE water except in designated areas.
Facility Maintenance and Operation (FMO)	5.6.9.3.1	Deck areas shall be maintained free from obstructions, including patron seating, to preserve space required for life saving and rescue.	*Existing state or local codes – Section 3.2* -- DECK areas shall be maintained free from obstructions, including patron seating, to preserve space required for life saving and rescue. Is there a specified distance that needs to be maintained? Colorado: The deck areas of all pools shall have a minimum of five (5) feet of unobstructed deck width measured from the water's edge. – REFERENCE: COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT Water Quality Control Division 5 CCR 1003-5 STATE BOARD OF HEALTH REGULATIONS PERTAINING TO SWIMMING POOLS AND MINERAL BATHS	Deck definition has been added to glossary.	5.6.9.3.1	The perimeter deck shall be maintained free from obstructions, including patron seating, to preserve space required for lifesaving and rescue.
Facility Maintenance and Operation (FMO)	5.6.9.3.2	Diaper changing shall only be done at approved diaper-changing stations in the restrooms or other designated areas.	Approved by whom/what?	Addressed. Changed to clarify approval by authority having jurisdiction (AHJ).	5.6.9.3.2	Diaper changing shall only be done at a designated diaper-changing station.
Facility Maintenance and Operation (FMO)	5.6.9.3.4	Deck areas shall be kept free of debris, vermin, and vermin harborage and cleaned daily.	DECK areas shall be kept free of debris, vermin, ~~and~~ potential vermin harborage and cleaned daily	Disagree – ANY place is a "potential harborage"	5.6.9.3.3	Deck areas shall be cleaned daily and kept free of debris, vermin, and vermin harborage.
Recirculation and Filtration	5.7.1.1.1	During operation all components of the filtration and recirculation systems shall be kept in continuous operation (twenty-four (24) hours per day).	Rewrite to say: "During operation with bathers all components of the filtration shall be kept in continuous operation.	Disagree. Commenter did not provide rationale and or data to support suggested change.	5.7.1.1.1	All components of the filtration and recirculation systems shall be kept in continuous operation (twenty-four (24) hours per day).
Recirculation and Filtration	5.7.1.1.1	During operation all components of the filtration and recirculation systems shall be kept in continuous operation (twenty-four (24) hours per day).	(a) All components of the filtration and recirculation systems shall be kept in continuous operation twenty-four (24) hours per day. (b) If operation is paused for any more than routine maintenance (e.g., refreshment of required chemicals) the system, including the air jets, shall be immediately drained and disinfected. -- (a)The term "during operation" can be misinterpreted. (b)Disruption of disinfection, along with lack of circulation can result in the formation of disinfectant resistant biofilm populations, including Legionella. -- REFERENCE: http://www.cdc.gov/legionella/downloads/hot-tub-disinfection.pdf ; There are numerous papers citing the association of Legionnaires Disease with spas/hotubs.	Partially agree. Code revised. Short term and long term closure provisions are addressed in Facility Operation and Maintenance Module.	5.7.1.1.1	All components of the filtration and recirculation systems shall be kept in continuous operation (twenty-four (24) hours per day).
Recirculation and Filtration	5.7.1.1.3	For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and no greater than 20% through the main drain.	This requirement is too restrictive and will not work for a deep wide pool. Skimmers are ineffective for pools wider than 30 feet. The balance of the systems should be accomplished through test and adjust.	Code section cited does not correspond with comment.	5.7.1.1.3	For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.
Recirculation and Filtration	5.7.1.1.3	For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and no greater than 20% through the main drain.	For gutter or skimmer Pools with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of flow through the perimeter overflow system and 2) no greater than 20% through the main drain -- suggest staying with common practices unless scientific research not identified here states better – 75% skimmer / 25% main drains -- Annex does not indicate recommendation	Disagree. Many states and organizations are currently using 80/20.	5.7.1.1.3	For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.
Recirculation and Filtration	5.7.1.1.3	For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and no greater than 20% through the main drain.	For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain. GENERAL COMMENT: With 20% or less through two suction outlets, each rated for 100 % of the system flow rate, only 10 % of the design velocity of 6 fps or 0.6 fps will be in the piping. That is less than the minimum 2.0 fps required to prevent settling.	Agree. Code revised, the 2 fps gravity flow requirement deleted.	5.7.1.1.3	For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.
Recirculation and Filtration	5.7.1.1.3	For gutter or skimmer POOLs with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and no greater than 20% through the main drain.	Same as prior " use the newer terminology "bottom suction outlets"	Disagree. Not all main drains are under suction.	5.7.1.1.3	For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation: 1) at least 80% of the flow through the perimeter overflow system and 2) no greater than 20% through the main drain.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.2.1	When treatment systems of aquatic venues are combined, the design shall include all appurtenances to maintain and measure the required water characteristics including but not limited to flow rate, pH, and disinfectant concentration in each venue/feature.	~~When treatment systems of aquatic venues are combined, the design shall include all appurtenances to maintain and measure the required water characteristics including but not limited to flow rate, PH, and disinfectant concentration in each venue/feature.~~ —This language appears to require a water chemistry controller for each feature (slide, play structure, lazy river, etc.) and potentially even each zone within a leisure pool. What is the science behind this requirement as it's not consistent with any current standard. The State of Ohio was requiring a disinfection feed for each feature pump (though never controls) which was typically accomplished through the installation of erosion feeders on these feature lines while the main recirculation feed had metered chemical feeds and a controller for the pool as a whole. However, even Ohio backed off this requirement recently and now just requires that a minimum residual should be measured at each feature's return in the pool. If proper recirculation designs are followed, this is a much more reasonable approach.	Disagree. The ability to monitor and control the required water characteristics for each venue is necessary. The disinfectant demand and loss is different based on the characteristics and bather load of each venue.	5.7.1.2.1	Each individual pool in a combined treatment system shall meet the required turnover times and achieve all water quality criteria (including, but not limited to, pH, disinfectant concentration, and clarity/turbidity).
Recirculation and Filtration	5.7.1.4.3	The automatic fill system shall maintain skimmer water levels near the middle of the skimmer openings when the pool is unoccupied.	The automatic fill system shall maintain skimmer water levels near the middle of the skimmer openings when pool filtration and recirculation system are operating -- This requirement should be implemented when pool filtration and recirc system is operating not just when unoccupied.	Agree. Code revised.	5.7.1.4.3	The automatic fill system shall maintain skimmer water levels near the middle of the skimmer openings.
Recirculation and Filtration	5.7.1.4.5	The strainer baskets for skimmers shall be cleaned daily.	The strainer baskets for skimmers shall be cleaned as needed to maintain proper skimmer performance. ~~daily.~~ —Likely not necessary for many pools, especially those indoors and with low use.The pump hair and lint strainer (5.7.1.7.1) requires that they be "cleaned as required" to maintain skimming performance is preferred language in my opinion.	Agree. Code revised.	5.7.1.4.5	The strainer baskets for skimmers shall be cleaned as necessary to maintain proper skimming.
Recirculation and Filtration	5.7.1.4.5	The strainer baskets for skimmers shall be cleaned daily.	Strainer baskets shall be cleaned as necessary to remove debris but not less than once a week -- Not all pools need to clean daily-many indoor pools do not need to be done on a daily basis. Simply unrealistic to dictate a daily regimen that is not currently dictated by most state codes: REFERENCES: The Design, construction, operation and Maintenance of Public Swimming Pools-excerpts from CA Health and safety code, CA code of Regulations, CA Building Code, Ca Electrical Code	Agree. Code revised.	5.7.1.4.5	The strainer baskets for skimmers shall be cleaned as necessary to maintain proper skimming.
Recirculation and Filtration	4.7.1.5.6.1	Flotation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers.	Floatation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers -- suggest revising - For proper adjustment of flow distribution between skimmers, flotation tests should be performed to ensure effective skimming and continued as signs of ineffective skimming have occurred	Agree. Code revised to differentiate between requirement for initial construction compliance/commissioning flotation test and operational aspect in Section 5.	5.7.1.4.6	A flotation test may be required by the AHJ to evaluate the effectiveness of surface skimming.
Recirculation and Filtration	4.7.1.5.6.1	Flotation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers.	Flotation Test should be performed prior to opening a facility to ensure effective skimming and proper adjustment of flow distribution between skimmers. Periodic Flotation test should be performed -- No mention of flotation test is indicated in any of the major pool Operator handbooks nor any justification for annual re-testing -- REFERENCE: NRPA Certified Aquatic Facility Operator Manual 4th Edition; NSPF Certified Pool-Spa Operator Handbook 2007, 2009; Editorial Comment: Although test may be valid the efficacy of test may change in the non-static environment so functionality needs to be tested in operational use environment as that is the standard that is needed in the overall effectiveness to users.	Proper skimming is designed to remove contaminants from the surface of the pool, which is related to health and water quality. Code revised to differentiate between requirement for initial construction compliance/commissioning flotation test and operational aspect in Section 5.	5.7.1.4.6	A flotation test may be required by the AHJ to evaluate the effectiveness of surface skimming.
Recirculation and Filtration	4.7.1.5.6.1	Flotation tests should be performed annually to ensure effective skimming and proper adjustment of flow distribution between skimmers.	This is not a requirement in current industry standards or codes. The basis for this requirement is not documented by industry experience. The requirement does not translate to mitigating risk. Therefore the requirement should be deleted.	Disagree. Proper skimming is designed to remove contaminants from the surface of the pool, which is related to health and water quality.	5.7.1.4.6	A flotation test may be required by the AHJ to evaluate the effectiveness of surface skimming.
Recirculation and Filtration	5.7.1.4.6	Broken or missing skimmer weirs shall be replaced immediately.	Broken or missing skimmer weirs shall be replaced immediately -- suggest revising – Broken or missing skimmer weirs shall be replaced immediately, unless damage has occurred rendering replacement impossible. Pool surface removal on skimmers missing weirs must be adjusted to effectively pass the floatation test	Disagree. Should time be needed due to logistical considerations, the facility owner/operator can contact the AHJ to discuss.	5.7.1.4.6.1	Broken or missing skimmer weirs shall be replaced immediately.
Recirculation and Filtration	5.7.1.5.1.2	Loose covers shall be secured immediately according to the manufacturer's recommendations.	Delete this requirement as is replication of 5.7.1.5.1	Agree. Code revised, section deleted.	5.7.1.5.1	Loose, broken, or missing suction outlet covers and sumps shall be secured or replaced immediately and installed in accordance with the manufacturer's requirements.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.1.5.1.1	Pools shall be closed until the required repairs can be completed.	Pools shall be closed for any repair which has a potential safety issue to the public or compromises the effective operational of a recirculation or sanitation system. -- Not reasonable to close for all repairs. 1 missing weir is not a necessary action to close a pool -- Editorial comment: Stated in basis for change as well as wording is crafted to reflect necessary closure elements that affect safety and operations.	Disagree. This section addresses suction outlet covers, pools shall not be open until repairs are completed.	5.7.1.5.1.1	Pools shall be closed until the required repairs can be completed.
Recirculation and Filtration	5.7.1.8.1	Flow meters shall be maintained in an accurate operating condition.	What defines "accurate". Reword to "Flow meters shall be maintained per manufacturer's requirements."	Partially agree. Code revised.	5.7.1.8.1	Flow meters shall be maintained in proper working order.
Recirculation and Filtration	5.7.1.9.1	Operated at the designed flow rate to provide the required turnover rate 24-hours per day except as allowed in MAHC Section 4.7.1.10.	Change "24 hours" to during the pool open operating hours	Disagree. Turbidity removal through filtration is based on consecutive dilutions assuming/requiring continuous/24 hr/day operation.	5.7.1.9.1	All aquatic venues shall be operated at the designed flow rate to provide the required turnover rate 24-hours per day except as allowed in MAHC Section 4.7.1.10.
Recirculation and Filtration	5.7.1.9.1	Operated at the designed flow rate to provide the required turnover rate 24-hours per day except as allowed in MAHC Section 4.7.1.10.	What is operated at the designed flow rates. There is no noun in the sentence	Agree. Code revised.	5.7.1.9.1	All aquatic venues shall be operated at the designed flow rate to provide the required turnover rate 24-hours per day except as allowed in MAHC Section 4.7.1.10.
Recirculation and Filtration	5.7.2.1	*Granular Media Filters*	Add to current language "or as prescribed by filter manufacturer -- The language is based on absolute but a manufacturer may vary from what is stated so need to follow manufacturer recommendations	Disagree. However code revised to change 12 gpm/sq ft to 15 gpm/sq ft.	5.7.2.1	Granular Media Filters
Recirculation and Filtration	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 12 gpm/ft^2 (29.3 m/h).	High-Rate granular media filters shall be operated at no more than 15 gpm/ft² (36.7 m/h). -- The proposed filter rates are not supported by most current or proposed codes. The proposed changes will add significant cost to new facility design and construction as well as any major renovation. To date we've seen no scientific evidence that supports 12 gpm/ft² over 15 gpm/ft² in performance. It is our opinion that no meaningful gains were demonstrated unless flow rates were reduced to 10 gpm/ft² in conjunction with a coagulant feed system. This type of change from current or proposed changes to existing codes should not be implemented without additional significant testing as well as proper filter standards development within NSF/ ANSI Standard 50. – REFERENCE: California Codes, Florida Draft Revisions to DOH Code, Alberta Building Code, Ontario Building Code, NSF/ANSI Standard 50	Partially agree. (Code section cited should be 5.7.2.1.1.) Code revised to change 12 gpm/sq ft to 15 gpm/sq ft.	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 15 gpm/ft^2 (m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 12 gpm/ft^2 (29.3 m/h).	High rate granular media filters shall be operated at no more than 20 gpm/ft². – REFERENCE: CT Public Swimming Pool Design Guide Section 13.2 and NSF Standard 50.	Disagree. However code revised to change 12 gpm/sq ft to 15 gpm/sq ft.	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 15 gpm/ft^2 (m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 12 gpm/ft^2 (29.3 m/h).	High-rate granular media filters shall be operated at no more than 12 gpm/ft2 -- suggest staying at industry practice - 20 gpm/ft2 maximum -- Trouble here is the annex continues to display "drinking water" filtration practices. Drinking water has controlled variables because it is a closed system. Pools and spas have more uncontrollable variables including weather factors, open surface areas, and bathers. If there was practices existing common to all parks or venues, then this could be an option	Disagree. However code revised to change 12 gpm/sq ft to 15 gpm/sq ft	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 15 gpm/ft^2 (m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 12 gpm/ft^2 (29.3 m/h).	This requirement needs to be a performance based requirement and should be rewritten to: High-rate granular media filters shall be operated per the Manufacturer's requirements."	Disagree. However code revised to change 12 gpm/sq ft to 15 gpm/sq ft.	5.7.2.1.1	High-rate granular media filters shall be operated at no more than 15 gpm/ft^2 (m/h) when a minimum bed depth of 15 inches (38 cm) is provided per manufacturer.
Recirculation and Filtration	5.7.2.1.2	The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.	The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area. unless explicitly prohibited by the filter manufacturer and/ or approved at an alternate rate by NSF/ANSI 50 listing. -- While the proposed backwash rate may be effective for sand filters with an effective size range of .45mm, there are many other types of media that require a much lower backwash rate. There are many filters in operation that utilize an air scour system or air assist that have effectively demonstrated the ability to backwash properly at lower backwash rates. This should not be a prescriptive requirement however by current NSF/ANSI Standard 50 requirements would need to be validated by a third party testing agency whether at 15 gpm/ft² or any other backwash rate. – REFERENCE: NSF/ANSI Standard 50	Disagree. Air scour can occur without any flow, but it is considered best practice to fully fluidize the media after air scouring.	5.7.2.1.2	The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.
Recirculation and Filtration	5.7.2.1.2	The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.	This requirement needs to be a performance based requirement and should be rewritten to: High-rate granular media filters shall be operated per the Manufacturer's requirements."	Disagree. However code revised to change 12 gpm/sq ft to 15 gpm/sq ft.	5.7.2.1.2	The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area, unless explicitly prohibited by the filter manufacturer.
Recirculation and Filtration	5.7.2.1.3	Backwashing should be continued until the water leaving the filter is clear.	What defines "clear"	No change proposed by the commenter.	5.7.2.1.3	Backwashing should be continued until the water leaving the filter is clear.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	All filters shall be backwashed at least twice per month. -- The current wording is simply targeted at granular media filters. There should also be a requirement for pre-coat filters and cartridge filters if this requirement is to remain. There are filters on lightly used pools that backwash less frequently and have no operational issues.	Disagree. The requirement is for sand filters only and is based on removing collected contaminants from the recirculation system and reducing the fouling of filter media in the filters. Additional research needed before considering similar requirements for precoat and cartridge filters.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	A backwash shall occur a minimum of every 2 weeks or as recommended by manufacturer -- As currently written indicates twice a month but you could do 2 backwashes in a row and comply with item but would not satisfy the intent -- Editorial Comment: Must follow manufacturer recommendation to stay within warranty and or to avoid litigation if issue occurs.	Agree. Code revised.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	~~All filters shall be backwashed at least twice per month. --~~ Filter backwash should be based upon physical operating parameters or manufacturer recommendations in lieu of a schedule based upon time elapsed with no respect to physical operating parameters such as pressure differential.	Disagree. The requirement is for sand filters only and is based on removing collected contaminants from the recirculation system and reducing the fouling of filter media in the filters. Additional research needed before considering similar requirements for pre-coat and cartridge filters.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	All filters shall be backwashed at least twice per month. -- If this is going to be a requirement for granular media filters shouldn't be a requirement for precoat filters and cartridge filters? We have many filters on lightly used pools that backwash once every three weeks and have experienced not experienced any operational issues based on backwash frequency	Disagree. Additional research needed before considering similar requirements for precoat and cartridge filters.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	Delete and incorporate into 5.7.2.1.4.1 -- Requiring backwash (BW) frequency should be dictated by pressure differential or flow rate. To require a BW prior to reaching pressure differential reduces filter efficiency and wastes water and energy.	Disagree. The requirement is based on removing collected contaminants from the recirculation system and reducing the fouling of filter media in the filters.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4	All filters shall be backwashed at least twice per month.	What is the rationale behind this requirement? Regenerative filter media may not require any backwashing. Rewrite to a performance requirement looking at type of filter, bather load, volume , etc.	Disagree. The requirement is for sand filters only and is based on removing collected contaminants from the recirculation system and reducing the fouling of filter media in the filters. Additional research needed before considering similar requirements for precoat and cartridge filters.	5.7.2.1.4	All filters shall be backwashed at least every two weeks.
Recirculation and Filtration	5.7.2.1.4.1	Backwashing of each filter shall be performed prior to reaching a 12 psi (83KPa) differential pressure increase over the initial clean filter pressure (*or as recommended by the filter manufacturer if this value is less*) unless the system can no longer achieve the design flow rate.	This requirement needs to be a performance based requirement and should be rewritten to: High-rate granular media filters shall be operated per the Manufacturer's requirements."	*Agree. Code revised.*	5.7.2.1.4.1	Backwashing of each filter shall be performed at a differential pressure increase over the initial clean filter pressure *(as recommended by the filter manufacturer)* unless the system can no longer achieve the design flow rate.
Recirculation and Filtration	5.7.2.1.4.1	Backwashing of each filter shall be performed prior to reaching a 12 psi (83KPa) differential pressure increase over the initial clean filter pressure (*or as recommended by the filter manufacturer if this value is less*) unless the system can no longer achieve the design flow rate.	Backwashing of a filter shall be preformed when the pressure differential reaches the recommended differential by the filter manufacturer unless the system design flow rate can no longer be achieved.	Agree. Code revised.	5.7.2.1.4.1	Backwashing of each filter shall be performed at a differential pressure increase over the initial clean filter pressure *(as recommended by the filter manufacturer)* unless the system can no longer achieve the design flow rate.
Recirculation and Filtration	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 3 minutes, whichever is greater, or The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.	*#2)* -- Backwash flow rate of no greater than 5 gpm/sq ft makes no sense. That's not backwashing, that's only disposing of water	This is a rinse that occurs after a normal backwash (with the water flowing in the upward/backwash direction).	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 1 minute per foot of bed depth above the laterals at the required filtration rate, whichever is greater, or 2) The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.
Recirculation and Filtration	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 3 minutes, whichever is greater, or The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.	High-rate granular media filters shall be operated per the Manufacturer's requirements." -- This needs to be performance based requirement and should be rewritten to	Disagree. The requirement is based on removing collected contaminants from the recirculation system and reducing the fouling of filter media in the filters.	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 1 minute per foot of bed depth above the laterals at the required filtration rate, whichever is greater, or 2) The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 3 minutes, whichever is greater, or The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 3 minutes, whichever is greater, or 2) The filter is one of a series of filters operating in parallel that backwashes utilizing filtered water supplied by the other filters in the system. The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft² (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter. -- There are 1000s of granular media filter systems installed in the United States where the filter backwashes utilizing filtered water from the other filters in the system. This would be the design of choice on almost every Granular Media Filter System sold into Municipal and School pools in the California market for the past 20 years. To add additional control complication into a system that has already proven to work reliably doesn't seem to be supported by the objective. If the filter backwashed with filtered water (as referenced in the Annex for this Section) this seems to address the concern.	Disagree. These are improved backwash protocols that help protect bathers in a pool, while the filter is being backwashed, from pathogens removed by the filter and released during the backwash procedure.	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 1 minute per foot of bed depth above the laterals at the required filtration rate, whichever is greater, or 2) The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.
Recirculation and Filtration	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 3 minutes, whichever is greater, or The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.	The filter flow shall be redirected to drain per the manufacturer's rinsing requirements, or -- What is process to define the time sufficient to displace the volume of water inside the filter? What science is the 3 minutes base on. Rewrite to use the "manufacturer's rinsing requirements." Procedure 2 should be deleted, as it is not achievable in a multi-filter installation	*Partially agree. Code revised.*	5.7.2.1.4.2.1	If the filter is backwashed while the AQUATIC FACILITY is open to BATHERS, then one of the following two procedures shall be performed after the normal backwashing procedure is completed and prior to the filter being placed back in normal operation: 1) The filter flow shall be redirected to drain for a period of time sufficient to displace the volume of water inside of the filter or 1 minute per foot of bed depth above the laterals at the required filtration rate, whichever is greater, or 2) The backwash flow rate shall be reduced to a rate of no greater than 5 gpm/ft2 (12.2 m/h) for a period of time sufficient to displace the volume of water inside of the filter.
Recirculation and Filtration	5.7.2.1.5	Sand or other granular media shall be inspected for proper depth and cleanliness at least one time per year.	"Sand or other granular media shall be inspected by a qualified person for compliance with standard ….. -- Rewrite this to: "Sand or other granular media shall be inspected by a qualified person for compliance with standard ?" Questions that needs to be answered prior to rewriting is what standard shall the sand or other granular media be inpected to? And what standards does a person meet to be qualified to perform this inspection? Note: Vast majority of sand filters are designated as confined spaces and require proper Personal Protection Equipment and permits to enter the space	Disagree. Cleanliness and depth are the standards.	5.7.2.1.5	Sand or other granular media shall be inspected for proper depth and cleanliness at least one time per year.
Recirculation and Filtration	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year.	Delete -- Repetitive from 5.7.2.1.5 – REFERENCE: MAHC 5.7.2.1.5	*Partially agree. Code revised.*	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year, replacing the media when necessary to restore depth or cleanliness.
Recirculation and Filtration	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year.	Delete as is redundant to 5.7.2.1.5	*Partially agree. Code revised*	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year, replacing the media when necessary to restore depth or cleanliness.
Recirculation and Filtration	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year.	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year, replacing the sand if necessary. At a minimum, the sand shall be treated with a descaling and a degreasing agent. -- Scale and biofilms can easily form on filter media if the water is not kept continually balanced. – REFERENCE: http://www.jstor.org/stable/2504	Agree. Code revised.	5.7.2.1.5.2	The qualified operator shall inspect sand or other granular media filters for proper depth and cleanliness at least once per year, replacing the media when necessary to restore depth or cleanliness.
Recirculation and Filtration	5.7.2.2.1	The appropriate media type and quantity as recommended by the filter manufacturer shall be used.	The appropriate media type and quantity as recommended by the filter manufacturer shall be used providing the media is NSF/ANSI Standard 50 approved for use in the filter. -- The current media requirement by NSF/ANSI Standard for precoat filters is any type of Diatomaceous Earth or approved alternate. Other media such as Perlite will need to be individually listed to the standard or the filter will need to be tested with the alternate media. Filters installed without using NSF/ANSI approved media are technically not in compliance with the standard and would not carry the listing in that situation. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	5.7.2.2.1	The appropriate media type and quantity as recommended by the filter manufacturer shall be used.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool.	Precoating of the filters shall be required in a closed loop (precoat mode) to minimize the potential for media or debris to be returned to the pool -- I agree with this paragraph. However it is a direct contradiction to 4.7.2.2.3.1	Partially agree. Code revised.	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool unless filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.
Recirculation and Filtration	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool.	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the POOL (unless filters are NSF Standard 50 certified to return water to POOL during the precoating process). – This requirement is bound to attract broad based criticism, which will deflect & detract from the technical merit and the value of the MAHC.There is simply too much, long standing & successful case history to preclude SINGLE PASS precoating for swimming pool use. Unlike industrial applications, swimming pool treatment is founded upon Gauge & Bidwell Laws of Consecutive Dilution. Without widespread & undisputed in-field evidence (which confirms and quantifies any potential risk during precoating) single pass precoating should be recognized & respected for its operational simplicity and its efficiency. Despite the sales hype from some filter manufacturers, there is no guarantee that CLOSED LOOP will eliminate potential bypasses of chlorine resistant pathogens. Furthermore, many consider close loop precoating to be a sophisticated and unwarranted imposition on Pool Operators. Practical experience also indicates that systems with closed loop precoating, often fail (& will release large quantities of collected solids & filter aid back into the pool) due to operator error & or equipment malfunction. This is a risk with a moderate to high probability. If independent scientific evidence became available whereby "bypass" was a genuine issue, single pass precoating could conceivably be delivered during a filter to waste type cycle. The operational benefits & the proven history of single pass precoating (in its present day form) should not be discarded in favor of closed loop precoating at this time	Agree. Code revised.	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool unless filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.
Recirculation and Filtration	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool.	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the POOL (unless filters are NSF Standard 50 certified to return water to POOL during the precoating process). -- NSF/ANSI Standard 50 has testing protocol for filters to precoat in the filter cycle. This testing requirement is very onerous and can only be met if the pore structure in the septum material of the filter is fine enough to retain the media in a single pass. There are literally 10,000s of precoat filters, manufactured by at least 3 different manufacturers that currently carry this certification, installed around the world. The potential to pass media to the pool with a filter certified to precoat in the filter mode, is far less a risk to pass media to the pool than a filter that requires sequencing of operational valves to prevent media from passing to the pool during a closed loop precoat (septum provides barrier to media rather than relying on valve timing). This information was provided to the Chair of this Technical Committee during the drafting of this module and has already been referenced in section 4.7.2.2.3.1 of this module. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool unless filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.
Recirculation and Filtration	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool.	~~Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the POOL. --~~ NSF has tests for precoating in a closed loop or in filter mode. Should simply stipulate that the precoat process shall comply with NSF requirements	Partially agree. Code revised.	5.7.2.2.2	Precoating of the filters shall be required in closed loop (precoat) mode to minimize the potential for media or debris to be returned to the pool unless filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.
Recirculation and Filtration	5.7.2.2.3	Filter operation shall be per manufacturer and NSF standard requirements.	Filter operation shall be per manufacturer and NSF/ANSI 50 ~~standard~~ requirements. -- Consistency and clarity	Agree. Code revised.	5.7.2.2.3	Filter operation shall be per manufacturer and certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	5.7.2.2.3.1	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves.	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves (unless filters are NSF Standard 50 certified to return water to POOL during the precoating process). -- Interruption of the filter flow to attain cake release and regeneration (of a single pass precoat filter) is a time proven, simple, & successful method for the operation of swimming pool filters. The likelihood of operational error is extremely low. As an expression of total flow, the extent of bypass is also similarly very low.	Agree. Code revised.	5.7.2.2.3.1	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves unless the filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.2.2.3.1	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves.	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves (unless filters are NSF Standard 50 certified to return water to POOL during the precoating process). -- See comment for 5.7.2.2.2 to provide explanation – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	5.7.2.2.3.1	Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode, which could result based on the order of opening and closing valves unless the filters are certified to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the pool during the precoat process.
Recirculation and Filtration	5.7.2.2.6	Bumping a precoat filter shall be performed in accordance with the manufacturer's recommendations.	Bumping a precoat filter shall be performed in accordance with the manufacturer's recommendations. – Due the inclusion of the word "bumping" this clause implies/infers that a BUMP type filters are MAHC recommended and or preferred. If this is the case, this Clause should go onto to say that closed loop precoating is a further function, which must be completed before placing the filter back on-line. In order to appreciate the impost that MAHC is inflicting (with many of their proposed precoat filter requirements) it is suggested MAHC reviews the typical filter run time, which is common with "bump" type filters that typically utilize densely packed flex tubes. With issues relating to POTENTIAL bypass during "regeneration" and "single pass precoating", it is also suggested that MAHC conducts a broad based matrix type Risk Analysis. Our 40-years of experience indicate that both the likelihood and the consequences of bypass issues with closed loop precoating are extremely low. On this basis, the need to specify and seemingly favor closed loop precoating is without adequate justification. Other standards and references quoted within this response, arguably address the perceived risks differently (and better) than the proposed MAHC.	Disagree. Inclusion of "bumping" is not intended to imply or infer preference or recommendation for use, it is acknowledging a type of pre-coat filter with corresponding requirements.	5.7.2.2.6	Bumping a precoat filter shall be performed in accordance with the manufacturer's recommendations.
Recirculation and Filtration	5.7.2.2.7	Precoat filter media shall meet the filter manufacturer's recommendation for pool use and shall be in accordance with NSF Standard 50.	Precoat filter media shall meet the filter manufacturer's recommendation for POOL use and shall be certified to ~~in accordance with~~ NSF/ANSI ~~Standard~~ 50 by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	5.7.2.2.7	Precoat filter media shall meet the filter manufacturer's recommendation for pool use and shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.
Recirculation and Filtration	5.7.2.2.7.1	Diatomaceous earth (DE), when used, shall be added to precoat filters in the amount of 1 to 2 pounds (0.45 to 0.91 kg) per 10 square feet of filtration surface area.	Diatomaceous Earth (DE), when used, shall be added to precoat filters in a minimum amount of 1 to 2 pounds (0.45 to 0.91 kg) per 10 square feet of filtration surface area unless more is recommended by the filter manufacturer and the filter is NSF/ANSI Standard 50 approved for the higher precoat media dosage rate. . -- While many of the precoat filters being sold as Regenerative Media Filters have a ½" gap between the elements many do have a larger gap that would allow for a greater precoat thickness. This type of filter is really a volumetric machine where the volume of media will dictate the length of filter run. In some cases precoating with a higher media dosage rate could provide a longer filter run. This should be left to the discretion of the manufacturer providing the filter has been tested to NSF/ANSI Standard 50 with a higher precoat media dosage rate. – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	5.7.2.2.7.1	Diatomaceous earth (DE), when used, shall be added to precoat filters in the amount of 1 to 2 pounds (0.45 to 0.91 kg) per 10 square feet of filtration surface area unless more is recommended by the filter manufacturer and the filter is certified to NSF/ANSI 50 by an ANSI-accredited certification organization for a higher precoat media dosage rate.
Recirculation and Filtration	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in the amount of be used in the amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area.	Correct writing: "in the amount of be used in the amount of"	Agree. Code revised.	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in a minimum amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area unless more is recommended by the filter manufacturer and the filter is certified to NSF/ANSI 50 by an ANSI-accredited certification organization for a higher precoat media dosage rate.
Recirculation and Filtration	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in the amount of be used in the amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area.	Perlite, when used, shall be added to precoat filters in a minimum amount of .5 to 1 pounds (0.23 to 0..45 kg) per 10 square feet of filtration surface area unless more is recommended by the filter manufacturer and the filter is NSF/ANSI Standard 50 approved for the higher precoat media dosage rate. -- See comment for 5.7.2.2.1 to provide explanation – REFERENCE: NSF/ANSI Standard 50	Agree. Code revised.	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in a minimum amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area unless more is recommended by the filter manufacturer and the filter is certified to NSF/ANSI 50 by an ANSI-accredited certification organization for a higher precoat media dosage rate.
Recirculation and Filtration	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in the amount of be used in the amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area.	~~Perlite, when used, shall be added to precoat filters in the amount of be used in the amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft2 (0.93 m2) of filtration surface area.~~ Dosing rates may depend on the filter design and element spacing. Should be left to manufacturer's recommendation assuming it has met NSF requirements.	Agree. Code revised.	5.7.2.2.7.2	Perlite, when used, shall be added to precoat filters in a minimum amount of 0.5 to 1 pounds (0.23 to 0.45 kg) per 10 ft^2 (0.93 m2) of filtration surface area unless more is recommended by the filter manufacturer and the filter is certified to NSF/ANSI 50 by an ANSI-accredited certification organization for a higher precoat media dosage rate.
Recirculation and Filtration	5.7.2.3.1	Cartridge filters shall be operated in accordance with the filter manufacturer's recommendation and NSF Standard 50.	Cartridge filters shall be operated in accordance with the filter manufacturer's recommendation and shall be certified to NSF/ANSI ~~Standard~~ 50 by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. Code revised.	5.7.2.3.1	Cartridge filters shall be operated in accordance with the filter manufacturer's recommendation and shall be certified to NSF/ANSI 50 by an ANSI-accredited certification organization.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.2.3.2	The maximum operating filtration rate for any surface-type cartridge filter shall not: 1) exceed 0.375 gallons per minute per square foot (0.26 L/s/m2) or drop below 0.30 gallons per minute per square foot (0.20 L/s/m2).	This requirement needs to be deleted as it could be in conflict with the Manufacturer's Recommendation	Partially agree. Code revised.	5.7.2.3.2	The maximum operating filtration rate for any surface-type cartridge filter shall not: 1) Exceed the lesser of either the manufacturer's recommended filtration rate or 0.375 gallons per minute per square foot (0.26 L/s/m2) or 2) drop below the design flow rate required to achieve the TURNOVER RATE for the AQUATIC VENUE.
Recirculation and Filtration	5.7.2.3.3.2	The following procedures shall be implemented to clean the filter housing: 1) Drain filter housing to waste. 2) Remove the filter cartridges from the housing. 3) Clean the inside of the filter with a brush and mild detergent prior to rinsing. Mist the housing walls with chlorine bleach after scrubbing to remove biofilms and algae.	Currently not a practice and this is an opinionated process. Most of the industry would spray/ scrub clean with a degreaser, soak in an acid bath then rinse with clean water. I am not sure what the bleach spray is intended to do and might start to rapidly dry rott the cartridge media.	*Disagree. Comment is addressing cleaning of the cartridge filter elements, the code section is addressing the filter housing.*	5.7.2.3.3.2	The following procedures shall be implemented to clean the filter housing: 1) Drain filter housing to waste; 2) Remove the filter cartridges from the housing; 3) Clean the inside of the filter with a brush and mild detergent to remove biofilms and algae; 4) Rinse thoroughly; and 5) Mist the housing walls with CHLORINE bleach.
Recirculation and Filtration	5.7.2.3.3.3.3.1	The cartridge shall be rinsed to remove as much dirt and debris as possible by washing inside and out with a garden hose and spray nozzle.	*#2)* -- How much water? Needs clarification	Agree. Code revised.	5.7.2.3.3.3.1	The cartridge shall be rinsed to remove as much dirt and debris as possible by washing inside and out with a garden hose and spray nozzle.
Recirculation and Filtration	5.7.2.3.3.3.3.1	The cartridge shall be rinsed to remove as much dirt and debris as possible by washing inside and out with a garden hose and spray nozzle.	Soak the cartridge overnight in one of the following solutions: 1) Filter Cleaner/degreaser, or 2) A solution of water with 1 cup of tri-sodium phosphate (TSP), or 1 Cup of automatic dishwashing detergent per 5 gallons of water. -- While we agree with the statements made with respect to cleaning cartridge filters, we question whether this should be in the Annex and not part of the actual code. Also, if your going to state a cleaning requirement for cartridge filters shouldn't the same be done for precoat filters, both types of filters do require degreasing ?	Partially agree. However, at the present time, not all manufacturers of cartridge filters have specified recommended cleaning procedures.	5.7.2.3.3.3.1	The cartridge shall be rinsed to remove as much dirt and debris as possible by washing inside and out with a garden hose and spray nozzle.
Recirculation and Filtration	5.7.2.3.3.3.4	To remove or prevent biofilms, algae, and bacteria growing on the cartridge, 1 quart of household bleach shall be added to the degreasing solution and soak one hour before rinsing.	Absolutely NO! You are advising mixing chemicals. DANGEROUS! SAFETY FIRST! Adding chlorine to TSP can cause toxic fumes. Degrease first, rinse thoroughly, then soak in CL and water mixture, rinse, then acid/water for removal of minerals, rinse, dry. -- DANEROUS / SAFETY	Agree. Code and annex revised.	5.7.2.3.3.3.4	To remove or prevent biofilms, algae, and bacteria growing on the cartridge, 1 quart of household bleach shall be added per 5 gallons of clean water and soak one hour before rinsing.
Disinfection and Water Quality (DWQ)	5.7.3	Disinfection	• Recommendation: The following section should be added: o 5.7.3.Z Bacteriological Standards o 5.7.3.Z.1 Water samples from recreational water venues should be tested for HPC and coliform bacteria levels at least once per year by the local health authority having jurisdiction. o 5.7.3.Z.2 Water samples from recreational water venues should be tested for HPC and coliform bacteria levels whenever there is evidence of operational problems. o 5.7.3.Z.3 Water samples from recreational water venues requiring secondary disinfection systems should be tested for HPC and coliform bacteria levels at least once per quarter by the local health authority having jurisdiction. o 5.7.3.Z.4 Water samples should have a Heterotrophic Plate Count (HPC) of less than 200 cfu/mL and should contain less than 1 cfu/100 mL of coliform bacteria.	Disagree. This is covered in the Monitoring and Testing module. At this point there are no strong data showing the benefits of bacterial testing of pools over consistent chlorine and pH testing. Appropriate testing of chlorine and pH seem to be equivalent and are much less expensive and more timely for checking pool maintenance.	5.7.3	Disinfection
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*The O'Brien paper I have referenced several times in other sections gives the equilibrium constants for the chlorinated isocyanurates and HOCl. A straightforward derivation from those constants shows that roughly speaking the HOCl concentration is proportional to and somewhat less than half the FC/CYA ratio at normal pool pH (i.e. near 7.5). I am sending separately a PoolEquations spreadsheet you can use to calculate HOCl concentration readily (it even has optional temperature dependence of the chlorinated cyanurate equilibrium constants, though that is turned off by default). I am also sending you separately the derivation of this FC/CYA relationship.* -- Cyanuric acid: Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. In particular, the FC should be a minimum of 20% of the CYA level as this has roughly the same active chlorine level as an FC of 0.2 ppm with no CYA near a pH of 7.5.	Comment noted, no change. The O'Brien paper relies primary on the use of computational techniques with only limited conformation using wet chemistry analysis. The straightforward derivation described in the comment is not obvious. Further research is necessary to consider this proposed language.	5.7.3.1.1	Chlorine (Ca/Na/Li Hypochlorite)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.1	Only chlorine products that are EPA-registered for use as disinfectants in pools or spas in the United States are permitted.	*Many chlorine products in the US are EPA registered as "sanitizers" rather than as "disinfectants".* -- Only chlorine products that are EPA-registered for use as sanitizers or disinfectants in pools or spas in the United States are permitted. -- REFERENCE: Example EPA registration numbers for calcium hypochlorite are 748-275 and 1248-427 and for trichloroisocyanuric acid is 5185-144.	Accept public comment. New text to read, "Only chlorine products that are EPA-registered for use as sanitizers or disinfectants in pools or spas in the United States are permitted."	5.7.3.1.1.1	Only chlorine products that are EPA-registered for use as sanitizers or disinfectants in aquatic venues or spas in the United States are permitted.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	*Please see attached section A8.3 from APSP-11, Exhibit A at the end of this document* -- Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L) – REFERENCE: APSP-11 section A8.3 and supporting documents cited therein.	The DWQ Technical Committee reviewed and considered APSP 11 during the development of this section. The DWQ Technical Committee believes that the MAHC parameters are consistent with the best available scientific evidence.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	• There is no reason to put 1ppm or 2 or 3 in a swimming pool (same for spas with 3ppm or 4 or 5 ppm). The MAHC should explain why you want X ppm specifically when you have a UV-C system. For instance in other countries: i. In France, levels are: 1. Not using cyanuric acid – a. pH : From 6.9 to 7.7 b. Free Chlorine: 0.4 à 1.4 mg/l (depending on the pH level) c. Combined Chlorine: 0.6 mg/l max 2. With cyanuric acid a. pH : from 6.9 to 7.7 b. Free Chlorine min 2 mg/l c. Combined Chlorine: 0.6 mg/l d. Stabiliser: no more than 75 mg/l ii. Sweden, Switzerland and Norway 1. FAC: 0.2- 0.4 2. Combined chlorine is 0.2ppm. iii. Italie: FAC between 0.5 and 1.5. and cc is 0.4 max iv. Germany: 1. FAC between 0.3 and 0.6 2. CC: 0.2ppm Recommendation: Minimum FAC concentration shall be maintained at all times in all areas to keep the water disinfectant as follows.	As with State codes, FAC requirements vary widely across countries. The DWQ Technical Committee believes that the MAHC parameters are consistent with the best available scientific evidence. No changes necessary to existing code language.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	*CT Standards* -- Minimum FAC concentrations for Item 1 be: 0.8 mg/l, for Item 2 be: 1.5 mg/l and for Item 3 be: 1.0 mg/l -- REFERENCE: CT Public Health Code Section 19-13-B33b(b)(5)&(e)(1)	• State code requirements for FAC levels vary widely. The DWQ Technical Committee believes that the MAHC parameters are consistent with the best available scientific evidence. • The minimum FAC level of 1.0 PPM (MG/L) for swimming POOLS is well-supported by available data, and the Committee would have less confidence that a lower FAC level would provide acceptable microbial quality. • Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. The precise impact on CT values is difficult to generalize, given the complexity of chemical reactions in a swimming pool environment. The selection of 2.0 PPM (MG/L) for pools using cyanuric acid provides a margin of safety for bathers to account for the potential effects of cyanuric acid. The minimum FAC level (3.0 PPM (MG/L)) for spas addresses the higher BATHER load and higher temperatures of these facilities. Data cited in the Annex indicates that a FAC level below this may be insufficient to control Pseudomonas aeruginosa. No changes necessary to existing code language.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	*MAHC cited swimming POOL survey data demonstrates that 1.0 PPM (MG/L) FAC provides acceptable bacteriological quality. Peer reviewed journal article concludes no distinction between stabilized and non-stabilized pools, since cyanuric acid was not a tested parameter published in the article. However, it does state that the data surveyed 100 pools, 70 of which were private household pools. An assumption can be made with relative confidence that a significant number of these private pools were outdoor, using cyanuric acid stabilization at varying levels* -- Swimming pools and all other aquatic venues using cyanuric acid: 1.0 ppm (mg/L) -- REFERENCE: Esterman A et al. Determinants of the microbiological characteristics of South Australian swimming pools. Appl Environ Microbiol. 1984 February; 47(2): 325–328.	The selection of 2.0 PPM (mg/L) for pools using cyanuric acid is supportive of public health and based on the balance of evidence to account for the potential effects of cyanuric acid. It is clear that ensuring adequate FAC levels is the most important parameter for maintaining microbial quality. Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the DWQ Technical Committee recognizes that the precise impacts on CT values in a swimming pool environment are not well-established.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	*Recirculating spray pools and wading pools are small volumes of water subjected to heavy loads like a spa pool and need higher minimum disinfectant levels. WAC 246-260-999 Appendix A table 111.1.* -- 3. Spas,wading pools and recirculating spray pools not using cyanuric acid: 3.0 PPM (MG/L) New 4. Spas, wading pools, and recirculating spray pools using cyanuric acid: 3.5 ppm (MG/L).	The relevant paragraph of Annex 5.7.3.1.1.3 will be revised to read: "A minimum FAC level (3.0 PPM (mg/L)) for ~~increased-risk aquatic venues~~ spas addresses the higher bather load, higher temperatures and/or at-risk populations served by these venues. The bather load and temperatures of these venues favor microbial growth and can lead to rapid depletion of chlorine." The MAHC requires secondary disinfection systems for "increased risk aquatic venues." Secondary disinfection and a minimum FAC level of 1.0 PPM should provide sufficient microbial protection for wading pools and recirculating spray pools. A minimum FAC level of 3.0 PPM is not warranted for these facilities. Since the MAHC prohibits use of cyanuric acid in spas and increased risk aquatic venues, the higher FAC requirements proposed by the commenter for these facilities ("New 4.") are unnecessary.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: 1. Swimming POOLS and all other AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) 2. Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) 3. Spas: 3.0 PPM (MG/L)	This puts this guideline in direct conflict with federal law (FIFRA) that requires 1-4 ppm. This is kind of true since 2 is within the label directions. However, if the operator gets conflicting recommendations from two federal agencies, it may induce them to break other rules that are less well thought out.	Disagree. The DWQ Technical Committee does not believe that the FAC parameters are in conflict with FIFRA requirements. EPA sets an upper limit of 4 ppm and does not set a lower limit so FIFRA (max 4 ppm) provides flexibility to provide appropriate FAC levels based on specific operation factors, including the use of cyanuric acid. All MAHC requirements are within this range. No changes necessary to existing code language.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.2 #2	Minimum FAC concentrations shall be maintained at all times in all areas as follows…. 2) Swimming POOLS and all other AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L)	*Increased CT values for chlorine in the presence of cyanuric acid.* -- No change to current wording. "Swimming pools and all other aquatic venues using cyanuric acid: 2.0 ppm (MG/L)."	The selection of 2.0 PPM (MG/L) for pools using cyanuric acid is supportive of public health and based on the balance of evidence to account for the potential effects of cyanuric acid on pathogen kill times. It is clear that ensuring adequate FAC levels is the most important parameter for maintaining microbial quality. Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the DWQ Technical Committee recognizes that the absolute quantitative impacts on CT values in a swimming pool environment are not well-established. Additional Annex language has been added on this point.	5.7.3.1.1.2	Minimum FAC concentrations shall be maintained at all times in all areas as follows: Not Using Cyanuric Acid DWQ AQUATIC VENUES not using cyanuric acid: 1.0 PPM (MG/L) Using Cyanuric Acid DWQ AQUATIC VENUES using cyanuric acid: 2.0 PPM (MG/L) Spas DWQ SPAs: 3.0 PPM (MG/L)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	• The Andersen study was performed in chlorine demand-free water. In this citation Andersen states, "Results obtained in a laboratory can rarely be perfectly correlated with actual practice and it is emphasized that these data were not obtained at swimming pool sites or with actual swimming pool water. Therefore, these results may only serve as an indication of the change in the bactericidal effectiveness of chlorine as affected by cyanuric acid in a pool." In addition to the real world applicability caveat, Andersen only performs his study at varying FAC concentrations ≤1 ppm. Therefore, Andersen forms no conclusion as to the relative statistical significance of chlorine efficacy at varying cyanuric acid concentrations for the stated MAHC level of 2.0 ppm with cyanuric acid, or the range of FAC levels currently mandated by the states. Provided citations show cyanuric acid to have no statistically significant effect when evaluated in real swimming pools. -- Strike bullet Cyanuric Acid - Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. -- REFERENCES: o Anderson JR. A study of the influence of cyanuric acid on the bactericidal effectiveness of chlorine. Am J Public Health Nations Health. 1965 Oct; 55(10):1629-37. o Swatek, F.E., Raj, H., Kalbus, G.E. 1967, "Cyanuric Acid – A Laboratory Evaluation Using Swimming Pool Water." (Paper presented at the 10th annual convention of the National Swimming Pool Institute, Las Vegas, Nevada, January, 1967). o L.F. Rakestraw, G.D. Nelson, D.M. Flanery, M. Pabst, E. Gregos, A.M. Plumridge, R.M. Valtimo. "A Comprehensive study on the microbicidal properties of stabilized and unstabilized chlorine and the relationships of other chemical and physical variables in public swimming pools: a report of a	The Annex references numerous peer-reviewed laboratory studies indicating that kill times for microbial contaminants are increased in the presence of cyanuric acid. Several of these could be cited here to further support this statement. As discussed above, additional discussion should be added to the Annex to read: "Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the precise impacts on CT values in a swimming pool environment are not well-established. In general, studies show that the presence of CYA up to 50 MG/L increase CT values under demand free conditions, and the amount of this increase depends upon the pH and the ratio of CYA to available chlorine. Studies suggest that this effect is mitigated with the addition of ammonia nitrogen as low as 0.05 MG/L."	5.7.3.1.1.2 Annex	Minimum FAC Concentrations (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Recent work by Blatchley regarding UV photolysis of disinfection byproducts show that UV may create some forms of chlorine demand while reducing others.* -- Under Secondary Disinfection bullet- While the minimum FAC level must be maintained in all pools, approved Secondary Disinfection Systems such as UV and ozone reduce risks from chlorine-resistant pathogens and may reduce chlorine demand. However, recent work also suggests that UV may also contribute to some forms of chlorine demand.	Blatchley's group has published relevant research on UV and chlorine demand. Weng et al. (2012) concludes: The results indicate that UV254 irradiation promotes several reactions that are involved in the formation and/or destruction of chlorinated N-DBPs in pool settings. Enhancement of DBP formation was consistent with a mechanism whereby a rate-limiting step in DBP formation was promoted by UV exposure. Promotion of these reactions also resulted in increases of free chlorine consumption rates. Annex language revised to read: Secondary DISINFECTION: While the minimum FAC level must be maintained in all POOLS, approved SECONDARY DISINFECTION SYSTEMS such as UV and ozone reduce risks from CHLORINE-resistant pathogens and may reduce chlorine demand. However, the effects of UV/chlorine on water chemistry are still largely undefined. Recent research suggests that UV can increases some forms of chlorine demand.	5.7.3.1.1.2 Annex	For individual POOLS, considerations for ideal FAC levels include: • Chlorine demand: FAC levels should be sufficient to accommodate peak BATHER LOADs and other sources of contamination. • Temperature and sunlight: FAC levels should be sufficient to accommodate loss of FAC from higher water temperatures and sunlight. • Cyanuric acid: Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. • Algae control: Algae is more difficult to control than most pathogens and may require FAC residuals >3.0 PPM (MG/L) although peer-reviewed data is lacking. • Accuracy of FAC tests: POOL test kits have been reported to give FAC results which diverge significantly from true values although peer-reviewed data is lacking. • Feeder equipment: Automated feeders help reduce variability in dosing and the potential for FAC levels to fall below minimum levels. • Secondary disinfection: While the minimum FAC level must be maintained in all POOLS, approved SECONDARY DISINFECTION SYSTEMS such as UV and ozone reduce risks from CHLORINE-resistant pathogens and may reduce CHLORINE demand. However, the effects of UV/CHLORINE on water chemistry are still largely undefined. Recent research suggests that UV can increases some forms of CHLORINE demand.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Won't a 3.0 PPM minimum free available chlorine requirement for these pools end up making the combined chlorine level more difficult to minimize and get under the 0.4 ppm maximum allowable limit stated in the current draft?* -- A minimum FAC level (3.0 PPM (MG/L)) for INCREASED RISK AQUATIC VENUEs addresses the higher BATHER load, higher temperatures and/or at-risk populations served by these venues. This minimum requirement is consistent with CDC *Final Recommendations to minimize transmission of Legionnaires disease from whirlpool spas on cruise ships*, published in 1997, which recommends maintaining free residual CHLORINE levels in spa water at 3 to 10 PPM (MG/L). It is further supported by a study reviewing both bromine and CHLORINE, which states, *Pseudomonas aeruginosa* were rapidly reestablished in whirlPOOLS (< 103 cells per ml) when disinfectant concentrations decreased below recommended levels [CHLORINE, 3.0 PPM (MG/L), bromine 6.0 PPM (MG/L)].	To be consistent with the MAHC requirements since this level only referred to spas, the relevant paragraph of Annex 5.7.3.1.1.3 has been revised to read: "A minimum FAC level (3.0 PPM (mg/L)) for ~~increased risk aquatic venues~~ spas addresses the higher bather load, higher temperatures and/or at-risk populations served by these venues. The bather load and temperatures of these venues favor microbial growth and can lead to rapid depletion of chlorine." The Annex discusses control of combined chlorine. It is expected that these methods can achieve the 0.4 PPM maximum for combined chlorine in spas.	5.7.3.1.1.2 Annex	A minimum FAC level (3.0 PPM (MG/L)) for SPAS addresses the higher BATHER LOAD, higher temperatures and/or at-risk populations served by these venues. The BATHER LOAD and temperatures of these venues favor microbial growth and can lead to rapid depletion of CHLORINE. This minimum requirement is consistent with CDC recommendations to minimize transmission of Legionnaires disease from whirlPOOL SPAS on cruise ships, published in 1997, which recommends maintaining free residual CHLORINE levels in SPA water at 3 to 10 PPM (MG/L). It is further supported by a study reviewing both bromine and CHLORINE, which states, Pseudomonas aeruginosa were rapidly reestablished in SPAS (< 103 cells per ml) when disinfectant concentrations decreased below recommended levels [CHLORINE, 3.0 PPM (MG/L), bromine 6.0 PPM (MG/L)].

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	• The Ibarluzea paper on indoor pools has several inconsistencies. In Table 2, the "Unacceptable microbiology" percentages should be no lower than the highest individual category percentage and no higher than the sum of individual category percentages, but this is not the case for two of the pools (Location 3A has a sum of 47.7% but an overall of 52.0%. Location 3B has 47.6% APC but only 44.4% overall). I am always bothered by such errors as it throws into question what other errors there might be in the paper. Also, note that the average FC levels were low (0.44 to 1.26) and that 32% of all samples had <= 0.4 ppm FC and 47% had <= 0.3 ppm HOCl. It is statistically more likely for a pool that has a higher FC level during sampling to have a higher average FC level and therefore not get to a near-zero FC. That is, the results can just as readily be explained by the reserve of chlorine and its variation to very low levels rather than to the active chlorine level itself as an independent parameter. The paper noted that "when the active chlorine measurement was used, however, calculated according to free chlorine and pH concentration, no association between the proportion of acceptable samples and active chlorine level was detected." It is likely that it is the reserve of chlorine (FC) that is simply too low for these pools, not the active chlorine level as an independent parameter (i.e. 4 ppm FC with 20 ppm CYA for an HOCl of 0.1 ppm could very well produce much better water quality compared to the pools in this study). The Price paper on whirlpools also indicates that it is the reserve of chlorine that is critical. However, to confirm this, tests with whirlpools using CYA, FC/CYA ratios of around 20%, and an FC of at least 3 ppm (most likely 4 ppm FC with 20 ppm CYA or 6 ppm FC with 30 ppm CYA or even 10 ppm FC with 30 ppm CYA) would need to be done. The recognition that whirlpools	The Annex references the Ibarluzea study, noting the paper's conclusion that FAC levels greater than 1.0 ppm may be required to maintain adequate microbial quality in pools. However, the Annex concludes that a minimum FAC level of 1.0 PPM (mg/L) for swimming pools is well-supported by available data. Revisions to the Annex language for spas should address the commenter's points on whirlpools. The relevant paragraph of Annex 5.7.3.1.1.3 will be revised to read: "A minimum FAC level (3.0 PPM (mg/L)) for ~~increased-risk aquatic venues~~ spas addresses the higher bather load, higher temperatures and/or at-risk populations served by these venues. The bather load and temperatures of these venues favor microbial growth and can lead to rapid depletion of chlorine." The conclusions of the Ibarlucea paper is consistent with other reports in the literature that water quality is inversely proportional to chlorine content and recommended free available content should be above 1 ppm. The comment regarding the enhanced loss of free available content in whirlpool systems supports Code recommendations for these systems	5.7.3.1.1.2 Annex	A minimum FAC level (3.0 PPM (MG/L)) for SPAS addresses the higher BATHER LOAD, higher temperatures and/or at-risk populations served by these venues. The BATHER LOAD and temperatures of these venues favor microbial growth and can lead to rapid depletion of CHLORINE. This minimum requirement is consistent with CDC recommendations to minimize transmission of Legionnaires disease from whirlPOOL SPAS on cruise ships, published in 1997, which recommends maintaining free residual CHLORINE levels in SPA water at 3 to 10 PPM (MG/L). It is further supported by a study reviewing both bromine and CHLORINE, which states, Pseudomonas aeruginosa were rapidly reestablished in SPAS (< 103 cells per ml) when disinfectant concentrations decreased below recommended levels [CHLORINE, 3.0 PPM (MG/L), bromine 6.0 PPM (MG/L)].
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	• Your statement is with regard to chlorine-specific effects from drinking water, not from disinfection by-products that are produced in pools and spas and are mostly volatile and inhaled or absorbed through the skin. Also, while the EPA drinking water regulates TTHM, the risks for the brominated THMs are far higher and not yet regulated. As you well know, pool and spa water would not typically meet drinking water standards with regard to levels of Haloacetic acids (HAA5) at 60 ppb, Total Trihalomethanes (THMs) at 80 ppb and Bromate at 10 ppb. Furthermore, some volatile disinfection by-products such as nitrogen trichloride are not regulated in drinking water but are known irritants in the air above pool and spa water. The MAHC standard should reflect a proper balance of minimizing active chlorine levels to help prevent the more rapid formation and higher concentration of disinfection by-products while using other means to reduce precursor and intermediate chemicals. There are so many studies of pools with regard to THM levels that I won't even list them as you can readily find them yourself (134 hits on Scirus on "swimming pool trihalomethane"). -- No data was identified suggesting health risks from FAC levels at, or even significantly above these levels. The EPA MRDL and the World Health Organization's drinking water guideline value for CHLORINE (5 PPM (MG/L)) are based on drinking water studies that found no adverse effects related 30 to CHLORINE. -- REFERENCE: I'm not going to list the 6,705 studies you can find on Scirus searching for "chlorine disinfection by-products", but I have read many of them and understand the negative effects of higher active chlorine levels. i. EPA drinking water Maximum Contaminant Levels (MCL): http://water.epa.gov/drink/contaminants/index.cfm	The discussion in section 5.7.3.1.1.3 refers to the FAC, not disinfection byproducts. No data were identified suggesting health risks from FAC levels at, or even significantly above the MAHC requirements. It is inappropriate to compare drinking water standards of the EPA or WHO to concentrations of contaminants in pool water. Drinking water standards are based on oral consumption of a standard amount-in the case of EPA 2 liters of water daily for an adult. Swimming pool exposure is mostly to be significant through vapor exposure and should likely to be less exposure. Combined chlorine, including nitrogen trichloride and other volatile disinfection byproducts, are addressed in Section 5.7.4.3.3.1 of the code. As discussed in the Annex, levels of chloramines and other volatile compounds in water can be minimized by reducing introduction of contaminants that lead to their formation (e.g., urea, creatinine, amino acids and personal care products), as well as by use of a shock oxidizer (e.g., potassium monopersulfate) or supplemental water treatment. Effective filtration, water replacement, and improved bather hygiene (e.g., showering, not urinating in the pool) can reduce contaminants and chloramine formation.	5.7.3.1.1.2 Annex	SEE ANNEX FOR FULL TEXT
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Citation contradicts statement it supports. Article concludes, "No statistically significant correlation was found between the concentrations of mycobacteria and water temperature (mean 28•7 °C; S.D. 1•1 °C), free residual chlorine (mean 0•52 mg l_1; S.D. 0•16 mg l_1) and ammonia (mean 0•86 mg l_1; S.D. 0•35 mg l_1)." It goes on to state, "Unlike the study of Daillaoux et al. (1980)), no statistical correlation was found between mycobacteria densities and free chlorine concentrations in pool water."* -- Strike citation reference #24 -- REFERENCE: Leoni E et al. Risk of infection associated with microbiological quality of public swimming pools in Bologna, Italy. Public Health. 1999 Sep; 113(5):227-32.	Annex will be revised to strike reference 24.	5.7.3.1.1.2 Annex	SEE ANNEX FOR FULL TEXT

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Discuss something on the proper sizing of salt systems on public swimming pools. Almost all I see are undersized and many are sized on the amount of Cl used per day. Unfortunately this doesn't address the maximum load periods, and the unit cannot keep up during use.*— Points: (1) The salt system requires sizing to provide adequate chlorine during periods of maximum demand. Sizing a unit based on the number of pounds of chlorine used per day may specify a unit sized much to small to maintain chlorine during maximum demand periods. (ex. A pool uses 5 pounds of Cl a day, but 4 pounds between 1 to 5 pm. Many units are installed to provide 5 lbs per day instead of a capacity of at least 24 pounds a day.) (2) Salt units on public pools, especially smaller ones work best if controlled by an ORP controller. The controller better detects dropping Cl levels, and can turn the unit on at a maximum setting (or as determined by use). This provides far better control than having an operator manually turn the unit up and down. Salt systems seem to react more slowly than chemical feed systems.	Agreed. Annex language has been revised to read: Salt water chlorination units should be sized appropriately to maintain minimum FAC levels during maximum load periods. The units should ideally be controlled by an ORP controller. Operators must still test the FAC residual of the water to ensure that the cell is producing adequate chlorine for the pool. ~~The cells are usually sized to treat the pool effectively with run time of 50% to 60%. This allows the system to be "boosted' to run 100% of the time as a method of shocking the pool. However~~, a separate chlorinating product may be needed to provide a sufficiently high FAC level for shock treatment or remediation following a fecal accident.	5.7.3.1.1.2 Annex	Salt water chlorination units should be sized appropriately to maintain minimum FAC levels during maximum load periods. The units should ideally be controlled by an ORP controller. Operators must still test the FAC residual of the water to ensure that the cell is producing adequate chlorine for the pool. However, a separate chlorinating product may be needed to provide a sufficiently high FAC level for shock treatment or remediation following a fecal accident.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Fitzgerald reference directly contradicts conclusion statement. Fitzgerald repeats Andersen, to confirm similar results in chlorine demand free water. However, Fitzgerald then extends the study to include low levels of ammonia to simulate non chlorine demand free conditions inherent to real pools and concludes, "At concentrations of ammonia nitrogen greater than 0.05 mg per liter, faster rates of kill of S. faecalis were obtained with 100 mg of cyanuric acid per liter plus 0.5 mg of chlorine per liter than with 0.5 mg of chlorine per liter alone." Fitzgerald goes on to conclude, "At ammonia nitrogen levels of less than 0.05 mg per liter, the presence of 100 mg of cyanuric acid per liter required a longer time for a 99.9% kill of the bacteria added than in systems without cyanuric acid. However, at concentrations of ammonia nitrogen of 0.075 mg per liter and higher, 100 mg of cyanuric acid per liter appeared to decrease the time required for 99.9% kill of bacteria. Related studies have indicated that lesser concentrations of cyanuric acid (25 and 50 mg per liter) have similar but less effective effects on the kill rate of chlorine with S. faecalis in the presence of ammonia."* -- Strike bullet Cyanuric Acid - Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. _ REFERENCE: Fitzgerald GP, DerVartanian ME. Factors influencing the effectiveness of swimming pool bactericides. Appl Microbiol. 1967 May;15(3):504-9	The Annex references numerous peer-reviewed laboratory studies indicating that kill times for microbial contaminants are increased in the presence of cyanuric acid. Several of these could be cited here to further support this statement. As discussed above, additional discussion should be added to the Annex to read: Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the precise impacts on CT values in a swimming pool environment are not well-established. In general, studies show that the presence of CYA up to 50 MG/L increase CT values under demand free conditions, and the amount of this increase depends upon the pH and the ratio of CYA to available chlorine. Studies suggest that this effect is mitigated with the addition of ammonia nitrogen as low as 0.05 MG/L.	5.7.3.1.1.2 Annex	SEE ANNEX FOR FULL TEXT
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Fixed typo by changing "They" to "The".* -- They systems have sensors and cutoffs to prevent this damage, but operators must be sure to monitor the unit to recognize when there is a problem.	Changed as suggested.	5.7.3.1.1.2 Annex	The cells are also vulnerable to damage if they are operated in conditions of lower than recommended salt residuals or in water that is too cold. The systems have sensors and cut-offs to prevent this damage, but operators must be sure to monitor the unit to recognize when there is a problem.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*I get the sense that there is a misunderstanding between the effects of the chlorine reserve, which is what is measured as Free Chlorine (FC) in test kits, vs. the active chlorine (HOCl) level. It is incorrect to assume that problems seen with low FC are due to low active chlorine level rather than a low reserve. Also, there is no discussion of the negative side effects of higher active chlorine levels. I will write more about these two points in other sections with respect to specific references that you cite. Note that the very strict requirements for the laboratory test requirements of EPA DIS/TSS-12 are met with a chlorine level of slightly less than 0.5 ppm FC with no CYA at a pH of 7.5. The minimum FC of 1 ppm or higher is required to have enough chlorine reserve, not for kill times unless one does not care about high active chlorine level side effects.* -- It is necessary to ensure that FAC is maintained at or above the 1.0 PPM (MG/L) minimum level at all times and in all areas of the POOL. Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. The minimum FAC level of 1.0 PPM (MG/L) for swimming POOLS is well-supported by available data	The minimum FAC requirements are intended to provide adequate microbial kill times in pools operating in compliance with all other MAHC parameters, including pH and CYA levels. The t FAC requirements are consistent with the best available scientific evidence. The documentation in the MAHC clearly justifies the use of free available chlorine above 1 ppm. The terms "chlorine reserve" and "active chlorine" are not defined or generally recognized, and hence the comment cannot be addressed. Although the test requirements of EPA DIS/TSS-12 may be met with a lower free active chlorine, this test is for effectiveness of the pool disinfectant product, not for safe pool operation. It is also noteworthy that the test may fail the standard in less than 15 % of the tests and still be given an acceptable rating.	5.7.3.1.1.2 Annex	SEE ANNEX FOR FULL TEXT

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Inadequate substantiation in the form of notable, peer reviewed scientific justification. Golaszewski is published in a foreign publication in a foreign language that precludes it from widespread stakeholder review to gauge its significance. Acceptance of Golaszewski undermines designed transparency of MAHC process.* -- Strike bullet Cyanuric Acid - Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE. -- REFERENCE: Golaszewski G et al. The kinetics of the action of chloroisocyanurates on three bacteria: *Pseudomonas aeruginosa, Streptococcus faecalis* , and *Staphylococcus aureus* . Water Research 1994; 28(1): 207-217.	This publication is available online, with an English language abstract. While the full article is in French, the relevant data tables are readily understandable.	5.7.3.1.1.2 Annex	SEE ANNEX FOR FULL TEXT
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*Statement forms a conclusion in absence of required peer-reviewed scientific justification, as defined in requirements for code.* -- Strike following statement from paragraph #1: "Because CHLORINE efficacy is reduced in the presence of cyanuric acid, higher FAC levels may be necessary for POOLS using cyanuric acid or stabilized CHLORINE."	The referenced statement on cyanuric acid and chlorine efficacy is based on the balance of evidence. The Annex references numerous peer-reviewed laboratory studies indicating that kill times for microbial contaminants are increased in the presence of cyanuric acid. It is recognized, however, that the precise impacts on CT values in a swimming pool environment are not well-established. Additional discussion should be added to the Annex to read: "Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the precise impacts on CT values in a swimming pool environment are not well-established. In general, studies show that the presence of CYA up to 50 MG/L increase CT values under demand free conditions, and the amount of this increase depends upon the pH and the ratio of CYA to available chlorine. Studies suggest that this effect is mitigated with the addition of ammonia nitrogen as low as 0.05 MG/L."	5.7.3.1.1.2 Annex	Substantial laboratory data shows that kill times for microbial contaminants are increased in the presence of cyanuric acid. However, the precise impacts on CT Values in a swimming pool environment are not well-established. In general, studies show that the presence of CYA up to 50 mg/L increase CT Values under demand free conditions, and the amount of this increase depends upon the pH and the ratio of CYA to available chlorine. Studies suggest that this effect is mitigated with the addition of ammonia nitrogen as low as 0.05 mg/L.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	The consumption/usage of chlorine is acidic and exactly counteracts the higher pH from the saltwater chlorine generator. Any rise in pH long-term comes from carbon dioxide outgassing from too high a TA and possibly from some chlorine gas outgassing if it does not completely dissolve in the water. -- The water exiting the cell has a relatively high PH in comparison to the recommended ranges for POOL operation. However, this is no different than adding a hypochlorite source of chlorine and the usage/consumption of chlorine is acidic which compensates for the initial pH rise. – REFERENCE: See the following post for chemical equations showing the pH effects of chlorine addition and consumption/usage: http://www.troublefreepool.com/pool-water-chemistry-t628.html#p4367 Unfortunately, the chemistry is so straightforward that you won't find any published scientific studies on it.	The statement that the water exiting the electrolytic cell "has a relatively high pH in comparison to the recommended ranges for POOL operation" is accurate. However, the impact on the pool's pH would likely be small and no larger than the impact of directly adding sodium hypochlorite. Therefore, the relevant paragraph will be revised to read: The water exiting the cell has a relatively high PH in comparison to the recommended ranges for POOL operation. Monitoring and maintaining the pH, total alkalinity and TDS of the water in the POOL is important. Salt water POOLS intentionally have high concentrations of sodium chloride. The sodium chloride will contribute to TDS, but will not cause decreased disinfectant efficacy or cloudy water.	5.7.3.1.1.2 Annex	Monitoring and maintaining the pH, total alkalinity, and TDS of the water in the pool is important. Salt water pools intentionally have high concentrations of sodium chloride. The sodium chloride will contribute to TDS, but will not cause decreased disinfectant efficacy or cloudy water.
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*Places further context to the statement by defining the relative oxidizing potential of hypobromous acid to hypochlorous acid.* -- Under disinfection section, last sentence: Further, hypobromous acid is a weaker oxidizer than hypochlorous acid, exhibiting an oxidation potential factor of 0.9 when normalized to hypochlorous acid. As a consequence of these two differences, exogenous oxidation of brominated waters (e.g. shocking with chlorine, or supplemental oxidation with either ozone or potassium monopersulfate) is as important for safe operation as it is in chlorinated waters.	Agreed. Deleted wording. (e.g. shocking with chlorine~~, or supplemental oxidation with either ozone or potassium monopersulfate~~)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*Define your terms* -- DMH? DBDMH	Agreed. These are two different chemicals. BCDMH (1-bromo-3-chloro-5, 5-dimethylhydantoin) is the most common form of bromine used in commercial POOLS and spas today. Added "The function of DMH is to inhibit the formation of bromates." Also added acronyms to listing.	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*Technically, monobromamine itself may not be more biocidal than monochloramine, but that monobromamine is in equilibrium with monobromammonium ion and that the latter is more reactive possibly by releasing a positively charged bromine ion (Br^+) having strong oxidizing properties. I suspect that monobromammonium ion is responsible for the chemically related bather rashes associated with bromine treated water. This chemical would be present when bromine and ammonia levels were both high enough to from substantial quantities of monobromamine and hence monobromammonium ion.* -- Hypobromous acid reacts with inorganic ammonia and forms monobromamine, dibromamine, and nitrogen tribromide, depending on the PH and concentration of ammonia. These inorganic bromamines, via their relatives such as monobromammonium ion, are all considered more biocidal than their corresponding CHLORINE analogs. – REFERENCE: Johannesson JK. The bromination of swimming pools. American Journal of Public Health and the Nation's Health. 1960 Nov;50(11):1731-1736.	The proposed chemistry is not supported by suitable documentation. The conjecture as to the basis for skin rash is not substantive enough to be included in the annex. Agree to add as a research need.	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*Typo: delete extra "of".* -- The levels of ammonia that result in loss of bromine ~~of~~ efficacy have been detected in spa water.	Agreed changed as suggested	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*Where are the scientific references that demonstrate that 10 ppm mg/L of DMH in the water prevents bromate formation? I doubt very much that this is the case. DMH is to bromine as CYA is to chlorine in that there is an equilibrium between bromine attached to DMH vs. HOBr. However, I could not find good sources with equilibrium constants (this would be an important area of further research), though some jurisdictions limit DMH to 200 mg/L (ppm). If there is an equilibrium such as DBDMH + $2H_2O \rightleftarrows$ DMH + 2HOBr, then bromate will still be formed from ozonation, but at a slower rate since the hypobromous acid concentration will be lower. There would not be a cutoff of bromate formation at a specific DMH level.* – BCDMH (1-bromo-3-chloro-5, 5-dimethylhydantoin) is the most common form of bromine used in commercial POOLS and spas today. At present there is little information on the functionality of using DMH in this manner. Since there is not a convenient field test kit an operator has no way of knowing what the DMH level is in the water or when it may go below 10 PPM (MG/L) to allow bromates to form. We also don't know what the maximum safe level of DMH should be. To rely on DMH for bromate prevention, suitable test methods and further research are necessary.	Agree more data would be necessary to review the role of DMH . Currently, a chemical manufacturer has a patent stating DMH inhibits bromate production.	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)
Monitoring and Testing (M&T)	5.7.3.1.2.1	Copper concentrations in the water shall not exceed EPA drinking water standards.	Meeting drinking water standards for copper is strict.	The code text was not changed in response to this comment. Drinking water supplying pools should have levels below 1.3 mg/L and cooper/silver systems for pools typically operate at approximately 25% of this level. NSF/ANSI 60 (Drinking Water Treatment Chemicals—Health Effects) states that levels of copper/silver should not be imparted into pool or spa water in excess of USEPA Primary and Secondary National Drinking Water Standards.	5.7.3.1.2.1	Only bromine products that are EPA-REGISTERED for use as SANITIZERs or disinfectants in AQUATIC VENUES or SPAs in the United States shall be permitted. Note: Bromine-based disinfectants may be applied to AQUATIC VENUES and SPAs through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).
Disinfection and Water Quality (DWQ)	5.7.3.1.2.1	Only bromine products that are EPA-registered for use as disinfectants in pools or spas in the United States are permitted. Bromine-based disinfectants may be applied to pools and spas through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).	*Many bromine products in the US are EPA registered as "sanitizers" rather than as "disinfectants".* -- Only bromine products that are EPA-registered for use as ~~disinfectants~~ sanitizers in pools or spas in the United States are permitted. – REFERENCE: Example EPA registration numbers with both "sanitizer" and "disinfection" claims: 3377-61 and 6836-116.	The word sanitizer has been added in addition to disinfectant.	5.7.3.1.2.1	Only bromine products that are EPA-REGISTERED for use as SANITIZERs or disinfectants in AQUATIC VENUES or SPAs in the United States shall be permitted. Note: Bromine-based disinfectants may be applied to AQUATIC VENUES and SPAs through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).
Disinfection and Water Quality (DWQ)	5.7.3.1.2.1	Only bromine products that are EPA-registered for use as disinfectants in pools or spas in the United States are permitted. Bromine-based disinfectants may be applied to pools and spas through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).	*Some EPA registered bromine product labels have the word "sanitizer" rather than "disinfectant".* -- Only bromine products that are EPA-registered for use as sanitizers or disinfectants in pools or spas in the United States are permitted. – REFERENCE: Example EPA registration numbers with both "sanitizer" and "disinfection" claims: 3377-61 and 6836-116.	Agreed. Wording altered.	5.7.3.1.2.1	Only bromine products that are EPA-REGISTERED for use as SANITIZERs or disinfectants in AQUATIC VENUES or SPAs in the United States shall be permitted. Note: Bromine-based disinfectants may be applied to AQUATIC VENUES and SPAs through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.2 ANNEX	Bromine (See Annex for full text)	*No data is presented to indicate organic bromamines are non-biocidal. In addition, the following section on bromamines confirms that by stating the technical committee was unable to locate data on the efficacy of organic bromamines. Therefore, the statement as proposed clears up any contradiction in the absence of credible data.* -- Within top paragraph, last sentence: Further, presently used field test kits assay only for total bromine.	Agreed change as suggested … added "Further, presently used field test kits assay only for total bromine."	5.7.3.1.2.2	As a consequence of these two differences, exogenous oxidation of brominated waters (e.g. shocking with chlorine) is more important for safe operation than it is in chlorinated waters. In reviewing the published epidemiological studies on RWIs it is often difficult to determine the exact treatment system used because the supplemental treatment system is not described. Further, presently used field test kits assay only for total bromine and are not capable of distinguishing free bromine from biocidal inorganic bromamines or from non-biocidal organic bromamines. (SEE ANNEX FOR FULL TEXT)
Disinfection and Water Quality (DWQ)	5.7.3.1.2.2	Minimum bromine concentrations shall be maintained at all times in all areas as follows: 1) Swimming POOLS and all other AQUATIC VENUES: 3.0 PPM (MG/L) 2) Spas: 6.0 PPM (MG/L)	• Many bromine products in the US are EPA registered with minimum concentrations below 3.0 ppm for pools and below 6.0 ppm for spas. -- Minimum bromine concentrations shall be maintained at all times in all areas as follows: 1) Swimming pools and all other aquatic venues: 1.0 ppm (mg/L); 2) Spas: 2.0 ppm (mg/L) -- REFERENCE: o EPA 8622-41 (pools 2-3 ppm residential 3-5 ppm commercial, spas ≥2 ppm) o EPA 6836-116 (pools 1-3 ppm, spas 2-4 ppm residential 3-6 ppm commercial) o EPA 3377-61 (pools 1-4 ppm, spas 2-4 ppm residential 3-6 ppm commercial) o If the minimum for pools is 3 ppm, then a product with EPA registration 8622-41 or 6836-116 could not be used without violation of either FIFRA or the MAHC. If the minimum for spas is 6 ppm, then a product with EPA registration 6836-116 or 3377-61 could not be used without violation of either FIFRA or the MAHC.	Changed code as follows: Minimum bromine concentrations shall be maintained at all times in all areas as follows: 1) Swimming POOLS and all other AQUATIC VENUES: 3.0 PPM (MG/L) 2) Spas: 4.0 PPM (MG/L) Added annex language to justify 4.0 consistent level. CDC website currently uses 4-6ppm for bromine.	5.7.3.1.2.2	Minimum bromine concentrations shall be maintained at all times in all areas as follows: 1) All AQUATIC VENUES: 3.0 PPM (MG/L) 2) SPAs: 4.00 PPM (MG/L)
Monitoring and Testing (M&T)	5.7.3.1.2.2 (NEW)	N/A	*Some cases of argyria have created irreversible effects.*-- Silver concentrations used to be set at 0.1 ppm in solution to prevent problems with "argyria". This has been moved to a secondary standard in the drinking water standards. are we confident of not putting an upper limit of acceptable levels for silver in the pool?	Unfortunately, no good poolside test kits are available for silver testing, so we can't include an upper limit in the code at this time. However, discussion will be added to the annex to note this issue and hopefully spur development of appropriate rapid water test kits for silver testing.	5.7.3.1.2.2	Minimum bromine concentrations shall be maintained at all times in all areas as follows: 1) All AQUATIC VENUES: 3.0 PPM (MG/L) 2) SPAs: 4.00 PPM (MG/L)
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*More research needed.* -- Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues -- REFERENCE: Banning CYA in these facilities may do more harm than good. Products manufactured with CYA are the best at insuring consistent chlorination. By taking these products out of use, you increase the likelihood that chlorination levels may not be maintained. It appears that current research does not include all variables related to real life pool operation and the effects of CYA at various levels	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	1) *Increased CT values for crypto in the presence of cyanuric acid; 2) Increased bather load and biofilm concerns with Pseudomonas; 3) UV stabilization of chlorine is not needed for indoor pools, so there is no public health benefit to justify the added risk* -- No change to current wording "Cyanuric acid or stabilized chlorine products shall not be used at the following for all new construction, modifications, or disinfection equipment replacements after the effective date of this code: 1) All increased risk venues requiring secondary disinfection as per Section 4.7.3.3.1.2 of this code; 2) All spas; and 3) All indoor venues.	Comment noted. Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*Please see attached section A8.3 from APSP-11, Exhibit A at the end of this document.* -- Cyanuric acid or stabilized chlorine products <u>are</u> not <u>recommended</u> for use at the following for all new construction, modifications, or disinfection equipment replacements after the effective date of this CODE: -- REFERENCE: APSP-11 section A8.3 and supporting documents cited therein.	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*Published scientific studies See detailed comments for the ANNEX section.* -- Cyanuric acid or stabilized CHLORINE products shall not exceed 30 PPM (mg/L) ~~not be used~~ at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues. If CYA is used, then the Free Chlorine shall be a minimum of 20% of the CYA level. – REFERENCE: See detailed references for the ANNEX section.	Comments noted. Maintain current code language. Annex 5.7.3.2.1.1. References utilized in the MAHC need to be peer reviewed.	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*No data has been presented to suggest either a correlation or the existence of a causal relationship to show reduced performance of secondary disinfection systems in pools including the presence of cyanuric acid relative to pools without cyanuric acid. The requirement for secondary disinfection in venues deemed high risk by the committee is independent from cyanuric acid and therefore should not be linked in the code.* -- Strike 1) All increased risk venues requiring secondary disinfection as per Section 4.7.3.3.1.2 of this code	Partial agreement although no correlation was mentioned or intended. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*No peer reviewed citations or substantiating data has been presented to show a significant causal relationship between a reduction in chlorine efficacy in the presence of cyanuric acid at the minimum FAC level of 3.0 mg/L recommended by the MAHC* _ Strike 2) All Spas from this section	Many codes across the country have increased levels required if cyanurates are used. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., Legionella, non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly) No change to existing language. See MAHC Annex Section 5.7.3.2.1.	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	Recommendation: 5.7.3.2.1.1 Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All indoor increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	*The pluralities of indoor pool facilities are located in external rooms with windows exposing them to natural sunlight. It is well established that typical window glass is penetrable by UV radiation in the UVA range: λ= 315-400 nm. Nowell and Hoignet show that, "in sunlight, absorbance in the wavelength region of λ = 320 – 340 nm controls for the most part the rate of chlorine photolysis". Consequently, indoor facilities exposed to natural sunlight are not immune to chlorine photolysis, of which cyanuric acid stabilizer remains an important tool for pool management.* -- Strike 3) All Indoor Venues from section -- REFERENCE: Nowell, L., and Hoigné, J., "Photolysis of aqueous chlorine at sunlight and ultraviolet wavelengths—I. Degradation rates", *Water Research* , Volume 26, Issue 5, (May 1992), pp. 593-598	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, modifications, or DISINFECTION equipment replacements after the effective date of this CODE: 1) All increased risk venues requiring secondary DISINFECTION as per Section 4.7.3.3.1.2 of this CODE; 2) All spas; and 3) All indoor venues.	Why would the CDC take a position that can be viewed as limiting trade and consumer choice for a product for which there is no epidemiological evidence to impact the health of pool users based on decades of biannual reports. In fact it is far more common that the epi reports demonstrated that the absence of chlorine is a common cause for outbreaks. CyA is known to help preserve FC. Thus, the presence of CyA could help prevent many of the documented outbreaks. Realize that about 2.5 billion lbs. of isocyanurates have been used in rec water venues since the late 50s. The chemical economic Handbook can give more specific details on use. As a result there are likely over a millions residential pools in the US today that have over 200 ppm cya and yet there is no evidence of outbreaks.	• The upper limit for cyanurates has been raised to 100 to be the same as WHO standards and most state codes. (see response above to this) The MAHC's multi-sectoral Technical Committees have worked with the intent to protect public health first. Cyanuric acid has been repeatedly shown to be a weaker disinfectant so the MAHC deals with this by increasing the required level in public pools. Several other venues that have increased risk of contamination or chemical depletion have also been included. The MAHC position does not limit trade or consumer choice. According to APSP the public/semi-public/commercial RWVs concerned are less than 2% of the market. The MAHC does not address residential pools and spa which account for more than 98% of the market. Companies are free to sell their products to anyone and residential users are free to use any sanitizer they choose. Large numbers of bathers are much more likely to be exposed to RWI pathogens in a RWV than in a low-use residential pool. Also, home owners have much more control over who uses their pool and when – if the kids have diarrhea they don't go in. Outbreak detection and reporting is known to only capture a small percentage of outbreaks and is therefore no true measure of the magnitude of what is actually occurring in the U. S., particularly in residential settings, where no health jurisdiction exists. The data are useful for monitoring trends and changes in outbreaks but not to predict total numbers.	5.7.3.1.3.1	Cyanuric acid or stabilized CHLORINE products shall not be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE: 1) SPAs; and 2) Therapy POOLS.
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	• Additional text provides further information as to the Shields study, and articulates the challenge of applying laboratory data to real world situations as deemed significant in previous CDC funded studies regarding Cryptosporidium. -- Modify 1st sentence of the 3rd paragraph to read: Shields et al extended the previous findings by demonstrating that cyanuric acid significantly decreases the rate of inactivation of Cryptosporidium parvum oocysts in laboratory controlled, chlorine demand free conditions. However, as previously stated by Carpenter et al, "Ct values calculated under oxidant demand-free laboratory conditions for disinfection of microorganisms such as Cryptosporidium may not be directly applicable to recreational water environments where additional organic material, such as urine, feces, hair, sweat, sloughed cells, and lotion, is present, pH is controlled, and calcium concentration is elevated." -- REFERENCE: o Shields JM et al. The effect of cyanuric acid on the disinfection rate of Cryptosporidium parvum in 20ppm free chlorine. J Water Health. 2009 Mar;7(1):109-14 o Carpenter C, Fayer R, Trout J, Beach MJ. Chlorine Disinfection of Recreational Water for Cryptosporidium parvum. Emerg Infect Dis. 1999, Aug.	It is not clear how trying to combine these two statements from two different publications helps the commenter's case. It is likely that under the extreme pool conditions cited in Carpenter that oxidation and inactivation is even worse and therefore reducing efficacy with stabilizers would be even more of a problem.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Adds context to the statement.* -- Modify 3rd sentence of 2nd paragraph to read: There are few data regarding protozoa and the effect of CYA on inactivation though the DISINFECTION rate for *Naegleria gruberi* was reduced by cyanuric acid in laboratory controlled, chlorine demand free conditions. Engel found the calculated CT value in the presence of cyanuric acid at pH 7.0 to be 13.9. -- REFERENCE: Engel J P et al. Inactivation of *Naegleria gruberi* cysts by chlorinated cyanurates. Appl Environ Microbiol. 1983; 46:1157–1162.	Added: "in laboratory controlled, chlorine demand free conditions.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Corrects the citation and places the statement in the proper context of the study.* -- Reference for the 2nd paragraph addressing Pseudomonas is inaccurate. It is the 1969 Fitzgerald study that details Pseudomonas, not the 1967 as cited. Also, add the following sentence after the 1st sentence in the paragraph, "Although, when studied in conjunction of ammonia, Fitzgerald found concentrations of 25, 50, and 100 mg of cyanuric acid per liter had little effect on the kill rate of 0.5 mg of chlorine plus 0.1 mg of NH4-N per liter; however, cyanuric acid did reduce the time required for 99.9% kills when tested in the presence of higher concentrations of ammonia. -- REFERENCE: Fitzgerald GP, DerVartanian ME. *Pseudomonas aeruginosa* for the evaluation of swimming pool chlorination and algicides. Appl Microbiol. 1969 Mar;17(3):415	Wording inserted in later section. Fitzgerald 1969 added to references. No reference was made to Pseudomonas in this section so the Fitzgerald 1967 reference is appropriate as well. The Fitzgerald 1969 reference underscores the inhibition of kill times by cyanurates and the need to maintain free chlorine levels higher than those tested by Fitzgerald (0.25, 0.5 ppm). More research is clearly needed on the ammonia finding.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*No data has been presented to substantiate that when CYA is greater than 50 ppm, it interferes with ORP controllers or reduces the oxidation potential of the water.* -- Strike the 1st paragraph under the CYA and ORP Controllers/Interferences section heading	Agreed. Wording deleted.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Robinton and Mood tested in chlorine demand free water, which is questionable in regard to its applicability to water with bather waste as shown by Fitzgerald. Robinton and Mood tested at chlorine levels below the recommended minimum range by MAHC, or below any range currently mandated by state regulatory agencies. The included statement must be accompanied by the supporting context for stakeholders to assess the significance of the citation.* -- Strike first sentence, "Minimum chlorine levels should be increased by a factor of at least two when using CYA." Add the following sentences at the end of the paragraph for proper context: "For instance, Robinton and Mood found that to achieve a 30 second 99.999% inactivation of Escherichia coli in the presence of 50 ppm cyanuric acid relative to 0 ppm cyanuric acid, FAC concentrations must increase from <0.11 ppm to 0.97 ppm for calcium hypochlorite, <0.11 ppm to 0.80 ppm for trichloroisocyanuric acid, and <0.11 ppm to >0.80 ppm for potassium dichloroisocyanuric acid. Additionally, to achieve a 2 minute 99.999% inactivation of Streptococcus faecialis in the presence of 50 ppm cyanuric acid relative to 0 ppm cyanuric acid, FAC must increase from <0.10 ppm to 0.51 ppm for calcium hypochlorite, <0.11 ppm to 0.42 ppm for trichloroisocyanuric acid, and 0.11 ppm to 0.43 ppm for potassium dichloroisocyanuric acid. And, to achieve a 5 minute 99.999% inactivation of Staphylococcus aureus of 50 ppm cyanuric acid relative to 0 ppm cyanuric acid, FAC must increase from <0.40 ppm to 1.64 ppm for calcium hypochlorite, <0.61 ppm to >0.90 ppm for trichloroisocyanuric acid, and 0.64 ppm to >1.62 ppm for potassium dichloroisocyanuric acid." -- REFERENCE: Robinton ED et al. An evaluation of the inhibitory influence of cyanuric acid upon swimming pool disinfection. Am J Public Health. 1967 Feb;57(2):301-10	Language added from earlier comment addresses this comment. (5.7.3.1.1.3)	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*See above regarding exposure of indoor facilities to natural sunlight. Fitzgerald proves a difference between behaviors observed under controlled, demand free laboratory conditions and conditions that include common nitrogenous bather waste. In addition, no scientifically supported substantiation given for assertion that the addition of cyanuric acid in an indoor environment reduces the oxidation potential, as required by the MAHC process.* -- Strike indoor pools section	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Statement directly contradicts the citation. Verbatim from the Sommerfeld abstract reads, "Cyanuric acid, used as chlorine stabilizer in swimming pool waters, has a relatively minor effect on the algicidal efficiency of free chlorine. The toxicity of free chlorine to three swimming pool algae was reduced slightly by 25 mg of cyanuric acid per liter if inhibiting, but less than algicidal, concentrations of chlorine were employed. Higher stabilizer concentrations (50, 100, and 200 mg/liter) generally resulted in no further reduction in the algicidal efficiency of free chlorine beyond that observed at 25 mg/liter." The current statement deliberately distorts the context of the conclusions of the Sommerfeld study.* -- Strike 2nd sentence from 2nd paragraph: Likewise, algaecidal activity was reduced in the presence of cyanuric acid. If the committee wants to include reference to chlorines behavior as an algaecide in the presence of cyanuric acid, you should include the appropriate text from the citation: "Cyanuric acid, used as chlorine stabilizer in swimming pool waters, has a relatively minor effect on the algicidal efficiency of free chlorine. The toxicity of free chlorine to three swimming pool algae was reduced slightly by 25 mg of cyanuric acid per liter if inhibiting, but less than algicidal, concentrations of chlorine were employed. Higher stabilizer concentrations (50, 100, and 200 mg/liter) generally resulted in no further reduction in the algicidal efficiency of free chlorine beyond that observed at 25 mg/liter." -- REFERENCE: Sommerfeld MR, Adamson RP. Influence of stabilizer concentration on effectiveness of chlorine as an algicide. Appl Environ Microbiol. 1982 Feb; 43(2):497-9.	Understood. Wording of sentence has been altered.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*The inserted text frames the conclusions of the cited studies in the proper context, illustrating the conditions under which the substantiating studies were conducted and the observed differences when studies attempt to simulate further toward real pool conditions through the addition of nitrogenous bather waste constituents.* -- Under Effects of CYA section, 2nd sentence: In general, they show that the presence of CYA up to 50 MG/L increase CT values under demand free conditions in controlled, laboratory studies, and the amount of this increase depends upon the pH and the ratio of CYA to available chlorine. Studies suggest that this effect is mitigated with the addition of ammonia nitrogen as low as 0.05 MG/L. -- REFERENCE: Fitzgerald GP, DerVartanian ME. Factors influencing the effectiveness of swimming pool bactericides. Appl Microbiol. 1967 May;15(3):504-9	Language added from earlier comment addresses this comment. (5.7.3.1.1.3)	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*The same data is reported in both the deleted reference (in Japanese) and the added reference (in English). The added reference is more readily available to the U.S. audience.* -- [49] Yamashita T et al. ~~Influence of cyanuric acid on virucidal effect of chlorine and the comparative study in actual swimming pool waters. Kansenshogaku Zasshi. 1988 Mar;62(3):200-5.~~ Virucidal effect of chlorinated water containing cyanuric acid. Epidemiology and Infection. 1988;101(3):631-639. -- REFERENCE: Yamashita T, et al. Virucidal effect of chlorinated water containing cyanuric acid. Epidemiology and Infection. 1988;101(3):631-639.	Agreed. Reference added since we prefer to show both.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	The statement included in the Annex does draw direct conclusion from Favero. However, Favero also states, "In several of the small private pools the chlorine concentrations, at times, fell to a very low level…Since little or no chlorine was present, microbial growth in the pool waters could have occurred very easily. It is our belief that high total counts in such low-use pools with erratic care are of little significance." With these statements, Favero was referring to the total coliform counts taken from the few private pools of the 12 pool sample. However, when Favero moves to the Pseudomonas section, it is not distinguished whether the private DCCA pools showing Pseudomonas were among these small, private pools that exhibited little chlorine. Therefore, a conclusion cannot be drawn that the Pseudomonas population existed due to the presence of an unknown concentration of cyanuric acid, or whether it existed due to previously reported low chlorine residuals. In that regard, the Favero findings are inconclusive. -- Strike the 3rd paragraph that showcases Favero. -- REFERENCE: Favero, MS et al. Use of staphylococci as indicators of swimming pool. Public Health Rep. 1964 Jan;79:61-70.	The MAHC is simply restating the findings from the paper and not drawing conclusions. One can look at each paper and find shortcomings as with any scientific paper. The point in this section is that the data from the collection of papers presented all show inhibition of kill times when the water is stabilized.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Yamashita and Saitka are unavailable for peer review. Each is an obscure publication published in Japanese, where neither qualifies for the scientifically vetted, peer reviewed standard. The previous Yamashita citation that was published in several journals beyond the original publication showed to be marginally irrelevant, as it focused solely on conditions of free available chlorine levels well below any US standard with cyanuric acid concentrations of 0 & 30 ppm. Neither of the additional Yamashita nor the Saitka citations can be presumed to offer any additional information beyond the original Yamashita citation.* -- References 50 & 51 should be invalidated for use to substantiate any position and stricken from the Annex.	Previously addressed	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	*Cyanuric Acid (CYA)*	• Though bromine does not appear to bind to Cyanuric Acid (CYA) to from brominated isocyanurates, it is not true that CYA provides no protection at all from the breakdown of bromine in sunlight. CYA's protection partly comes from CYA's direct absorption of the UV in sunlight shielding lower depths from UV. So in deeper pools, one may have less rapid breakdown of bromine. However, this effect is smaller than that of directly forming chlorinated isocyanurates and is mostly seen once the CYA level gets in the 60-80 ppm range (or higher). We have seen this non-linear protection effect in residential chlorine pools and is the primary basis for saltwater chlorine generator recommendations of 60-80 ppm CYA with 70-80 ppm preferred, though the typical manufacturer 1-3 ppm FC recommendation is inadequate to prevent algae growth under most conditions (4 ppm FC is the proper minimum to prevent green & black algae growth when 80 ppm CYA is used). -- Bromine is also not very common in outdoor POOLS because like CHLORINE, bromine is destroyed rapidly in sunlight. Cyanuric acid was developed to combat the problem in chlorinated POOLS, but does not provide a the same degree of stabilizing effect for bromine. -- REFERENCE: i. Feng Y, Smith DW, Bolton JR. Photolysis of aqueous free chlorine species (HOCl and OCl) with 254 nm ultraviolet light. Journal of Environmental Engineering and Science. 2007 May;6(3): 277-284. ii. Hirt RC, Schmitt RG. Ultraviolet absorption spectra of derivatives of symmetric triazine – II: Oxo-triazines and their acyclic analogs. Spectrochimica Acta. 1958 Sep;12(2-3):127-138. (see Figure 4)	There are no published data to indicate bromine is protected by cyanuric acid. The cited references are not pertinent on this issue.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	As mentioned elsewhere, CYA does more than protect chlorine from sunlight. It is a hypochlorous acid buffer so not only reduces the active chlorine level, but reduces the pH dependence on that level and provides for a large reserve (FC) of chlorine without requiring a high active chlorine (HOCl) level. It lets one tune the active chlorine level to be effective against most pathogens while keeping it low enough to slow down or reduce the amount of disinfection by-products, reduce the oxidation rate of swimsuits, skin and hair, and reduce corrosion rates. Regarding the 2000 MMWR in Maine, the CYA level was 40-60 ppm, but "During the outbreak, free chlorine levels were tested daily and repeatedly registered <1.0 mg/L, less than the state-required level of 1--3 mg/L, in the pool and hot tub. The pool and hot tub were crowded during the outbreak, and free chlorine levels were very low to zero after the February 25--26 weekend; no measurements were recorded over the weekend". Yet you attribute the problem to the CYA level rather than to the low FC level even though you have numerous other MMWR reports with no CYA but similarly low to zero FC reports. I'm surprised you didn't also refer to the "Outbreaks of Short-Incubation…" paper since those pools also had CYA (though >100 ppm). Nevertheless, this study shows a different sort of problem that can occur from high CYA levels even when the FC level seems high. If the FC/CYA ratio is too low yet there is still FC available, then monochloramine and dichloramine can build up as they are not oxidized quickly enough. Though nitrogen trichloride levels will be low in this situation, the dichloramine could be high enough to be irritating. Basically, if the FC/CYA ratio is too high or there is no CYA at all, then the nitrogen trichloride level can get too high. If the FC/CYA ratio is too low, then the monochloramine and dichloramine levels can get too high	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*CYA "reduces the inactivation time??? I believe a typo –* Though the data shows using CYA ~~reduces~~ increases the inactivation time of many pathogens, the committee would like to have a study done on specific pathogens and inactivation rates at differing CYA levels, up to 200 PPM (MG/L).	Change Annex language as follows: Agreed. Though the data shows using CYA ~~reduces~~ increases the inactivation time of many pathogens	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Modification and additional statements place the Yamashita citation in broader context. Since Yamashita was originally published in a foreign journal with a foreign language, additional text provides further information for evaluation of significance by those stakeholders who are unable to access the English translation of the foreign citation. In addition, additional text further explains the relative significance of the data as it relates to the recommendation it is intended to substantiate that reduces the maximum permitted cyanuric acid concentration from the consensus industry standard of 100 MG/L as published by APSP to the MAHC recommendation of 50 MG/L.* -- Modify 2nd sentence of 2nd paragraph: Yamashita et al concluded that the time required for 99.9% inactivation of ten enteroviruses and two adenoviruses by 0.5 MG/L free available chlorine at pH 7.0 and 25°C was prolonged approximately 4.8-28.8 times by the addition of 30 MG/L cyanuric acid. The reported data was collected under laboratory controlled, chlorine-buffered distilled water conditions. However, Yamashita et al did not formulate any conclusions based upon an evaluation of the virucidal effect of chlorine at FAC levels above typical state mandated minimum free available chlorine of 1.0 MG/L or higher, nor did Yamashita evaluate at length the comparative effect of cyanuric acid at any concentration higher than 30 MG/L. In addition, Yamashita et al found the time required for 99.9% inactivation of poliovirus 1 by 0.5 MG/L free available chlorine with 1.0, 5.0, and 60.0 MG/L cyanuric acid was 2.0, 3.5, and 6.6 min; indicating a non-linearity of viral inhibition under laboratory controlled, chlorine-buffered distilled water conditions above the studied 30 MG/L cyanuric acid standard. -- REFERENCE: Yamashita, T., Sakae, K., Ishihara, Y.,	Partial agreement although no correlation was mentioned or intended. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Pools that use Dichlor build up CYA very quickly, even more quickly than those using Trichlor. The following are chemical rules that are independent of concentration of product or of pool size: For every 10 ppm FC added by Trichlor, it also increases CYA by 6.1 ppm. …….. For every 10 ppm FC added by Dichlor, it also increases CYA by 9.1 ppm. …… For every 10 ppm FC added by Cal-Hypo, it also increases CH by at least 7 ppm. So even at a typical 2 ppm FC per day loss from sunlight, using Dichlor increases CYA by about 55 ppm per month if there is no water dilution. So the Favero findings are not unexpected. Where do you get that the potential (by which I assume you mean the active chlorine level) is further decreased as CYA increases regardless of the ppm FC in the water? That is simply not true. The active chlorine level is roughly proportional to the FC/CYA ratio so if one proportionately raises the FC level as the CYA level rises, then one maintains the same active chlorine level. Disinfection rates actually improve due to the small disinfection rate of the chlorinated cyanurates, but at high FC and CYA levels they are high in concentration so partly make up for their low activity. As for the MAHC hypochlorination recommendations, I had written to you about this before and given you specific guidelines that would readily allow for superchlorination to work to provide the equivalent of 10 ppm FC with no CYA. Roughly speaking, you would have the FC level be about 10 ppm higher than the CYA level. Now this can be impractical if the CYA level is high, but is still achievable if the CYA is, say, 20 or 30 ppm. Also, there are other methods, such as using chlorine dioxide (from sodium chlorite and chlorine) that can be used overnight instead of requiring high chlorine levels.* -- Favero et al found	The MAHC still emphasizes the need to maintain free active chlorine at sufficient levels, above 1 ppm to provide sufficient disinfection activity regardless of other factors. CDC is investigating these comments further.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*Statement not substantiated by peer reviewed, scientifically vetted citation. Listed citation is for a study that evaluated the effects of varied halogen sanitation programs on skin irritation; which did not address the chlorine efficacy/cyanuric acid relationship that is alluded to in the Annex.* -- Strike 1st sentence of 2nd paragraph: Studies examining the effect of cyanuric acid on the DISINFECTION capacity of CHLORINE show that using cyanuric acid or stabilized CHLORINE slows down the inactivation times on bacteria, algae, protozoa (Naegleria gruberi and Cryptosporidium parvum), and viruses.42	Language added from earlier comment addresses this comment. (5.7.3.1.1.3	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	There are 6 different chlorinated isocyanurate species as follows, listed in order of relative proportion at pH 7.5: HClCY-, Cl2CY-, H2ClCY, ClCY2-, HCl2CY, Cl3CY where Trichlor is the species with the smallest concentration, by far. – REFERENCE: O'Brien J, Morris J, Butler J. "Equilibria in Aqueous Solutions of Chlorinated Isocyanurate", Chapter 14 in Rubin A, ed. Chemistry of Water Supply, Treatment and Distribution, 1973 Symposium, (published 1974), Ann Arbor Science Publishers, Ann Arbor, MI, pp. 333-358. Since this book is out-of-print, I have an authorized scanned PDF of this chapter here for your convenience: http://richardfalk.home.comcast.net/~richardfalk/pool/OBrien.htm	Comment noted.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*There is already a lot of research on pathogen kill rates with chlorine in the presence of CYA. Also, the theoretical models track the existing studies quite well already. The balance isn't about only UV protection, but also to prevent the negative side effects of higher active chlorine levels. The effect of pH on the active chlorine level in the presence of CYA is also very well understood (see the O'Brien 1974 paper). If you want a list of research that can be done, I can give that to you, but it is long and may not align with your goals.* -- Though the data shows using CYA reduces the inactivation time of many pathogens, the committee would like to have a study done on specific pathogens and inactivation rates at differing CYA levels, up to 200 PPM (MG/L). Further research on the inhibitory effect of cyanuric acid on DISINFECTION should evaluate the level at which cyanuric acid can still protect CHLORINE from UV and also balance the inactivation rate of the most common AQUATIC VENUE pathogens. The effect of PH in the presence of cyanuric acid should also be investigated.	No changes to Annex language. However, the relationship between FAC, cyanurates, and pH on pathogen kill rates should be investigated.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)
Disinfection and Water Quality (DWQ)	5.7.3.2.1 ANNEX	Cyanuric Acid (CYA) (See Annex for full text)	*When Trichlor is added to water, 1 ppm FC produces 0.61 ppm CYA and the HOCl level at pH 7.5 is 0.36 ppm which is the same as 0.75 ppm FC if there were no CYA. When Dichlor is added to water, 1 ppm FC produces 0.91 ppm CYA and the HOCl level at pH 7.5 is 0.32 ppm which is the same as 0.64 ppm FC if there were no CYA. Since the EPA DIS/TSS-12 laboratory test requires somewhat less than 0.5 ppm FC (with no CYA) of chlorine to pass (to get the 6-log reduction in 30 seconds for two specific bacteria), both Trichlor and Dichlor were able to pass this portion of the test. However, it is wrong to imply that the EPA has not reviewed efficacy tests for chlorine in the presence of stabilizer because EPA DIS/TSS-12 also has a field test requirement where continued use of Trichlor or Dichlor would build up CYA in such pools since the tests must be conducted for an entire swimming season (4-12 months). Even at a low 2 ppm FC per day chlorine rate which is typical loss from sunlight alone (i.e. even with no bather load), the CYA would build up at 36 ppm per month from Trichlor and 54 ppm per month from Dichlor if there were no water dilution. Of course, there is water dilution (mostly from backwashing of sand filters), but not enough to keep CYA levels in check, especially with higher bather loads. Of course, the performance standard for the field test is far, far lower than that of the laboratory test. I would argue that the laboratory test is too stringent, though only by a factor of around 2.5 to 5.* – CYA acid is not a disinfectant so it is not registered by the EPA. Stabilized CHLORINEs are registered with the EPA as disinfectants~~; however, EPA has not reviewed efficacy data on CHLORINE in the presence of stabilizer to-date~~. The EPA reviewed efficacy data on dichlor and trichlor when it approved registrations for drinking water	No change to existing language. This needs to be investigated further.	5.7.3.1.3.1 Annex	Cyanuric Acid (CYA)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	5.7.3.2.1.1 Outdoor AQUATIC VENUES. The cyanuric acid level at outdoor AQUATIC VENUES shall not exceed 50 100 PPM (mg/L). -- Leslie's Poolmart, Inc., the world's largest retailer of swimming pool supplies with over 700 retail outlets in 35 states across America, prides itself in providing exceptional service and products to the broadest sector of the aquatics arena including commercial and public pools. Our highly trained staff of pool professionals is versed in developing and implementing conventional and unique solutions to solve essentially all pool and spa water challenges. As a highly regarded and nationally-recognized industry leader, Leslie's Poolmart, Inc. is stalwartly opposed to the Model Aquatic Health Code DRAFT Disinfection & Water Quality Module proposing a reduction of the maximum allowable cyanuric acid level to 50 ppm. The rationale for the opposition is provided through the following arguments. 1. Smaller outdoor aquatic venues (i.e. under 150,000 gallons) especially within the hotel, motel, apartment and condo sector (HMAC) throughout the sun-belt and beyond frequently rely on the use of chlorinated isocyanurates as a viable option for sanitization. Limiting the maximum allowable cyanuric acid level to 50 ppm will impose an untenable restriction on the use of chlorinated isocyanurates and a subsequent hardship to these HMAC operators/businesses and possibly others. 2. A model code mandated reduction in the maximum allowable cyanuric acid to 50 ppm will have a negative impact on the HMAC sector inducing many operations to change their primary disinfectant from trichlor to sodium hypochlorite (bleach) or calcium hypochlorite. This potential shift is not	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	5.7.3.2.1.1 Outdoor AQUATIC VENUES. The cyanuric acid level at outdoor AQUATIC VENUES shall not exceed 50 100 PPM (mg/L). • See section titled "DWQ – Basis for Change – Kevin Maher" at the end of the document for rationale -- REFERENCE: o Pool Chemical-Associated Health Events in Public and Residential Settings --- United States, 1983 – 2007, MMWR, May 15, 2009/58(18);489-493 o Las Vegas Sun, August 27, 2010, 26 hospitalized, 1,500 evacuated in MGM Grand chemical leak at pool, http://www.lasvegassun.com/news/2010/aug/27/10-people-overcome-fumes-mgm-grand-pools-lazy-rive/ o St. Louis Park Patch, January 16, 2011, Chlorine Leak at Area Swim School Sends 11 to Hospital, http://stlouispark.patch.com/articles/chlorine-leak-at-area-swim-school-sends-11-to-hospital o Currently listed trichlor flow-through chemical feeders include Pro Guard Trichlor Feeder TC-18, TC25 & TC-40; BioLab MA Chlorinator 18B-FM, 35B-FM and 48; Hayward Automatic Chlorine Feeder CL200 and CL220; and others http://www.nsf.org/Certified/Pools/Listings.asp?TradeName=&ProductType=50H&PlantState=&PlantCountry=&PlantRegion=&submit1=SEARCH	Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	Recommendation: Outdoor AQUATIC VENUES. The cyanuric acid level at outdoor AQUATIC VENUES shall not exceed ~~50~~ 100 PPM (mg/L).	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	*1) Changing the level to 50 mg/l for aquatic venues would be inconsistent with ANSI approved national standards that recommend the maximum at 100 mg/l. It would also be inconsistent with the 1992 study done in cooperation with Pinellas County health department as well as the World Health Organization (WHO) Guidelines for Safe Recreational Water Environments; Volume 2, Swimming Pools and Similar Environments 2006. 2) In real world application of servicing a pool, if the feeding system were to malfunction on a Friday afternoon and not attended to by a qualified technician again until Monday, the changes of a low or no sanitizer count would be very probable. Therefore, the opportunity for algae and bacteria growth is serious, greatly endangering the swimming patrons.* -- The cyanuric acid level at outdoor aquatic venues shall remain below 100 ~~50~~ ppm (mg/L). -- REFERENCE: ANSI/APSP-11, section A8.3 and supporting documents cited therein. CYA parameters are also referred to in many of the ANSI/APSP Standards, including: APSP-1 Public In-ground Pools, APSP-2 Public Spas, and APSP-9 Aquatic Recreation Facilities	Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	*CT Standards.* -- …shall remain below 100 PPM (mg/l). – REFERENCE: CT Public Health Code Section 19-13-B33b(b)(5).	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we note the following: • The relationship between CYA levels and chlorine efficacy is	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2	Outdoor Aquatic Venues	*There is ample evidence showing that chlorine is not as effective in killing microorganisms in the presence of CYA. Studies proving this have been conducted in synthetic and real pool water. Although it is difficult to draw a line in the sand for determining how much is too much, it is prudent to limit the cyanuric acid concentration to the level that is needed to stabilize the chlorine from UV degradation. Since 50 ppm is sufficient to stabilize chlorine, there is no benefit to the added risk of using higher levels.* -- No change to current wording "The cyanuric acid level at outdoor aquatic venues shall remain below 50 ppm (mg/L)."	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: • There are limited data about what the appropriate cyanurate level should be • The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. The TC has discussed this issue extensively, and, while not in unanimous agreement, we are maintaining our proposed code requirement. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2.1	The cyanuric acid level at outdoor aquatic venues shall remain below 50 PPM (mg/L).	*Please see attached section A8.3 from APSP-11, Exhibit A at the end of this document.* -- The cyanuric acid level at outdoor aquatic venues shall remain below 100 ~~50~~ ppm (mg/L). -- REFERENCE: APSP-11 section A8.3 and supporting documents cited therein.	Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2.1	The cyanuric acid level at outdoor aquatic venues shall remain below 50 PPM (mg/L).	*Above 30 ppm, cyanuric acid has diminishing return value and starts to reduce the chlorine effectiveness.* -- The cyanuric acid level at outdoor AQUATIC VENUES shall remain below 30 ppm.	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2.1	The cyanuric acid level at outdoor aquatic venues shall remain below 50 PPM (mg/L).	*Measured reduction in FAC efficacy at increasing cyanuric acid concentrations in controlled, demand free laboratory studies have shown the effect to be non-linear. Cited studies by Warren and Ridgway, taken verbatim from MAHC annex, conclude,"higher concentrations of cyanuric acid resulted in little to modest further increases in CT over that for 50 MG/L cyanuric acid. For example, the data suggest that for 50, 100 and 200 MG/L of cyanuric acid, the level of CHLORINE required for 99% kill of Staphylococcus aureus in one minute would be 1.9, 2.15 and 2.5 MG/L respectively. Warren goes on to conclude with respect to chloroisocyanurates, "Proof of their effectiveness has been shown by ample field experience in Britain; they have been successfully in the presence of up to 200 mg/l of cyanuric acid."* -- The cyanuric acid level at outdoor aquatic venues shall remain below 200 ppm (mg/L). -- REFERENCE: Warren IC et al. Swimming pool disinfection. Investigations on behalf of the Department of the Environment into the practice of disinfection of swimming pools during 1972 to 1975. Water Research Centre, Henly-on-Thames, England, 35 pp., Oct 1978.	• Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2.1	The cyanuric acid level at outdoor aquatic venues shall remain below 50 PPM (mg/L).	*No data has been presented to distinguish 50 ppm as being an acceptable limit, while concurrently showing levels above 50 ppm to be significantly different. The presented studies rely on data generated under controlled, demand free laboratory conditions that fails to represent actual conditions within real swimming pools. Fitzgerald and Warren each conclude that nitrogenous compounds from bather waste such as ammonia, urea, and creatinine show drastic reduction in chlorine efficacy, independent of the presence of cyanuric acid. Fitzgerald showed, "It is evident from the data presented that the addition of as little as 0.05 mg of ammonia nitrogen per liter will cause a decrease in the bactericidal properties of the chlorine, the time- for 99.9% kill of the bacteria in these tests increasing from 0.25 min or less to approximately 20 min with the addition of 0.05 mg of ammonia nitrogen per liter." This reduction is significantly greater than any of the presented citations used to substantiate a 50 ppm limit to cyanuric acid, and better represents actual conditions in a real swimming pool.* -- The cyanuric acid level at outdoor aquatic venues shall remain below 200 ppm (mg/L). -- REFERENCE: Fitzgerald GP, DerVartanian ME. Factors influencing the effectiveness of swimming pool bactericides. Appl Microbiol. 1967 May;15(3):504-9	Based on public comment during the review period, MAHC wording is being altered to increase the upper limit of cyanurate allowed in aquatic venues from 50 to 100 ppm This is being done at this time because: 1) There are limited data about what the appropriate cyanurate level should be 2) The World Health Organization allows an upper limit of 100ppm cyanurate in swimming pools Although data demonstrating the decreased efficacy of stabilized chlorine is abundant, it is not as clear how disinfection is impacted by increasing levels of cyanurate in the aquatic environment. At this point, the lack of data on the impact of cyanurate levels on disinfection does not support changing the upper limit for cyanurate from WHO recommended levels or those found in most U.S. pool codes. However, the MAHC believes that further data on the role of increasing cyanurate levels on disinfection are needed. With new data, the discussion about the appropriate levels of cyanurates that should be allowed in public aquatic facilities to achieve optimal disinfection and protect public health will need to be re-visited. There is extensive evidence demonstrating that CYA inhibits chlorine's disinfection capability. As a result, our DWQ Module prohibits CYA use in new indoor venues, spas, and increased risk venues. Furthermore, where it is allowed, we have required a higher minimum chlorine level (2 ppm vs. 1 ppm FAC). The question now is whether reducing the maximum CYA level from 100 ppm (a commonly accepted level endorsed by APSP 11 and numerous state codes) to 50 ppm would provide an incremental public health benefit. We don't believe the available evidence warrants the lower level. In summary, we	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.2.1.2.1	The cyanuric acid level at outdoor aquatic venues shall remain below 50 PPM (mg/L).	*The landmark study conducted in conjunction with the health department in Pinellas County, FL that studied the impact of cyanuric acid in actual swimming pools over the course of a summer concluded the following as it relates to cyanuric acid: 1. The proportion of bacteriologically unsatisfactory pools did not increase in the stabilized chlorine treated pools even when the cyanuric acid concentration exceeded 100 ppm. 2. Adding pH and cyanuric acid as pool judgment criteria did not increase the relative ratio of bacteriologically satisfactory-to-unsatisfactory pools; it only decreased the number of pools that would be deemed satisfactory for swimming by the sanitarian or pool operator. These conclusions were independently verified by the Weidenbach Thesis by the Rollins School of Public Health at Emory University, where Weidenbach concluded, "cyanuric acid was not a statistically significant predictor of bacterial concentration in any of the bacterial models. Alternatively, the absence of cyanuric acid as a predictor in the bacterial models also suggests that cyanuric acid may not significantly hinder the bactericidal effectiveness of free chlorine, which is also supported by the finding that the form of disinfectant (hypochlorites versus isocyanurates) was not an important predictor of free chlorine concentration."* -- The cyanuric acid level at outdoor aquatic venues shall remain below 200 ppm (mg/L). -- REFERENCE: L.F. Rakestraw, G.D. Nelson, D.M. Flanery, M. Pabst, E. Gregos, A.M. Plumridge, R.M. Valtimo. "A Comprehensive study on the microbicidal properties of stabilized and unstabilized chlorine and the relationships of other chemical and physical variables in public swimming pools; a report of a study carried out in Pinellas County, Florida. Summer/Fall.	No change to code language. The Pinellas County HD study is NOT a peer reviewed study. We are aware of the study and the paper published from the data 8 years later. The study was done prior to the capability for DNA or PCR testing. Technology has progressed and a repeat of the study may well be a research subject but the study was an ecologic study that was not designed to test the impact of increasing levels of cyanurate on disinfection. A well-designed, systematic study to study this would be worth conducting.	5.7.3.1.3.1.2	The cyanuric acid level at aquatic venues shall remain at or below 100 PPM (mg/L).
Recirculation and Filtration	5.7.3.2.6.2	Facilities shall stop the use of chlorine gas if specific safety equipment and training requirements, along with local code considerations, cannot be met.	Local code will take care of this. Remove content unless the specific safety equipment and training requirements are provided in this document.	Agree. Code revised to include additional requirements.	5.7.3.1.4.1.7	Facilities shall stop the use of chlorine gas if specific safety equipment and training requirements, along with local code considerations, cannot be met.
Disinfection and Water Quality (DWQ)	5.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)	*The sizing requirement in 4.7.3.3.2.6 requires a very short turnover time in a larger pool to allow a system to be a secondary disinfection system. Requiring a large pool to provide 3 hour turnovers is probably not a reality in today's political climate. I also do not see the research to indicate the need for this kind of requirement.* -- Due to the risk of outbreaks of recreational water illnesses (RWIs) associated with halogen-tolerant pathogens such as *Cryptosporidium* , it is strongly recommended that all aquatic facilities include SECONDARY DISINFECTION SYSTEMS to minimize the risk to the public associated with these outbreaks. Change to: …at least supplementary disinfection systems, unless a secondary disinfection system is required by section 4.7.3.3.1.2…	Disagree. The MAHC intent was to say in the Annex that we think all facilities should have this protection. However, the reality of the situation is that all that is required is to include this in "increased risk" venues that are new constructed so we have not changed this text.	5.7.3.2 Annex	Secondary or Supplemental Treatment Systems (See Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.3.3.1.2	UV systems shall be operated and maintained not to exceed the maximum validated flow rate and meet no less than the minimum validated output intensity.	*Original wording is unclear and not consistent with other sections of the CODE. Particularly the use of the term "validated output intensity" because all other references within the CODE refer to a UV Dose.* -- UV systems shall be operated and maintained not to exceed the maximum validated flow rate and meet no less than a minimum Dose of 40 mJ/cm2.	A validated dose of 40mj/cm2 meets a log reduction greater than 4 log (99.99%). Changing the required minimum reduction from 3 log to 4 log achieved almost no benefit in the exponential decay calculation (and verified by CFD modeling) for a pool with a secondary disinfectant in a recirculating volume. For this reason the minimum requirement was set at 3 log (99.9%) per pass and the manufacturer needs to demonstrate this is achieved. The validated performance will give the dose at which 3-log is achieved and the intensity is used vs the flow to confirm that dose is met.	5.7.3.2.1.2	Secondary UV systems shall be operated and maintained not to exceed the maximum validated flow rate and meet or exceed the minimum validated output intensity needed to achieve the required dose for a 3-log inactivation.
Disinfection and Water Quality (DWQ)	5.7.3.4.1.1	Use of UV does not modify any other water quality requirements.	*Confusion about keywords FAC and water requirements. This needs to be either defined or stricken.* -- Use of UV-C does not modify any other water quality requirements	Comment noted. Wording altered	5.7.3.2.1.3	Use of UV does not modify any other water quality requirements.
Disinfection and Water Quality (DWQ)	5.7.3.3.1.4	UV sensors shall be calibrated at a frequency in accordance with manufacturer recommendations.	*Need to quantify how often calibration needs to take place since all major UV sensor manufacturers require annual calibrations, as does NSF 50.* -- UV sensors shall be calibrated at a frequency in accordance with manufacturer recommendations, but not less than once per year.	It is not correct to state that all manufacturers require annual calibration and this requirement may prove onerous. NSF 50 does not require annual calibration. No change to code language.	5.7.3.2.1.4	UV sensors shall be calibrated at a frequency in accordance with manufacturer recommendations.
Disinfection and Water Quality (DWQ)	5.7.3.3.1.6	The equipment shall be capable of recording and storing operational data within internal memory in order to meet record keeping requirements as defined elsewhere in this code.	*Stated wording is ambiguous as it does not state what operational data is to be stored and how often (5 parameters, every 10 seconds, or 2 parameters, every hour?). Rather than state the requirement to store massive amounts of data simply for the sake of it, perhaps it would be more helpful to record only when the system is operating out-of-spec, or under an alarm condition. This is far more valuable information to an operator and far more digestible. Therefore, provide simplified and clearer wording. Whether the data is stored within internal or external memory, the important factor is to store the data.* -- The UV equipment shall be capable of recording and storing out-of-specification events and alarms.	Comment noted. This only states that the system must have a means for doing so vs. requiring that data be collected. No change to code language.	5.7.3.2.1.6	The equipment shall be capable of recording and storing operational data within internal memory in order to meet record keeping requirements as defined elsewhere in this code.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.4.2.1	Residual ozone concentration in the pool water shall remain below 0.1 PPM (mg/L).	*World Health Organization prohibits any level of residual ozone in the water (too dangerous for human consumption which could be the case in spray pads etc.)* -- Residual ozone concentration in the pool water shall remain below 0.1ppm (mg/L)	The NSF/ANSI Standard 50 Ozone section requires the use of specific components for all commercial swimming venue ozone systems. These components include ozone dose control and ozone management which includes ozone off-gas control. Undissolved ozone is thoroughly removed from the water flow in all cases. Residual dissolved ozone is allowed into the pool water at a level of no greater than 0.1 PPM, which is the OSHA permissible exposure limit for gaseous ozone. However, NSF published studies performed under Annex H as well as other studies performed by the toxicological group at NSF. Show that in swimming pools no ozone is measurable in the water once it reaches the pool. No code language change is needed.	5.7.3.2.2.2	Residual ozone concentration in the aquatic venue water shall remain below 0.1 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.4.2.1	Residual ozone concentration in the pool water shall remain below 0.1 PPM (mg/L).	*Same rationale as in section 4.7.3.3.4.10.* -- Residual ozone concentration produced by the ozonator in the POOL water shall remain below ~~0.1~~ 0.05 PPM (MG/L).	The NSF/ANSI Standard 50 Ozone section requires the use of specific components for all commercial swimming venue ozone systems. These components include ozone dose control and ozone management which includes ozone off-gas control. Undissolved ozone is thoroughly removed from the water flow in all cases. Residual dissolved ozone is allowed into the pool water at a level of no greater than 0.1 PPM, which is the OSHA permissible exposure limit for gaseous ozone. However, NSF published studies performed under Annex H as well as other studies performed by the toxicological group at NSF. Show that in swimming pools no ozone is measurable in the water once it reaches the pool. No code language change is needed.	5.7.3.2.2.2	Residual ozone concentration in the aquatic venue water shall remain below 0.1 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.3.4.2.2	Use of ozone does not modify any other water quality requirements.	*Idem* -- Ozone requirements…	Altered wording	5.7.3.2.2.3	Use of ozone does not modify any other water quality requirements.
Disinfection and Water Quality (DWQ)	5.7.3.4.3.1	Only those systems that are EPA-registered for use as disinfectants in pools or spas in the United States are permitted.	*The metal system products in the US are EPA registered as "sanitizers" rather than as "disinfectants".* -- Only those systems that are EPA-registered for use as sanitizers or disinfectants in pools or spas in the United States are permitted. -- REFERENCE: Example EPA registration numbers: 67712-15, 5185-498	Comment noted. Wording added.	5.7.3.2.3.1	Only those systems that are EPA-registered for use as sanitizers or disinfectants in aquatic venues or spas in the United States are permitted.
Disinfection and Water Quality (DWQ)	5.7.3.4.3.2	Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States.	*The EPA labels for these products do not list any maximum limits.* -- Delete "Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States." -- REFERENCE: Example EPA registration numbers: 67712-15, 5185-498.	Concern has previously been addressed by inserting new language on limits into the code.	5.7.3.2.3.2	Copper and silver concentrations shall not exceed 1.3 ppm for copper and 0.10 ppm for silver for use as disinfectants in aquatic venues and spas in the United States.
Disinfection and Water Quality (DWQ)	5.7.3.4.3.2	Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States.	*The EPA labels for these products do not list any maximum limits.* -- ~~Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States.~~ REFERENCE: Example EPA registration numbers: 67712-15, 5185-498.	Concern has been addressed by inserting new language into the code. Section has not been deleted.	5.7.3.2.3.2	Copper and silver concentrations shall not exceed 1.3 ppm for copper and 0.10 ppm for silver for use as disinfectants in aquatic venues and spas in the United States.
Disinfection and Water Quality (DWQ)	5.7.3.4.3.2	Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States.	*Compliance with drinking water standards.* -- Copper and silver concentrations shall not exceed established EPA limits for use as Disinfectants in pools and spas in the United States or maximum contaminant levels established for drinking water standards when used -- REFERENCE: Consistent with many state rules. WAC 246-260-031(15) (b).	Accept public comment. New text added	5.7.3.2.3.2	Copper and silver concentrations shall not exceed 1.3 ppm for copper and 0.10 ppm for silver for use as disinfectants in aquatic venues and spas in the United States.
Disinfection and Water Quality (DWQ)	5.7.3.4.3.3	Free available chlorine or bromine levels shall be maintained in accordance with Section 5.7.3.1.1 or 5.7.3.1.2, respectively.	*Studies have shown that the presence of copper in pool water has a catalytic effect on the formation of trihalomethanes. Refer to the scientific study attached with this submission.* -- Copper and silver concentrations shall not exceed established EPA limits for use as disinfectants in pools and spas in the United States -- REFERENCE: Blatchley ER, Margetas D, Ravikrishna D. Copper catalysis in chloroform formation during water chlorination. Wat Res 2003;37:4385-4394.	Agreed. Wording and reference added to annex. Limits set in code.	5.7.3.2.3.3	Free available chlorine or bromine levels shall be maintained in accordance with MAHC Section 5.7.3.1.1 or 5.7.3.1.2, respectively.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.5 ANNEX	pH (see Annex for full text)	• The traditional graphs and charts showing the proportion of HOCl vs. pH only apply when there is no CYA in the water. When CYA is present, it acts as an HOCl buffer that reduces its variation vs. pH. When the pH rises from 7.5 to 8.0, then HOCl drops roughly in half if there is no CYA in the water, but it only drops around 15% if CYA is present. ……. However, as I note in many different comments, the whole idea that one should have high active chlorine levels is questionable since it does not come without side effects. If one always uses CYA, but in moderation, then one can get the best of both – moderated active chlorine (HOCl) concentrations with a large Free Chlorine (FC) reserve. ……. What sources do you have showing that hypochlorous acid is 100 times more effective at killing microorganisms than the hypochlorite ion? As noted in the Akin paper (I repeat for this section), the difference in kill time for HOCl vs. OCl- against E. coli (ATCC 11229) is about a factor of 20, not 100…….. Again you refer to increasing disinfection efficacy, this time by lowering the pH, but the active chlorine is already too high in pools without any CYA in them. Do not confuse a low FC level meaning that the reserve of chlorine is too low vs. the active chlorine level that does not need to be so high and is not without side effects. – CHLORINE used in POOLS refers to hypochlorous acid. Hypochlorous acid (HOCl) is a weak acid that readily dissociates to form hypochlorite (OCl-) and hydrogen ion (H+). The mid-point of the dissociation (the pKa) is at PH 7.5. Functionally, this means that at PH of 7.5, 50% (fifty percent) of the free CHLORINE present will be in the form of hypochlorous acid and 50% (fifty percent) will be in the form of hypochlorite. As the PH decreases below 7.5, the proportion of hypochlorous acid increases and proportion of hypochlorite ion decreases. The opposite occurs as the PH increases	Irrespective of the greater effectiveness of hypochlorous acid as a disinfection agent, the need to maintain neutral pH will be driven by bather comfort and water balance considerations. These are key points to warrant further examination, and will be added to the research agenda.	5.7.3.4	pH (See Annex for Text)
Disinfection and Water Quality (DWQ)	5.7.3.5.1	The pH of the water shall be maintained between 7.2 and 7.8.	*What's the basis for this codified requirement? Does a pH outside of this prescribed range impact the health of the patrons? It seems that this would really only impact the health of the pool. The annex (5.7.3.5) states that "there is no definitive peer-reviewed study that extensively covers the subject of pH in pool and spa water."* -- ~~The PH of the water shall be maintained between 7.2 and 7.8.~~	No change made to the code. The efficacy of chlorine/hypochlorous acid is dramatically impacted by pH and therefore pathogen inactivation can be severely affected by higher pH levels where only a small percentage of free chlorine is active. Lower pH levels than this range allow a greater percentage of free chlorine to be "active". Further data are needed to ensure that lower levels (e.g., 6.8 to 7.2) do not adversely impact membranes, particularly eyes.	5.7.3.4.1	The pH of the water shall be maintained between 7.2 and 7.8.
Recirculation and Filtration	5.7.3.2.7.5.2	Erosion feeders shall be maintained according the manufacturer's instructions.	I think this section should be numbered 4.7.3.2.7.3.2. Does this mean that the intake of the erosion feeder be connected on the discharge side of the filter? Most manufacturers have the erosion feeder intake on the discharge side of the pump and the outlet after the filter and heater.	Commenter cites section 5.7.3.2.7.5.2 however, there is no corresponding number in the code.	5.7.3.5.4.2	Erosion feeders shall be maintained according the manufacturer's instructions.
Recirculation and Filtration	5.7.3.2.7.5.2	Erosion feeders shall be maintained according the manufacturer's instructions.	~~5.7.3.2.7.5.24~~.7.3.2.7.3.2 Erosion feeders shall … feeder manufacturer. -- Incorrect number. This section follows 4.7.3.2.7.3.1	Commenter cites section 5.7.3.2.7.5.2 however, there is no corresponding number in the code . Inconsistencies regarding numbering will be reconciled in full, "knitted" version of the MAHC. Numbering revised.	5.7.3.5.4.2	Erosion feeders shall be maintained according the manufacturer's instructions.
Recirculation and Filtration	5.7.3.2.7.1	For liquid solution feeders, spare feeder tubes (or tubing) shall be maintained onsite for peristaltic pumps.	This requirement should be made a best practice and moved to the Annex.	Disagree. Broken/worn tubing has been identified as a significant contributing factor to inoperative feed equipment resulting in unacceptable/inadequate chlorine levels in pools where peristaltic pumps are used.	5.7.3.5.5	For liquid solution feeders, spare feeder tubes (or tubing) shall be maintained onsite for peristaltic pumps.
Recirculation and Filtration	5.7.3.2.7.1.2	All chemical tubing shall be routed in PVC piping to support the tubing and to prevent leaks in areas where operating staff walk.	Double containment pipe shall be of sufficient size to allow easy replacement of tubing for maintenance. All turns shall be 45 degrees and 90 degrees shall be sweeps	Agree. Code revised.	5.7.3.5.6.1	All chemical tubing shall be routed in PVC piping to support the tubing and to prevent leaks in areas where operating staff walk.
Recirculation and Filtration	5.7.3.2.7.7.2	Carbon dioxide shall be fed using a venturi or a booster pump connected to the recirculation system.	Carbon dioxide shall be fed using a Co2 feed system from a pressurized cylinder. -- Co2 does not need venture or booster pumps for feed	Agree. Code revised.	5.7.3.5.8.1	Carbon dioxide feed shall be controlled using a gas regulator.
Recirculation and Filtration	5.7.3.2.7.7.2	Carbon dioxide shall be fed using a venturi or a booster pump connected to the recirculation system.	It is much more efficient to inject CO2 via venture injection, however, CO2 can also be fed directly into the pipe and should be included in this item.	Agree. Code revised.	5.7.3.5.8.1	Carbon dioxide feed shall be controlled using a gas regulator.
Recirculation and Filtration	5.7.3.2.7.7.2	Carbon dioxide shall be fed using a venturi or a booster pump connected to the recirculation system.	~~Carbon dioxide shall be fed using a venturi or a booster pump connected to the RECIRCULATION SYSTEM.~~ Why preclude the use of a diffuser or direct injection of carbon dioxide into the recirculation piping?	Agree. Code revised.	5.7.3.5.8.1	Carbon dioxide feed shall be controlled using a gas regulator.
Recirculation and Filtration	5.7.3.2.7.7.2	Carbon dioxide shall be fed using a venturi or a booster pump connected to the recirculation system.	Need to include code that a CO2 monitor/alarm shall be installed to alert operator of high CO2 / low O2 concentrations to avoid dangerous situations.	Agree. Code revised.	5.7.3.5.8.1	Carbon dioxide feed shall be controlled using a gas regulator.
Monitoring and Testing (M&T)	5.7.3.2.1	Water Quality Testing Devices (WQTDs) shall be available on site.	*Requirement is vague without mentioning specific devices. Could also reference sections 5.7.5 and 5.7.6* -- Water Quality Testing Devices (WQTDs) for the measurement of sanitizer residual, pH, alkalinity, and temperature, at a minimum, shall be available on site.	Agreed. See text for change	5.7.3.6.1	Water quality testing devices (WQTDs) for the measurement of disinfectant residual, pH, alkalinity, CYA (if used), and temperature, at a minimum, shall be available on site.
Monitoring and Testing (M&T)	5.7.3.2.1.1	WQTDs utilizing reagents shall be checked for expiration at every use.	(add to existing section) The test kit provided must be able to measure both the free and total concentrations of the disinfectant within 0.1 mg/l. Test kits must use DPD (diethyl-p-phenylene-diamine) method for measuring chlorine residual. -- CT Public Swimming Pool Design Guide Section 24.3	The section appears to not be correct in this comment. Comment likely referring to 5.7.3.2.1. We disagree that precision should be within 0.1 mg/L. Colorimetric test kits are allowable and have precision within 0.2 mg/L.	5.7.3.6.1.1	WQTDs utilizing reagents shall be checked for expiration at every use and the date recorded.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	4.7.3.8.3 (NEW)	N/A	*Protection of assuring minimum primary disinfectant remains in solution.* -- When automated controllers are used with supplemental disinfection treatment devices (e.g. ozone, UV), ensure the placement of the supplement treatment and automated controllers used for reading these products are beyond the primary treatment device (e.g. chlorine or bromine compound) automated controller, if so provided. -- REFERENCE: Failure to provide this configuration could create condition where primary disinfectant is not feeding due to the high ORP reading of the supplemental disinfectant.	Agreed regarding need for code, but placement better under 5.7.3.3. See code text for change.	5.7.3.7	Automated Controllers (See Code for full text)
Risk Management (RM)	5.9.2.9	A controller capable of measuring the sanitizer residual (or surrogate such as ORP) shall be used to maintain the sanitizer residual in spas.	*Same benefit for both* -- Add in "pools and" spas	Agree, changed "spa" to aquatic venue to be more inclusive.	5.7.3.7.1	A controller capable of measuring the disinfectant residual (free available chlorine or bromine) or surrogate such as ORP) shall be used to maintain the disinfectant residual in aquatic venues.
Risk Management (RM)	5.9.2.9	A controller capable of measuring the sanitizer residual (or surrogate such as ORP) shall be used to maintain the sanitizer residual in spas.	*The controller should measure more than just the residual chemical levels because residual includes all Total Chlorine including chloramines, which should not be included for chemical feed considerations. Needs to be able to decipher between free and total chlorine.* -- A controller capable of measuring the sanitizer residual (e.g. Free Available Chlorine, Total Bromine or a surrogate such as ORP) shall be used to maintain the sanitizer residual in spas.	Agreed. Wording changed	5.7.3.7.1	A controller capable of measuring the disinfectant residual (free available chlorine or bromine) or surrogate such as ORP) shall be used to maintain the disinfectant residual in aquatic venues.
Risk Management (RM)	5.9.2.9.1	Controllers shall be maintained and calibrated as necessary.	*I have a national company and at least one local company that purposefully set inaccurate readings on the controllers to prevent alarms at the monitoring center or reduce their maintenance calls. The national company definitely and deliberately miscalibrates the device.* -- Controllers shall be maintained and accurately calibrated as necessary	Disagree. "Accurately" and "calibrated" are one in the same; calibration implies accuracy. One would not calibrate inaccurately.	5.7.3.7.6	Automated controllers shall be calibrated per manufacturer directions.
Risk Management (RM)	5.9.2.9.1	Controllers shall be maintained and calibrated as necessary.	*This might be addressed in the module for testing, but wanted to clarify here as well.* -- Controllers shall comply with NSF standards for accuracy and be maintained and calibrated as necessary.	Agree. Changed as suggested.	5.7.3.7.6	Automated controllers shall be calibrated per manufacturer directions.
Monitoring and Testing (M&T)	5.7.3.3.6	UV systems shall be monitored at a frequency consistent with MAHC Table 5.7.3.3.6.	Table Information -- Flow rate: you are requesting that it be recorded every 4 hours. Current CA code requires it recorded 1 time during the day when operating. This a drastic leap to record every 4 hours. What do you hope to gain from this increase in recording? How will this recording help with pool operations?	Disagree. UV effectiveness is highly dependent on system flows and proper intensity levels, and thus warrants frequent observation.	5.7.3.7.8	UV systems shall be monitored and data recorded at a frequency consistent with MAHC Table 5.7.3.7.8.
Monitoring and Testing (M&T)	5.7.3.3.6 TABLE	See Table for text	Question: is this only for UV systems or all pools? It is unclear if no UV pools are included in this table due to the Keyword heading.-- REFERENCE: See CA code	The keyword heading indicates that the code applies to "UV Systems" and "UV System Monitoring". It does not suggest that the code applies to pools not using a UV system.	5.7.3.7.8 Table	See Code for Table
Monitoring and Testing (M&T)	5.7.3.3.6 TABLE	See Table for text	Set-Point Intensity: you are requesting the recording of the set point every 4 hours. The staffing power to ensure both flow rate and set-point is recorded is insane and not measurable or obtainable in today's standards and employment. What do you hope to gain from this recording? How will recording the set-point help with pool operations?	Disagree. UV effectiveness is highly dependent on system flows and proper intensity levels, and thus warrants frequent observation.	5.7.3.7.8 Table	See Code for Table
Monitoring and Testing (M&T)	5.7.4	Water Sample Collection for Routine Monitoring	General Comment: there are 13 regulations on water sampling.	Identifying these procedures step by step in separate lines of code is the best way of clearly communicating these best practices.	5.7.4	Water Sample Collection and Testing
Monitoring and Testing (M&T)	5.7.4.1	The pool operator shall acquire a water sample for testing from the in-line sample port when available.	Shall does not give any options to take a pool direct sample. It is suggested that taking a pool direct sample would be a better option once a day then from the in-line port	Disagree. Justification is addressed in new annex text specific to this code section.	5.7.4.1	The qualified operator shall acquire a water sample for testing from the in-line sample port when available.
Monitoring and Testing (M&T)	5.7.4.2.1	Daily bulk water samples shall be collected in the middle of the pool operational day, according to the procedures in MAHC Section 5.7.4.3.	The idea of a midday bulk water sample works but only if you remove the requirement in section 5.7.5.3 for testing every 4 hours. Current CA code requires 1 test during an operational day and now you want every 4 hours. Testing the pool once prior to opening and once midday would be a terrific plan for all public pools. – REFERENCE: CA Code: Automated sanitizers are already a CA requirement	Disagree. Collecting a mid-day bulk water sample is not onerous in conjunction with other code requirements.	5.7.4.2.1	Daily bulk water samples shall be collected in the middle of the pool operational day, according to the procedures in MAHC Section 5.7.4.3.
Disinfection and Water Quality (DWQ)	5.7.4.3.3	Pool Water Chemical Balance	*This is the most important subject of water and its putative treatment.* -- Pool Water Chemical Balance	General comment. No action necessary.	5.7.4.3.3	Aquatic Venue Water Chemical Balance

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.3.3.1 ANNEX	Pool Water Chemical Balance (see Annex for full text)	• Virtually all studies of disinfection by-products show a correlation between the active chlorine level and the rate of creation of those by-products (for a given precursor load), though the long-term steady-state depends on whether supplemental systems remove chemical precursors and intermediates. This is the primary basis for DIN 19643 which specifies low 0.3-0.6 ppm FC without ozone and 0.2-0.5 ppm FC with ozone (no CYA used in either case and the pH range is lower) and uses coagulation/filtration among other techniques for removal of chemical precursors and intermediates. Operators in Europe following DIN 19643 have a very hard time trying to maintain 0.2 or 0.3 ppm FC in their pools so tend to run at the higher 0.5-0.6 ppm range, but if one were to use CYA in the pools, then one could have very ample chlorine reserve (FC) of 5-10 ppm with only 20-30 ppm CYA for an active chlorine level at pH 7.5 that is equivalent to around 0.2 ppm FC with no CYA when the FC is around 20% of the CYA level or 0.35 ppm FC with no CYA when the FC is around 30% of the CYA level. Your text regarding shock oxidizers is a repeat of what is found in section 4.7.3 so should be deleted. – Levels of chloramines and other volatile compounds in water can be minimized by reducing introduction of contaminants that lead to their formation (e.g., urea, creatinine, amino acids and personal care products), as well as by use of a shock oxidizer (e.g., potassium monopersulfate) or supplemental water treatment. Effective filtration, water replacement, and improved BATHER hygiene (e.g., showering, not urinating in the POOL) can reduce contaminants and chloramine formation. Maintaining a lower active chlorine level also reduces the rate of creation of disinfection by-products and gives secondary disinfection systems and coagulation/filtration systems a greater	General comment. No action necessary. Chlorine levels in the code are supported by the evidence provided. In the management of recreational pool facilities a most desirable factor is to reduce the disinfection by-products. However, such an result obtained only by reducing free active chlorine must take into consideration the threat of disease-causing organisms which might be allowed to develop in the facility. This choice is clearly one considering the present threat of danger from disease, which is clearing documented in observed outbreaks, versus the theoretical danger which may be posed by exposure to the by-products. The MAHC supports the prevention of disease by maintaining adequate free chlorine levels. The MAHC supports the minimization of disinfection by-products with best practices for ventilation, the application of management actions when combined chlorine exceeds the standard, and the use of secondary disinfection systems to reduce by-product concentrations.	5.7.4.3.3	*Aquatic Venue Water Chemical Balance*
Disinfection and Water Quality (DWQ)	5.7.4.3.2 ANNEX	Total Alkalinity Level (see Annex for full text)	• For some pools and especially for spas, having the Total Alkalinity (TA) be 80 ppm can lead to frequently rising pH when using hypochlorite sources of chlorine or a saltwater chlorine generator. Lowering the TA leads to greater pH stability in these situations because it is the TA itself that is the cause of the rising pH through carbon dioxide outgassing. Canada changed their minimum TA requirement to 80 ppm and I've heard complaints from pool operators who had good pH stability at 50-60 ppm TA and now have to add a lot more acid regularly at 80 ppm TA and add baking soda to keep the TA up as well – a vicious cycle (carbon dioxide outgasses, so put more back in by adding acid and baking soda! or add carbon dioxide back in through injection). – As noted in the CODE, the ideal level is 80 – 120 PPM 50 to 80 PPM when using hypochlorite sources of chlorine and 80 to 150 PPM when using other (net acidic) sources of chlorine. This acid neutralizing (buffering) capacity of water is desirable because it helps prevent wide variations in PH (pH bounce) whenever small amounts of acid or alkali are added to the POOL. Total alkalinity is a measure of water's resistance to change in pH and is a source of rising pH itself from the outgassing of carbon dioxide. If total alkalinity is too low: PH changes rapidly when chemicals or impurities enter the water. PH may drop rapidly when using net acidic sources of chlorine or other acidic chemicals (e.g. Trichlor, Dichlor, MPS), causing etching and corrosion. To lower total alkalinity, add acid - The acid reacts with bicarbonates in the water and reduces the total alkalinity. – REFERENCE: i. You won't find peer-reviewed scientific papers on this topic because the chemistry is too fundamental (I already referenced the Wojtowicz paper in my CODE comments, but that is not a traditional journal)	Agree with clarifying language; however the range of 80 – 150 ppm in the draft has been expanded to 60 – 180 ppm because there is no health risk to alkalinity values between 60-80 ppm or between 150 and 180 ppm. As stated in the annex, minor deviations from the alkalinity levels stated in the code do not in themselves present imminent health threats to the bathers. Furthermore, expansion of this range will allow greater flexibility to the pool operator without harming pool surfaces.	5.7.4.3.3.1	Total Alkalinity Level (See Annex for full Text)
Disinfection and Water Quality (DWQ)	5.7.4.3.2.1	Total alkalinity shall be maintained in the range of 80 to 150 PPM (mg/L).	*Please see attached justification, Exhibit B at the end of this document.*-- Total alkalinity shall be maintained in the range of ~~80-150~~ 60 to 180 ppm (mg/L).	Concern has been addressed by inserting new language into the code.	5.7.4.3.3.1	Total alkalinity shall be maintained in the range of 60 to 180 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.3.2.1	Total alkalinity shall be maintained in the range of 80 to 150 PPM (mg/L).	*See more detailed comments for the ANNEX section. Total Alkalinity (TA) is mostly a measure of bicarbonate in the water. As such, for a given pH and adjusting TA to remove the alkalinity contribution from CYA, it is also a proportional measure of the amount of aqueous carbon dioxide in the water. Higher TA has a higher rate of carbon dioxide outgassing and such outgassing increases the pH. One of the easiest ways to control rising pH is to maintain a lower TA level, especially when using hypochlorite sources of chlorine (including that from a saltwater chlorine generator). Such sources are close to pH neutral when accounting for chlorine usage/consumption (only the "excess lye" increases the pH). If one operates a pool at a low 50 ppm TA (with 30 ppm CYA) to have more stable pH, then to protect plaster surfaces, the CH may be raised up to 600 ppm or the pH target be raised to 7.7 or some intermediate combination.* -- Total alkalinity shall be maintained in the range of ~~80~~ 50 to 150 PPM (mg/L). -- REFERENCE: Editorial. No scientific basis for your recommendation has been presented in the ANNEX section. Wojtowicz J. Factors Affecting Loss of Carbon Dioxide. The Chemistry and Treatment of Swimming Pool and Spa Water. 1995 Spring;1(3):19-26.	General comment. No action necessary	5.7.4.3.3.1	Total alkalinity shall be maintained in the range of 60 to 180 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.4.3.2.1	Total alkalinity shall be maintained in the range of 80 to 150 PPM (mg/L).	*Why? LSI (as indicated in 5.7.4.4) is the better indicator. Depending on specific local conditions, water chemistry components can be adjusted and reacted to without impacting the health of the patrons, yet resulting in an overall acceptable LSI.* -- ~~Total alkalinity shall be maintained in the range of 80 to 150 PPM (MG/L).~~	Most of this section has been moved to the annex and the TA range has been modified.	5.7.4.3.3.1	Total alkalinity shall be maintained in the range of 60 to 180 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.4.3.2.1	Total alkalinity shall be maintained in the range of 80 to 150 PPM (mg/L).	Total alkalinity shall be maintained in the range of 60 to 180 ppm (mg/L).	Agree. Changed as suggested.	5.7.4.3.3.1	Total alkalinity shall be maintained in the range of 60 to 180 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.4.3.3.1	Chloramines in water shall remain below 0.4 PPM (mg/L).	*Should such a standard apply to all pools or just indoor pools? Even so, 0.4 is going to be difficult to achieve even for some facilities that incorporate UV systems and will almost certainly be requiring UV for all pools regardless of type (competition, leisure, spas, etc.). There doesn't appear to be any data to support this 0.4 ppm level and is stated as much in the annex ("the technical committee recognizes that this [0.4 PPM] concentration is arbitrary and that it has not been substantiated by adequate human clinical studies."). By codifying a 0.4 ppm maximum acceptable chloramine level, a significant pecuniary impact will be felt in the pool industry and many may argue that a detrimental net impact will be felt due to these mandatory costs. And is there some scientifically proven correlation to respiratory and dermal outbreaks due to the exposure to chloramines as stated in the annex? Attached to this submission is a scientific study which indicates (on a small sample size) that 95.9% of pool samples and 96.8% of spa samples had combined chlorine measurements that exceeded the NSPF guidelines (which is a maximum of 0.6 PPM of combined chlorine).* -- ~~Chloramines in water shall remain below 0.4 PPM (MG/L).~~ -- REFERENCE: Weaver WA, Li J, Wen Y, Johnston J, Blatchley M, Blatchley ER. Volitle disinfection by-product analysis from chlorinated indoor swimming pools. Water Research 43 (2009) 3308-3318.	Comment noted. No changes to code. Some European countries standard is 0.2 ppm. WHO recommends below 0.2 ppm. German DIN standard is 0.2 ppm also. Health effects for di- and tri-chloramine start to be experienced at 0.2ppm.	5.7.4.3.3.2	Combined chlorine (chloramines) in water shall remain below 0.4 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.4.3.3.1	Chloramines in water shall remain below 0.4 PPM (mg/L).	*Are these levels realistic?* -- Chloramines…..	General comment. No action necessary.	5.7.4.3.3.2	Combined chlorine (chloramines) in water shall remain below 0.4 PPM (mg/L).
Disinfection and Water Quality (DWQ)	5.7.4.3.3.1	Chloramines in water shall remain below 0.4 PPM (mg/L).	*This standard may not be achievable. Many pools that provide routine monitoring of combined levels exceed this level sometime during the day but achieve it at others. Most will really have problems keeping the levels this low in our experience. It is an even greater issue with the ASHRAE standard limits doing a great job of conserving energy, but not having as much fresh air replenishment in natatoriums.* -- Chloramines in water shall maintain an ideal range ~~remain~~ below 0.4 PPM (MG/L). When combined chlorines exceed 50% of the FAC, it will be necessary to take steps to reduce these levels.	Comment noted. No changes to code. Proposed wording revision would allow much higher levels of CC to be acceptable, and therefore we prefer original wording. WHO recommends below 0.2 ppm.	5.7.4.3.3.2	Combined chlorine (chloramines) in water shall remain below 0.4 PPM (mg/L).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Calcium Hardness (CH) alone does not cause scaling. It is the combination of high pH, TA and/or CH as reflected in the Calcite Saturation Index that determines whether scaling is possible. One can readily operate a pool with 1000 ppm CH by maintaining 50 ppm TA and pH 7.5, for example.* -- Calcium hardness shall not exceed ~~400~~ 1000 PPM (mg/L). – REFERENCE: Editorial. No scientific basis for your recommendation has been presented in the ANNEX section.	Agreed. Changed as suggested. As the reviewer notes pools can be operated at high calcium levels provided other water quality factors are strictly controlled.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Please see attached justification, Exhibit B at the end of this document.* -- Calcium hardness shall ~~not exceed 400 ppm (mg/L)~~ be maintained in the range of 150 to 1,000 ppm in pools and 100 to 800 ppm in spas.	Concern has been addressed by inserting new language into the code.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Some natural waters may have problems reaching this level. The CPO manual established a maximum level of 1000 ppm. Table B-1.* -- Calcium hardness shall not exceed 400 PPM except where natural water conditions prevent further reductions.	Concern has previously been addressed by inserting new language into the code. An upper limit has been set and the rest of the discussion has been moved to the annex.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Calcium hardness can exceed 400 if proper adjustment is made to maintain balanced water. Low calcium hardness as water will seek calcium and could contribute to aggressive water condition. A minimum should be stated in code.* -- Calcium hardness shall be maintained between 200 and 400 ppm. When calcium hardness exceeds 400, the total alkalinity and/or pH may be adjusted to provide balanced water. -- REFERENCE: NSPF Pool & Spa Operator Handbook, Reference: Appendix B, B-1 Water Chemistry Guidelines.	Agree. Most of this wording has been moved to the annex and is no longer in the code.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Calcium hardness is not a public health concern. A "shall" statement requires actual enforcement activities. These need to be limited to parameters with public health concern* -- Calcium hardness should not exceed 400ppm	Agreed. The text and the calcium hardness range information has been moved to the Annex. The wording has been altered to reflect a "not to exceed" maximum level only. The use of non-mandatory language such as should, could, can, etc. cannot be included in a code.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	Calcium hardness shall be maintained in the range of 150 to 1,000 ppm in pools and 100 to 800 ppm in spas.	Concern has previously been addressed by inserting new language into the code. An upper limit has been set and the rest of the discussion has been moved to the annex	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	Why is this public health issue? Also, water balance can be maintained with the "water balance range mentioned in this standard" at even higher Calcium hardness levels.	Agreed. Most of the language has been moved to the annex.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6	Calcium hardness shall not exceed 400 PPM (mg/L).	*Why? LSI (as indicated in 5.7.4.4) is the better indicator. Depending on specific local conditions, water chemistry components can be adjusted and reacted to without impacting the health of the patrons, yet resulting in an overall acceptable LSI. And the annex acknowledges that in some areas of the country with hard source water may have concentrations above 400 PPM and that "deviations from permissible hardness levels indicate poor management of the water balance …and do not in themselves present imminent health threats to bathers."* -- ~~Calcium hardness shall not exceed 400 PPM (MG/L).~~	Concern has previously been addressed by inserting new language into the code.. Most of the water balance discussion has been moved to the annex and only an upper limit for Ca hardness has been used.	5.7.4.3.3.3	Calcium hardness shall not exceed 1000 PPM (mg/L) and maintained per MAHC Section 5.7.4.4.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.3.3.6 ANNEX	Calcium hardness is the amount of dissolved calcium (plus some other minerals like magnesium) in the water. High calcium is not healthy for swimming since it can cause burning of the mucous membranes, as well as skin irritation on sensitive people. Calcium hardness of 200 - 400 PPM (MG/L) is preferred for proper calcium carbonate saturation and for avoiding soft-water scale found in spas and hot tubs. Too much calcium causes cloudiness and scale formation. It also reduces the effectiveness of disinfectants. Too little calcium, when combined with low PH or low Total Alkalinity can also lead to "aggressive water," which can dissolved metallic parts of the POOL (walls, floor, hand rails, ladders, light fixtures, and equipment), and also cause discolored water or stains on the POOL walls and floor. The maximum permissible concentration of 400 PPM (MG/L) may not be appropriate for regions with particularly hard source water. In such regions local CODES should reflect the specialized practices needed for source waters containing >400 PPM (MG/L) total hardness. Minor deviations from the calcium hardness levels stated in the CODE do not in themselves present imminent health threats to the BATHERS. As such, minor deviations in hardness levels do not require the immediate closure of the facility. Rather, deviations from permissible hardness levels indicate poor management of the water balance and should indicate a need for a thorough inspection of the entire facility.	Calcium Hardness (CH) alone does not cause scaling. It is the combination of high pH, TA and/or CH as reflected in the Calcite Saturation Index (Langelier never wanted the index named after him) that determines whether scaling is possible. One can readily operate a pool with 1000 ppm CH by maintaining 50 ppm TA and pH 7.5, for example. What evidence do you have that high CH reduces effectiveness of disinfectants? Furthermore, the lack of calcium does not dissolve metallic parts of the pool. If the calcite saturation index is negative, as can occur with low CH levels, then the possibility for dissolving calcium carbonate from plaster exists. Metal corrosion is much more a function of low pH and is not caused by low CH or a negative saturation index directly (there is some controversy with regard to the ability of calcium carbonate scale to protect pipes). The saturation index is only a measure of saturation of calcium carbonate in the water. A detailed derivation of the index may be found near the end of my PoolEquations.xls spreadsheet that I am sending separately. By the way, there is another related index known as the Calcium Carbonate Precipitation Potential (CCPP), but that is still based on the calcite saturation index. -- Calcium hardness of 200 - 400 PPM (MG/L) is preferred for proper calcium carbonate saturation and for avoiding soft-water scale found in spas and hot tubs when other water parameters are near their nominal levels. Too much calcium causes cloudiness and scale formation. It also reduces the effectiveness of disinfectants. Too little calcium, especially when combined with low PH or low Total Alkalinity can also lead to "aggressive water," which can dissolved calcium carbonate from plaster metallic parts of the POOL (walls, floor, hand rails, ladders, light fixtures, and equipment), and also cause discolored water or stains on the POOL walls and floor	Annex wording revised as follows and found at 5.7.4.3.3.2: "Calcium hardness of 200 – 400 PPM (MG/L) is preferred for proper calcium carbonate saturation and for avoiding soft-water scale found in spas and hot tubs when other water parameters are near their nominal levels. For venues with water temperature greater than 90 degrees F, the range should be 100 to 400 PPM. Too much calcium causes cloudiness and scale formation. It also reduces the effectiveness of disinfectants. Too little calcium, especially when combined with low PH or low Total Alkalinity can also lead to "aggressive water," which can dissolve~~d~~ calcium carbonate from plaster, as well as metallic parts of the POOL (walls, floor, hand rails, ladders, light fixtures, and equipment), and also cause discolored water or stains on the POOL walls and floor." It is generally recognized that high levels of minerals present in hard water, such as calcium and magnesium, can reduce the effectiveness of a disinfectant when dealing with any aqueous system. This happens because insoluble precipitates are produced when the disinfectant interacts with the hard water minerals. The corrosive nature of water under certain circumstances is well recognized. Larson ratio, for example, relates to the corrosive effects of water. A number of papers address the corrosive properties of water in designing specialty municipal water systems. The point of this section is that optimization of water hardness facilitates maintenance of other water parameters and protects integrity of the facility. LSI has been moved to the Annex, it is shown not to be effective in drinking water systems.	5.7.4.3.3.3	Calcium Hardness (See Annex for full text)
Monitoring and Testing (M&T)	5.7.4.3.4	For each water test, sampling locations shall rotate around the shallower end of the pool.	Rotating to take a water test may not be possible and it is suggested that consistently taking the water sample from the same general area during that same day would deliver more consistent results that would help with better understanding of the facilities water chemistry.	Disagree. Collecting samples from different locations around a pool gives a better picture of general pool water quality than sampling from one location.	5.7.4.3.4	Sampling locations shall rotate around the shallow end of the pool.
Monitoring and Testing (M&T)	5.7.4.3.4	For each water test, sampling locations shall rotate around the shallower end of the pool.	*Do not need a sample for each test.*-- For each water sample taken, sampling locations shall rotate around the shallow~~er~~ end of the pool.	Agreed. See text for change	5.7.4.3.4	Sampling locations shall rotate around the shallow end of the pool.
Disinfection and Water Quality (DWQ)	5.7.4.3.5	*Source (fill) Water*	*Existing state regulatory* -- There are facilities that obtain source water from local aquifers and surfaces water sources. In the case of Schlitterbahn New Braunfels, source water for some rides and attractions comes from the Comal river, which is spring fed from the Edwards Aquifer. The water is pulled and returned to the source untreated, providing no impact on the source ecosystem. The diversion is regulated by Texas Commission on Environmental Quality. There is no "public water system authority". There needs to be some provision for all similar facilities where source water does not come from a "public water system".	Current code languages is written such that as long as the system meets the applicable rules of the AHJ in which the facility is located, the source is acceptable. In this case TCEQ is the AHJ and meets the language of the code. However, we have added additional language to clarify this.	5.7.4.3.4	Source (fill) Water
Disinfection and Water Quality (DWQ)	5.7.4.3.5.1	The owner of a public swimming POOL, public spa, or special use POOL shall ensure that the water supply for the facility meets one of the following requirements: 1) The water comes from a public water system as defined by the applicable rules of the AHJ in which the facility is located; or 2) The water is treated to meet the requirements cited in the preceding paragraph (1).	*Suggest providing some minimum standards for the water to ensure the water quality conditions of the water will work for water recreation facilities.* -- The water is treated to meet the requirements cited in the preceding paragraph (1) and will meet the minimum standards for water quality for operation of water recreation pool facilities.	Covered in other requirements in this section.	5.7.4.3.4.1	The owner of a public AQUATIC VENUE, public SPA, or special use AQUATIC VENUE shall ensure that the water supply for the facility meets one of the following requirements: 1) The water comes from a public water system as defined by the applicable rules of the AHJ in which the facility is located; or 2) The water meets the requirements of the local AHJ for public water systems; or 3) The AHJ has approved an alternative water source for use in the AQUATIC FACILITY.
Monitoring and Testing (M&T)	5.7.4.3.5	The pool operator shall include the deepest area of the pool in the water sampling rotation once per week.	Please provide research that shows that this is necessary and not just busy work for employees. If you want accurate, measurable, and operators that truly want to take care of the pools then don't dictate water testing locations that do not have any relative science or need behind them. Taking a water sample from the pool at least 12-18" under the surface of the water is required for accurate water test sampling.	It is not unreasonable to think that water conditions in the deep end of a pool could be different from the shallow end, based on different circulation patterns, volume to air surface ratios, etc. At least one peer-reviewed study (Cyril C, Simard S, et al. 2012. Occurrence and spatial and temporal variations of disinfection by-products in the water and air of two indoor swimming pools. Int. J. Environ. Res. Public Health, 9:2562-2586) has reported that water quality parameters in samples collected from the deep end of a swimming pool can be significantly different than in samples collected from the shallow end. This reference has been added to the Annex.	5.7.4.3.5	The qualified operator shall include the deepest area of the aquatic venue in the water sampling rotation once per week.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.3.3.7	The exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index.	*Poor wording in original.* -- Measured total alkalinity, calcium hardness, pH, and total dissolved solids, along with the water temperature, shall be used to calculate the Langelier Saturation Index. All individual measures must be maintained in the range allowed in this code and indicate balanced water using the LSI.	• Comment accepted. New text to read: Water balance can be determined by using the Langelier Saturation Index, Ryznar Stability Index, or other indices that are based on calculated values of: i. total alkalinity, ii. pH, iii. calcium hardness, iv. total dissolved solids, and v. water temperature. Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation Index or other indices.	5.7.4.4.1	Water balance can be determined by using the Langelier SATURATION INDEX, Ryznar Stability Index, or other indices that are based on calculated values of: 1) total alkalinity, 2) pH, 3) calcium hardness, 4) total dissolved solids, and 5) water temperature.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.7	The exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index.	*Calcium hardness can easily be adjusted up, but can only be decreased by draining the pool. After a minimum amount of calcium hardness has been added to the pool (200 pppm), water balance is usually maintained by adjusting the pH and alkalinity up and down to achieve the correct LSI values.* -- ~~The exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index.~~ -- REFERENCE: APSP-11	Concern has been addressed by inserting new language into the code.	5.7.4.4.1	Water balance can be determined by using the Langelier SATURATION INDEX, Ryznar Stability Index, or other indices that are based on calculated values of: 1) total alkalinity, 2) pH, 3) calcium hardness, 4) total dissolved solids, and 5) water temperature.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.7	The exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index.	*Calcium hardness can easily be adjusted up, but can only be decreased by draining the pool. After a minimum amount of calcium hardness has been added to the pool (200 pppm), water balance is usually maintained by adjusting the pH and alkalinity up and down to achieve the correct LSI values.* -- Delete "the exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index." -- REFERENCE: APSP-11	Concern has previously been addressed by inserting new language into the code. An upper limit has been set and the rest of the discussion has been moved to the annex	5.7.4.4.1	Water balance can be determined by using the Langelier SATURATION INDEX, Ryznar Stability Index, or other indices that are based on calculated values of: 1) total alkalinity, 2) pH, 3) calcium hardness, 4) total dissolved solids, and 5) water temperature.
Disinfection and Water Quality (DWQ)	5.7.4.3.3.7	The exact level is dependent on the pH and temperature of the pool water, and can be calculated using the Langelier Saturation Index.	*If Langlier Saturation index is going to be spelled out, then it needs to be spelled out properly with all parameters listed.* -- The exact level is dependent on the pH, alkalinity, calcium hardness, temperature, and TDS of the pool water.	Agreed. Wording has been added. Values and requirements have been moved to annex rather than having them in the code.	5.7.4.4.1	Water balance can be determined by using the Langelier SATURATION INDEX, Ryznar Stability Index, or other indices that are based on calculated values of: 1) total alkalinity, 2) pH, 3) calcium hardness, 4) total dissolved solids, and 5) water temperature.
Disinfection and Water Quality (DWQ)	5.7.4.3.4.1	The maximum acceptable level of TDS for swimming pools shall be 1,500 PPM (mg/L) above the TDS level in the fill water.	*TDS plays an extremely minor role in saturation index. The "C" rating is an admission that the basis behind this level is nothing more than industry standard. The assumption that TDS is an indicator of organic contamination is not proven. This should not be a regulatory mandate.* -- TDS should not exceed 1500	Agreed. This wording has been moved to the Annex.	5.7.4.4.1 Annex	Water Balance Determination (see Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.4.3.4.2	For saltwater pools, startup TDS level shall be measured on the initial fill after adding the salt for the chlorine generator.	*Are TDS levels in excess of 1500 allowed for salt pools? If so, why is there no health concern impacting these pools if there is one for all other pools? Annex rationale (5.7.4.3.4) is difficult to justify on both sides of the fence and the technical committee admits that "there is no known scientific data that substantiates any value as a maximum level."* -- For saltwater POOLS, startup TDS level shall be measured on the initial fill after adding the salt for the CHLORINE generator.	This section has been deleted and discussion moved to the annex.	5.7.4.4.1 Annex	Water Balance Determination (see Annex for full text)
Disinfection and Water Quality (DWQ)	5.7.4.4.1	Water balance shall fall within the range of –0.5 to +0.5, as determined by the Langelier Saturation Index.	*"Shall" was changed to "recommended" because the Langelier Saturation Index (LSI) is not an indication of human health and safety, it is rather an indication of the calcium carbonate solubility of the water and its effect on pool surfaces and equipment. "-0.5" was changed to "-0.3" due to the fact that a small positive value is preferred over a negative value because a light scale layer provides some protection, and is less harmful than corrosion, which causes permanent damage to mechanical and structural components.* -- It is recommended that w~~W~~ater balance ~~shall fall~~ be maintained within the range of -0.3 ~~–0.5~~ to +0.5, as determined by the Langelier Saturation Index. -- REFERENCE: APSP-11	Concern has been addressed by inserting new language into the code.	5.7.4.4.2	Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation index or other indices.
Disinfection and Water Quality (DWQ)	5.7.4.4.1	Water balance shall fall within the range of –0.5 to +0.5, as determined by the Langelier Saturation Index.	*This is a good management practice not a public health item. A shall statement requires enforcement.* -- Water balance should within the range of -0.5 to +0.5	Agreed. Most of this discussion has been moved to the Annex. No level is set in the code. Code cannot include "should" as it is not enforceable.	5.7.4.4.2	Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation index or other indices.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.4.4.1	Water balance shall fall within the range of –0.5 to +0.5, as determined by the Langelier Saturation Index.	*"Shall" was changed to "recommended" because the Langelier Saturation Index (LSI) is not an indication of human health and safety, it is rather an indication of the calcium carbonate solubility of the water and its effect on pool surfaces and equipment. "-0.5" was changed to "-0.3" due to the fact that a small positive value is preferred over a negative value because a light scale layer provides some protection, and is less harmful than corrosion, which causes permanent damage to mechanical and structural components.* -- It is recommended that water balance be maintained within the range of -0.3 to +0.5, as determined by the Langelier Saturation Index. -- REFERENCE: APSP-11	Concern has previously been addressed by inserting new language into the code. The use of non-mandatory language such as should, could, can, etc. does not belong in a code. An upper limit has been set and the rest of the discussion has been moved to the annex	5.7.4.4.2	Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation index or other indices.
Disinfection and Water Quality (DWQ)	5.7.4.4.1	Water balance shall fall within the range of –0.5 to +0.5, as determined by the Langelier Saturation Index.	*-0.3 to +0.3 is the most accepted LSI range. As stated, LSI is a better overall gauge than regulating components that make up the overall water chemistry and LSI reading (pH, TA, CH, etc.), but is this a "people health" or a "pool health" issue?* -- Water balance shall fall within the range of ~~–0.5 to +0.5~~ –0.3 to +0.3, as determined by the Langelier Saturation Index.	Concern has previously been addressed by inserting new language into the code and moving most of the discussion to the annex.	5.7.4.4.2	Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation index or other indices.
Disinfection and Water Quality (DWQ)	5.7.4.4.1	Water balance shall fall within the range of –0.5 to +0.5, as determined by the Langelier Saturation Index.	*-0.3 to +0.3 is the range that operators should strive for and could be used as the requirement.* -- It is recommended that water balance be maintained within the range -0.3 to +0.3 as determined by the Langelier Saturation Index. The LSI SHALL be maintained between the range -0.5 to +0.5. -- REFERENCE: NSPF Pool & Spa Operator Handbook, Chapter 6, Illustration 6.8.	Comment accepted. Most of this text has been moved to the Annex and ranges are not set in the code.	5.7.4.4.2	Maintaining individual values in the range allowed in this code will indicate balanced water using the Langelier Saturation index or other indices.
Disinfection and Water Quality (DWQ)	5.7.4.4.1 ANNEX	Water Balance /Langelier Saturation Index (see Annex for full text)	• What you wrote regarding a low LSI is all that occurs from a low pH. A low CH or TA by itself (i.e. at a higher pH) will not cause those problems you listed. Though lowering Total Alkalinity (TA) takes more work, it is not just about adding acid. To significantly speed up the process, aeration is desirable, especially when the pH is kept lower (around 7.0) during the process. One wants to drive out carbon dioxide from the pool. Acid addition lowers both pH and TA while outgassing carbon dioxide raises the pH with no change in TA. The net effect of acid addition with aeration at low pH is a lowering of TA only. – A low Langelier Index (a value less than –0.5) can result in corrosion, BATHER irritation and discomfort dissolving of the calcium carbonate in plaster and grout. While it is always possible to lower the pH, it is not as simple with the total alkalinity or calcium hardness. Lowering the total alkalinity will usually lower the PH as well by a large amount is a time consuming process involving acid addition with aeration at low pH. – REFERENCE: i. See the chart in the following link: http://richardfalk.home.comcast.net/~richardfalk/pool/CO2.htm that tells you how far out-of-equlibrium (i.e. over-carbonated) pool water is with respect to carbon dioxide in the air. See also the following chart that explains the process for lowering TA: http://x.havuz.org/viewtopic.php?f=16&t=390 The process can be done more quickly at an even lower pH, but 7.0 was selected to be able to be read in most phenol red pH tests.	General comment. No action necessary. Addressed above. LSI has been moved to the annex.	5.7.4.4.2 Annex	Langelier Index Conversion Chart (See Annex for Chart)
Disinfection and Water Quality (DWQ)	5.7.4.6	Temperature	*I think there are a lot of medical professionals and several scientific studies that relate to hot water exposure of adults with healthy impairments, small children, and pregnant women. The largest risk to pregnant women is in the first 6 weeks of pregnancy. I think there are many women who do not know they are pregnant during part or all of this period. Recommendations are to keep the woman's temperature below 102 degrees F. Besides 102 degrees provides a larger safety margin. Parents taking their children into the spa are not going to run near as high a risk of harming the child.* -- Spa Temperature maximum ~~104~~ 102 degrees F.	Understood and the MAHC wants this assessed as well. The MAHC has seen these references and will be asking a group of experts to review the strength of the data and whether it warrants this proactive approach and, if so, whether 102ºF is the correct temperature and what data supports that 102ºF is the appropriate set point. More data or analysis of existing data is likely to be needed. This is unlikely to occur prior to release of the MAHC. In the interim, the MAHC (as most other pool codes) requires signage warning about potential risks of using spas.	5.7.4.5	Water Temperature
Risk Management (RM)	5.7.4.6.3 ANNEX	Specialized populations may require specific water temperatures for safe and effective programming. Some general guidelines are provided here and additional information is included in the annex. Multi use aquatic venues are usually kept at 83°F – 86°F (28°C – 30°C), while competitive aquatic venues are usually maintained at cooler temperatures between 78°F – 82°F (25.5°C – 27.5°C). Depending on the target population, instructional and therapy pool water temperatures usually range between 86°F – 94°F (30°C – 34°C). (SEE ANNEX FOR FULL TEXT)	*This temperature is recommended by the NCAA as well as USA Swimming's recommendation for higher temperatures in diving facilities.*-- Add to chart: Separate Diving Pool 82-86 F = 27.5-30 C Resistance Training 83-86 F = 28-30 C	As this is only an example, keeping the content as is.	5.7.4.5 Annex	Water Temperature (See Annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	5.7.4.6.2	The maximum temperature for an aquatic feature is 104º F (40°C).	*104° is not tolerable for most people for the length of time people want to use spas. One study showed that healthy college age women were uncomfortable after less than 15 minutes.* -- The maximum temperature for an aquatic feature is 102º F (Pregnant women greatly increase their change of birth defects at temperatures of 103º F. Small children can tolerate 102º F. temperatures for fairly long periods of time, as can persons with other medical problems.) (This is also a significant energy savings step.) – Reference: I think there is more than adequate scientific research indicating that 104° F. is too hot and can cause health effects in the elderly, those on medications, pregnant women and children. All these people are routinely in spas despite being advised against it. Spina Bifida damage can happen before a pregnant women even knows she is pregnant.	We are aware of the data supporting your comment and data from other sources and countries that do not support your comment and allow higher temperatures. The MAHC needs an independent review of the pregnancy data to assess whether a drop in temperature would be advised and is supported by the data. The data would suggest that people get out of the water when they are uncomfortable but signage has been suggested to warn key groups. More discussion of this has been added to the annex section. Wording has been added to annex.	5.7.4.5.2	The maximum temperature for an aquatic venue is 104º F (40°C).
Monitoring and Testing (M&T)	5.7.5	Water Quality Chemical Testing Frequency	*General Comment to consider, basis is APSP-11.* -- General Comment: Very specific recommendations for testing frequency as opposed to the APSP-11 standard that utilizes a non-prescriptive approach. – REFERENCE: ANSI/APSP-11, 2009	APSP-11 addresses water quality standards for public pools and spas. Recommending monitoring and testing procedures was not part of its scope. Water quality in pools is addressed in another part of the MAHC (Disinfection and Water Quality).	5.7.5	Water Quality Chemical Testing Frequency
Monitoring and Testing (M&T)	5.7.5.3	FAC (or TB) and pH shall be tested prior to opening and every four hours at all pools using an automated sanitizer feed system.	Testing pool water every 4 hours is not a realistic or manageable expectation and is an extreme to pool operations. As described above the idea of testing the pool prior to opening the facility and a midday bulk sample is the recommendation. – REFERENCE: CA Code: Automated sanitizers are already a CA requirement	Disagree. Texas code requires testing public pool water every 4 hours for chlorine and pH.	5.7.5.3	FAC (or TB) and pH shall be tested prior to opening and every four hours at all aquatic venues using an automated disinfectant feed system
Monitoring and Testing (M&T)	5.7.5.9	For spas or hot tubs, water temperature shall be recorded at the same time the FAC (or TB) and pH tests are performed.	*Don't just make it a Spa requirement* -- Water temperature should be a recorded item for swimming pools. It is important to not the temperature of the pool when looking at overall pool chemistry. -- NRPA AFP manual	Agreed. See text for change.	5.7.5.9	For heated aquatic venues, water temperature shall be recorded at the same time the FAC (or TB) and pH tests are performed.
Monitoring and Testing (M&T)	5.7.6 ANNEX	Water Clarity (please see Annex for section language)	General Comments: This section is very non-specific. It says water quality is "useful" and "important," but it does not say you must be able to see the drains, only that it is "important" to observe them. Further, if the use of a Secchi disk is not recommended, why reference the article for more information?	The requirement for clarity is in the code. The annex is for supporting information. The Secchi disc reference explains constraints and limitations when using Sechhi discs and language was added to clarify why the reference was included.	5.7.6	Water Clarity
Monitoring and Testing (M&T)	5.7.6.1	All pools shall comply with either MAHC Section 5.7.6.1.1 to serve as a reference point for assessing adequate water clarity.	*Incomplete* -- All pools shall comply with either MAHC Section 5.7.6.1.1 *Point* to serve as a reference point for assessing adequate water clarity. General Comments: Why not say all pools and all spas, why just pools? Further, this is an incomplete sentence, "either MAHC Section 5.7.6.1.1 to serve…" It says "either," but only lists one section.	Changed as suggested.	5.7.6.1	All aquatic venues shall comply with MAHC Section 5.7.6 to serve as a reference point for assessing adequate water clarity.
Monitoring and Testing (M&T)	5.7.6.1.1	A 4-square-inch (10.2 cm^2) marker tile in a contrasting color to the pool surface shall be located at the deepest part of the pool.	Suggest inserting language: Ensure the pool bottom and main drain are visible at all times – REFERENCE: When we were revising our pool rules effective 1990 including how to address the issue with water clarity in pools, our discussion with New York Health Dept left an indelible memory. They had a child missing and police went to the pool as one of their first places to look. After several hours of searching the neighborhood, one of the police again returned to the pool and the body of the child had rolled next to the main drain and was then visible. New York noted that the main drain is generally more visible than the rest of the pool and just looking at the contrasting color on the dark drain will be easier to spot than a light colored child on the bottom of the pool. Thus our state rule since 1990 states Water clarity (safety), main drain and pool bottom visible at all times. WAC 246-260-999 Appendix A, Table 111.2	Agreed. See revised code for change.	5.7.6.2.1	To make this observation, a 4 in x 4 in square (103 cm^2) marker tile or main suction outlet in a contrasting color to the pool surface shall be located at the deepest part of the pool.
Monitoring and Testing (M&T)	5.7.6.1.1	A 4-square-inch (10.2 cm^2) marker tile in a contrasting color to the pool surface shall be located at the deepest part of the pool.	"A 4-square-inch (10.2 cm2) marker tile in a contrasting color to the pool surface shall be located at the deepest part of the pool". General Comment: Can the deep end drain be used?	Agreed. See revised code text.	5.7.6.2.1	To make this observation, a 4 in x 4 in square (103 cm^2) marker tile or main suction outlet in a contrasting color to the pool surface shall be located at the deepest part of the pool.
Monitoring and Testing (M&T)	5.7.6.1.1	A 4-square-inch (10.2 cm^2) marker tile in a contrasting color to the pool surface shall be located at the deepest part of the pool.	Existing pools should be exempt from the 4 square inch tile and the use of alternate color coding should be allowed by either a drain cover color code or a weighted color disc that can be put into the pool at the deepest point to ensure water clarity	See previous response to comments on this section and revised code text.	5.7.6.2.1	To make this observation, a 4 in x 4 in square (103 cm^2) marker tile or main suction outlet in a contrasting color to the pool surface shall be located at the deepest part of the pool.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	5.7.6.1.1 & 5.7.6.2	5.7.6.1.1: A 4-square-inch (10.2 cm2) marker tile in a contrasting color to the pool surface shall be located at the deepest part of the pool. 5.7.6.2: This reference point shall be visible at all times.	how would the requirements of these two sub-sections work in a shallow pool?	They would apply in the same way without respect to pool depth.	5.7.6.2.1, 5.7.6.2.2, 5.7.6.3	5.7.6.2.1 Observation M&T To make this observation, a 4 in x 4 in square (103 cm2) marker tile or main suction outlet in a contrasting color to the POOL surface shall be located at the deepest part of the POOL. 5.7.6.2.2 Pools Over 10 Feet Deep M&T For POOLS >10 ft deep, an 8 in x 8 in square (413 cm2) marker tile or main suction outlet in a contrasting color to the POOL surface shall be located at the deepest part of the POOL. 5.7.6.3 Visible M&T This reference point shall be visible at all times at any point on the DECK up to 30 feet away in a direct line of sight from the disc or main drain.
Monitoring and Testing (M&T)	5.7.6.2	This reference point shall be visible at all times.	"This reference point shall be visible at all times." General Comments: The distance and angle of observation is not specified.	Changed as suggested.	5.7.6.3	This reference point shall be visible at all times at any point on the deck up to 30 feet away in a direct line of sight from the disc or main drain.
Monitoring and Testing (M&T)	5.7.6.2	This reference point shall be visible at all times.	*To decrease mistakes for closing a pool due to water clarity* -- You need to take into account surface disturbance and glare when looking for this visual. The untrained operator without the right eye protection or experience who does not see this visual because of bright sun or lots of bathers could make the wrong decision – REFERENCE: Pool knowledge and operating experience.	See previous response to comment on this section and revised code text.	5.7.6.3	This reference point shall be visible at all times at any point on the deck up to 30 feet away in a direct line of sight from the disc or main drain.
Risk Management (RM)	5.8.1.1.1	Cross connection devices such as check valves shall be in good working order.	*In many cross connection programs, check valves are not considered adequate devices. It would be better to remove such wording. Also, annual testing is required in many jurisdictions. Requiring such testing is a preventative step in minimizing cross connection incidents.* -- Cross connection devices such as check valves shall be in good working order, and shall be tested as required by the jurisdiction.	Agreed. Wording added.	5.8.1.1.1	Cross connection devices such as check valves shall be in good working order, and shall be tested as required by the AHJ.
Risk Management (RM)	5.8.1.2.3	Tripping hazards shall be repaired immediately.	*As written this is unenforceable. Extreme weather, drought or wet, can cause deck sections to move thus creating trip hazards. These cannot always be repaired immediately.* -- Remove immediately. Change to as soon as possible	Agree. Modified language to state that tripping hazards shall be avoided. Added language stating, "If tripping hazards are present, they should be repaired promptly or barricaded to protect patrons/employees until repairs can be completed." In the annex, added content that recommends following the definition of a trip can be found through ANSI.	5.8.1.2.3	Tripping hazards shall be avoided.
Lifeguard & Bather Supervision (LG)	5.8.5	Lifeguard-Related Equipment and Supplies	Add a section regarding *signage:* Aquatic venues not required to have lifeguards shall post a warning sign in plain view that shall state "Warning – No Lifeguard on Duty" with legible letters, at least 4 inches high. – REFERENCE: CT Public Health Code Section 19-13-B33b(b)(14).	Agree. Signage indicating "No Lifeguard on Duty" with corresponding use rules has been added.	5.8.5	Lifeguard-and Safety Related Equipment
Lifeguard & Bather Supervision (LG)	4.8.5.2.1	Aquatic facilities shall provide the equipment listed under the following subsection 4.8.5.2 and maintain it in good working order.	*Delete 4.8.5.2.1 to 4.8.5.2.2 as this adds nothing to the understanding of the code. This means it does not do what the annex was designated to do. It neither expands anything in the code, explains anything in the code, defines anything in the code nor gives an example of anything in the code.* -- Aquatic facilities shall provide the equipment listed under the following subsection 4.8.5.2 and maintain it in good working order.	Agree. Annex has been revised.	5.8.5.1	Aquatic facilities shall not be open to users unless the equipment listed under MAHC Section 5.8.5 is present and in a safe and working condition.
Lifeguard & Bather Supervision (LG)	4.8.5.2.1	Aquatic facilities shall provide the equipment listed under the following subsection 4.8.5.2 and maintain it in good working order.	*Some of the equipment would not be useful for some facilities. There are some additional equipment pieces that should be included for lifeguarded facilities.* -- Consider designating certain requirements for lifeguarded facilities and others for non guarded facilities. Consider adding requirements for some additional safety equipment at lifeguarded facilities, including "rescue tube or buoy", "whistle or other signaling device for lifeguard" – REFERENCE: As our state wrote our rules, the aquatic managers noted that guarded facilities do not use reaching poles for rescues, the guards make the rescue in the pool. If a victim is a non-swimmer, they generally would not respond to a reaching pole, but it is safer to have the rescue pole for a non-guarded facility to try to retrieve someone. A lifeguard is trained and has a duty to make a rescue.	Agree. We edited to designate some equipment for ALL facilities, additional equipment for lifeguarded facilities, and equipment for unguarded facilities. This content was also moved to Section 5.	5.8.5.1	Aquatic facilities shall not be open to users unless the equipment listed under MAHC Section 5.8.5 is present and in a safe and working condition.
Lifeguard & Bather Supervision (LG)	5.8.5.2.1	Aquatic facilities shall not be open unless the equipment listed under the following subsection 5.8.5.2 is present and is in good working order.	What dictates equipment in good working order? Could you not open in a lg stand was in need of repair and you stationed someone on an alternative walking/roving position?	Annex addresses expectation for equipment placement	5.8.5.1	Aquatic facilities shall not be open to users unless the equipment listed under MAHC Section 5.8.5 is present and in a safe and working condition.
Lifeguard & Bather Supervision (LG)	5.8.5.2	Required Equipment	*Repetitive* -- Combine with 4.8.5.2	Disagree. Additional items not addressed in section 4.8.5.2(design criteria for new construction) are included in this Section (operational criteria for all facilities).	5.8.5.2	Safety Equipment Required at All Aquatic Facilities

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.6.11.1	A telephone capable of directly dialing 911 Emergency Personnel shall be provided and accessible to all aquatic venue users.	*For aquatic venues with licensed emergency personnel on site, calling outside personnel will actually delay appropriate response.* -- A telephone capable of dialing 911 to acquire emergency response shall be provided and accessible to all aquatic venue users.	Agree. Large facilities with multiple venues may have a large staff trained in emergency response. Added a new MAHC section 4.6.11.1.1 to include the following language: "AQUATIC FACILITIES that have personnel on staff trained to respond to emergency situations shall meet MAHC Section 4.6.11.1 or have alternate procedures in place to initiate their emergency response plan."	5.8.5.2.1.1, 5.8.5.2.1.2, 5.8.5.2.1.3	5.8.5.2.1.1 Functioning Communication Equipment The AQUATIC FACILITY shall have equipment for staff to communicate in cases of emergency. 5.8.5.2.1.2 Hard-Wired Telephone for 911 Call The AQUATIC FACILITY or each AQUATIC VENUE, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to AQUATIC VENUE users such that it can be reached immediately. 5.8.5.2.1.3 Alternate Communication Systems Alternate functional systems or devices are allowed with approval of the regulatory authority in situations when a telephone is not logistically sound, and an alternate means of communication is available, which meet the requirements of MAHC Section 5.8.5.2.1.2.
Risk Management (RM)	4.6.11.1	A telephone capable of directly dialing 911 Emergency Personnel shall be provided and accessible to all aquatic venue users.	*consistency* -- section 4.8.5.2.4 states A telephone or communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic venue users. the term hard-wired needs added to be consistent OR remove hard wired from 4.8.5.2.4	Agree. Reworded and added 4.6.11.1.	5.8.5.2.1.1, 5.8.5.2.1.2, 5.8.5.2.1.3	5.8.5.2.1.1 Functioning Communication Equipment The AQUATIC FACILITY shall have equipment for staff to communicate in cases of emergency. 5.8.5.2.1.2 Hard-Wired Telephone for 911 Call The AQUATIC FACILITY or each AQUATIC VENUE, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to AQUATIC VENUE users such that it can be reached immediately. 5.8.5.2.1.3 Alternate Communication Systems Alternate functional systems or devices are allowed with approval of the regulatory authority in situations when a telephone is not logistically sound, and an alternate means of communication is available, which meet the requirements of MAHC Section 5.8.5.2.1.2.
Risk Management (RM)	4.6.11.1	A telephone capable of directly dialing 911 Emergency Personnel shall be provided and accessible to all aquatic venue users.	*Kings III is an emergency services company in Texas that is widely used and accepted. They function the same as a 911 service.* -- Add: or equivalent service	Disagree. 911 is universal and can be quickly remembered in an emergency for untrained patrons. Facilities have the freedom to add to their signage where their facility or location has unique differences. Wording is included to say the sign should follow the intent of the MAHC wording, not necessarily verbatim. No change.	5.8.5.2.1.1, 5.8.5.2.1.2, 5.8.5.2.1.3	5.8.5.2.1.1 Functioning Communication Equipment The AQUATIC FACILITY shall have equipment for staff to communicate in cases of emergency. 5.8.5.2.1.2 Hard-Wired Telephone for 911 Call The AQUATIC FACILITY or each AQUATIC VENUE, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to AQUATIC VENUE users such that it can be reached immediately. 5.8.5.2.1.3 Alternate Communication Systems Alternate functional systems or devices are allowed with approval of the regulatory authority in situations when a telephone is not logistically sound, and an alternate means of communication is available, which meet the requirements of MAHC Section 5.8.5.2.1.2.
Risk Management (RM)	4.6.11.1	A telephone capable of directly dialing 911 Emergency Personnel shall be provided and accessible to all aquatic venue users.	*Public phones are obsolete. There are other ways to contact 911.* -- A telephone capable of directly dialing 911, or other suitable device for emergency communication, shall be provided and accessible to all aquatic venue users.—Reference: Editorial. Similar wording in CT Public Health Code	Agree. Alternatives allowed depending on function of facility.	5.8.5.2.1.1, 5.8.5.2.1.2, 5.8.5.2.1.3	5.8.5.2.1.1 Functioning Communication Equipment The AQUATIC FACILITY shall have equipment for staff to communicate in cases of emergency. 5.8.5.2.1.2 Hard-Wired Telephone for 911 Call The AQUATIC FACILITY or each AQUATIC VENUE, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to AQUATIC VENUE users such that it can be reached immediately. 5.8.5.2.1.3 Alternate Communication Systems Alternate functional systems or devices are allowed with approval of the regulatory authority in situations when a telephone is not logistically sound, and an alternate means of communication is available, which meet the requirements of MAHC Section 5.8.5.2.1.2.
Risk Management (RM)	4.6.11.2	The emergency telephone shall be permanently affixed to a location inside the aquatic venue enclosure or outside the enclosure within 300 feet (91.44m) of a bather entrance and visible from within the aquatic venue enclosure.	*If it always has to be visible, this may be limiting.* -- Add text at end: "or if phone is not visible, signage clearly provides phone location".	*Agree. Added content to suggest that location of phone be included.*	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	4.6.11.2	The emergency telephone shall be permanently affixed to a location inside the aquatic venue enclosure or outside the enclosure within 300 feet (91.44m) of a bather entrance and visible from within the aquatic venue enclosure.	*300 feet outside of the pool enclosure/bather entrance is too far – it is the entire length of a football field and to be visible from within the AQUATIC VENUE enclosure is a far stretch. If this is a visitor who is unfamiliar with the facility they will not find a phone that is 300 feet from the pool entrance. You would also not want that single person on the deck, whether it is a lifeguard or not, to have to leave the emergency situation for such a long time to go to a phone 300 feet or more away.* -- The emergency telephone shall be permanently affixed to a location inside the AQUATIC VENUE enclosure or outside the enclosure within 300 square feet (91.44m) of a BATHER entrance and visible from within the AQUATIC VENUE enclosure. <u>If not possible inside the AQUATIC VENUE, the emergency telephone shall be placed immediately outside the BATHER entrance.</u>	Agreed. Changed to 100 feet	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Risk Management (RM)	4.6.11.2	The emergency telephone shall be permanently affixed to a location inside the aquatic venue enclosure or outside the enclosure within 300 feet (91.44m) of a bather entrance and visible from within the aquatic venue enclosure.	*300 ft. is too far away. It will be difficult to find in many cases* -- Phone is located within 100 feet of a bather entrance…	Agreed. Changed to 100 feet.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Risk Management (RM)	4.6.11.2	The emergency telephone shall be permanently affixed to a location inside the aquatic venue enclosure or outside the enclosure within 300 feet (91.44m) of a bather entrance and visible from within the aquatic venue enclosure.	*The suggested 300 feet is too far to go in an emergency!!!!!* -- "...or outside the enclosure within 100 feet of a bather entrance…"	Agreed. Changed to 100 feet.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*A hardwired device available to all users may be impossible to provide and incur exceptional cost for inappropriate use. Also those phones that are permanently mounted are subject to vandalism and theft in some locations. Also the abuse of the 911 system from "911 hang ups" has also proven costly financially and further taxes EMS resources. Cell Phone may prove to be a better remedy; as of June 2011, it was reported that the number of cell phones in the US is 103% the current population.* -- A telephone or other communication device that is capable of directly dialing 911 or other emergency notification system should be available.	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Cost prohibitive to provide a phone to all aquatic venue users. Vandalism can occur as well as inappropriate use of the phone.* -- Add, "shall be provided and accessible to all aquatic facility personnel".	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Enhanced 911 systems use ANI and ALI to download location to the on-board navigation system in response vehicles so driving directions are provided to the location of the telephone. Sometimes corporate addresses are given instead of the address of the phone and that may need to be checked and corrected. Some cell phones and internet phone systems are unable to communicate ANI and ALI and are inferior communication systems that should not be allowed.* -- A telephone or other communication device that is hard wired and capable of directly contacting 911 or other emergency notification system shall be provided and accessible to all aquatic facility users. <u>In areas where enhanced 911 service is available, emergency telephones shall automatically communicate the Automatic Number Identification and Automatic Locator Information to the Enhanced 911 Computer System. The Automatic Locator Information shall provide the correct address or geographic location of the telephone. Other emergency notification systems shall be answered by a telecommunicator who only answers emergency calls and shall be capable of contacting 911 on its emergency trunk line to establish two-way communication between the caller and 911</u> – REFERENCE: Enhanced 911 Communication Protocol	Unclear if change to code is being requested	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	A phone does not necessarily need to be hard wired to provide a reliable form of communication. Cell phones and radios have proven to be dependable forms of communication in dealing with emergency situations	Partially agree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*At larger aquatic facilities cell phones and radios may be substituted for hard wired telephones.* -- Delete entirely	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*At larger aquatic facilities such as commercial waterparks, cell phones and radios may be substituted for hard wired telephones. Larger venues may have EMS personnel on property that evaluate any injury or illness before 911 is called. These same EMS personnel may have direct radio contact with emergency dispatch systems. In these circumstances, it is not necessary or desirable for the general public to have access to an emergency notification system. In fact, such access may result in unauthorized calls, crank calls, etc.* -- Delete entirely	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	Does not provide guidelines as to what is specifically required and where its placement is to be …….. Also, an offsite communication device from the emergency can delay vital information to 911 and create a potential for misinformation to be provided.	Partially agree. See current Annex Section 5.8.5.2.2.1.2 for explanation and Code has been revised to require signage in Section 5.8.5.2.2.3.2	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Many AHJ may suggest that a 911-only telephone needs to be installed as per the language as is.* -- A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users. Device can be an office telephone but must also be in an area accessible to patrons in an emergency.	Disagree. Code allows for other communication device-see Annex Section 5.8.5.2.2.1.2	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Many communication devices need to be secured indoors at night and protected from weather. It is the operator's responsibility to insure that batteries are charged on cordless devices, much the same as they are responsible to make sure that main drain grates are secure. It is nearly impossible to get a pay phone these days and the cost of other options can be onerous for small facilities in low income areas.* -- Delete the phrase "that is hard-wired". Change the sentence to read "A telephone or other communication device must be provided, capable of reaching 911 or other emergency notification system."	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Needs clarification to eliminate confusion* -- Please clarify this section. I read it to understand that a hard lined phone will be accessible at the facility capable of dialing EMS or 911 and not that simply picking up the phone would connect you to EMS or 911. It is a bit confusing and better to establish that a hard lined phone be at the facility for use to contact all EMS providers.	Partially agree. Wording clarified and Annex provides information/clarification.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	*Not all emergencies will require a 9-1-1 call. The section is vague on where a hard wired device must be positioned. It is repetitive to section 4.6.5.2.* -- An emergency communication device must be available to guards or patrons.	Partially agree. Code revised for consistency and clarification.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	Not necessary for facilities with onsite emergency personnel and management	Disagree. There are different types of emergencies such as a chemical incident (erroneous chlorine /acid mixing) requiring fire department and/or hazmat response.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	sets forth requirements that a "hard-wired" telephone or other comparable alternative emergency communication system must be immediately accessible to all aquatic facility users. The Module, however, does not provide guidelines as to what is required and where its placement is to be. Also, an offsite communication device, not being used at the scene of the incident, can delay vital information to 911 and create a potential for misinformation to be provided. Our members have raised concerns that a direct 911 access would bypass hotel staff who would be unaware of an emergency situation. This could create confusion at a property with multiple pools when the fire department arrives and asks for directions.	Partially agree. See current Annex Section 5.8.5.2.2.1.2 for explanation and Code has been revised to require signage in Section 5.8.5.2.2.3.2	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	The code as written also allows for an alternative device as written in: *"5.8.5.3.3 …a comparable alternative emergency communication system…" "5.8.5.3.3.1 The emergency communication system shall be capable of contacting the local emergency response organization."* And also in *5.5.3.8.3* of this annex, which also allows for non-hard wired devices... This section needs to be consistent with the others.	Agree. Code revised for consistency.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	This should be expanded to require the posting of a sign appropriately identifying the emergency telephone or communication device. And, a sign should also be posed that includes the address and phone number for that phone so this information can be provided to the emergency dispatcher.	Agree. Code has been revised to require signage in Section 5.8.5.2.2.3.2.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	What about facilities that have phone systems which require a user to dial 9 before they dial an external number? Requiring a facility to completely redo their communication system, so that an external number can be dialed directly, would be a great burden.	Disagree. Code does not preclude this access to " 911"	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.8.5.2.5	A telephone or other communication device that is hard wired and capable of directly dialing 911 or other emergency notification system shall be provided and accessible to all aquatic facility users.	Why not simply indicate a workable phone?	Disagree. See current Annex Section 5.8.5.2.2.1.2 for explanation.	5.8.5.2.1.2	The aquatic facility or each aquatic venue, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system. The telephone or communication system or device shall be conspicuously provided and accessible to aquatic venue users such that it can be reached immediately.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	As worded, would not be a practical design to house all bathers at facility.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	Delete: Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	*Editorial – current language is vague.* -- Remove or define appropriate size.	Agree. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	*Reads like it needs to be large enough to "accommodate the bather load" (ie everyone who is allowed into the pool. --* Construction of new aquatic facilities shall include an area designated as a first aid station that can accommodate two patients, one lying and the other sitting. – REFERENCE: Minor first aids (cleaning minor wounds, giving out band aids) don't necessarily need a room. For more significant injuries, you likely shouldn't be moving the patient. If you have more than two patients that need a room at one time, they can likely be treated fine outside or in another make-shift area.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	The phrase "appropriately sized" is very vague. Who determines what is appropriately sized? A less ambiguous way of phrasing this would be to say "deemed appropriately sized by the facility's management."	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	*The way it currently reads is that the first aid station should be sized to accommodate the bather load – the bather load is a high number. Can't fit the whole bather load in the first aid station.* -- Suggested edit: "…should be appropriate to the maximum bather load…"	Agree. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	Too broad. Bather load may or may not have anything to do with a design parameter of a first aid station. The first aid station had to be constructed to reasonable serve the anticipated needs of patrons/guests at the facility.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.6	Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load.	Too broad. Suggest: *"Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate reasonably anticipated need based on bather load of the facility."*	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.6 & 4.6.5.7	4.6.5.6--- Construction of new aquatic facilities shall include an area designated as a first aid station appropriately sized to accommodate the bather load. 4.6.5.7--- Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	Staff training and requirements should also be taken into account. If no one able to use it, why have it? Suggest: *"Planning for new facilities should take into account the number of staff available, the level of training for available staff, the type of venues offered, and the expected number of patrons to help determine the size and number of first aid stations needed."*	Wording clarified. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.7	Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	*Re-word to make clearer – what exactly does a First-Aid Station have to be? Could be construed that a facility be required to have a whole separate room* -- Will need modification to be clearer.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station. MAHC Section 4.6.5.7 was removed as a requirement.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.7	Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	See comments above for Section 4.6.5.1	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station. MAHC Section 4.6.5.7 was removed as a requirement.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.7	Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	See comments above for Section 4.6.5.1, 4.6.5.2, 4.6.5.3 & 4.6.5.4. First aid stations should be provided when practical and when reasonable.	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station. MAHC Section 4.6.5.7 was removed as a requirement.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.7	Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	See comments above for Section 4.6.5.2	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station. MAHC Section 4.6.5.7 was removed as a requirement.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	4.6.5.7	Aquatic facilities constructed prior to the adoption of this code shall be required to have a first aid station meeting the requirements 4.6.5.1 through 4.6.5.4	See comments above for Section 4.6.5.4	Agreed. Required new construction to designate a location for first aid equipment/supplies and new & existing facilities to provide signage for first aid equipment location vs requiring a constructed station knowing unguarded facilities and small facilities may not warrant a station. MAHC Section 4.6.5.7 was removed as a requirement.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	Does this mean that supplies cannot be stored anywhere else in the facility?	Code revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	*Covered by 4.6.5.2* -- Delete as repetitive	Partially agree. Code revised to address design aspects only in the Design Standards and Construction Section 4.0. The first aid requirements in the Operation and Maintenance section have been revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	*Delete. Already covered.* -- Delete: First aid supplies shall be stored at the first aid station.	Partially agree. Code revised to address design aspects only in the Design Standards and Construction Section 4.0. The first aid requirements in the Operation and Maintenance section have been revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	*Lifeguards wear hip packs with first aid supplies.* -- First Aid supplies shall be kept in good working condition.	Partially agree. The first aid requirements in the Operation and Maintenance section have been revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	Needless-can't you store additional first aid supplies in a separate area?	Agree. Code revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.
Lifeguard & Bather Supervision (LG)	5.8.5.2.8	First aid supplies shall be stored at the first aid station.	*Repetitive to 4.6.5.3* – Remove	Partially agree. Code revised to address design aspects only in the Design Standards and Construction Section 4.0. The first aid requirements in the Operation and Maintenance section have been revised.	5.8.5.2.2.1	The aquatic facility shall have designated locations for emergency and first aid equipment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	Instant cold packs, -- REFERENCE: http://www.hopkinsmedicine.org/healthlibrary/conditions/adult/orthopaedic_disorders/ice_packs_vs_warm_compresses_for_pain_85,P00918/	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Again, a one-size fits all approach with no room for input/supervision by local EMS. Not all of the items are relevant to each aquatic facility* . -- Add to beginning, "If not otherwise designated by the local Emergency Medical Services provider….	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Delete sections 4.6.5.1 to 4.6.5.5 as none of these add to the code. Include suggestions for blood borne pathogen kit. --* Delete: The first aid supply list is based on the ANSI /ISEA Z308.1-2009 standard for a Workplace First Aid Basic Kit. The listed contents are based on the minimum size for a small workplace. In almost all cases the minimum contents will need to be increased to provide supplies based on: 1. The maximum number of bathers and staff at the pool; 2. The anticipated or actual number and types of injuries; 3. Providing enough supplies to handle a reasonably significant injury; 4. To provide enough supplies that the kit does not need continuous restocking. There should be enough supplies to last between first aid kit supply inspections, plus the time needed to obtain and replace the supplies. The contents should be inspected and resupplied often enough to maintain the supplies in good condition	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Even though the American Red Cross allows for use of antibiotic applications, industry standard shies away from it due to potential allergic reactions. Further, some agency attorneys do not allow such use of medications. Requiring a facility to have such material on hand could result in the accidental use of said treatment (by an untrained person) and could cause further harm to the patient. However, if local protocols allow the facility and first responders to use such materials, they can simply be added to the first aid kit. -- Remove* item # 10 – antibiotic treatment applications – REFERENCE: ARC Participant Manual (r.12) page 223 "Caring for External Bleeding" states that you can apply antibiotic ointment…[if] the victim has no known allergies…and local protocols allow you."	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*General industry standard care for burns calls for cooling the burn with water and then loosely covering the burn with a dry sterile dressing. Application of any type of burn gel is not part of the treatment. Requiring a facility to have such material on hand could result in the accidental use of said treatment (by an untrained person) and could cause further harm to the patient. -- Remove* item # 6-- burn treatment applications – REFERENCE: ARC Participant Manual (r.12) page 228 "Caring for Burns" requires a lifeguard to first stop the burning, cool the burn with large amount of water, then to cover with a loosely wrapped sterile dressing.	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Industry standard requires you to wash minor wounds with soap (when available) and water, but does not specify use of antiseptic applications. Requiring a facility to have such material on hand could result in the accidental use of said treatment (by an untrained person) and could cause further harm to the patient. However, if local protocols allow the facility and first responders to use such materials, they can simply be added to the first aid kit. -- Remove* item # 5 – antiseptic treatment applications – REFERENCE: ARC Participant Manual (r.12) page 223 "Caring for External Bleeding" requires a lifeguard to first control bleeding then clean thoroughly with soap and water.	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	Is there a period of time that the supplies should be changed out after for quality?	Expiration date is printed on the equipment if the manufacturer deems there is one.	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*MAHC should acknowledge that EMS recommendations should supersede MAHC* -- After "Workplace First Aid Basic Kit" add the phrase "or as required or recommended by local EMS providers or AHJ"	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Minimal treatment for burns by guards* -- Delete No 6,9, and 10	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*The use of these items is not a industry practice for all public pools as it creates possible allergic and other medical reactions on site. These should be used by medical professionals and not by Lifeguards.* -- Remove item # 5, 6, & 10 – REFERENCE: American Red Cross Lifeguarding Textbook page 223: Care of External Bleeding does not include use of antibiotic treatments, but cleaning the wound with warm soapy water. Page 228 Caring for Burns does not use an treatment applications in the care of burns.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*The use of these items is not standard industry practice. Without knowledge of victims allergies and possible drug reactions, these medications should be applied by medical professionals and not lifeguards.* -- Remove item #5, 6, & 10 – REFERENCE: American Red Cross Lifeguarding does not include the use of antibiotic treatments or in caring for burns does not include applications of any kind.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*This entire section should be deleted. It is too specific and does not reflect how first aid is done at an aquatic facility. It implies, for example, that significant treatment should be done at the facility which is not appropriate. The facility should maintain life and wait for advanced care to arrive in serious incidents and should never apply medication. The writing group has confused what first aid material should be available for employee treatment and what should be available for the use on the general public.* -- Delete the section: The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide; 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm); 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm); 4) 1 - Adhesive tape 2.5 yd (228.6 cm); 5) 10 - Antiseptic treatment applications, 0.5 gm each; 6) 6 - Burn treatment applications, 0.9 gm each; 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm); 8) 2 - Pair medical exam gloves; 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm); 10) 6 - Antibiotic treatment applications 0.5 gm each.	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*This reads like it is a first aid kit for lifeguards to use on the public. It's not intended as a workplace first aid kit. The use of these items is not an industry practice for all public pools as it creates possible allergic and other medical reactions on site. These should be used by medical professionals or lay first aid responders with no duty to act and not by Lifeguards who have a duty to act within a tight scope of practice given by their training.* -- The first aid supplies shall include, at a minimum, the supplies listed below. Remove item # 1, 5, 6, & 10 – REFERENCE: American Red Cross Lifeguarding Textbook page 223: Care of External Bleeding does not include use of antibiotic treatments, but cleaning the wound with warm soapy water. Page 228 Caring for Burns does not use an treatment applications in the care of burns.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*This requirement is too specific. Aquatic facilities carry those items which are vital for basic first aid of which they are certified. In life threatening situations, extended care is left to professionals who carry their own equipment.* -- Delete the section.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Unnecessary and can't possibly be comprehensive enough for all of the various types of facilities and first aid situations, needs or scenarios.* -- Strike or remove – REFERENCE: No need to define specific first aid supplies. Should be determined by type and needs of individual facilities.	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	uses one full page to specifically and minutely detail the type and number of supplies/equipment required to be carried in each first aid kit. There is no reference to carrying supplies suggested or required by local EMS providers. Should be facility specific	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3	The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each	*Using these materials is against industry standard and level of training provided by most accepted lifeguard training programs* -- Delete sections 5, 6, 10	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.3 & 4.6.5.4	4.6.5.3 The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each. 4.6.5.4 The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Just doesn't apply to all aquatic facilities and is too broad in scope.* -- All references to first aid stations may not apply to all facilities as there are some facilities where a designated first aid station simply isn't practical. Examples are unguarded facilities such as hotel pools and condominium associations.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.3 to 4.6.5.5	4.6.5.3--- The first aid supplies shall include, at a minimum, the supplies required by ANSI /ISEA Z308.1-2009 for a Workplace First Aid Basic Kit which are as follows: 1) 1 - First Aid Guide 2) 1 - Absorbent compress, 4 x 8 in. minimum (206 sq. cm) 3) 16 - Adhesive bandages, 1 x 3 in. (2.5 x 7.5 cm) 4) 1 - Adhesive tape 2.5 yd (228.6 cm) 5) 10 - Antiseptic treatment applications, 0.5 gm each 6) 6 - Burn treatment applications, 0.9 gm each 7) 4 - Sterile pads, 3 x 3 in. minimum (7.5 x 7.5 cm) 8) 2 - Pair medical exam gloves 9) 1 - Triangular bandage, 40 x 40 x 56 in. minimum (101 x 101 x 142 cm) 10) 6 - Antibiotic treatment applications 0.5 gm each. 4.6.5.4--- The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit. 4.6.5.5--- Supplies shall be sufficient to keep the minimum items continuously stocked.	Other lifeguarding agencies do not mandate what equipment be carried as long as the standard can be met by lifeguard staff. (Excluding Supplemental Oxygen and Automated External Defibrillator) …… A stocked first aid room does require different resources across different environments. (i.e. Bee stings, sun burns, and snake bites in an indoor environment)	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Bag-valve-mask resuscitators come in 3 sizes and one size does not fit all.* -- Reference is made in item 5, resuscitation equipment, to include a bag and pocket mask. Suggest that be changed to Adult, Child, and Infant Bag-Valve-Mask Resuscitators and Personal Resuscitation Masks.	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	Chart for *"Pool Specific Items (additional required)"* requires BVM – this serves no purpose at a single or unguarded facility, as use requires 2 lifeguards. Suggest removing.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Delete sections 4.6.5.1 to 4.6.5.5 as none of these add to the code. Include suggestions for blood borne pathogen kit.* – Delete: Below is a list of additional supplies that are anticipated to be needed in an aquatic environment including the contents for a bodily fluid cleanup kit. Minimum Requirements for First Aid Supplies ANSI/ISEA Z308.1-2009….. CPR valve faceshield, gloves, antiseptic	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Remove 1), 3), and 4) as being inappropriate for this venue* -- Delete 1), 3), and 4): The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)]; 2) scissors; 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)]; 4) an emergency blanket	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Same comment as above* -- Add to beginning, "If not otherwise designated by the local Emergency Medical Services provider…	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Should read and/or. Also Is this a response bag, or a Bag Valve Mask (BVM) and/or a resuscitation barrier mask? Standard is not clear.* -- Rewrite: 5) resuscitation equipment (bag *and* pocket mask),	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*The use of this item is not standard practice, given in any training for lifeguards.* -- Delete #3 or call it "flexible dressing" if that's what is meant by it – REFERENCE: Not included in any basic lifeguard first aid reference material.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*These items are not necessary at an aquatic venue.* -- Delete 1) 2) 3) 4)	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*This addition in the annex is completely out of touch with reality. This is more appropriate at a chemical refinery where a mass casualty emergency is a possibility. This should be simply left as additional supplies should be available to meet the demands of the attendance of the aquatic venue.* -- In the Annex, the section listed as additional supplies should be deleted	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4	The first aid supplies shall also include but not be limited to: 1) a large absorbent compress [at least 8 x 10 inches (200 x 250 mm)], 2) scissors, 3) 2 - elastic wrap [2-inch by 15-feet (50 mm by 1500 mm)], 4) an emergency blanket, 5) resuscitation equipment (bag and pocket mask), 6) OSHA Bloodborne pathogen protective equipment and bodily fluid cleanup kit.	*Too specific and some items generally accepted as basic first aid items are left out. Supplies should match the level of care the person is trained to provide* -- Change to more general wording such as "The first aid supplies shall include items appropriate for the level of care provided by lifeguards"	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4 #5	The first aid supplies shall also include but not be limited to….. 5) resuscitation equipment (bag and pocket mask)...	*Clarification, BVM equipment requirement for some facilities is not practical.* -- Define "bag". Assuming that "bag" means "Bag Valve Mask", this equipment serves no purpose as a requirement in an unguarded or a single guarded facility. A BVM requires two trained personnel to use in patient care. Also suggest requirement include non-latex gloves and pocket mask.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4 #5	The first aid supplies shall also include but not be limited to….. 5) resuscitation equipment (bag and pocket mask)...	*Inadequate quality of product pushed by a "proposed CDC Timeline"* -- This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. Specifically a BVM requires two trained personnel to use in patient care. The code vaguely suggests a "responsible person" (5.8.5.3.2) however the code does NOT require this "responsible person" to actually be present other than a vague reference to "management response" within 1 hour at 5.8.5.3.7.1	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.4 #5	The first aid supplies shall also include but not be limited to….. 5) resuscitation equipment (bag and pocket mask)...	We assume "bag" refers to a BVM. A BVM serves no purpose as a requirement in an unguarded or a single guarded facility as approved by this code. Suggest changing to: *5) resuscitation equipment (non-latex gloves and pocket mask)*	Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.5	Supplies shall be sufficient to keep the minimum items continuously stocked.	*Delete sections 4.6.5.1 to 4.6.5.5 as none of these add to the code. Include suggestions for blood borne pathogen kit.* -- Delete: The supplies must be stored at the first aid station. If the venue is large and multiple lifeguards, it is also recommended that supplies be provided at locations where they can be quickly accessed by staff responding to emergencies. The supplies must be stored in such a manner to protect them from moisture and extremes of heat and cold that will cause deterioration. Supplies must be periodically checked for expiration dates and replaced as needed.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.5	Supplies shall be sufficient to keep the minimum items continuously stocked.	Delete: Supplies shall be sufficient to keep the minimum items continuously stocked.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.5	Supplies shall be sufficient to keep the minimum items continuously stocked.	*Editorial – repetitive to 4.6.5.4 (annex)* -- Remove this section.	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.5	Supplies shall be sufficient to keep the minimum items continuously stocked.	Too broad. "Minimum items" is subjective. Replacement of used items shall take place as required to provide adequate care in the event of an emergency.	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.
Lifeguard & Bather Supervision (LG)	4.6.5.5	Supplies shall be sufficient to keep the minimum items continuously stocked.	Too Broad. Suggest: *"A plan shall be in place to maintain minimum requirements as listed* in sections 4.6.5.3 and 4.6.5.4. *Replacement of used items shall take place as required."*	Agreed. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2	An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows: 1) A First Aid Guide, 2) Absorbent compress, 3) Adhesive bandages, 4) Adhesive tape, 5) Sterile pads, 6) Disposable gloves, 7) Scissors, 8) Elastic wrap, 9) Emergency blanket, 10) CPR mask, and 11) Blood borne pathogen spill kit.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.4 ANNEX	Below is a list of additional supplies the technical committee developed that are anticipated to be needed in an aquatic environment including the contents for a bodily fluid cleanup kit. (**Please see ANNEX for text)	*Editorial – the recommended quantities will be excessive with certain items. For example, 5000 gloves and 100 First Aid guides would be needed at a facility with 10,000 guests. --* Remove "recommended per each 100 bathers" quantities.	Agree. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level	5.8.5.2.2.2 ANNEX	The first aid supply list is based on the ANSI /ISEA Z308.1-2009 standard for a Workplace First Aid Basic Kit. The listed contents are based on the items needed, but the quantities are not specified to allow for flexibility based on the size of the aquatic facility, the anticipated bather load, anticipated number and types of injuries, and the number of first aid locations. Topical supplies such as antibiotic cream, burn gels, and antiseptics were removed because this poses a scope of practice issue for the level of training typical to lifeguarding. (SEE ANNEX FOR FULL TEXT)
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Not practical for all existing Aquatic Facilities Overly burdensome* -- For many Aquatic Facilities (smaller existing facilities/unguarded facilities), the First Aid Station may not have "functioning emergency communication equipment". Suggest adding: "*Facilities without a designated First Aid Station shall be required to have functioning emergency communication equipment within the Aquatic Facility and shall have emergency procedures signage posted throughout so guests are able to quickly figure out what to do in an emergency. Additional signage shall be posted at the specific location of emergency communication equipment and shall contain emergency personnel and aquatic venue manager's contact information, and shall meet the requirements as outlined in section 5.8.5.3.3.2 of this code."*	The committee made several changes to reflect the commentary: 1. The specific first aid supply requirements were moved to section 5 for operation and maintenance 2. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level 3.Required signage to designate a location for first aid equipment/supplies vs requiring a station knowing unguarded facilities and small facilities may not warrant a station 4. Moved discussion on ANSI first aid supplies requirements to the annex 5. Included functioning communication equipment for the facility but not specifically located at the first aid station since it is now a designated area, not a station 6. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.2.2, 5.8.5.2.3.1, & 5.8.5.2.3.2	SEE UPDATED CODE FOR FULL TEXT
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Not practical, may not apply to all Aquatic Facilities …….. Overly burdensome, especially for unguarded or smaller facilities.* -- Not all aquatic facilities have first aid stations, and some may not have advanced "functioning emergency communication equipment". For unguarded facilities, it may not be practical to man and operate a first aid station. Suggest re-wording to allow aquatic facilities to be able to provide guest signage as to what to do in the event of an emergency. Included in this signage can be where communication equipment is located and how to contact a member of the facility staff.	The committee made several changes to reflect the commentary: 1. The specific first aid supply requirements were moved to section 5 for operation and maintenance 2. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level 3.Required signage to designate a location for first aid equipment/supplies vs requiring a station knowing unguarded facilities and small facilities may not warrant a station 4. Moved discussion on ANSI first aid supplies requirements to the annex 5. Included functioning communication equipment for the facility but not specifically located at the first aid station since it is now a designated area, not a station 6. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.2.2, 5.8.5.2.3.1, & 5.8.5.2.3.2	SEE UPDATED CODE FOR FULL TEXT
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Reflects a low level of understanding of modern aquatic venues. Should read management contact information, not manager's contact information* -- Delete: The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	Agree. Included functioning communication equipment for the facility but not specifically located at the first aid station since it is now a designated area, not a station. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.2.2, 5.8.5.2.3.1, & 5.8.5.2.3.2	SEE UPDATED CODE FOR FULL TEXT
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	What qualifies as emergency communication equipment? Is a telephone required, or are walkie-talkies sufficient? The annex provides additional information, but clarification in the actual code is required.	Agree. Code revised for clarity.	5.8.5.2.2.2, 5.8.5.2.3.1, & 5.8.5.2.3.2	SEE UPDATED CODE FOR FULL TEXT
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	Who will provide this "assistance" in unguarded facilities? Perhaps it should read: *"…where first aid supplies can be obtained."*	The annex has been edited to reflect the changes in the code. The requirement is to post signage for patrons to contact EMS.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	Change the phrase "aquatic venue" to "aquatic facility." Signs should be used to guide the bathers to the first aid station, but for a smaller facility with multiple venues, a sign is not necessary at every venue.	Agree. The code and annex have been reviewed and edited for the correct use of the respective terms.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	Define "aquatic venue area" where signage is supposed to be posted.	Disagree. Too many variations in design to define exactly where to located signage.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	*Delete sections 4.6.5.1 to 4.6.5.5 as none of these add to the code. Include suggestions for blood borne pathogen kit. --* Delete: Effective signage must communicate where first aid assistance can be obtained. This is especially important in smaller aquatic venues and at aquatic venues not requiring lifeguards where the first aid station might be outside the immediate pool area. Signage is also important at very large aquatic venues where the first aid station might be harder to find. Effective signage should follow the standards established by ICC A117.1-2009 and ADAAG including sign height, raised or Braille lettering, and placement	The committee made several changes to reflect the commentary: 1. The specific first aid supply requirements were moved to section 5 for operation and maintenance 2. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level 3.Required signage to designate a location for first aid equipment/supplies vs requiring a station knowing unguarded facilities and small facilities may not warrant a station 4. Moved discussion on ANSI first aid supplies requirements to the annex 5. Included functioning communication equipment for the facility but not specifically located at the first aid station since it is now a designated area, not a station 6. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	*May not apply to every aquatic facility. Too broad in scope. --* Not all aquatic facilities have first aid stations, particularly facilities that that do not require lifeguards such as hotels and/or health clubs. Suggest wording that allows facilities without designated first aid stations to provide signage that provides instruction in the event a guest needs first aid.	Agree. The annex has been edited to reflect the changes in the code. This language reflects the change to a designated area for first aid equipment.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	*Not practical for all Aquatic Facilities --* Aquatic Facilities that do not require lifeguards, as defined in this code, may not have a first aid station nor would it be appropriate to have one with no one to manage/operate it. Suggest adding 4.6.5.1.1: *"Unguarded Aquatic Facilities without a designated First Aid Station shall provide signage that provides direction for patron's in need of First Aid."*	Agree. The annex has been edited to reflect the changes in the code. This language reflects the change to a designated area for first aid equipment.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.1	Signage shall be provided at the aquatic venue area that clearly identifies the locations of the first aid stations.	Why can we not use "venue" and "facility" appropriately according to the definitions provided in the code? A *"venue"* is an attraction and *"facility"* is the term that should be used here. This must be cleaned up throughout both the Code itself and this Annex.	Agree. The code and annex have been reviewed and edited for the correct use of the respective terms.	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Not practical for all Aquatic Facilities --* Aquatic Facilities that do not require lifeguards, as defined in this code, may not have a first aid station, nor would it be appropriate to have one with no one to manage/ operate it. Line item addressing this must be added to draft as above.	Agree. Required signage to designate a location for first aid equipment/supplies vs requiring a station knowing unguarded facilities and small facilities may not warrant a station	5.8.5.2.3.1	Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following: 1) first aid location(s) 2) emergency telephone(s) or approved communication system or device
Risk Management (RM)	4.6.11.3	A sign shall be posted at the telephone providing dialing instructions, address of the aquatic venue location, and the telephone number.	*To address operators with on-site emergency response not needing address, or sites with multiple venues within the enclosure. --* A sign shall be posted at the telephone providing dialing instructions, address or location of the aquatic venue, and the telephone number.	*Agreed. Altered code language*	5.8.5.2.3.2	A permanent sign providing emergency dialing directions and the aquatic facility address shall be posted and maintained at the emergency telephone, system or device.
Risk Management (RM)	4.6.11.3	A sign shall be posted at the telephone providing dialing instructions, address of the aquatic venue location, and the telephone number.	*Choose an item. --* Should be consistent with section 4.6.5.2	*Agreed. Will reconcile with lifeguarding 4.6.5.2 when modules are merged*	5.8.5.2.3.2	A permanent sign providing emergency dialing directions and the aquatic facility address shall be posted and maintained at the emergency telephone, system or device.
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	Posting of contact information is not necessary for facilities with onsite emergency personnel and management.	Agree. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.3.2	A permanent sign providing emergency dialing directions and the aquatic facility address shall be posted and maintained at the emergency telephone, system or device.
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	Remove the phrase "manager's contact information," and replace it with "emergency contact information." Posting an employee's personal information in a public place can create a security issue for that employee.	The committee made several changes to reflect the commentary: 1. The specific first aid supply requirements were moved to section 5 for operation and maintenance 2. Simplified the first aid supply requirements to be less specific and maintained at an adequate level, not a prescriptive level 3.Required signage and new construction to designate a location for first aid equipment/supplies vs requiring a station knowing unguarded facilities and small facilities may not warrant a station 4. Moved discussion on ANSI first aid supplies requirements to the annex 5. Included functioning communication equipment for the facility but not specifically located at the first aid station since it is now a designated area, not a station 6. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.3.2 & 5.8.5.2.3.3	5.8.5.2.3.2 Emergency Dialing Instructions LG A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device. 5.8.5.2.3.3 Management Contact Info LG A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	Change the phrase "aquatic venue" to "aquatic facility."	Agree. The code and annex have been reviewed and edited for the correct use of the respective terms.	5.8.5.2.3.2 & 5.8.5.2.3.3	5.8.5.2.3.2 Emergency Dialing Instructions LG A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device. 5.8.5.2.3.3 Management Contact Info LG A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Delete sections 4.6.5.1 to 4.6.5.5 as none of these add to the code. Include suggestions for blood borne pathogen kit.* -- Delete: The first aid station must be provided with the tools necessary for rapid and effective emergency communication. These tools might include a telephone, emergency band radio or other effective means of communication. Post contact information for emergency personnel and the emergency notification list for the aquatic venue.	ANNEX comment. Partially agree. The code and annex have been extensively revised and restructured.	5.8.5.2.3.2 & 5.8.5.2.3.3	5.8.5.2.3.2 Emergency Dialing Instructions LG A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device. 5.8.5.2.3.3 Management Contact Info LG A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*Editorial – module glossary defines venue as a structure within the facility.* -- Replace "aquatic venue" with "aquatic facility.	Agree. The code and annex have been reviewed and edited for the correct use of the respective terms.	5.8.5.2.3.2 & 5.8.5.2.3.3	5.8.5.2.3.2 Emergency Dialing Instructions LG A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device. 5.8.5.2.3.3 Management Contact Info LG A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.
Lifeguard & Bather Supervision (LG)	4.6.5.2	The first aid station shall contain functioning emergency communication equipment with posted emergency personnel and aquatic venue manager's contact information.	*No need to have aquatic venue manager's contact information on a first aid sign. Too many numbers is confusing and difficult to decipher in an emergency.* -- The first aid station shall contain functioning emergency communication equipment with posted emergency contact phone numbers.	Agree. Removed the requirement for contacting management during an emergency and state to call EMS.	5.8.5.2.3.2 & 5.8.5.2.3.3	5.8.5.2.3.2 Emergency Dialing Instructions LG A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device. 5.8.5.2.3.3 Management Contact Info LG A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.
Lifeguard & Bather Supervision (LG)	5.8.5.3.7	An owner/operator contact number shall be made available to the aquatic facility users in case of pool water quality questions or concerns.	*Not realistic time-frame. Also not clearly written. If they don't get notified they never have to respond? What's/who's management?* -- Delete or modify to something like: The Aquatic Facility Safety Plan will address procedures for handling public complaints in a timely way	Agree. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	5.8.5.2.3.3	A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and aquatic facility management.
Lifeguard & Bather Supervision (LG)	5.8.5.3.7	An owner/operator contact number shall be made available to the aquatic facility users in case of pool water quality questions or concerns.	This should also include how to contact the on-site operator, as suggested in section 5.8.5.3.2.	Agree. Code revised.	5.8.5.2.3.3	A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and aquatic facility management.
Lifeguard & Bather Supervision (LG)	5.8.5.3.7 Annex	An owner/operator contact number must be provided for notification of water quality and venue safety concerns. At venues where operators are not present at all times, it is important for patrons to be able to contact the owner/operator when water quality has been compromised (ex. Cloudy water, fecal matter, and/or other closure issues). A hard-wired telephone should also be provided for the patrons to use to make contact. Not all people have cell telephones, and cell telephones do not operate in all locales. Cordless telephones can be left off chargers and have dead batteries.	*Delete as it adds nothing to the code. This means it does not do what the annex was designated to do. It neither expands anything in the code, explains anything in the code, defines anything in the code or gives an example of anything in the code.* -- Delete: An owner /operator contact number must be provided for notification of water quality and venue safety concerns. At venues where operators are not present at all times, it is important for patrons to be able to contact the owner/operator when water quality has been compromised (ex. Cloudy water, fecal matter, and/or other closure issues). A hard wired telephone should also be provided for the patrons to use to make contact. Not all people have cell telephones, and cell telephones do not operate in all locales. Cordless telephones can be left off chargers and have dead batteries.	Code and annex have been revised and restructured.	5.8.5.2.3.3	An owner/operator contact number must be provided for notification of water quality and safety concerns. At aquatic facilities where qualified operators are not present at all times, it is important for patrons to be able to contact the owner/operator when water quality has been compromised (ex. cloudy water, fecal matter in the water, and/or other issues of concern related to water quality or safety.
Lifeguard & Bather Supervision (LG)	5.8.5.3.5	A sign shall be posted stating the hours the aquatic facility is open for use.	*What does this have to do with posting operational hours?* -- Delete: For example, a swimming pool which is not provided with adequate artificial lighting is not safe for swimming when dark.	Agree. Annex comment, Annex revised.	5.8.5.2.3.4 Annex	Operating hours for an aquatic facility should be posted and clearly visible at the aquatic facility, especially when the aquatic facility is not attended at all times by an operator or lifeguard.
Lifeguard & Bather Supervision (LG)	5.8.5.3.6	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem.	*This needs desperately to be rewritten. What is a fecal? This adds nothing to the code. It neither expands anything in the code, explains anything in the code, defines anything in the code or gives an example of anything in the code.* -- Delete: A sign indicating reasons requiring closure especially at venues where an operator or lifeguard is not present should be posted listing specific incidents which would require the venue to immediately close. Examples of such incidents include fecal and vomit. A contact number should be provided to notify the owner/operator of an incident.	Partially Agree. Annex comment. Annex revised.	5.8.5.2.3.4 Annex	Operating hours for an aquatic facility should be posted and clearly visible at the aquatic facility, especially when the aquatic facility is not attended at all times by an operator or lifeguard.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.1	Aquatic facilities shall provide the equipment listed under the following subsection 4.8.5.2 and maintain it in good working order.	This section is very broad. There are many types of sun protection including shade structures, sunscreen, sunglasses, a t-shirt, etc. What type of protection is required and when? A lifeguard whose station is in the water or is a roving station cannot easily utilize a shade structure. This section needs to be expanded so that facility management can better enforce the code.	The chair should have UV protection. To not provide it would allow operators to not provide shade to guards when a stationary chair is provided. If they can provide the chair, they can provide the shade in whatever form it can be accomplished. We have edited the personal protective equipment for guards to include the option of sunscreen or shading the face, eyes, and upper torso.	5.8.5.3.1	When a chair or stand is provided and qualified lifeguards can be exposed to ultraviolet radiation, the chair or stand shall be equipped with or in a location with protection from such ultraviolet radiation exposure
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Current training providers do not train lifeguards to use throwing equipment; rather, the lifeguards are trained to enter the water and make a rescue. The throwing equipment should only be mandatory for unguarded facilities* -- Remove verbiage making it mandatory to have a throwing device at a guarded facility. This is not covered in training of lifeguards and has become outdated.	Partially agree. The code and annex have been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*The facility operator, not the AHJ should be deciding on lifeguard staffing. An aquatic venue may be a spray pad, hot tub or fountain and requiring a throwing device for these is ridiculous* -- Delete entirely – REFERENCE: The explanatory materials contained in the annex clearly show this is for pools – not all Aquatic Venues	Disagree. However, the code has been restructured and revised to clarify and specify staffing plan requirements and necessary equipment.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	The true need of an approved aquatic rescue throwing rope is at unguarded aquatic facilities and aquatic venues, as approved by this code. Section 4.8.5.2.3 does not address this. See comment above for suggested language.	Agree. The code and annex have been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	"Aquatic Venue" should be "Aquatic facility." It is unnecessary to have a throwing device at every venue when it is a multiple guard facility.	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	"Aquatic venue" should be changed to "Aquatic Facility" as there is no need to have a throwing device at each catch pool at a multi guard water park simply because each "venue" is a single guard "venue". It is also unnecessary to have these at small hot tubs or spray pools where there is no standing water but is still defined as an "aquatic venue". At the very least this needs to be better defined. Suggested Adding: (1) *4.8.5.2.3.1: When the aquatic facility safety plan documents, and the AHJ agrees, that one lifeguard staffing is appropriate for aquatic venues within an Aquatic Facility with multiple venues, then at least one approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required at the facility.* (2) *4.8.5.2.3.2: When the aquatic facility safety plan documents and the AHJ agrees that no lifeguard staffing is appropriate for an aquatic venue with standing water, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. (3) 4.8.5.2.3.3: For Aquatic venues with no standing water as defined in this code, no throwing device shall be required.*	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	"Aquatic venue" should be changed to "Aquatic Facility" as there is no need to have a throwing device at each catch pool at a multi guard water park simply because each "venue" is a single guard "venue". It is also unnecessary to have these at small hot tubs or spray pools where there is no standing water but is still defined as an "aquatic venue". At the very least this needs to be better defined. Suggested Adding: *4.8.5.2.3.1: When the aquatic facility safety plan documents, and the AHJ agrees, that one lifeguard staffing is appropriate for aquatic venues within an Aquatic Facility with multiple venues, then at least one approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required at the facility. 4.8.5.2.3.2: When the aquatic facility safety plan documents and the AHJ agrees that no lifeguard staffing is appropriate for an aquatic venue with standing water, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.3.3: For Aquatic venues with no standing water as defined in this code, no throwing device shall be required.*	Partially agree. The code and annex have been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	"Aquatic venue" should be changed to "Aquatic Facility". For single or unguarded facilities, it makes sense to have this equipment. However for large scale facilities and waterparks, there is no practical or functional reason to have a throwing device at each catch pool at a multi-guard facility. It is simply not a best practice. It is also unnecessary to have these at small play areas of zero depth to 24 inches. Should read "when appropriate".	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Delete the need for recue throwing device with a 50' rope. This out-dated piece of equipment is no longer taught in many lifeguarding courses. It will be an unnecessary expense and waste of training time for many guards who will work at small pools that are not even 50' long or more than 5' deep. Guards can use their rescue tube in many pools more efficiently than this device.* – REFERENCE: This is not required in many State Health Departments Codes.	The throw device was moved to the requirements of unguarded facilities as a shepherds crook may not reach the middle of the pool.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Delete this entire section as it is remarkably ignorant of modern throwing devices such as throw bags and shows little understanding of how such devices are used. In point of fact, there is little evidence to support that such a device has every been of use in a pool environment* -- Delete: A rescue throwing device is a buoyant life ring, torpedo buoy or other easily thrown buoyant device that is designed for such use. Fifty feet of ¼ inch minimum rope securely attached to the device is required. The device must be kept ready for use, and the rope must be coiled to prevent tangles and to facilitate throwing the device. At least one such device must be provided at any pool allowed to have only one lifeguard on duty. Before using, uncoil enough rope to step on the end of the rope to prevent it following the throwing device into the pool. Often there is a knot or ball on the end to help with this. Throwing the device to the swimmer is quite difficult. It is best to throw it well past the swimmer and then draw the device back for them to grab. This allows the rescuer the flexibility to direct the device to the swimmer by moving back and forth along the pool edge while drawing in the excess rope.	Partially agree. This is a comment on the Annex, the annex has been revised to remove instructions for use of the throwing device.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	Does not make sense when a lifeguard is stationed in water or where run-outs are present – lifeguard agencies do not train on use of throwing device.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Evolving best practice and equipment design. Some lifeguard training manuals advocate use of a loose wrist loop to avoid the awkwardness of stepping on the line. However, an even better option, which avoids the problem with tangled coils, may be to store the line in a rescue bag or a plastic container with a handle that is wedged within the buoy for easy storage and access. I have not seen such devices used in pools in the USA, but have seen them deployed at Norway harbors. Check www.safety-marine.co.uk for an "encapsulated floating life buoy line" for a photo of the plastic container. Other web sites sell "ring buoy rope bags". See "Lifebuoy" on Wikipedia for a photo of a line bag and ring buoy on the Coast Guard training vessel Eagle.* -- A rescue throwing device is a buoyant life ring, torpedo buoy or or other easily thrown buoyant device that is designed for such use. Fifty feet (15.24 m) of ¼ inch (6.35 mm) minimum rope securely attached to the device is required. The device must be kept ready for use. The rope may be stored using a tangle-free coil, but use of a ring buoy rope bag or a purpose-built plastic container with a handle facilitates use. At least one such device must be provided at any pool allowed to have only one lifeguard on duty. To use the device, remove the buoy and line from the hanger, and move to the edge of the pool in line with the person in need. Hold the line in one hand and throw the buoy underhand. An accurate toss is difficult without practice. It is best to throw the buoy well past the swimmer and then draw the device back for them to grab. This allows the rescuer the flexibility to direct the device to the swimmer by moving back and forth along the pool edge while drawing in the excess rope. If the line is stored in a coil with a knot or ball on the end, uncoil enough rope to step on the end to secure the line. (Note: many pools with a single lifeguard are 25 ft or less in width. Therefore 50 ft	The code has been revised. A rescue tube is required for lifeguards. Throw devices are required for non-guarded facilities. The Coast Guard approves the throw device.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	Regardless of the number of lifeguards on staff, the mechanism should be in place to perform a shore-based rescue. Therefore, regardless of the number of lifeguards, there should be one, or several, approved aquatic rescue throwing device. Also, who "approves" the throwing device. And, can a rescue throw bag meet this requirement?	The code has been revised. A rescue tube is required for lifeguards. Throw devices are required for non-guarded facilities. The Coast Guard approves the throw device.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	This is overly broad and too prescriptive. Suggest adding: *"4.8.5.2.3.1 When one lifeguard staffing is appropriate for aquatic venues within an Aquatic Facility having multiple venues, then at least one approved aquatic rescue throwing device shall be required at the facility…"*	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	This is overly broad, and too prescriptive for these types of facilities. Suggest adding: *"4.8.5.2.3 For aquatic venues with no standing water, as defined in this code, no throwing device shall be required."*	Partially agree. The code and annex have been revised and restructured.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	Why ¾" @50'? Not all facilities need this and in section 6.3.3.1 you indicate 30' needed so not consistent. Also, could ½" or 1/3" work?	Partially agree. The code and annex have been revised to address pool width and provide rationale.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	In general this is poorly written as it suggests that a Lifeguard should opt to use rescue-throwing devices as opposed to entering the water to affect rescue skills. This could be a major exposure for a facility that reads this and applies to operation.	Disagree. Doesn't suggest lifeguards should opt to use, the intent is in a single guard facility if the guard is engaged in a rescue and another patron is in distress, the rescue throw device allows an untrained person to assist the distressed person.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Remove both items from the annex as written.	Partially agree. Annex has been revised.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	requires that any pool -- including a splashdown pool, spa pool, wading pool and even spray pads - which only has one lifeguard per pool -- must have a rescue throwing device with a 50 foot rope and a 12' to 16' reaching pole. There are no minimum/maximum pool size or depth exceptions.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	The bulk of the text in these entries (how to use equipment) would benefit guests at an aquatic facility, but the Code/Annex is not intended for that group of individuals and thus provides no real benefit by its inclusion. It is text for the sake of text and should be removed.	Agree. Annex revised.	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 to 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	There are no further guidelines for exceptions on size of body of water or depth requiring this equipment. ……. There is no information regarding placement of this equipment in a larger facility. ……. Was alternative lifeguarding equipment considered such as rescue tubes and rescue cans?	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities	5.8.5.3.10	Aquatic facilities with one qualified lifeguard shall provide and maintain a Coast Guard approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*A Shepherds hook is not practical in a Waterpark environment. We are actually more concerned with the danger of a guest using the hook and hurting guest than helping them. In a guarded facility, lifeguards are trained to use their tube and enter to assist their victim as this is the safest way to ensure a quick rescue.* -- Delete this section. When the aquatic facility safety plan documents and the Health Authority agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole or 12-16 foot in length, non-adjustable nor telescopic, light in weight with a securely attached Shepherd's Crook(life hook), and the shepherd's crook aperture of at least 18 inches shall be required.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*Common sense and unfounded mandate* -- Reaching Poles should not be required at life guarded facilities as this is a non-lifeguard resource. Lifeguards are trained to enter the water to affect a rescue using rescue tubes.	Disagree. Doesn't suggest lifeguards should opt to use, the intent is in a single guard facility if the guard is engaged in a rescue and another patron is in distress, the reaching pole allows an untrained person to assist the distressed person.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*Delete this section. This information belongs in a text on lifeguarding, not in a code or its annex.* -- Delete: A reaching pole, shepherd's crook or life hook is a handy rescue device particularly for non-trained individuals and pools staffed with single-lifeguards. Use of the pole is often taught during swim lessons. The pole is intended to reach out to a swimmer in distress and to allow them to grab a hold of the pole. The pole should be submerged when introducing it to the swimmer to prevent injury. In some cases the "hook" can be used to encircle a non-responsive swimmer to draw them to the side. Do not hook the bather's neck; submerge the hook and encircle their chest or even buttocks Use of the device involves reaching out to the swimmer and then pulling the pole straight back to the side, along with the swimmer. The pole cannot be swung around to the side as the strength required exceeds that of most people, and the pole is not that durable. Since the pole is pulled back to the side, a telescoping pole is not appropriate as it can pull apart. This Code asks for a 12 to 16-foot pole. Ideally the pole can reach to the middle of many smaller pools making the entire pool reachable from the side with the pole. In some indoor pools, with narrow decks and low ceilings, the longer 16-foot pole is not useable as there is not room enough to retrieve the swimmer to the pool edge; the wall and ceiling are in the way. In these pools, it is recommended that a shorter pole be provided, while trying to keep it as long as possible. In most pools there should be enough room to use a pole at least 12 feet long. The pole must be equipped with a "lifehook" or "shepherd's crook". For safety, the hook must be a looped frame-type hook, not the single metal hook. The hook protects the swimmer from being injured by the pole, as well as allows a non-responsive swimmer to be pulled in. In addition the pole should be	Agree. Annex has been revised.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Does not make sense when a lifeguard is stationed in water or where run-outs are present – lifeguard agencies do not train on use of throwing device.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*Is a reaching device really required in a pool that is only two foot deep. Additionally, some venues may not have sufficient deck space or overhead clearance to use a reach pole.* -- Delete this section: When the aquatic facility safety plan documents and the Health Authority agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches shall be required.	Disagree. The intent is in a single guard facility if the guard is engaged in a rescue and another patron is in distress, the reaching pole allows an untrained person to assist the distressed person.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*Item is obsolete and not needed in shallow water aquatic facilities* – Delete	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*Possible clarification. Current Red Cross LG training videos do not show the use of a reach pole. In the 2007 version, a pole without a hook is extended straight toward the victim's chest. Hence the caution against "stabbing". Sweeping the pole from the side into contact with the victim's arms means the technique is potentially useful for active victims other than distressed swimmers. The suggested edits also downplay concerns in the current copy about the difficulty of moving the victim in an arc and the strength of the pole. That may be true for a large victim at the far reach of the pole when the lifeguard cannot generate torque by sliding his hands apart, but a general prohibition seems anecdotal. Should be changed back if confirmed by studies for several likely situations.* -- The pole is intended to reach out to a swimmer in distress to allow them to grab hold of the pole. The end of the pole should be submerged slightly and swept to the swimmer from the side to prevent injury, as opposed to "stabbing" the pole at the swimmer. In some cases the "hook" can be used to encircle non-responsive swimmers to draw them to the side. Do not hook the bather's neck; submerge the hook and encircle their chest or even buttocks Use of the device involves reaching out to the swimmer and then pulling the pole straight back to the side, along with the swimmer. Swinging the pole and the swimmer to the side is generally more difficult than pulling the pole straight back, but either technique may be used depending on the size and position of the swimmer and obstructions the interfere with pole movement.	No suggested changes included.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Reaching Poles should not be required at single guard facilities as this is a non-lifeguard resource. Lifeguards are trained to enter the water to affect a rescue.	Disagree. Doesn't suggest lifeguards should opt to use, the intent is in a single guard facility if the guard is engaged in a rescue and another patron is in distress, the reaching pole allows an untrained person to assist the distressed person.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Same as above, regardless of the number of lifeguards, the mechanism should be in place to perform a shore-based rescue using an appropriate reaching pole. Also, why can't the pole be adjustable/telescopic?	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities. The Annex provides rationale regarding restrictions on adjustable/telescopic poles	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Same as throwing device above. Not necessary at all pools.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Suggest removing the term "Shepherds Hook" and only allowing "double crook life hook". The Shepherds Hook has a single point that may impale and injure a person being rescued, while the "double crook life hook" has a rounded end. -- WAC 246-260-41(11)(g)(i)	Disagree. See annex for description/explanation of equipment.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*The facility operator, not the AHJ, should be deciding on lifeguard staffing. An aquatic facility could consist of a spray pad or fountain and requiring a Shepherd's Crook for these is ridiculous.* -- Delete entirely – REFERENCE: The explanatory materials contained in the annex clearly show this is for pools – not all Aquatic Venues	Disagree. However, the code has been restructured and revised to clarify and specify staffing plan requirements and necessary equipment.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	The true need of an approved reaching pole is at unguarded facilities and venues approved by this code. 4.8.5.2.4 does not address this. Suggest reaching poles be addressed with subsections similar in language to *4.8.5.2.3.1, 4.8.5.2.3.2, and 4.8.5.2.3.3* as suggested above.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	The true need of an approved reaching pole is at unguarded facilities. Poles should be used when appropriate and practical.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.4	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*This section does not address shallow water venues or the size of the pool.* -- Remove.	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.3.11	Aquatic facilities with one qualified lifeguard shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*Not Practical and may present as overly burdensome* -- While this may be a best practice, marine plywood boards (such as the CJ Aquatics board) that many facilities use is not an "impermeable material" and therefore would not meet the standard as written. Suggest removal of the word "impermeable"	Agree. This was clarified to state that they are constructed of material easily sanitized and disinfected.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	While this may be a best practice, marine plywood boards (such as the CJ Aquatics board) that many facilities use is not an "impermeable material" and therefore would not meet the standard as written. Suggest removal of the word "impermeable"	Agree. This was clarified to state that they are constructed of material easily sanitized and disinfected.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	(NO suggested wording….Spinal Injury Boards are a huge concern if they are not properly used. Only trained EMT persons should operate them. These boards should not be provided on site as untrained persons may try to use them. Ambulances typically are equipped with a board, so there is no need to provide one on site. In addition if this board is left unattended, it is a temptation for children to use as a toy, "surf board", which could lead to injury in the pool. If the MAHC does feel the need to keep the requirement of this board in the regulations then wording should be added that "the board be keep locked away so that it is only available when needed".	Disagree with this comment as it suggests that it may not be readily available in the event of an emergency. The same argument could be made by any safety equipment around the pool (ring buoys, reaching poles, rescue tubes, etc.). Facilities should monitor that equipment is only used properly without a requirement to "secure".	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*Creating standards by words and not practices or reality* -- The aquatic venue must provide boards that meet the standards of the local Emergency Medical Services provider. No such standard exists.	Please refer to the Annex. It has been edited for clarity.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*Delete 4.8.5.2.1 to 4.8.5.2.2 as this adds nothing to the understanding of the code. This means it does not do what the annex was designated to do. It neither expands anything in the code, explains anything in the code, defines anything in the code or gives an example of anything in the code.* -- Delete: At pools providing lifeguards, spinal injury board must be provided that is constructed of impermeable material, easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps. The aquatic venue must provide boards that meet the standards of the local Emergency Medical Services provider. Boards must be properly maintained and in good repair (An example is using a wooden backboard that is worn so the wood is exposed and no longer cleanable. In this case refinishing it with a waterproof finish should again make it cleanable.)	Partially agree. Annex has been revised.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*If this board is left out it will be used as a recreational device. Also untrained persons should not have access to use this board.* -- Add the following sentence to the end of this section: "When not in use, the board shall be kept in a secured storage area."	Disagree with this comment as it suggests by "secure" that it may not be readily available in the event of an emergency. The same argument could be made by any safety equipment around the pool (ring buoys, reaching poles, rescue tubes, etc.). Facilities should monitor that equipment is only used properly without a requirement to "secure".	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*Many perfectly acceptable spinal boards don't come with head immobilizers and body straps. To package the patient those things are needed but there are several very good immobilizers and strapping systems that work on various spinal boards.* -- A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected and be capable of accommodating a head immobilizer and a minimum of 3 body straps	Disagree. The spinal injury board needs a readily available head immobilizer and straps to be used effectively. As long as the straps and immobilizer are there, then it complies. One does not need to buy a spinal injury board that comes from the factory with these items attached	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	*Not Practical and may present as overly burdensome* -- While this may be a best practice, marine plywood boards (such as the CJ Aquatics board) that many facilities use is not an "impermeable material" and therefore would not meet the standard as written.	Agree. This was clarified to state that they are constructed of material easily sanitized and disinfected.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	Suggest removal of the word "impermeable"	Agree. This was clarified to state that they are constructed of material easily sanitized and disinfected.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	4.8.5.2.2	A spinal injury board shall be constructed of impermeable material easily sanitized/disinfected, with a head immobilizer, and a minimum of 3 body straps.	This section creates an unnecessary burden on facilities. By requiring facilities to use impermeable backboards, this code forbids the use of CJ Aquatics wooden backboards, which many facilities use with great success. The word impermeable should be removed.	Agree. This was clarified to state that they are constructed of material easily sanitized and disinfected.	5.8.5.3.2	5.8.5.3.2 Spinal Injury Board LG At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided. 5.8.5.3.2.1 Spinal Injury Board Components LG The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Overly burdensome as a guard in very shallow water has little use for a rescue tube and maybe a hindrance. Should be omitted.* -- Delete: Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet of water shall have a rescue tube immediately available for use.	Disagree. See Annex for explanation.	5.8.5.3.3	Each qualified lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 3 feet (0.9 m) of water shall have a rescue tube immediately available for use.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Continue to maintain safety. Notwithstanding water depth* -- Each lifeguard conducting patron surveillance with the responsibility on in-water rescue in less than 5 feet of water will keep rescue tube immediately available for use.	No response necessary as commenter doesn't suggest a change.	5.8.5.3.3	Each qualified lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 3 feet (0.9 m) of water shall have a rescue tube immediately available for use.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	The "rescue tube" should be changed to "rescue buoy". A rescue buoy can be a rescue tube or a rescue can. Both devices have pros and cons for use depending upon the venue and it should be up to the AHJ to determine which is best for that particular venue.	Disagree. Rescue tube is typically used for pool vs. open water environments.	5.8.5.3.3	Each qualified lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 3 feet (0.9 m) of water shall have a rescue tube immediately available for use.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*"Controversy exists as to whether the rescue tube is necessary for all shallow water rescues. There is always a risk that the victim can overwhelm a responding lifeguard, but the increase in response speed may offset that risk. In any case, the aquatic venue must follow the recommendations of the lifeguard-certifying agency."* This is a totally irresponsible statement based on personal opinion. FACT- No lifeguard training agency trains lifeguards to conduct body contact rescues. The Rescue Tube is the rescue device trained by all agencies. There is no controversy…there is clearly universal training of this device. REMOVE THIS LANGUAGE.	Agree. Annex revised.	5.8.5.3.3 Annex	Rescue Tube Immediately Available
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	Does not make sense when a lifeguard is responsible for a wet deck, spray ground, or run-outs	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	Does this take into consideration the splash pads and pools that may have 6 inch – 1 foot of water?	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Don't make a distinction about water depth. Just because water is deeper don't make the person wear it. In some facilities it is quicker to respond with a rescue board and wearing the tube you just have to take it off to respond. Goes along with recommendation to drop 5.8.5.2.3.1* -- Each lifeguard conducting patron surveillance with the responsibility of in-water rescue shall have a rescue tube immediately available for use.	Disagree. See annex for discussion. Also, rescue boards are not typical equipment in pools vs. open water environments.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Four to five feet of water is too deep for lifeguards not to be recommended to wear the tube on person. Many facilities vary in depth on one pool and have lifeguard stations around the one pool. This would allow for lifeguards guarding around the same pool to have different standards – some wearing tubes; some not. How can they properly respond as back-up coverage, etc.? Additionally, four to five feet of water still requires swimming, potential for underwater rescue, thus the need to have a tube in a ready to go position. We all know that unfortunately – "immediately available for use" often means the tube as a footrest with strap wound up around the tube. Allowing a tube to be immediately available for use in three and a half feet is reasonable as it is guaranteed that the rescuer can stand and walk and that there is no immediate danger to the rescuer or the victim that the rescue tube will solve. I fear going with five feet goes against the spirit of this code which is to impact the rescue ready posture and preparedness of lifeguards. There appears to be no good reason to "allow" them not to wear a tube at 5 feet. This also allows for the exception of wearing tubes in waterpark settings where it does not make sense – slide run-outs, etc. where the tube is not a part of any type of rescue or care and would just be an impediment.* -- Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in 3.5 feet or less of water shall have a rescue tube immediately available for use. (Perhaps this section should be changed to say that in situations/lifeguard stations of extreme shallow water where a rescue tube is not a part of any rescue protocol that would be used, a rescue tube shall be immediately available for the purposes of…)	Partially agree. See revised Annex for discussion.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Overly burdensome and costly for shallow water aquatic parks. Rescue tubes are unnecessary in shallow water.* – Delete	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Overly burdensome as a guard in very shallow water has no use for a rescue tube.* -- Delete: Each lifeguard conducting patron surveillance with the responsibility of in water rescue in less than 5 feet of water shall have a rescue tube immediately available for use.	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Rescue tubes not needed for many splashdown/catch pool areas and slide runouts at waterparks* -- "…less than 5 feet (1.52m) but greater than 2 feet…"	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*This section does not address splash, play pools, etc with minimal water depth.* -- Each lifeguard conducting…in-water rescue in 3-5 feet of water shall have a rescue tube…	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	*Tubes in a shallow waterpark setting are more of a hindrance than use.* -- Each lifeguard conducting patron surveillance with the responsibility of in-water rescue 3.5-5 feet of water shall have a rescue tube immediately available for use. Immediately available for use is defined as_____.	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3	Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use.	What does "immediately available" mean? Must they have a rescue tube on them or just in the facility? What is the proximity required to satisfy the phrase "immediately available?"	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3 & 5.8.5.2.3.1	5.8.5.2.3--- Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in less than 5 feet (1.52 m) of water shall have a rescue tube immediately available for use. 5.8.5.2.3.1--- Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	Why separate the two? Why not have one that indicates there should be available rescue equipment for all lifeguards responsible for patron surveillance i.e. rescue tubes. Additionally, what happens if new technology comes about and we no longer use recue tubes?	Disagree. See Annex for explanation.	5.8.5.3.3 Annex	Rescue Tube Immediately Available (See Annex for Full Text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	*See comment above. It is reasonable to expect a lifeguard to wear the rescue tube in a pool/waterpark or waterfront environment where the water depth may involve swimming rescues. Could go up to 4 feet but could that involve an underwater situation that could create an unsafe situation during a rescue? A depth of under 4 feet seems more reasonable.* -- Each lifeguard conducting patron surveillance in a water depth of 3.5 feet or greater shall have a rescue tube on his/her person by wearing the harness strap in the correct way.	Agree. Change made to 3 feet for depth threshold .	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	*Are the LG's in the water? I believe the committee was trying to address positions where the water depth was ≥ 5'. And they were not in the water.* -- Delete current code: Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person. Replace with this one: Each lifeguard conducting patron surveillance with the responsibility of in-water rescue in 5 feet of water or greater shall have a rescue tube immediately available for use.	Agree. Code revised for clarity	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	Each lifeguard conducting patron surveillance in water depth of 5 feet or greater shall have a rescue tube immediately available to use. (what about having the rescue tube attached to lifeguard stand while sitting/standing in guard chair/tower.)	Disagree. Code states that the lifeguard is to have the rescue tube on his/her person.	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	*See comment 5.8.5.2.3* – Delete – REFERENCE: See ARC waterfront training. Some wholly artificial zero depth entry facilities use waterfront techniques	No response. Unclear what is being commented on.	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	The "rescue tube" should be changed to "rescue buoy". A rescue buoy can be a rescue tube or a rescue can. Both devices have pros and cons for use depending upon the venue and it should be up to the AHJ to determine which is best for that particular venue.	Disagree. Rescue tube is typically used for pool vs. open water environments.	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	The pool management company should not be solely responsible to ensure that lifeguards hold the rescue tube as trained. The lifeguard ultimately chooses to follow their training guidelines and employer's policies.	No response. Unclear what is being commented on as the Code does not reference "pool management company".	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	*These are paid professionals who are not under constant dedicated surveillance by the management company. Like any professional they should be held accountable for actions that they willingly take that are adverse to their training and knowledge base.* -- Amend language to making the lifeguard ultimately responsible to hold the rescue tube in a manner taught and accepted by the lifeguard training agency. The management company must adopt policy and procedures that state that lifeguards must hold the rescue tune in the manner they were taught by the lifeguard training agency, but the professional lifeguard is ultimately responsible to abide by this training.	Disagree. The facility owner/operator is responsible for the facility/staff/employee compliance with Code requirements.	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	What is the intent here? Is the intent only that the rescue device be present OR is the intent to require proper wear that produces a "rescue ready" position? Suggest the following… *"Each lifeguard conducting Patron Surveillance in a water depth of 5 ft. (1.52 m) or greater shall wear the rescue tube so as to be rescue ready to enter the water when needed."*	Agree. Change made to include "rescue ready".	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.1	Each lifeguard conducting patron surveillance in a water depth of 5 feet (1.52 m) or greater shall have a rescue tube on his/her person.	What is the intent here? Is the intent only that the rescue device be present OR is the intent to require proper wear that produces a "rescue ready" position? Suggest the following… *"Each lifeguard conducting Patron Surveillance in a water depth of 2ft. or greater shall wear the rescue tube so as to be rescue ready to enter the water when needed."*	Agree. Change made to include "rescue ready" and threshold for depth changed to 3 feet.	5.8.5.3.4	Each qualified lifeguard conducting patron surveillance in a water depth of 3 feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position
Lifeguard & Bather Supervision (LG)	5.8.5.2.2	Lifeguards shall wear attire that readily identifies them as members of the aquatic facility's lifeguard staff.	Does not provide specific guidelines as to what is expected or required to comply. …… Were all Aquatic environments taken into consideration? (ie Indoor waterpark environments)	Disagree. The wording is performance-based instead of prescriptive language being used. Several options should be available to meet the standard to be readily identifiable , regardless of the environment.	5.8.5.3.5	Qualified lifeguards shall wear attire that readily identifies them as members of the aquatic facility's lifeguard staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*What type of signaling devices? Are hand signals and whistles sufficient?*	Code revised for clarification.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*"Such a whistle needs to be inserted. Otherwise the burden is placed on the reader to try to determine what a signaling device is.* -- Signaling devices, such as a whistle, capable of communicating emergency and/or non-emergency information shall be available for each lifeguard conducting patron surveillance	Agree. Change made.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*"Such as a whistle" needs to be inserted. Otherwise the burden is placed on the reader to try to determine what a signaling device is.* -- Signaling devices, such as a whistle, capable of communicating emergency and/or non-emergency information shall be available for each lifeguard conducting patron surveillance	Agree. Change made.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*A whistle is an industry standard item used to announce emergencies but the use of a radio by all lifeguards is extremely costly and unnecessary.* -- Such as a whistle or radio.	Agree. Change made.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*Clarify what this means? Too vague. What is non-emergency information? Seems to me my voice will work? What qualifies? Is there an annex that goes along with this? What's the purpose? Is the intention that ever guard have a whistle immediately available? Maybe give examples of what type equipment qualifies?* -- It's not clear what this means. Can't recommend new language.	Agree. Code revised for clarity. There is now an Annex discussion.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*Since the language about rescue tubes separates worn on person versus immediately available, this means the whistle does not need to be worn. Again, this now goes further away from preparedness and lowers standards. If this is because of other potential signaling devices that cannot be worn – it would be worth mentioning so that they do not get lumped together because they could not be worn.* -- Signaling devices capable of communicating emergency and/or non-emergency information shall be on person for each lifeguard conducting patron surveillance.	Disagree. The code is written, where possible, to be performance-based instead of prescriptive. The intent is the same -to be immediately available for use without specifying that it has to be worn on the person as there may be other options for availability that do not result in any delay.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	*Too vague for uninformed AHJ (health department inspectors)* -- Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance. Immediately available is described as _____.	Disagree. Intent of "immediately available" should be clear from Annex discussion. However, Code revised for clarification.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	What does "immediately available" mean? Must they have the signaling device on them, or just in the facility? What is the proximity required to satisfy the phrase "immediately available?"	Intent of "immediately available" should be clear from Annex discussion. However, Code revised for clarification.	5.8.5.3.6	A whistle or other signaling device shall be immediately available for each qualified lifeguard conducting patron surveillance for communicating to users and/or staff.
Lifeguard & Bather Supervision (LG)	5.8.5.2.7	Signaling devices capable of communicating emergency and/or non-emergency information shall be immediately available for each lifeguard conducting patron surveillance.	Change *"venue"* to *"facility"*… For consistency sake, and lifeguard understanding of use, Communication Devices and their use should not change from one venue to another within a given facility, although their may be multiple devices employed…	Disagree. Annex comment. Venue is not necessarily incorrect . Facility management will determine appropriate signaling device-whether per venue or for the facility.	5.8.5.3.6 Annex	Signal Device (See Annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.7 last ¶	Communication techniques and procedures must be practiced and reviewed regularly during in-service training to remain efficient and effective. Revised as needed.	*"Revised as needed."* What does this mean?	This was an internal Annex comment. Annex has been revised.	5.8.5.3.6 Annex	Signal Device (See Annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	"Aquatic venues" should be changed to "The management of aquatic facilities." The venue is not going to provide sunscreen. Also, a more practical way to incorporate this policy is to require sunscreen if a lifeguard may be exposed to ultraviolet radiation at any station in the facility.	Agree. Comments incorporated in revised text.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	*Is it necessary to state a specific spf number in the code? What if new technologies arise? It is difficult and time consuming to amend governmental regulations.* -- All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide appropriate sunscreen protection.	Partially agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats. See Annex for further discussion on SPF.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	Provision in code as written only includes making lotion available and does not address the need for education and/or policies mandating its use. What is the point of requiring it be available if there is no mandate for training/use.	Agree. Note that code has been revised to also allow equivalent protection from the sun such as shading and requires training.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	*Redundant* -- Remove entry – REFERENCE: already addressed in 4.8.5.1.2	Disagree. Section 4.8.5.1.2 only addresses chairs/stands.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	Suggest replacing with objective language… *"Lifeguards must have face, eyes and upper torso protection at all times while performing on-duty lifeguard tasks."*	Partially agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	The last paragraph is confusing. Is the sunscreen lotion requirement in place as in the code language as written, or do physical barriers preclude the need for lotion. How are in-water lifeguards afforded adequate protection?	Agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	The need to have lotion available at each venue may be overly burdensome, especially where another form of protection (i.e. umbrellas) is also available or required in 4.8.5.1.2	Agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats. OSHA exempts employers from providing sunscreen and sunglasses but does require training about the issue.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	The need to have lotion available at each venue may be overly burdensome, especially where another form of protection (i.e. umbrellas) is also available or required in 4.8.5.1.2	Agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.4	All aquatic venues where lifeguards can be exposed to ultraviolet radiation shall provide sunscreen protection lotion equal to or exceeding SPF Level 15.	The need to have sunscreen protection lotion is a personal responsibility of the lifeguard based on the occupational hazards of the job. The need to have lotion available at each venue may be overly burdensome, especially where other forms of protection (i.e. umbrellas) are available.	Partially agree. The code has been revised to allow for alternate means of sun protection that provide shading of the face, eyes and upper torso such as umbrellas, protective clothing or hats. The sunscreen requirement has been deleted.	5.8.5.3.7	All aquatic facilities where qualified lifeguards can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Should read "polarized sunglasses," instead of "polarized glasses."	Agree. Code modified to specify polarized sunglasses.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	"Glasses" should be changed to *"Sunglasses"*	Agree. Code modified to specify polarized sunglasses.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Although they are invaluable in reduction of glare, polarized sunglasses can be costly. At a minimum, 100% blocking UVA and UVB protection assists in reduction of damage to the eyes and eyesight. -- NEW VERBIAGE: Lifeguards must wear sunglasses that are 100% UVA and UVB protected. Lifeguards are strongly encouraged to wear polarized and 100% UVA/UVB protective eyewear. – REFERENCE: According to the Environmental Protection Agency (http://www.epa.gov/sunwise/uvandhealth.html#cataracts) "Research has shown that UV radiation increases the likelihood of certain cataracts. Other kinds of eye damage include pterygium (tissue growth that can block vision), skin cancer around the eyes, and degeneration of the macula (the part of the retina where visual perception is most acute). All of these problems can be lessened with proper eye protection…that offer 99 to 100 percent UV protection."	Disagree. Polarized sunglasses can be found for similar price as regular sunglasses. The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent and when needed.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Is it necessary to state "polarized" in the code? What if new technologies arise? It is difficult and time consuming to amend governmental regulations.* -- Lifeguards, while conducting patron surveillance, shall wear appropriate eyewear when it is necessary to reduce the impact of glare	Disagree. Currently, polarized sunglasses are the only product we are aware of that reduces the effects of glare. Should new technologies arise, amendments to the MAHC can be made during the planned biannual update process. In addition the MAHC has provisions to allow for alternate methods for compliance.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Lifeguards may wear polarized glasses…to reduce the impact of glare.	Disagree. The requirement is to address glare as it affects patron surveillance, therefore adherence/compliance is not at the discretion of an individual lifeguard.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Polarized sunglasses are very costly and while they are best for a water environment it is unrealistic that they are purchases and worn daily. It is better to mandate lesser glasses but encourage better glasses* -- Remove that Lifeguards shall wear polarized glasses and change to encouraged to wear polarized glasses but must wear sunglasses that are 100% UVA and UVB protected. – REFERENCE: A Google search finds polarized glasses priced at a minimum of $69.00 while UVA & UVB glasses can be purchased for $25.00. Since most lifeguard make just over minimum wage starting out it is a better practice to mandate the lesser glasses and encourage higher quality glasses.	Disagree. Polarized sunglasses can be found for similar price as regular sunglasses. The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent and when needed.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Providing sunglasses to all employees can be expensive. Some employee's need to where glasses instead of sunglasses so are they required to wear the sunglasses?* -- Polarized sunglasses shall be readily available (just like section 5.8.5.2.4 where SPF 15 sunscreen shall be provided and 5.8.5.2.6 where (PPE) shall be immediately available)	Disagree. Polarized sunglasses can be found for similar price as regular sunglasses and the MAHC does not require facilities to pay. The requirement is to address glare as it affects patron surveillance. Polarized clip-on sunglasses are available for use with prescription eye glasses	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Purchasing polarized sunglasses on a Lifeguard salary might be an unrealistic demand.* -- Remove that Lifeguards wear polarized glasses and change wording to encourage Lifeguards to wear polarized glasses, but must wear sunglasses that are 100% UVA and UVB protected. – REFERENCE: Online search shows polarized sunglasses to average about $70 a pair while UVA & UVB sunglasses can be purchased for about $25.	Disagree. Polarized sunglasses can be found for similar price as regular sunglasses. The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Recommended but not require	Disagree. The requirement is to address glare as it affects patron surveillance, therefore adherence/compliance is not at the discretion of an individual lifeguard	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Requiring a specific type of sunglasses will be a financial burden on public agencies. The benefit to polarized glasses is minimal compared to the cost of this implementation,* -- ~~Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.~~	Disagree. The code does not require employers to supply. Polarized sunglasses can be found for similar price as regular sunglasses. The requirement is to address glare as it affects patron surveillance. The benefits of wearing polarized sunglasses to enable seeing below the water surface for patron surveillance can be substantial.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	The use of polarized sunglasses as a requirement should be the personal responsibility of the lifeguard. Lifeguards should be educated on the advantages of polarized glasses and should be held accountable for providing themselves with this necessary piece of equipment. It is over burdensome for facility management to determine daily, if lifeguards are in compliance with this requirement. "Glasses" should be changed to *"Sunglasses"*	Agree. The requirement is to address glare as it affects patron surveillance, therefore adherence/compliance is not at the discretion of an individual lifeguard and is the responsibility of the facility owner/operator . The code has been amended to include under "Lifeguard Responsibilities" the lifeguard's responsibility to wear polarized sunglasses when needed. Agree. Code modified to specify polarized sunglasses.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Tinted (or 'sunglasses") should be required not just polarization at an outdoor venue.	Agree. Code modified to specify polarized sunglasses.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*Very costly and unduly burdensome. Especially when prescription lenses are required. When is it necessary to reduce the impact of glare?* -- Delete: Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare	Disagree. Employer is not required to supply. Polarized sunglasses can be found for similar price as regular sunglasses. Polarized clip-on sunglasses are available for use with prescription eye glasses. The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent and when needed.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	What indicates when it is necessary to reduce glare?	The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent and when needed.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.5	Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	*When is it necessary to reduce the impact of glare?* -- Delete: Lifeguards shall wear polarized glasses while conducting patron surveillance when it is necessary to reduce the impact of glare.	Disagree. The requirement is to address glare as it affects patron surveillance. Code revised to clarify intent and when needed.	5.8.5.3.8	When glare impacts the ability to see below the water's surface, qualified lifeguards shall wear polarized sunglasses while conducting patron surveillance
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Change The employer shall ensure that the employee uses appropriate personal protective equipment, to The employer shall include in its policies in training that all employees must use PPE however it is each professional lifeguard's responsibility to adhere to this policy.*	Disagree. Unclear what section this is referring to as the Code, as posted for comment, does not state this.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Delete. "shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission." This is a litigation nightmare.* -- Personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be available for lifeguards	Partially agree. Code revised.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Editorial – guards may not have this equipment if assigned different duties, walking through the facility, or on a break.* -- At all times, while in position, personal protection devices…disease transmission.	Disagree. Equipment must be immediately available to all guards. Even if a lifeguard is not in a position at poolside, should an emergency occur at the facility, it may be necessary for the guard to respond.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Need local flexibility here.* -- Add to beginning "Unless otherwise directed by local Emergency Medical Services providers,…"	Disagree. No rationale provided to support not providing immediately available personal protective equipment.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Need local flexibility here.* -- Add to beginning "Unless otherwise directed by local Emergency Medical Services providers,…"	Disagree. No rationale provided to support not providing immediately available personal protective equipment.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Strongly Recommend.* -- Keep existing language	Agree, but edits made.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	There is some debate as to whether or not the job of a lifeguard falls under the definition of "Occupational Exposure" as defined by OSHA, and whether or not the BBP standards apply as a whole. Listing this OSHA reference opens up a whole can of worms potentially, the biggest of which is the need to provide the HBV Vaccination to all lifeguards within 10 days of the start of their employment… If this is referenced here, then there should be reference to the other parts of the OSHA BBP Standard, and employers had better not only provide *"some"* emergency protective equipment as suggested here, but rather, must provide all required equipment. This reference opens both Operators and the Code Developers to a significant exposure by not adequately addressing all aspects of the OSHA standard…	Disagree. OSHA guidance now cited in the annex says lifeguards are considered to be under this standard. Code and annex revised.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*To ensure no delay in care, the lifeguard must wear these items in a hip pack (female lifeguards are not likely to have shorts on to put in pocket). It cannot be assumed that in a rescue situation in the water, that the lifeguard will have the mask immediately available. Additionally, if they are somewhere else in the facility, not performing surveillance, they will be prepared to respond if on person. It is also a best practice in the industry to wear hip packs. To allow less lowers standards – again not in the spirit of MAHC* -- At all times personal protection equipment (PPE) [a one way valve resuscitation masks and non-latex one use disposable gloves] shall be on worn on person by lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	Partially agree. The code is written, where possible, to be performance-based instead of prescriptive. The intended outcome (no delay in care) is the same.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	What does "immediately available" mean? Must they have the PPE on their person, or just in the facility? What is the proximity required to satisfy the phrase "immediately available?"	Commenter did not propose a suggested change, however the revised Annex provides a response to the questions posed.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.2.6	At all times personal protection equipment (PPE) [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be immediately available for all lifeguards so there is neither a delay in patient care nor an increased risk of disease transmission.	*Wording could cause problems legally. How can you ensure, there is no delay?* -- Personal protection equipment PPE [a one way valve resuscitation mask and non-latex one use disposable gloves] shall be available for lifeguards	Partially agree. Code has been revised.	5.8.5.3.9	Personal protective devices including a one way valve resuscitation mask and non-latex one-use disposable gloves shall be immediately available to all qualified lifeguards.
Lifeguard & Bather Supervision (LG)	5.8.5.3	Aquatic Facilities without Lifeguards	Define under what circumstances a facility can operate without a lifeguard.	Staffing requirements are contained in Section 6.3, Aquatic Facility Management.	5.8.5.4	Safety Equipment Required at Aquatic Facilities without Lifeguards
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	Does not address true need, which is at an unguarded venue. Suggest adding: *"4.8.5.2.3.. At least one such device must be provided at any aquatic venue that is unguarded."*	Partially agree. The code has been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	Aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Is a throwing device really required in a pool that is only two feet deep? Also a throw buoy poses substantial risk to our guests at a waterpark, as these objects are hard and heavy. The risk outweighs the reward for us as we have trained lifeguards who can provide a quicker and more effective rescue using proven rescue techniques.* -- Delete this section	Disagree. However, the code and annex have been revised and restructured. A rescue throwing device is not required at facilities where there is more than one lifeguard.	5.8.5.4.1	Aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*Is a throwing device really required in a pool that is only two foot deep whose participants are mainly 4 year olds? What will happen when this device is used? This equipment is more useful at unguarded facilities.* -- Delete this section: When the aquatic facility safety plan documents and the Health Authority agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet shall be required.	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	Aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3	When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required.	*This section does not address shallow water venues or the size of the pool.* -- Remove.	Agree. The code and annex have been revised to clarify and specify equipment necessary for guarded and unguarded facilities and staffing plan requirements.	5.8.5.4.1	Aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	*Approval of throwable water rescue devices is through U.S. Coast Guard standards.* -- A~~-~~U. S. Coast Guard approved rescue throwing device with at least a quarter inch rope ~~whose~~ with a length ~~is~~ of 50 feet (15.24 m) attached shall be required	Agree. Changes made.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	Only should apply to unguarded facilities.	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	"At least one such device must be provided at any pool allowed to have only one guard." Poorly written…implies that any pool (including a slide catch pool in a water park that is staffed with a single guard) is required to have a rescue-throwing device.	The code does require a rescue throwing device as stated. However, the code has been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	Here again arbitrary on sizing and conflicts with 6.3.3.1 30'	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	Repeated discussion on "throwing device", hence duplicate change to that suggested above.	The code has been revised. A rescue tube is required for lifeguards. Throw devices are required for non-guarded facilities. The Coast Guard approves the throw device.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1	An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required.	*This section seems to ignore the possibility that the facility will have very shallow water.* -- Delete: An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet shall be required.	Partially agree. The code has been revised to specify facility vs. venue and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the pool, whichever is less.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*"At least one such device must be provided at any pool allowed to have only one guard."* Poorly written…implies that any pool (including a slide catch pool in a water park) that is staffed with a single guard is required to have a rescue throwing device.	The code does require a rescue throwing device as stated. However, the code has been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1 & 5.8.5.4.1.1	5.8.5.4.1 Throwing Device LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the POOL, whichever is less. 5.8.5.4.1.1 Throwing Device Location LG The rescue throwing device shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS.
Lifeguard & Bather Supervision (LG)	4.8.5.2.3 & 4.8.5.2.4	4.8.5.2.3--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic venue, then an approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.24 m) shall be required. 4.8.5.2.4--- When the aquatic facility safety plan documents and the AHJ agrees that one lifeguard staffing is appropriate for an aquatic facility then an approved reaching pole of 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*A throwing device is not useful in some bodies of water, such as spas, and small and shallow wading pools, etc.* -- Change the phrase "at any pool" to "at any pool with a depth over 4 feet and square footage over 200 square feet".	Partially agree. The code has been revised to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.1 & 5.8.5.4.1.1	5.8.5.4.1 Throwing Device LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the POOL, whichever is less. 5.8.5.4.1.1 Throwing Device Location LG The rescue throwing device shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1 & 5.8.5.3.4.2	5.8.5.3.4.1--- An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required. 5.8.5.3.4.2--- An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	In general this is poorly written as it suggests that a Lifeguard should opt to use rescue-throwing devices as opposed to entering the water to affect rescue skills. This could be a major exposure for a facility that reads this and applies to operation.	Disagree. Doesn't suggest lifeguards should opt to use, the intent is in a single guard facility if the guard is engaged in a rescue and another patron is in distress, the rescue throw device allows an untrained person to assist the distressed person.	5.8.5.4.1, 5.8.5.4.1.1, 5.8.5.4.2	5.8.5.4.1 Throwing Device LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the POOL, whichever is less. 5.8.5.4.1.1 Throwing Device Location LG The rescue throwing device shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS. 5.8.5.4.2 Reaching Pole LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, non-conductive, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.1 to 5.8.5.3.4.2	5.8.5.3.4.1--- An approved aquatic rescue throwing device, with at least a quarter inch rope whose length is 50 feet (15.24 m) shall be required. 5.8.5.3.4.2--- An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	states that if the pool is unguarded, a ring buoy with 50' of ¼ inch rope and a 12 – 16 foot approved reaching pole with a Shepherd's Crook with an aperture of 18inches is required. There are no further guidelines for exceptions on size or depth requiring this equipment and where placement of this equipment is to be.	Agree. Changes made.	5.8.5.4.1, 5.8.5.4.1.1, 5.8.5.4.2	5.8.5.4.1 Throwing Device LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a Coast Guard approved aquatic rescue throwing device, with at least a quarter-inch thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the POOL, whichever is less. 5.8.5.4.1.1 Throwing Device Location LG The rescue throwing device shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS. 5.8.5.4.2 Reaching Pole LG AQUATIC VENUES whose depth exceeds 2 feet of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, non-conductive, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.2	An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Add to the end: *"…shall be required at each aquatic venue holding standing water."*	Agree. Change made.	5.8.5.4.2	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, non-conductive, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.2	An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Only should apply to unguarded facilities.	Partially agree. The code has been revised and restructured to clarify and specify equipment necessary for guarded and unguarded facilities.	5.8.5.4.2	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, non-conductive, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.2	An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	*this section seems to ignore the possibility that the facility will have very shallow water...* -- Delete: An approved reaching pole that is 12 to 16 foot in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches shall be required. Poles shall be constructed out of non-electrical conducting materials.	Partially agree. Changes made.	5.8.5.4.2	aquatic venues whose depth exceeds 2 feet of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, non-conductive, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.2	An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Again, there is no reason why the reaching pole cannot be adjustable or telescopic.	The Annex provides rationale regarding restrictions on adjustable/telescopic poles.	5.8.5.4.2 Annex	Reaching Pole (See Annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.2	An approved reaching pole that is 12 to 16 foot (3.66-4.88 m) in length, non-adjustable nor telescopic, light in weight with an securely attached Shepherd's Crook (life hook), and the shepherd's crook aperture of at least 18 inches (45.7 cm) shall be required.	Suggest removing the term "Shepherds Hook" and only allowing "double crook life hook". The Shepherds Hook has a single point that may impale and injury a person being rescued, while the "double crook life hook" has a rounded end. -- WAC 246-260-041(11)(g)(i)	Disagree. See Annex for description/explanation of equipment.	5.8.5.4.2 Annex	Reaching Pole (See Annex for full text)
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.3	Up-to-date Cardiopulmonary Resuscitation (CPR/AED), First Aid and Prevention of Recreational Water Illness posters appropriate to an aquatic facility shall be posted at all times.	sets forth requirements that owner/operators must have up-to-date CPR, first aid, and prevention of recreational water illness posters at all times. The Module does not define "up-to-date" nor does it state what updates or organizations are approved.	Agree. Code revised.	5.8.5.4.3	Cardiopulmonary Resuscitation (CPR) posters shall be posted conspicuously at all times.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.3	Up-to-date Cardiopulmonary Resuscitation (CPR/AED), First Aid and Prevention of Recreational Water Illness posters appropriate to an aquatic facility shall be posted at all times.	*This requires something that may not even exist. Most posters show and give instructions for CPR protocols that are not current.* -- Delete: Up-to-date Cardiopulmonary Resuscitation (CPR/AED), First Aid and Prevention of Recreation Water Illness posters appropriate to an aquatic facility shall be posted at all times.	Partially agree. Code revised.	5.8.5.4.3	Cardiopulmonary Resuscitation (CPR) posters shall be posted conspicuously at all times.
Lifeguard & Bather Supervision (LG)	5.8.5.3.4.3	Up-to-date Cardiopulmonary Resuscitation (CPR/AED), First Aid and Prevention of Recreational Water Illness posters appropriate to an aquatic facility shall be posted at all times.	Repeated discussion on "throwing device", hence duplicate change to that suggested above.	Agree. Change made.	5.8.5.4.3	Cardiopulmonary Resuscitation (CPR) posters shall be posted conspicuously at all times.
Lifeguard & Bather Supervision (LG)	5.8.5.3.6	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem.	All that you need is a posted sign that instructs a guest what to do outlining the process for reporting problems and closures. Really all that you need is a contact number or extension of a staff member.	Agree. Code revised.	5.8.5.4.4	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code per MAHC 6.6.4 and a telephone number to report the problem to the owner/operator.
Lifeguard & Bather Supervision (LG)	5.8.5.3.6	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem.	If an operator is required to be on-site, as suggested above in section 5.8.5.3.2, the process for reporting these closure items to the operator on-site should also be outlined on this sign. Suggestion: *"A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility or specific aquatic venue within an aquatic facility, as defined in this code. Sign shall include the process for reporting the closure item to the operator on-site, and a telephone number to report the problem if an operator cannot be located at the facility."*	Agree. Code revised.	5.8.5.4.4	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code per MAHC 6.6.4 and a telephone number to report the problem to the owner/operator.
Lifeguard & Bather Supervision (LG)	5.8.5.3.6	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem.	The process for reporting these closure items to the operator on-site should also be outlined on this sign.	Agree. Code revised.	5.8.5.4.4	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code per MAHC 6.6.4 and a telephone number to report the problem to the owner/operator.
Lifeguard & Bather Supervision (LG)	5.8.5.3.6	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem.	*What imminent health closure items?* -- Delete: A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code and a telephone number to call to report the problem	Disagree. Code has been revised for clarity, the sign is to include the specific items listed in the "Imminent Health Hazard" Section 6.6.4	5.8.5.4.4	A sign shall be posted outlining the required imminent health hazard closure items of an aquatic facility as defined in this code per MAHC 6.6.4 and a telephone number to report the problem to the owner/operator.
Lifeguard & Bather Supervision (LG)	6.2.1	Lifeguard Qualifications and Certification	If this statement is true, why allow for unguarded facilities at all if the *"health and safety of the public"* is the main concern of this Organization/Code? Present a conflict with provisions of Code.	Annex comment . No change proposed by commenters. Note- See Annex discussion on risk in revised code under Aquatic Facility Management.	5.8.5.4.5	MAHC Section 6.3.1.1.4 outlines the conditions that require a qualified lifeguard. For aquatic facilities that do not have lifeguards, patrons should be informed that no lifeguard is provided so they can comply with any requirements and understand the identified risk. For instance, at a hotel pool that requires key entry, the sign would notify hotel guests that no lifeguard is provided and persons under the age of 14 are not allowed in without adult supervision.
Risk Management (RM)	5.9.1	Chemical Storage	*Clearer definitions needed.* -- "Storage" means the condition of remaining in one space for one hour or more. Chemical storage area needs defined further or are they considering anywhere a "chemical" is "stored" as being a chemical storage area? Also need to define "Chemical" somewhere so it is clear what they are talking about here. Almost everything is considered a chemical by definition and many items have MSDS sheets and official chemical listings in registries...	Disagree. Content is specific	5.9.1	Chemical Storage
Risk Management (RM)	5.9.1.13	A single container of a chemical that has been opened and that is currently in use in the pump room may be kept in a staging area of the pump room only when the chemicals will be protected from exposure to heat and moisture.	*Clarification.* -- Clarification on single container size and volume limitations if any.	Disagree. The MAHC does not think that this level of detail is warranted.	5.9.1.12	A single container of a particular chemical that has been opened and that is currently in use in the pump room may be kept in a staging area of the pump room only if the chemical(s) will be protected from exposure to heat and moisture.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	5.9.1.13.1	*For small recreational water facilities that do not currently have a chemical storage area separate from the pump room, this requirement may be waived at the discretion of the local public health and/or fire officials if the chemicals are protected from exposure to heat and moisture and no imminent health or safety threats are identified.*	*Clear definition.* -- How is "small" defined	The MAHC does not think that this level of detail is warranted.	5.9.1.13.1	For aquatic facilities that do not currently have a chemical storage area separate from the equipment room, this requirement may be waived at the discretion of the local public health and/or fire officials if the chemicals are protected from exposure to heat and moisture and no imminent health or safety threats are identified.
Risk Management (RM)	5.9.1.13.1	*For small recreational water facilities that do not currently have a chemical storage area separate from the pump room, this requirement may be waived at the discretion of the local public health and/or fire officials if the chemicals are protected from exposure to heat and moisture and no imminent health or safety threats are identified.*	*Cost. Some things not necessary for a small facility vs. a large water park* -- Just want to say I like the waiver here. There should be more waivers in other sections for smaller facilities.	No response required	5.9.1.13.1	For aquatic facilities that do not currently have a chemical storage area separate from the equipment room, this requirement may be waived at the discretion of the local public health and/or fire officials if the chemicals are protected from exposure to heat and moisture and no imminent health or safety threats are identified.
Risk Management (RM)	5.9.1.7	Possible ignition sources (e.g., welding equipment), including but not limited to gasoline, diesel, or gas-powered equipment such as lawn mowers, motors, grills, or portable stoves shall not be stored in the chemical storage area.	*Clarification.* -- Are pool heaters exempt from the "storage of ignition sources"?	Agree. A pool heater could be an ignition source if it is gas powered and can ignite a flame. Have added additional wording to clarify.	5.9.1.7	Possible ignition sources (e.g., welding equipment), including but not limited to gasoline, diesel, natural gas, or gas-powered equipment such as lawn mowers, motors, grills, pool heaters, or portable stoves shall not be stored or installed in the chemical storage area.
Risk Management (RM)	5.9.1.9	Lighting shall be sufficient to read labels on containers throughout the chemical storage area and pump room.	*Easy for me to read? I'll bet a lot of operators don't want my personal judgment making the determination.* -- "Sufficient" is not appropriate code language. It provides no guidance to the regulatory official or the pool operator. I think the room should have at least a light level of 150 foot candles at 3 feet of height. I'll bet few others would agree with that, but it might be my determination of "sufficient."	Agree. Added content that states that 30fc is the minimum.	5.9.1.9	Lighting shall be at minimum 30 footcandles (323 lux) to allow operators to read labels on containers throughout the chemical storage area and pump room.
Risk Management (RM)	5.9.2.1	Containers of chemicals shall be labeled, tagged, or marked with the identity of the material and a statement of the hazardous effects of the chemical.	*Consistency.* -- should be labeled according to materials labeling requirements (OSHA)	*Agreed. Wording added.*	5.9.2.1	5.9.2.1 Identity RM Containers of chemicals shall be labeled, tagged, or marked with the identity of the material and a statement of the hazardous effects of the chemical according to OSHA and/or EPA materials labeling requirements. 5.9.2.1.1 Labeling RM All AQUATIC VENUE chemical containers shall be labeled according to OSHA and/or EPA materials labeling requirements.
Risk Management (RM)	5.9.2.2	All aquatic venue chemical containers shall be labeled.	*Consistency.* -- should be labeled according to materials labeling requirements (OSHA)	*Think this is referring to 5.9.2.1.1. Wording has been added*	5.9.2.1.1	All aquatic venue chemical containers shall be labeled according to OSHA and/or EPA materials labeling requirements.
Risk Management (RM)	5.9.2.3	The chemicals used in controlling the quality of water shall be NSF 50 approved and used only in accordance with the manufacturer's instructions.	1) *NSF 50 is for testing and certification of equipment only, not chemicals. 2) The term "NSF approved" is considered unacceptable to NSF.* -- The ~~chemicals~~ equipment used in controlling the quality of water shall be NSF 50 ~~approved~~ Certified and used only in accordance with the manufacturer's instructions. – Reference: 1) NSF/ANSI 50-2011, "Equipment for Swimming Pools, Spas, Hot Tubs and other Recreational Water Facilities", Ann Arbor: NSF International, Aug. 10, 2011. http://www.techstreet.com/cgi-bin/detail?doc_no=nsf%7C50_2011;product_id=1812025 2) "Acceptable/ Unacceptable Language for Use with the NSF Mark in Advertising or Promotional Materials" in "The Guide for Using the NSF Mark", Ann Arbor: NSF International, 2008, p. 9 http://www.nsf.org/business/about_NSF/marks_guide.pdf	Agree. Changed "approved" to "certified."	5.9.2.2	The chemical equipment used in controlling the quality of water shall be certified to NSF/ANSI 50 and used only in accordance with the manufacturer's instructions.
Risk Management (RM)	5.9.2.3	The chemicals used in controlling the quality of water shall be NSF 50 approved and used only in accordance with the manufacturer's instructions.	*Certification of products to any standard (NSF, UL, etc.) indicates that the product meets the requirements of the standard. It does not "approve" the product. The correct wording has been provided in the recommendation. Such wording is consistent with wording in other codes.* -- The chemicals used in controlling the quality of water shall be listed to NSF 50, approved and used only in accordance with the manufacturer's instructions.	Agree. Changed "approved" to "certified."	5.9.2.2	The chemical equipment used in controlling the quality of water shall be certified to NSF/ANSI 50 and used only in accordance with the manufacturer's instructions.
Risk Management (RM)	5.9.2.3	The chemicals used in controlling the quality of water shall be NSF 50 approved and used only in accordance with the manufacturer's instructions.	*NSF 50 does not approve pool chemicals* -- Remove reference to NSF 50	This statement refers to chemical controllers which are NSF certified. No change.	5.9.2.2	The chemical equipment used in controlling the quality of water shall be certified to NSF/ANSI 50 and used only in accordance with the manufacturer's instructions.
Risk Management (RM)	5.9.2.3.1 (NEW SECTION)	N/A	Addresses chemical concern in original wording of 5.9.2.3.Helps to prevent dangerous mixing of incompatible chemicals and to insure that the chemical delivery rate meets label claims. -- Chemical feeders shall be used only with the chemical(s) specified in or allowed by the NSF/ANSI Listing and use instructions or data plate of the feeder. In addition the use of the chemical shall comply with the manufacturer's instructions. Sanitizers shall be EPA registered for the given use. – Reference: Sections 9 & 10 & Annexes G.1 and G.3 of NSF/ANSI 50-2011, "Equipment for Swimming Pools, Spas, Hot Tubs and other Recreational Water Facilities", Ann Arbor: NSF International, Aug. 10, 2011. http://www.techstreet.com/cgi-bin/detail?doc_no=nsf%7C50_2011;product_id=1812025	Agree. Modified sentence to read, "The chemical equipment used in controlling the quality of water shall be NSF 50 certified and used only in accordance with the manufacturer's instructions."	5.9.2.2	The chemical equipment used in controlling the quality of water shall be certified to NSF/ANSI 50 and used only in accordance with the manufacturer's instructions.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	5.9.2.5	Measuring devices and containers for each chemical shall be used.	*not all chemicals would require measuring devices).* -- ~~Measuring devices and containers for each chemical shall be used.~~ To avoid cross contamination and possible reaction hazards each measuring cup or other volumetric measurement device used in the facility shall be dedicated to a single chemical, and shall not be allowed to contact any other chemical until the device has been thoroughly cleaned and dried.	Agree. Changed sentence for clarity.	5.9.2.3	Chemicals shall be measured using a dedicated measuring device where applicable.
Recirculation and Filtration	5.7.3.1.2.1	Superchlorination or shock chemicals and other pool chemicals added manually shall be introduced to the pool through the surge tank, balance tank, or a skimmer whenever available.	Procedure is contrary to CPO teachings. Large quantities of acids or chlorine products through the equipment will destroy the equipment in a short period of time	Agree. Code revised.	5.9.2.4.1.1	Superchlorination or shock chemicals and other pool chemicals other than disinfection and pH control may be added manually to the pool.
Risk Management (RM)	5.9.2.4	Chemicals shall never be hand-fed directly into the aquatic venue while open to the public.	*Does this prohibit adding chemicals in any manner accept by acceptable equipment? What if I find I have no chlorine in the middle of the afternoon? Do I need to close my facility and chase everyone out, before I can do a quick adjustment to my chemical levels?* -- How about "…while swimmers are allowed in the water. Chemicals shall be given a 'sufficient' amount of time to mix before swimmers are allowed in. (See 5.9.1.9)	Agreed. The intent is to not hand broadcast chemicals while bathers are in the pool or for an adequate time after to ensure adequate mixing as covered here and in recirculation and filtration module 5.7.3.1.No venue should be open if no disinfectant is found in the water. As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.	5.9.2.4.1.2	Chemicals added manually directly into the aquatic venue shall only be introduced in the absence of bathers.
Recirculation and Filtration	5.7.3.1.3	Whenever required by the manufacturer, chemicals shall be diluted (or mixed with water) prior to application and as per the manufacturer's directions.	Whenever required by the manufacturer, chemicals shall be diluted (or mixed with water) prior to application and as per the manufacturer's directions. GENERAL COMMENT: As a follow up to this section on pre-dilution of chemicals, it might be a good idea to have a subsection forbidding the dilution of more than one chemical at a time in the same (limited volume) dilution water. Manufacturers' directions would also caution against chemical mixing, but in view of the number of accidents per year that result from chemical mixing at aquatic venues, providing the warning explicitly in the model code might be prudent.	Agree. Code revised.	5.9.2.4.2	Whenever required by the manufacturer, chemicals shall be diluted (or mixed with water) prior to application and as per the manufacturer's directions.
Risk Management (RM)	5.9.2.6	Chemicals shall not be mixed with solid or liquid chlorine compounds.	*Even mixing chlorine compounds is dangerous (Trichlor & Cal. Hypo.)* – Chemicals shall not be mixed ~~with solid or liquid chlorine compounds.~~ together before adding to the pool	Agree. Changed as suggested	5.9.2.4.2.2.1	Two or more chemicals shall never be mixed in the same dilution water.
Risk Management (RM)	6.1.1	All recreational water facility operators, maintenance staff, lifeguard staff or any others who are involved in the storage, use, or handling of chemicals shall receive annual training for the following:	*If the maintenance staff consists of one person, and that person is responsible for maintenance of the procedures, then who is to train them? CPO classes are only required every 5 years. Perhaps annual "training" is excessive, but annual procedural review is appropriate.* – All recreational water facility operators, maintenance staff, lifeguard staff, or any others who are involved in the storage, use, or handling of chemicals shall receive training prior to access of chemicals, and receive at least an annual review of procedures thereafter.	*Agree. Modified content.*	6.0.1	All qualified operators, maintenance staff, qualified lifeguard staff, or any others who are involved in the storage, use, or handling of chemicals shall receive training prior to access of chemicals, and receive at least an annual review of procedures thereafter for the following topics discussed in MAHC Section 6.1.1.1 to 6.1.1.5:
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	*Editorial clarification. Lifeguards are already a part of the AFST.* -- Aquatic Facility Safety Team members shall be trained in all applicable regulations of this Code, OSHA and the AHJ.	Do not disagree	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	Not only is this a double standard, it is also not practically supported by the code. The code, as stated in earlier comments, does NOT require presence of any persons at a pool…so how, based on the code, would there be any ability to meet this standard?	Not clear on context but the code and annex have been extensively revised.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	Once again the Lifeguards are required to have more and more advanced training than the Supervisor who is required to provide oversight and direction.	The wording of code and annex has been extensively revised.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	Paragraph 1, ANSI/APSP 9-20.6 EAP, ANSI/NSPI-1 2003 sections should all be removed. They do not in any way relate to the Code language for section 6.3.4.1.2, which talks about OSHA workplace safety training requirements. Delete it!	This is annex information and is related. Agree to take out the EAP information.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	requires that "The aquatic supervisor shall ensure all Aquatic Facility Safety Team members have been trained in proper Fecal, Vomit and Blood Contamination Incident Response." The Aquatic Facility Safety Team is defined as "any employee of the aquatic venue that has job responsibilities related to the aquatic venue's emergency action plan." This presumably includes maintenance, guest services and other staff whose duties would not put them in any contact with such contamination but still have some small part in an emergency action plan.	Disagree, all team members run the risk of having to deal with this issue at any time.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	*This is impossible for most facilities. How do they know or even find out what OSHA will require of them? This is yet another instance of where the code confuses what is required for aquatic safety and what is required by other agencies* -- Delete: Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the Health Authority requirements for the specific aquatic venue	Disagree. It is their responsibility to know. Citations added.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.2	Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue.	Training in this area should comply with standard OSHA blood borne pathogen training. All that is needed is OSHA compliance.	Disagree with comment - there is other training required by OSHA and other agencies.	6.0.1.4	Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program.
Lifeguard & Bather Supervision (LG)	6.3.4.1.2, 6.3.4.1.4, & 6.3.4.1.5	6.3.4.1.2--- Lifeguards and aquatic safety staff shall have work place safety training requirements meeting the level of the Occupational Safety and Health Administration (OSHA), this Code and the AHJ requirements for the specific aquatic venue. 6.3.4.1.4--- Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance. 6.3.4.1.5--- Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge for all the venue's emergency closure issues before active patron surveillance.	Delete all current text. This should address the need for documentation; get to the point of the section. Don't add text for the sake of filling space especially when it does not relate to the Code content. The Annex is already too wordy.	Text has been edited and modified.	6.0.1.4, 6.3.4.5.5	6.0.1.4: Federal OSHA Requirements: Hazard Communication Standard (Employee Right-to-Know) and MSDS. Know the location and availability of the written program. ; 6.3.4.5.5: Documentation from employees trained in current EAP shall be available upon request.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2.2	Documentation of all in-service trainings shall be kept on file readily available for inspection.	*Define how long to keep documentation.* -- Documentation of a lifeguard's in-service trainings shall be kept on file during the length of their employment.	Partially agree. Code changed to include 3 year retention time.	6.0.1.7	Records of all training should be recorded and maintained on file.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2.2	Documentation of all in-service trainings shall be kept on file readily available for inspection.	For how long?	Should be defined by the AHJ.	6.0.1.7	Records of all training should be recorded and maintained on file.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2.2	Documentation of all in-service trainings shall be kept on file readily available for inspection.	*There needs to be a time designation.* -- Documentation of all in-service trainings from the preceding 3 years shall be kept on file readily available for inspection	Annex information to support that the committee came up 4 hours a month as a minimum. Documentation of all in-service trainings shall be kept on file readily available for inspection in accordance with aquatic facility record retention policy. Direction can be provided as to minimum length of time records should be kept if so desired.	6.0.1.7	Records of all training should be recorded and maintained on file.
Regulatory (REG)	6.4.1.3.5.1 & .2	6.4.1.3.5.1 All required lifeguard, safety personnel training, or qualified operator certificates shall be maintained on-site and made available to inspectors, staff, and POOL patrons upon request. 6.4.1.3.5.2 A copy of the original certificate shall be made available when employees work at multiple aquatic facilities.	Please consider that since the ARC and maybe others, will be allowing instructors to print their own certifications, that forgery may be a problem. At least a preprinted card is somewhat harder to forge.	The MAHC Committee doesn't know that preprinted cards are harder to forge. We can not fool proof a system to prevent forgeries. Certifying organizations can be contacted for verification.	6.0.1.7	Records of all training should be recorded and maintained on file.
Risk Management (RM)	6.1.1.8	Employees assigned to roles which have the potential for an occupational exposure to bloodborne pathogens or other germs shall be trained to recognize and respond to RWI, BBP, and vomit in and around the aquatic venue area.	*"other germs" seems too vague.* -- Employees assigned to roles which have the potential for an occupational exposure to BBP or RWI shall be trained to recognize and respond to RWI, BBP, and vomit in and around the aquatic venue area.	*Disagree. We discussed this with public health experts to define exposure but not to be limiting. Left "other germs" in wording but have made some wording changes to clarify that the response is to body fluid spills.*	6.0.1.8	Employees assigned to roles which have the potential for an occupational exposure to bloodborne pathogens, pathogens that cause recreational water illnesses, or other pathogens shall be trained to recognize and respond to body fluid (blood, feces, vomit) releases in and around the aquatic venue area.
Risk Management (RM)	6.1.1.8	Employees assigned to roles which have the potential for an occupational exposure to bloodborne pathogens or other germs shall be trained to recognize and respond to RWI, BBP, and vomit in and around the aquatic venue area.	*Editorial: completeness and clarity. See rationale to left in square brackets.* -- …trained to recognize and respond to RWI, BBP, and <u>visible signs of sanitary hazards such as fecal matter or</u> vomitus in and around the AQUATIC VENUE area. [1) Vomit (or more precisely vomitus) would not be the only observable sanitation issue around a pool. 2) The original wording would allow the word vomit to be interpreted as a verb in parallel with "recognize and respond": "trained to…vomit in and around…"]	Agreed. Have clarified wording	6.0.1.8	Employees assigned to roles which have the potential for an occupational exposure to bloodborne pathogens, pathogens that cause recreational water illnesses, or other pathogens shall be trained to recognize and respond to body fluid (blood, feces, vomit) releases in and around the aquatic venue area.
Risk Management (RM)	6.1.1.9	Employers shall have an Exposure Control Program for BBP.	*This whole line seems redundant to already existing federal regulations, but if we are including it they should know where it is coming from.* - Employers shall have an Exposure Control Program for BBP per OSHA 1910.1030	*Agree. Referenced OSHA requirements.*	6.0.1.9	Employers shall have an Exposure Control Program for bloodborne pathogens as required by OSHA 1910.1030.
Operator Training (OT)	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the health authority.	Qualifications - We would like to express concern about the lack of definition of a pool operator. Whereas the sections that were provided thoroughly delineate the training requirements of an operator, our position on the appropriateness of the training requirements hinges on this definition.	Added. Qualified Pool Operator is currently defined as a person who meets the requirements specified in MAHC 6.1.1. This is now added to the Operator Training Module.	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the AHJ.
Operator Training (OT)	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the health authority.	Operator Qualifications and Certifications - All public pools shall be under the supervision of a qualified operator. A qualified operator shall have completed…	Section 6.1 will be changed as defined in the Regulatory Management Module	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the AHJ.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the health authority.	Qualifications - Completion of training without stipulation as to testing of skills or certification level does not establish a minimum criteria for qualification in any given area	None. Section 6.1.3.5 requires a final examination that is intended to assess the knowledge and skills of the pool operator. There is also a discussion in the annex that provides further guidance concerning exams. While the technical committee discussed skill testing it is not included at this time. In the future it would be ideal if course final exams included more than just knowledge testing and also had skills testing. This should include an on-site evaluation of skills such as proper calculations of gallonage and chemicals needed to be added to the aquatic facility, how to operate the filtration/recirculation system, including backwashing the filters, and water testing (chemical and physical parameters). The Technical Committee did not feel that this was feasible at this time	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the AHJ.
Operator Training (OT)	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the health authority.	Qualifications - We are concerned that facilities might be required to have multiple operators, or that every facility be required to have an operator during operational hours.	The Operator training Module file now includes at the top proposed language from the Regulatory Program Administration Module. This should allow reviewers to understand the requirements for QUALIFIED OPERATORS as well as when and where QUALIFIED OPERATORS would be required. The proper placement for this section is under MAHC 6.3.1: Operator Staff Requirements and Availability.	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the AHJ.
Operator Training (OT)	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the health authority.	Qualified Operator - ~~A QUALIFIED OPERATOR~~ The PERSON-IN-CHARGE shall have successfully completed a QUALIFIED OPERATOR examination that is recognized by the REGULATORY AUTHORITY. The QUALIFIED OPERATOR examination shall cover all aspects of aquatic facility operation indicated in 6.1.2. Originals ~~or copies~~ of such certificate or documentation shall be available on site for inspection by the ~~HEALTH AUTHORITY~~ REGULATORY AUTHORITY for the PERSON-IN-CHARGE ~~each QUALIFIED OPERATOR employed at or contracted by~~ at the site, as specified in this code.	None. Under the MAHC recommended code, a "Person-in-Charge" can either be a Qualified Operator, or else can have an staff person on-site who is certified as a Qualified Operator. In any event, to be a Qualified Operator, that individual must complete an operator training course recognized by the authority having jurisdiction.	6.1.1.1	A qualified operator shall have completed an operator training course that is recognized by the AHJ.
Operator Training (OT)	6.1.1.2	A qualified operator shall have a current certificate or written documentation acceptable to the health authority showing completion of an operator training course.	Training Documentation - Should stipulate that 'successful completion" is documented	None. Section 6.1.3.6 provides for course certification and states that the certificate is the proof of successful completion. There is also further guidance in the Annex on course certification.	6.1.1.2	A qualified operator shall have a current certificate or written documentation acceptable to the AHJ showing completion of an operator training course.
Operator Training (OT)	6.1.1.2.1	Originals or copies of such certificate or documentation shall be available on site for inspection by the health authority for each qualified operator employed at or contracted by the site, as specified in this code.	Certificate Available - Originals ~~or copies~~ of such certificate or documentation shall be available on site for inspection by the ~~HEALTH AUTHORITY~~ REGULATORY AUTHORITY for the PERSON-IN-CHARGE ~~each QUALIFIED OPERATOR employed at or contracted by~~ at the site, as specified in this code.	None. While it is desirable for originals to be available, the MAHC decided to allow copies since a Qualified Operator may work in more than one location, depending on schedules. Section 6.1.1.3 will be modified to additionally state that "originals shall be made available upon request by the health authority.	6.1.1.2.1	Originals or copies of such certificate or documentation shall be available on site for inspection by the AHJ for each qualified operator employed at or contracted by the site, as specified in this code.
Operator Training (OT)	6.1.2.1	All operator training courses recognized by the HEALTH AUTHORITY shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water Chemistry 3) Mechanical Systems 4) Health and Safety Operations.	Operator Training Course Content – Add "Automation"	None. Automation would be covered under the elements shown.	6.1.2.1	All operator training courses recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water chemistry 3) Mechanical systems 4) Health and safety operations.
Operator Training (OT)	6.1.2.1	All operator training courses recognized by the HEALTH AUTHORITY shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water Chemistry 3) Mechanical Systems 4) Health and Safety Operations.	Operator Training Course Content – Add Parameter Differences between flatwater pools and aquatic recreational facilities re automation	None. This distinction would be covered under the elements shown.	6.1.2.1	All operator training courses recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water chemistry 3) Mechanical systems 4) Health and safety operations.
Operator Training (OT)	6.1.2.1	All operator training courses recognized by the HEALTH AUTHORITY shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water Chemistry 3) Mechanical Systems 4) Health and Safety Operations.	Operator Training Course Content - Describe the relationship between air and water quality on air quality to reduce Disinfectant By Products (DBP)s What is relative humidity (RH) How are DBPs formed? Why is RH important to controlling DBP-based RWIs	None. These items are already be covered under section 6.1.2.1.5.9 Air Circulation. Also the Ventilation and Air Quality Module will provide extensive coverage of these relationships.	6.1.2.1	All operator training courses recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water chemistry 3) Mechanical systems 4) Health and safety operations.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1 et al.	All operator training courses recognized by the HEALTH AUTHORITY shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water Chemistry 3) Mechanical Systems 4) Health and Safety Operations.	I am not a big fan of laundry lists like this being in the code. This are probably not something states will want in their rules as they are not really necessary to the state. The state would publish the approved list of certifications. The course contents would be referenced in a separate document, usable when and if needed for course evaluation. I know the committee I am on is doing the same thing with lists. With training course requirements, I think the steering committee should consider an option that places these lists into a standards document that could be referenced in the rule. I'm not sure whether referencing the annex is appropriate or not. I might suggest a companion standard such as is referenced by the food manager training requirements. Referring to a separate standard will allow much easier editing of the lists, when necessary, and allow the state to reference the course requirements instead of listing them. This would make keeping the state's rules up to date much easier. It could also be a mechanism for a nationally represented committee to evaluate various training programs, for the states, for recommended approval. For the FDA, we have the accreditation committee looking at courses, exams, exam security, etc. Something similar should be available to the MAHC group.	None. The MAHC is designed to be data-driven, knowledge-based, risk reduction effort that will provide a model code that can be adopted by state or local entities to help protect public health. We recognize that some of those entities may want to adopt variations of the material contained in the MAHC. The MAHC will be available for all of those entities without cost. To use parts of a code from to third parties may have cost burdens and may not necessarily conform to the public health principals set forth by the MAHC. We agree that in the future as training programs evolve the laundry lists can likely be removed to "certification" documents to be used by local authorities. At this point, we prefer to leave the choice to the local authority to remove since there is not an alternative mechanism for listing these required elements in place elsewhere.	6.1.2.1	All operator training courses recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Water DISINFECTION 2) Water chemistry 3) Mechanical systems 4) Health and safety operations.
Operator Training (OT)	6.1.2.1.1	Course work for water DISINFECTION shall include: 1) Contact Time (CT) Values 2) CHLORINE 3) Cyanuric Acid (CYA) 4) Bromine 5) BREAKPOINT/SUPERCHLORINATION 6) HYPERCHLORINATION 7) Combined CHLORINE 8) SECONDARY DISINFECTION SUPPLEMENTAL DISINFECTION	Shall all courses teach "the requirements of MAHC" i.,e., water disinfection- Cl_2 1-5 ppm?	While it is hoped that "the requirements of the MAHC" will be incorporated into all operator training courses, training in a particular locale must be based on the regulations that have been adopted by the local jurisdiction. The MAHC is intended to serve as a model ordinance for those local jurisdictions to use in revising or preparing their local aquatic venue ordinances. Course instructors will need to remind trainees to check the local codes in place.	6.1.2.1.1	Water DISINFECTION including: 1) Water DISINFECTION 2) CT or Concentration X Time values 3) CHLORINE 4) Cyanuric acid (CYA) 5) Bromine 6) BREAKPOINT 7) SUPERCHLORINATION 8) HYPERCHLORINATION 9) Combined CHLORINE 10) SECONDARY DISINFECTION 11) SUPPLEMENTAL DISINFECTION
Operator Training (OT)	6.1.2.1.1	Course work for water DISINFECTION shall include: 1) Contact Time (CT) Values 2) CHLORINE 3) Cyanuric Acid (CYA) 4) Bromine 5) BREAKPOINT/SUPERCHLORINATION 6) HYPERCHLORINATION 7) Combined CHLORINE 8) SECONDARY DISINFECTION SUPPLEMENTAL DISINFECTION	Delete Item # 6) Breakpoint Chlorination – Breakpoint Chlorination should not be a stand-alone category, it should be a sub-category of Item #8) Combined Chlorine. The rationale for this recommendation is that Breakpoint Chlorination is not an effective means for combined chlorine removal. Breakpoint Chlorination removes only a fraction of the inorganic combined chlorine, that which exists as monochloramine, dichloramine, and trichloramine, and it does not convert those inorganic chloramines to nitrogen gas (N2), as stated in most all training manuals, but rather converts them to nitrogen trichloride gas (NCl3). This is because when Breakpoint Chlorination is applied according to the method taught in CPO (and other) training classes, chlorine is over-applied and the weight ratio of chlorine to nitrogen is far in excess of that required to reach the "breakpoint". The result is that instead of removing combined chlorine as inert nitrogen gas (N2), this process results in converting inorganic chloramine to nitrogen trichloride, while not reacting with organic combined chlorine at all. (#1) (**SEE PUBLIC COMMENTS FOR FULL TEXT)	None. We appreciate your position and the information provided. However, we believe that it is just as appropriate to list "breakpoint/superchlorination" as it is to list "chlorine" and "combined chlorine". The important thing is not how they are listed, but that all of these topics receive adequate consideration and discussion in an operator training course.	6.1.2.1.1	Water DISINFECTION including: 1) Water DISINFECTION 2) CT or Concentration X Time values 3) CHLORINE 4) Cyanuric acid (CYA) 5) Bromine 6) BREAKPOINT 7) SUPERCHLORINATION 8) HYPERCHLORINATION 9) Combined CHLORINE 10) SECONDARY DISINFECTION 11) SUPPLEMENTAL DISINFECTION
Operator Training (OT)	6.1.2.1.1	Course work for water DISINFECTION shall include: 1) Contact Time (CT) Values 2) CHLORINE 3) Cyanuric Acid (CYA) 4) Bromine 5) BREAKPOINT/SUPERCHLORINATION 6) HYPERCHLORINATION 7) Combined CHLORINE 8) SECONDARY DISINFECTION SUPPLEMENTAL DISINFECTION	Water Disinfection - Bromine Chemistry and the role of pH. Total Available Bromine and bromine sanitizer activity	None. Course work already includes bromine.	6.1.2.1.1	Water DISINFECTION including: 1) Water DISINFECTION 2) CT or Concentration X Time values 3) CHLORINE 4) Cyanuric acid (CYA) 5) Bromine 6) BREAKPOINT 7) SUPERCHLORINATION 8) HYPERCHLORINATION 9) Combined CHLORINE 10) SECONDARY DISINFECTION 11) SUPPLEMENTAL DISINFECTION

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.1	Course work for water DISINFECTION shall include: 1) Contact Time (CT) Values 2) CHLORINE 3) Cyanuric Acid (CYA) 4) Bromine 5) BREAKPOINT/SUPERCHLORINATION 6) HYPERCHLORINATION 7) Combined CHLORINE 8) SECONDARY DISINFECTION SUPPLEMENTAL DISINFECTION	Water Disinfection - Should list the halogen family of chemicals under disinfectants (Chlorine 6.1.2.1.1.4 , Bromine 6.1.2.1.1.3 and Cyanuric Acid 6.1.2.1.1.5) for readability and understanding. Initial reaction for review is there are disinfectants and then there are Bromine and Chlorine. The reader might not initial understand the sequence.	Deleted 6.1.2.1 (1) Disinfectants to remove possible point of contention	6.1.2.1.1	Water DISINFECTION including: 1) Water DISINFECTION 2) CT or Concentration X Time values 3) CHLORINE 4) Cyanuric acid (CYA) 5) Bromine 6) BREAKPOINT 7) SUPERCHLORINATION 8) HYPERCHLORINATION 9) Combined CHLORINE 10) SECONDARY DISINFECTION 11) SUPPLEMENTAL DISINFECTION
Operator Training (OT)	6.1.2.1.1.10	SUPPLEMENTAL DISINFECTION including other DISINFECTION chemicals or systems on the market and their effectiveness in water treatment.	Supplemental Disinfection - Add warning re side stream treatment effectiveness diminished	Suggested material will be added to annex	6.1.2.1.1 Annex	Water Disinfection (See Annex for full text)
Operator Training (OT)	6.1.2.1.1.1	Disinfectant types including: 1) Descriptions of different types of disinfectants, 2) Their unique physical (e.g., shape or state [solid, liquid, or gas]) and chemical properties (e.g., how it reacts with acids or bases), 3) How they disinfect and impact water chemistry and monitoring systems, 4) How to calculate dosing, 5) How they are used safely, and The advantages or disadvantages of using each disinfectant.	Disinfectant Types - Emphasize OSHA RTK and Safety Aspects	These aspects are covered under the elements shown. However, additional discussion material was added to Annex	6.1.2.1.1.1	DISINFECTANT types including: 1) Descriptions of different types of DISINFECTANTS, 2) Their unique physical (e.g., shape or state [solid, liquid, or gas]) and chemical properties (e.g., how it reacts with acids or bases), 3) How they disinfect and impact water chemistry and MONITORING systems, 4) How to calculate dosing, 5) How they are used safely, and 6) The advantages or disadvantages of using each DISINFECTANT.
Operator Training (OT)	6.1.2.1.1.1	Disinfectant types including: 1) Descriptions of different types of disinfectants, 2) Their unique physical (e.g., shape or state [solid, liquid, or gas]) and chemical properties (e.g., how it reacts with acids or bases), 3) How they disinfect and impact water chemistry and monitoring systems, 4) How to calculate dosing, 5) How they are used safely, and The advantages or disadvantages of using each disinfectant.	Disinfectants: Between #2 and #3 should be an item for "Side Effects of Disinfectant Addition" which will describe what is additionally added in terms of increasing Calcium Hardness (CH), Cyanuric Acid (CYA), Salt (including net salt from chlorine consumption/usage) and affect on pH (including the acidity from chlorine consumption/usage). Perhaps this will be covered in #3 "How they disinfect and impact water chemistry and monitoring systems".	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.1	DISINFECTANT types including: 1) Descriptions of different types of DISINFECTANTS, 2) Their unique physical (e.g., shape or state [solid, liquid, or gas]) and chemical properties (e.g., how it reacts with acids or bases), 3) How they disinfect and impact water chemistry and MONITORING systems, 4) How to calculate dosing, 5) How they are used safely, and 6) The advantages or disadvantages of using each DISINFECTANT.
Operator Training (OT)	6.1.2.1.1.10	SUPPLEMENTAL DISINFECTION including other DISINFECTION chemicals or systems on the market and their effectiveness in water treatment.	Supplemental Disinfection -There are no other approved "disinfectant chemical or systems" for PBP	None. It is important for operators to know which disinfection chemical or systems are available and approved, as well as those that are not. Many other disinfection chemicals or systems with varying effectiveness and suitability are being offered on the market for aquatic facility operators for water treatment so mentioning one would necessitate creating an exhaustive listing.	6.1.2.1.1.10	supplemental disinfection including other disinfection chemicals or systems on the market and their effectiveness in water treatment.
Operator Training (OT)	6.1.2.1.1.2	CONTACT TIME (CT) VALUES including: 1) How to calculate the amount of time needed to inactivate PATHOGENs at a given concentration of a disinfectant, and 2) The importance and reasons for maintaining appropriate water PH and temperature.	CT Values - Expand published CT values beyond presently available info. Include all common RWI's and all common disinfectants.	None. CT values would be covered under 6.1.2.1.1 (2)	6.1.2.1.1.2	CT or Concentration X Time Values including: 1) How to calculate the amount of time needed to inactivate PATHOGENS at a given concentration of a DISINFECTANT, and 2) The importance and reasons for maintaining appropriate water pH and temperature.
Operator Training (OT)	6.1.2.1.1.2	CONTACT TIME (CT) VALUES including: 1) How to calculate the amount of time needed to inactivate PATHOGENs at a given concentration of a disinfectant, and 2) The importance and reasons for maintaining appropriate water PH and temperature.	CT Values: In the actual course content itself, I hope that the training on the CT calculation emphasizes that the "C" chlorine concentration is the hypochlorous acid concentration or an adjusted FC value accounting for CYA (i.e. the FC equivalent that gives the same hypochlorous acid concentration if no CYA were present). It seems to me that most CT values are based on FC with no CYA at a given pH and aren't actually calculated using hypochlorous acid concentration itself even though that would be more relevant and would give a CT value that would be relatively independent of pH and CYA if one used calculated hypochlorous acid concentration for "C". A reasonable approximation for the equivalent FC with no CYA is to use the FC/CYA ratio	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.2	CT or Concentration X Time Values including: 1) How to calculate the amount of time needed to inactivate PATHOGENS at a given concentration of a DISINFECTANT, and 2) The importance and reasons for maintaining appropriate water pH and temperature.
Operator Training (OT)	6.1.2.1.1.3	Bromine including: 1) Definition of bromine as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) Bromine chemistry, 4) The DISINFECTION role of hypobromous acid. 5) On site generation, 6) PH meter requirements to prevent false readings, and Bromine reuse	Bromine – (5) on site generation; (6) pH meter required - phenol red plus bromine gives false reading (7) bromine reused.	Agreed. Section 6.1.2.1.1.3 has been changed to read, "Bromine including: 1) Definition of bromine as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) Bromine chemistry, and 4) The DISINFECTION role of hypobromous acid, 5) On site generation, 6) pH meter requirements to prevent false readings, and 7) Bromine reuse	6.1.2.1.1.3	Bromine including: 1) Definition of bromine as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) Bromine chemistry, 4) The DISINFECTION role of hypobromous acid. 5) On site generation, 6) PH meter requirements to prevent false readings, and 7) Bromine reuse.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.1.4	CHLORINE including: 1) Definition of CHLORINE as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) CHLORINE chemistry and the role of PH, 4) The DISINFECTION role of hypochlorous acid, 5) Unstabilized products (sodium hypochlorite, calcium hypochlorite, lithium hypochlorite, and CHLORINE gas), 6) Stabilized products (sodium dichloro-s-triazinetrione and sodium trichloro-s-triazinetrione), 7) Safe chemical handling, and On-site CHLORINE generation.	Chlorine - Emphasize proper and safe handling of erosion feeders/chemical mixing.	None. Safe handling is covered under 6.1.2.1.1.4 (7)	6.1.2.1.1.4	CHLORINE including: 1) Definition of CHLORINE as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) CHLORINE chemistry and the role of PH, 4) The DISINFECTION role of hypochlorous acid, 5) Unstabilized products (sodium hypochlorite, calcium hypochlorite, lithium hypochlorite, and CHLORINE gas), 6) Stabilized products (sodium dichloro-s-triazinetrione and sodium trichloro-s-triazinetrione), 7) Safe chemical handling, and 8) On-site CHLORINE generation.
Operator Training (OT)	6.1.2.1.1.5	Cyanuric acid (CYA) including reasons for and against use and recommended concentrations.	Cyanuric Acid - Add info that it extends kill time (4-5X); Outdoor use only	This section will be revised to read "Cyanuric acid (CYA) including reasons for and *against* use and recommended concentrations".	6.1.2.1.1.5	Cyanuric acid (CYA) including reasons for and against use and recommended concentrations.
Operator Training (OT)	6.1.2.1.1.5	Cyanuric acid (CYA) including reasons for and against use and recommended concentrations.	Cyanuric Acid: Cyanuric acid (CYA) including reasons for use, effects on disinfection and oxidation, and recommended concentrations. Somewhere, probably in this training section, there should be a description of the effect of Cyanuric Acid on the hypochlorous acid concentration. CYA is a hypochlorous acid buffer. Most of the chlorine is bound to CYA and is, for practical purposes, not an effective sanitizer nor oxidizer (somewhat similar to how you describe hypochlorite ion, at least for disinfection). CYA is not just for protection of chlorine from breakdown from UV in sunlight, but significantly lowers the hypochlorous acid concentration. This is not a bad thing since it takes a very low level of hypochlorous acid to kill most pathogens (except protozoan oocysts). Also, higher levels of hypochlorous acid increase oxidation rates that increase the rate of any chemical reaction in which hypochlorous acid participates including oxidation of swimsuits, skin and hair (and production of disinfection by-products in the short-run – supplemental oxidation should be used to prevent a build-up or organic precursors).	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.5	Cyanuric acid (CYA) including reasons for and against use and recommended concentrations.
Operator Training (OT)	6.1.2.1.1.6	breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.	Breakpoint Chlorination Effect of AQ indoors; need for air across water, especially indoors.	6.1.2.1.1.8 Added BREAKPOINT CHLORINATION including how to achieve it through calculation of chemical dosing to reach the desired free CHLORINE level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform BREAKPOINT CHLORINATION in indoor aquatic settings. 6.1.2.1.1.8 This issue is also covered but added some wording to code and Annex language Code: 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities. Annex: A discussion of deterioration of buildings, machinery, and structures due to the effects of airborne chloramines in indoor aquatic facilities is appropriate.	6.1.2.1.1.6	Breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.
Operator Training (OT)	6.1.2.1.1.6	breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.	Breakpoint/Superchlorination - I certainly hope you aren't still going to teach the incorrect "10x" rule since that only applies to chlorine oxidation of ammonia each in their respective differing units – chlorine measured in ppm Cl_2 and ammonia measured in ppm N with the unit ratio being a factor of 5.06. The stoichiometric ratio of chlorine to ammonia in is 1.5 in molar units so 5.06*1.5 = 7.6 and with getting over the "hump" of reaction steps one has 5.06*2 = 10.1 which is where the 8-10x rule came from that was then simplified to 10x. However, in pools one is NOT measuring ammonia, but rather Combined Chlorine (CC) which is NOT in ammonia ppm N units. It is instead in chlorine ppm Cl_2 units so there is no factor of 5.06. Also, CC already has one of the 1.5 total chlorine already combined, if the CC is monochloramine, so that only 0.5-1.0x is required to complete the reaction. Even for urea, a reasonable analysis still only gives 3x. Higher hypochlorous acid levels will make chlorine reactions go faster, but there is no 10x for ensuring completion (i.e. it requires far less). The 10x rule is for chlorine oxidation of ammonia and has been misapplied in the pool/spa industry to chlorine oxidation of Combined Chlorine (CC).	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.6	Breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.
Operator Training (OT)	6.1.2.1.1.6	breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.	Delete Section – Breakpoint Chlorination should not be a stand-alone category, it should be a sub-category of Item #8) Combined Chlorine, in line with preceding comment.	None. Please see comments on section 6.1.2.1.1 above.	6.1.2.1.1.6	Breakpoint chlorination including how to achieve it through calculation of chemical dosing to reach the desired free chlorine level and its relationship to reducing and controlling formation of combined chlorine including guidance for how to perform breakpoint chlorination in indoor aquatic settings.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.1.7	Hyperchlorination including procedures for implementation of Fecal/Vomit/Blood Contamination Response.	Hyperchlorination - These procedures should also describe what to do when CYA is in the water. Roughly speaking, to achieve the equivalent of 10 ppm FC with no CYA, one needs to raise the FC to be around 10 ppm higher than the CYA level. Because hypochlorite sources of chlorine will raise the pH upon addition (and the pH will mostly drop back down when the chlorine is consumed/used), one should lower the pH first to 7.0. As an example, if one has 4 ppm FC with 20 ppm CYA which is a reasonable amount since that is roughly equivalent to 0.2 ppm FC with no CYA which is sufficient for killing most pathogens and preventing algae growth (it's around 3 times the level needed to prevent algae growth in residential pools, but is higher for faster kill times in commercial/public pools), then adding a hypochlorite source of chlorine to raise the FC to 30 ppm would have the pH rise to about 7.5 and the hypochlorous acid concentration would be the same as a pool with 11.1 ppm FC and no CYA.	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.7	Hyperchlorination including procedures for implementation of fecal/vomit/blood contamination response.
Operator Training (OT)	6.1.2.1.1.7	Hyperchlorination including procedures for implementation of Fecal/Vomit/Blood Contamination Response.	Hyperchlorination - When and why to hyperchlorinate Include language to squelch the use of the term 'shocking'	None. Section 6.1.2.1.1.7 discusses Hyperchlorination.	6.1.2.1.1.7	Hyperchlorination including procedures for implementation of fecal/vomit/blood contamination response.
Operator Training (OT)	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTs are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities.	Combined Chlorine - Move Breakpoint/Super-Chlorination 6.1.2.1.1.5 and Hyper-Chloination 6.1.2.1.1.7 under the Combined Chlorine 6.1.2.1.1.8.	None. We appreciate your position and the information provided. However, we believe that it is just as appropriate to list "breakpoint/superchlorination" as it is to list "chlorine" and "combined chlorine". The important thing is not how they are listed, but that all of these topics receive adequate consideration and discussion in an operator training course.	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTS are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor AQUATIC FACILITIES.
Operator Training (OT)	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTs are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities.	Combined Chlorine - How combined CHLORINE and (DBPs) are formed and their impact / relationship to the air and water quality. How organic and inorganic chloramines affect / impact maximum acceptable levels of combined CHLORINE; How methods such as: water replacement, improved bather hygiene, BREAKPOINT CHLORINATION, ultraviolet light, ozone, supplemental oxidizers can be used with ample ventilation to reduce combined CHLORINE levels improving both air and water quality.	None. These training elements are already covered in 6.1.2.1.1.8	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTS are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor AQUATIC FACILITIES.
Operator Training (OT)	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTs are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities.	Combined Chlorine - Include discussion of deterioration of bldgs. machinery and structures due to airborne chloramines	Suggested material will be added to annex.	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTS are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor AQUATIC FACILITIES.
Operator Training (OT)	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTs are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities.	Combined Chlorine - This section should also explain how to remove Combined Bromine and the use of Ozone and other specialty chemicals used to oxide. Potassium monopersulfate.	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTS are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor AQUATIC FACILITIES.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTs are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and Possible health effects of combined CHLORINE products in the air, particularly in indoor aquatic facilities.	Combined Chlorine- Item #3 should talk about all supplemental oxidation alternatives including UV, ozone AND non-chlorine shock and enzymes. The main advantages to UV and ozone are that they will also potentially handle the killing of protozoan oocysts including Cryptosporidium parvum. In addition, there should be some mention of using a lower hypochlorous acid concentration to reduce the rate of production of disinfection by-products (including the amount of nitrogen trichloride). Even indoor pools should use some CYA such as 4 ppm FC with 20 ppm CYA for the equivalent of 0.2 ppm FC and no CYA. However, with the lack of sunlight and therefore UV in indoor pools, this lower active chlorine concentration requires supplemental oxidation to prevent the buildup of organic precursors (as well as monochloramine and dichloramine). This is also true for outdoor high-bather load pools, though is not a problem for outdoor low-bather load pools such as most residential pools. (**SEE PUBLIC COMMENT FOR FULL TEXT)	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.1.8	Combined CHLORINE including: 1) How different combined CHLORINE and DISINFECTION BY-PRODUCTS are formed in the water and air, 2) The maximum acceptable level of combined CHLORINE, 3) How methods such as water replacement, BREAKPOINT CHLORINATION, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined CHLORINE level, 4) The advantages and disadvantages of each, and 5) Possible health effects of combined CHLORINE products in the air, particularly in indoor AQUATIC FACILITIES.
Operator Training (OT)	6.1.2.1.1.9	SECONDARY DISINFECTION including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate PATHOGENs, and Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.	Secondary Disinfection - Add warning re side stream treatment effectiveness diminished	Suggested material will be added to annex	6.1.2.1.1.9	SECONDARY DISINFECTION systems including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate pathogens, and 2) Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.
Operator Training (OT)	6.1.2.1.1.9	SECONDARY DISINFECTION including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate PATHOGENs, and Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.	Secondary Disinfection - Explain the need for "Secondary Disinfection"	None. Section 6.1.2.1.1.9 (1) already covers this.	6.1.2.1.1.9	SECONDARY DISINFECTION systems including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate pathogens, and 2) Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.
Operator Training (OT)	6.1.2.1.1.9	SECONDARY DISINFECTION including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate PATHOGENs, and Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.	Secondary Disinfection - Where is an understanding of oxidation and it's role in controlling RWIs and DBPs? Do not limit operators all options Disinfection is only 1/4 of the solution!. a. Disinfection , b. Oxidation, c. Water Replacement, d. Ventilation	This is covered in 6.1.2.1.1.8 (3) but have added How methods such as water replacement, breakpoint chlorination, ultraviolet light, ozone, ventilation, and use of other oxidizers can reduce combined chlorine level,	6.1.2.1.1.9	SECONDARY DISINFECTION systems including: 1) How ozone and ultraviolet disinfectants are used in conjunction with residual disinfectants to inactivate pathogens, and 2) Sizing guidelines/dosing calculations, safe use, and advantages and disadvantages of each method.
Operator Training (OT)	6.1.2.1.2	Course work for water chemistry shall include: 1) Source Water 2) Water Balance 3) Saturation Index 4) Water Clarity 5) PH 6) Total Alkalinity 7) Calcium Hardness 8) Water Temperature 9) Total Dissolved Solids 10) Water Treatment Systems 11) Water Testing	Water Chemistry - "Cyanuric Acid" should be added to the list of course work required. This is needed to be able to accurately calculate the saturation index because it is carbonate alkalinity that is required for that index so Total Alkalinity (TA) needs to be adjusted for the CYA level. Also, CYA significantly reduces the hypochlorous acid concentration so is an extremely important parameter to measure. Calcium carbonate saturation is dependent on the calcium concentration and the carbonate concentration. Calcium is directly measured in the Calcium Hardness (CH) test, but carbonate is calculated from the carbonate alkalinity and the pH. The carbonate alkalinity has to be calculated from the Total Alkalinity (TA) by subtracting all other alkalinity factors such as the contribution from Cyanuric Acid (CYA) and from borates (if present).	None. This section is a description of general course work for water chemistry. It is not a specific listing of chemicals that will be encountered. Cyanuric Acid is addressed in Section 6.1.2.1.1.	6.1.2.1.2	Course work for water chemistry shall include: 1) Source water 2) Water balance 3) SATURATION INDEX 4) Water clarity 5) pH 6) Total alkalinity 7) Calcium hardness 8) Water temperature 9) Total dissolved solids 10) Water treatment systems 11) Water testing
Operator Training (OT)	6.1.2.1.2	Course work for water chemistry shall include: 1) Source Water 2) Water Balance 3) Saturation Index 4) Water Clarity 5) PH 6) Total Alkalinity 7) Calcium Hardness 8) Water Temperature 9) Total Dissolved Solids 10) Water Treatment Systems 11) Water Testing	Missing reference #10 Water treatment systems (6.1.2.1.2.10), and #11 Water Testing (6.1.2.1.2.11)	Section 6.1.2.1.2 will add item (10) Water Treatment Systems and item (11) Water Testing.	6.1.2.1.2	Course work for water chemistry shall include: 1) Source water 2) Water balance 3) SATURATION INDEX 4) Water clarity 5) pH 6) Total alkalinity 7) Calcium hardness 8) Water temperature 9) Total dissolved solids 10) Water treatment systems 11) Water testing
Operator Training (OT)	6.1.2.1.2.1	Source water including requirements for supply and pre-treatment.	Water Balance - Include options for treatment including priority of factors to be adjusted	Suggested material will be added to annex	6.1.2.1.2.1	Source water including requirements for supply and pre-treatment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, monitoring, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, and 7) Advantages and disadvantages of different feeders, ultraviolet systems, and ozonator types. Alternate treatment methods	Water Treatment Systems - Chlorine and Bromine generation.	Chlorine generation is already included under this section. Section 6.1.2.1.2.10(3) has been changed to read "chlorine, ozone, and bromine generators.	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, MONITORING, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet light systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, 7) Advantages and disadvantages of different feeders, ultraviolet light systems, and ozonator types, and 8) Alternate treatment methods.
Operator Training (OT)	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, monitoring, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, and 7) Advantages and disadvantages of different feeders, ultraviolet systems, and ozonator types. Alternate treatment methods	Water Treatment Systems - Change to read" water quality systems"	None. This section is discussing the water treatment aspects. We believe that the term, "water treatment" is more descriptive.	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, MONITORING, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet light systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, 7) Advantages and disadvantages of different feeders, ultraviolet light systems, and ozonator types, and 8) Alternate treatment methods.
Operator Training (OT)	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, monitoring, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, and 7) Advantages and disadvantages of different feeders, ultraviolet systems, and ozonator types. Alternate treatment methods	Water Treatment Systems - Include alternative treatment methods such as Ionization, Salt	Alternate treatment methods will be added.	6.1.2.1.2.10	Water treatment systems including: 1) Descriptions of system use, MONITORING, calibration and maintenance of automatic controllers, 2) Descriptions of common types of liquid, dry chemical, and gas mechanical feeders, 3) CHLORINE, bromine, and ozone generators, 4) Ultraviolet light systems, 5) Unique features of feeders, generators, and systems, 6) How to generally operate and maintain them, 7) Advantages and disadvantages of different feeders, ultraviolet light systems, and ozonator types, and 8) Alternate treatment methods.
Operator Training (OT)	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine free available and total CHLORINE, total bromine, PH, total alkalinity, calcium hardness, temperature, TDS, CYA, metals, and any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and How to calculate combined CHLORINE levels.	Water Testing - Add Cu, Fe, six of H2O, Bac't.	Section 6.1.2.1.2.11(1) has been changed to read, "How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine free available and total chlorine, free available and total bromine, pH, total alkalinity, calcium hardness, temperature, TDS, CYA, metals, and any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate, Cu, Fe, and bacterial),	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine the following levels: a. free available and total CHLORINE, b. total bromine, c. pH, d. total alkalinity, e. calcium hardness, f. temperature, g. TDS, h. CYA, i. metals, and j. any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and 8) How to calculate combined CHLORINE levels.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine free available and total CHLORINE, total bromine, PH, total alkalinity, calcium hardness, temperature, TDS, CYA, metals, and any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and How to calculate combined CHLORINE levels.	Water Testing - Add discussion of need to maintain test result records	None. Section 6.1.21.4.5 already addresses record keeping.	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine the following levels: a. free available and total CHLORINE, b. total bromine, c. pH, d. total alkalinity, e. calcium hardness, f. temperature, g. TDS, h. CYA, i. metals, and j. any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and 8) How to calculate combined CHLORINE levels.
Operator Training (OT)	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine free available and total CHLORINE, total bromine, PH, total alkalinity, calcium hardness, temperature, TDS, CYA, metals, and any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and How to calculate combined CHLORINE levels.	Water Testing - I hope that one explains that the Free Chlorine (FC) test does not measure only the active chlorine (hypochlorous acid) concentration, but also hypochlorite ion and all chlorine bound to CYA (i.e. the chlorinated isocyanurates) so that FC alone says NOTHING about disinfection and oxidation rates. One must also know the CYA level and preferably the pH as well (temperature, to a lesser extent).	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine the following levels: a. free available and total CHLORINE, b. total bromine, c. pH, d. total alkalinity, e. calcium hardness, f. temperature, g. TDS, h. CYA, i. metals, and j. any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and 8) How to calculate combined CHLORINE levels.
Operator Training (OT)	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine free available and total CHLORINE, total bromine, PH, total alkalinity, calcium hardness, temperature, TDS, CYA, metals, and any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and How to calculate combined CHLORINE levels.	Water Testing - Test water to determine free available and total Chlorine, total bromine.	Section 6.1.2.1.2.11(1) will delete "free available bromine".	6.1.2.1.2.11	Water testing including: 1) How different methods (including but not limited to colorimetric, titrimetric, turbidimetric and electronic) test water to determine the following levels: a. free available and total CHLORINE, b. total bromine, c. pH, d. total alkalinity, e. calcium hardness, f. temperature, g. TDS, h. CYA, i. metals, and j. any other tests (including but not limited to salt concentrations, phosphates, nitrates, potassium monopersulfate Cu, Fe, and bacterial testing), 2) The advantages and disadvantages of each method, 3) How to maintain testing equipment, 4) How to collect water samples, 5) How to perform and interpret tests, 6) How frequently to test, 7) The steps of the dilution method, and 8) How to calculate combined CHLORINE levels.
Operator Training (OT)	6.1.2.1.2.2	Water balance including: 1) Effect of unbalanced water on DISINFECTION, AQUATIC FEATURE surfaces, mechanical equipment, and fixtures, and Details of water balance including PH, total alkalinity, calcium hardness, temperature, and total dissolved solids (TDS).	Water Balance - Change to: Water balance effects on disinfection and how things dissolve in water	None. We believe the current language describes the same material.	6.1.2.1.2.2	Water balance including: 1) Effect of unbalanced water on DISINFECTION, AQUATIC FEATURE surfaces, mechanical equipment, and fixtures, and 2) Details of water balance including pH, total alkalinity, calcium hardness, temperature, and total dissolved solids (TDS).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.2.2	Water balance including: 1) Effect of unbalanced water on DISINFECTION, AQUATIC FEATURE surfaces, mechanical equipment, and fixtures, and Details of water balance including PH, total alkalinity, calcium hardness, temperature, and total dissolved solids (TDS).	Water Balance - One should include the effect of CYA on the pH dependence on hypochlorous acid concentration. Because CYA is a hypochorous acid buffer, it significantly reduces the variation of hypochlorous acid concentration vs. pH.	None. This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.2	Water balance including: 1) Effect of unbalanced water on DISINFECTION, AQUATIC FEATURE surfaces, mechanical equipment, and fixtures, and 2) Details of water balance including pH, total alkalinity, calcium hardness, temperature, and total dissolved solids (TDS).
Operator Training (OT)	6.1.2.1.2.3	Saturation index including calculations, ideal values, and effects of values which are too low or too high.	Saturation Index - Include discussion of options to Langelier Index such as Reasoner	None. This section discusses this material.	6.1.2.1.2.3	Saturation index including calculations, ideal values, and effects of values which are too low or too high.
Operator Training (OT)	6.1.2.1.2.4	Water clarity including: 1) Causes of poor water clarity, 2) Maintenance of good water clarity, and Closure requirements when water clarity is poor.	Turbidity - Include info on turbidity meter, DANGER OF DROWNING	This section was retitled as "Water Clarity" during the editing process. Turbidity meters will be discussed in the Monitoring and Testing Module of the MAHC.	6.1.2.1.2.4	Water clarity including: 1) Reasons why water quality is so important 2) Causes of poor water clarity, 3) Maintenance of good water clarity, and 4) Closure requirements when water clarity is poor.
Operator Training (OT)	6.1.2.1.2.4	Water clarity including: 1) Causes of poor water clarity, 2) Maintenance of good water clarity, and Closure requirements when water clarity is poor.	Water Clarity - Add treatment priorities to improve clarity.	Suggested material will be added to annex	6.1.2.1.2.4	Water clarity including: 1) Reasons why water quality is so important 2) Causes of poor water clarity, 3) Maintenance of good water clarity, and 4) Closure requirements when water clarity is poor.
Operator Training (OT)	6.1.2.1.2.5	PH including: 1) How PH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low PH on patrons and equipment, 3) Ideal PH range for patrons and equipment, 4) factors that affect PH, 5) How PH affects disinfectant efficacy, and How to decrease and increase PH.	pH. - Make pH part of disinfection	None. While the effectiveness of disinfection is impacted by the pH of water, we believe that pH is more appropriately considered under the topic of water chemistry.	6.1.2.1.2.5	pH including: 1) How pH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low pH on PATRONS and equipment, 3) Ideal pH range for PATRONS and equipment, 4) Factors that affect pH, 5) How pH affects disinfectant efficacy, and 6) How to decrease and increase pH.
Operator Training (OT)	6.1.2.1.2.5	PH including: 1) How PH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low PH on patrons and equipment, 3) Ideal PH range for patrons and equipment, 4) factors that affect PH, 5) How PH affects disinfectant efficacy, and How to decrease and increase PH.	pH - Emphasize limits on Phenol Red readings when very low or very high	Suggested material will be added to annex	6.1.2.1.2.5	pH including: 1) How pH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low pH on PATRONS and equipment, 3) Ideal pH range for PATRONS and equipment, 4) Factors that affect pH, 5) How pH affects disinfectant efficacy, and 6) How to decrease and increase pH.
Operator Training (OT)	6.1.2.1.2.5	PH including: 1) How PH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low PH on patrons and equipment, 3) Ideal PH range for patrons and equipment, 4) factors that affect PH, 5) How PH affects disinfectant efficacy, and How to decrease and increase PH.	pH - My comments above on how CYA affects the pH dependence on hypochlorous acid concentration applies to this section as well.	None. This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.5	pH including: 1) How pH is a measure of the concentration of hydrogen ions in water, 2) Effects of high and low pH on PATRONS and equipment, 3) Ideal pH range for PATRONS and equipment, 4) Factors that affect pH, 5) How pH affects disinfectant efficacy, and 6) How to decrease and increase pH.
Operator Training (OT)	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to PH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and How to increase or decrease total alkalinity.	Total Alkalinity - How total alkalinity relates to PH, Describe the effects of low and high total alkalinity, Describe factors that affect total alkalinity, How TA /pH impact Ideal total alkalinity range, How to increase or decrease total alkalinity What is the difference between total alkalinity and carbonate alkalinity? What is the effect of cyanuric acid on total alkalinity reading?	None. Not sure of the intent of these comments. They are not recommended code language. These topics are already included under this section. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to pH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and 5) How to increase or decrease total alkalinity.
Operator Training (OT)	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to PH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and How to increase or decrease total alkalinity.	Total Alkalinity - Factors which cause TA to change beyond chemical additions	None. 6.1.2.1.2.6 (3) discusses these factors	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to pH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and 5) How to increase or decrease total alkalinity.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to PH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and How to increase or decrease total alkalinity.	Total Alkalinity - The "Effects of low and high total alkalinity" should explain how TA is a SOURCE of rising pH due to carbon dioxide out-gassing. Pools/spas are intentionally over-carbonated to provide a pH buffer and to protect plaster surfaces. There is more carbon dioxide in the water than the equilibrium amount from exposure to air so carbon dioxide outgases from the water. This causes the pH to rise with no change in TA (essentially, carbonic acid is removed from the water). Higher TA levels have faster carbon dioxide outgassing so faster rate of pH rise in spite of the higher pH buffering (the rate of outgassing seems to be proportional to the square of the TA, according to some studies by Wojtowicz). The procedure for how to lower the TA should be explained which involves lowering the pH by adding acid, aerating the water, and adding acid whenever the pH rises from the aeration. When the TA target is reached, aerate to raise the pH. This is the fastest way to reduce the TA and is far safer than any slug or acid column method which is no more effective. 25-1/2 fluid ounces of Muriatic Acid (31.45% Hydrochloric Acid) lowers the TA by 10 ppm in 10,000 gallons no matter how you add the acid to the pool, but it also lowers the pH. It is aeration of the water (turning jets upward, using waterfalls, spillovers, fountains, splashing) that forces the carbon dioxide out of the pool more quickly.	This comment is not recommended code language. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.6	Total alkalinity including: 1) How total alkalinity relates to pH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and 5) How to increase or decrease total alkalinity.
Operator Training (OT)	6.1.2.1.2.6 &.7	6.1.2.1.2.6: Total alkalinity including: 1) How total alkalinity relates to PH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and How to increase or decrease total alkalinity. 6.1.2.1.2.7: Calcium hardness including: 1) Why water naturally contains calcium, 2) How calcium hardness relates to total hardness and temperature, 3) Effects of low and high calcium hardness, 4) Factors that affect calcium hardness, 5) Ideal calcium hardness range, and 6) How to increase or decrease calcium hardness.	TA/CA Relationships. Does high pH cause turbidity?	None. While pH may affect turbidity, it is not necessarily a "cause of turbidity"	6.1.2.1.2.6 & 6.1.2.1.2.7	6.1.2.1.2.6 Total Alkalinity OT Total alkalinity including: 1) How total alkalinity relates to pH, 2) Effects of low and high total alkalinity, 3) Factors that affect total alkalinity, 4) Ideal total alkalinity range, and 5) How to increase or decrease total alkalinity. 6.1.2.1.2.7 Calcium Hardness OT Calcium hardness including: 1) Why water naturally contains calcium, 2) How calcium hardness relates to total hardness and temperature, 3) Effects of low and high calcium hardness, 4) Factors that affect calcium hardness, 5) Ideal calcium hardness range, and 6) How to increase or decrease calcium hardness.
Operator Training (OT)	6.1.2.1.2.7	Calcium hardness including: 1) Why water naturally contains calcium, 2) How calcium hardness relates to total hardness and temperature, 3) Effects of low and high calcium hardness, 4) Factors that affect calcium hardness, 5) Ideal calcium hardness range, and 6) How to increase or decrease calcium hardness.	Calcium Hardness - Add dealing with inherently high C.H.	None. 6.1.2.1.2.7 (3) discusses these factors.	6.1.2.1.2.7	Calcium hardness including: 1) Why water naturally contains calcium, 2) How calcium hardness relates to total hardness and temperature, 3) Effects of low and high calcium hardness, 4) Factors that affect calcium hardness, 5) Ideal calcium hardness range, and 6) How to increase or decrease calcium hardness.
Operator Training (OT)	6.1.2.1.2.8	Water temperature including: 1) How low and high water temperatures increase the likelihood of corrosion and scaling, respectively, and 2) Its effect on DISINFECTION, its health effects, and other operational considerations, 3) Its health effects, and Other operational considerations.	Water Temperature - Add the effects on air quality indoors and also effects of hot water.	None. This section already includes water temperature health effects and operational considerations. The ventilation Module of the MAHC also addresses indoor air quality issues in greater detail.	6.1.2.1.2.8	Water temperature including: 1) How low and high water temperatures increase the likelihood of corrosion and scaling, respectively, and 2) Its effect on DISINFECTION, its health effects, and other operational considerations, 3) Its health effects, and 4) Other operational considerations.
Operator Training (OT)	6.1.2.1.2.8	Water temperature including: 1) How low and high water temperatures increase the likelihood of corrosion and scaling, respectively, and 2) Its effect on DISINFECTION, its health effects, and other operational considerations, 3) Its health effects, and Other operational considerations.	Water Temperature – Indoors Range above and below air temp DBPs.	None. This is included under health effects (6.1.2.1.2.8).	6.1.2.1.2.8	Water temperature including: 1) How low and high water temperatures increase the likelihood of corrosion and scaling, respectively, and 2) Its effect on DISINFECTION, its health effects, and other operational considerations, 3) Its health effects, and 4) Other operational considerations.
Operator Training (OT)	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTs, and Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.	Total Dissolved Solids - Bleach -	None. Please clarify the meaning of the comment.	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTS, and 3) Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.
Operator Training (OT)	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTs, and Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.	Total Dissolved Solids - When is TDS worrisome?	None. This is covered in 6.1.2.1.2.9	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTS, and 3) Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTs, and Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.	Total Dissolved Solids Why concentrations of TDS increases over time, What is the association between conductivity and organic Contaminants What is the relationship between TDS levels and galvanic corrosion? Describe typical TDS values for chlorine generators and What TDS factors to use in LSI calculations for high TDS pools Understand the use of bi-Polymers products to supplement or act as flocculants to improve filtration and improve water clarity Improve filtration Improve water clarity Reduce chloramines and DBP contaminants in the water	None. These topics are already included under this section. The Operator Training Module outlines a set of recommended training "subject areas" needed for the safe operation of aquatic venues. It is not intended to delineate specific course content nor specify how course designers and instructors cover the required "subject areas". This comment is more appropriate for pool operator course designers.	6.1.2.1.2.9	Total dissolved solids (TDS) including: 1) Why the concentration of TDS increases over time, 2) Association with conductivity and organic CONTAMINANTS, and 3) Key TDS levels as they relate to starting up an AQUATIC FACILITY and galvanic corrosion.
Operator Training (OT)	6.1.2.1.3	Course work for mechanical systems shall include: 1) Calculations 2) Circulation 3) Main Drains 4) Gutters and Surface Skimmers 5) Mechanical System Balance 6) Circulation Pump and Motor 7) Valve 8) Return Inlets 9) Filtration 10) Filter Backwashing/Cleaning Maintenance	Mechanical Systems - Add acquisition and maintenance of mfg dir –heaters, ventilation	Added section 11) Maintenance	6.1.2.1.3	Course work for mechanical systems shall include: 1) Calculations 2) Circulation 3) Main drains 4) Gutters and surface SKIMMERS 5) Mechanical system balance 6) Circulation pump and motor 7) Valve 8) Return INLETS 9) Filtration 10) Filter backwashing/cleaning
Operator Training (OT)	6.1.2.1.3.1	Calculations including: 1) Explanations of why particular calculations are important, 2) How to convert units of measurement within and between the English and metric systems, 3) How to determine the surface area of regularly and irregularly shape AQUATIC VENUE, 4) How to determine the water volume of regularly and irregularly shaped AQUATIC VENUEs, and Why proper sizing of filters, pumps, pipes, and feeders is important.	Calculations - Add sizing feeders	Section 6.1.2.1.3.1 (5) has been changed to read, 'Why proper sizing of filters, pumps, pipes, and feeders is important".	6.1.2.1.3.1	Calculations including: 1) Explanations of why particular calculations are important, 2) How to convert units of measurement within and between the English and metric systems, 3) How to determine the surface area of regularly and irregularly shape AQUATIC VENUES, 4) How to determine the water volume of regularly and irregularly shaped AQUATIC VENUES, and 5) Why proper sizing of filters, pumps, pipes, and feeders is important.
Operator Training (OT)	6.1.2.1.3.10	Filter backwashing/cleaning including: 1) Determining and setting proper backwash flow rates, 2) When backwashing/cleaning should be done and the steps needed for clearing a filter of fine particles and other CONTAMINANTs, 3) Proper disposal of waste water from backwash, and What additional fixtures/equipment may be needed (i.e., sump, separation tank).	Filter Backwashing - Include discussion of alternatives for recycling backwash water	Material will be included in the Annex.	6.1.2.1.3.10	Filter backwashing/cleaning including: 1) Determining and setting proper backwash flow rates, 2) When backwashing/cleaning should be done and the steps needed for clearing a filter of fine particles and other CONTAMINANTS, 3) Proper disposal of waste water from backwash, and 4) What additional fixtures/equipment may be needed (i.e., sump, separation tank).
Operator Training (OT)	6.1.2.1.3.2	Circulation including: 1) Why circulation is needed, 2) Factors that affect water flow, 3) How direct suction and overflow systems work, 4) How to calculate turnover and flow rates, 5) How the following components of the circulation system relate to each other: main drains, gutters and surface skimmers, circulation pump and motor, surge tanks, vacuum ports, valves, and return inlets, 6) How to read flow meters, 7) How to safely operate pressurized systems after the pump, 8) Information on dye testing, 9) An understanding of total dynamic head (TDH), 10) How it is calculated, 11) How it is field-determined using vacuum and pressure gauges, and 12) Its effect on pump flow. 13) Cross Connections	Circulation - Add vacuum port	Section 6.1.2.1.3.2 (5) has been changed to read. "How the following components of the circulation system relate to each other: main drains, gutters and surface skimmers, circulation pump and motor, vacuum ports, valves, and return inlets".	6.1.2.1.3.2	Circulation including: 1) Why circulation is needed, 2) Factors that affect water flow, 3) How direct suction and overflow systems work, 4) How to calculate TURNOVER and flow rates, 5) How the following components of the circulation system relate to each other: main drains, gutters and surface SKIMMERS, circulation pump and motor, surge tanks, vacuum ports, valves, and return INLETS, 6) How to read flow meters, 7) How to safely operate pressurized systems after the pump, 8) Information on dye testing, 9) An understanding of total dynamic head (TDH), 10) How it is calculated, 11) How it is field-determined using vacuum and pressure gauges, 12) Its effect on pump flow, and 13) Cross connections.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.3.2	Circulation including: 1) Why circulation is needed, 2) Factors that affect water flow, 3) How direct suction and overflow systems work, 4) How to calculate turnover and flow rates, 5) How the following components of the circulation system relate to each other: main drains, gutters and surface skimmers, circulation pump and motor, surge tanks, vacuum ports, valves, and return inlets, 6) How to read flow meters, 7) How to safely operate pressurized systems after the pump, 8) Information on dye testing, 9) An understanding of total dynamic head (TDH), 10) How it is calculated, 11) How it is field-determined using vacuum and pressure gauges, and 12) Its effect on pump flow. 13) Cross Connections	Circulation – Add Surge tanks as part of the recirc system. When necessary, when optional. Add basics of pump curve application and interpretation	Surge tanks will be added to 6.1.2.1.3.2 (5).	6.1.2.1.3.2	Circulation including: 1) Why circulation is needed, 2) Factors that affect water flow, 3) How direct suction and overflow systems work, 4) How to calculate TURNOVER and flow rates, 5) How the following components of the circulation system relate to each other: main drains, gutters and surface SKIMMERS, circulation pump and motor, surge tanks, vacuum ports, valves, and return INLETS, 6) How to read flow meters, 7) How to safely operate pressurized systems after the pump, 8) Information on dye testing, 9) An understanding of total dynamic head (TDH), 10) How it is calculated, 11) How it is field-determined using vacuum and pressure gauges, 12) Its effect on pump flow, and 13) Cross connections.
Operator Training (OT)	6.1.2.1.3.6	Circulation pump and motor including: 1) Descriptions of the role of the pump and motor, 2) Self-priming and flooded suction pumps, 3) Key components of a pump and how they work together, 4) Cavitation, 5) Possible causes of cavitation, and Troubleshooting problems with the pump and motor.	Circulation Pump and Motor - Add cross connections	Cross connections should be addressed in Section 6.1.2.1.3.2, not 6.1.2.1.3.6. That section will have an item (13) added that will read, " cross connections".	6.1.2.1.3.2	Circulation including: 1) Why circulation is needed, 2) Factors that affect water flow, 3) How direct suction and overflow systems work, 4) How to calculate TURNOVER and flow rates, 5) How the following components of the circulation system relate to each other: main drains, gutters and surface SKIMMERS, circulation pump and motor, surge tanks, vacuum ports, valves, and return INLETS, 6) How to read flow meters, 7) How to safely operate pressurized systems after the pump, 8) Information on dye testing, 9) An understanding of total dynamic head (TDH), 10) How it is calculated, 11) How it is field-determined using vacuum and pressure gauges, 12) Its effect on pump flow, and 13) Cross connections.
Operator Training (OT)	6.1.2.1.3.3	Main drains including: 1) A description of the role of main drains, 2) Why they should not be resized without engineering and public health consultation, 3) The importance of daily inspection of structural integrity, and Discussion on balancing the need to maximize surface water flow while minimizing the likelihood of entrapment.	Main Drains - Entrapment, VGB	Section 6.1.2.1.3.3 (4) includes entrapment and Section 6.1.2.1.4.7. has been added 3) Requirements of the Virginia Graeme Baker Pool and Spa Safety Act,".	6.1.2.1.3.3	Main drains including: 1) A description of the role of main drains, 2) Why they should not be resized without engineering and public health consultation, 3) The importance of daily inspection of structural integrity, and 4) Discussion on balancing the need to maximize surface water flow while minimizing the likelihood of entrapment.
Operator Training (OT)	6.1.2.1.3.3	Main drains including: 1) A description of the role of main drains, 2) Why they should not be resized without engineering and public health consultation, 3) The importance of daily inspection of structural integrity, and Discussion on balancing the need to maximize surface water flow while minimizing the likelihood of entrapment.	Main Drains - Add Safety Issues if not flush with pool floor (impact and trip/fall exposures)	Main drains are already covered under the Risk Management module.	6.1.2.1.3.3	Main drains including: 1) A description of the role of main drains, 2) Why they should not be resized without engineering and public health consultation, 3) The importance of daily inspection of structural integrity, and 4) Discussion on balancing the need to maximize surface water flow while minimizing the likelihood of entrapment.
Operator Training (OT)	6.1.2.1.3.5	Mechanical system balance including: 1) An understanding of mechanical system balancing, 2) Methodology for setting proper operational water levels, 3) Basic hydraulics which affect proper functioning of the balance tank and AQUATIC VENUE, 4) Methods of setting and adjusting modulation valves, 5) Balance lines, 6) Skimmers, 7) Main drains, 8) The operation of the water make-up system, 9) Collector tanks/gravity drainage systems, and Automatic controllers	Mechanical System Balance - Add surge systems to list	Surge systems is not a common term. Have inserted as item (9) Collector tanks/gravity drainage systems.	6.1.2.1.3.5	Mechanical system balance including: 1) An understanding of mechanical system balancing, 2) Methodology for setting proper operational water levels, 3) Basic hydraulics which affect proper functioning of the balance tank and AQUATIC VENUE, 4) Methods of setting and adjusting modulation valves, 5) Balance lines, 6) SKIMMERS, 7) Main drains, 8) The operation of the water make-up system, 9) Collector tanks/gravity drainage systems, and 10) Automatic controllers.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.3.5	Mechanical system balance including: 1) An understanding of mechanical system balancing, 2) Methodology for setting proper operational water levels, 3) Basic hydraulics which affect proper functioning of the balance tank and AQUATIC VENUE, 4) Methods of setting and adjusting modulation valves, 5) Balance lines, 6) Skimmers, 7) Main drains, 8) The operation of the water make-up system, 9) Collector tanks/gravity drainage systems, and Automatic controllers	Mechanical Systems Balance - Include automatic level controllers	Automatic level controllers will be as added 6.1.2.1.3.5 (9).	6.1.2.1.3.5	Mechanical system balance including: 1) An understanding of mechanical system balancing, 2) Methodology for setting proper operational water levels, 3) Basic hydraulics which affect proper functioning of the balance tank and AQUATIC VENUE, 4) Methods of setting and adjusting modulation valves, 5) Balance lines, 6) SKIMMERS, 7) Main drains, 8) The operation of the water make-up system, 9) Collector tanks/gravity drainage systems, and 10) Automatic controllers.
Operator Training (OT)	6.1.2.1.3.6	Circulation pump and motor including: 1) Descriptions of the role of the pump and motor, 2) Self-priming and flooded suction pumps, 3) Key components of a pump and how they work together, 4) Cavitation, 5) Possible causes of cavitation, and Troubleshooting problems with the pump and motor.	Circulation Pumps and Motors - Include discussion of submerged pumps such as turbine, mixed flow and others used in waterpark applications. Address winterizing needs for these types as well as impeller adjustments etc	Material has been added to the annex to discuss this issue.	6.1.2.1.3.6	Circulation pump and motor including: 1) Descriptions of the role of the pump and motor, 2) Self-priming and flooded suction pumps, 3) Key components of a pump and how they work together, 4) Cavitation, 5) Possible causes of cavitation, and 6) Troubleshooting problems with the pump and motor.
Operator Training (OT)	6.1.2.1.3.7	Valves including descriptions of different types of valves (e.g., gate, ball, butterfly/wafer, multi-port, globe, modulating/ automatic, and check) and their safe operation.	Valves - Include application of the various types	None. This material is already covered in 6.1.2.1.3.7	6.1.2.1.3.7	Valves including descriptions of different types of valves (e.g., gate, ball, butterfly/wafer, multi-port, globe, modulating/ automatic, and check) and their safe operation.
Operator Training (OT)	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and The advantages and disadvantages of different filters and filter media.	Filtration - Add flow meters to the list	Flow meters are already addressed under section 6.1.2.1.3.2 (6).	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and 9) The advantages and disadvantages of different filters and filter media.
Operator Training (OT)	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and The advantages and disadvantages of different filters and filter media.	Filtration - Add zeolite, perlite	This material is covered in section 6.1.2.1.3.9. Will add 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass.	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and 9) The advantages and disadvantages of different filters and filter media.
Operator Training (OT)	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and The advantages and disadvantages of different filters and filter media.	Filtration - In discussing types of media include a technically accurate discussion of perlite, Crushed glass, reverse osmosis, and Zeolite	This material is covered in section 6.1.2.1.3.9. Will add 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass.	6.1.2.1.3.9	Filtration including: 1) Why filtration is needed, 2) A description of pressure and vacuum filters and different types of filter media, 3) How to calculate filter surface area, 4) How to read pressure gauges, 5) A general description of sand, cartridge, and diatomaceous earth filters and alternative filter media types to include, at a minimum, perlite, zeolite, and crushed glass. 6) The characteristic flow rates and particle size entrapment of each filter type, 7) How to generally operate and maintain each filter type, 8) Troubleshooting problems with the filter, and 9) The advantages and disadvantages of different filters and filter media.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.4	Course work for health and safety shall include: 1) Recreational Water Illness (RWI) 2) RWI Prevention 3) Risk Management 4) Record Keeping 5) Chemical Safety 6) Entrapment Prevention 7) Electrical Safety 8) Rescue Equipment 9) Injury Prevention 10) Drowning Prevention 11) Barriers 12) Signage and Depth Markers 13) Facility Sanitation Emergency Response 15) Surveillance and Supervision	Health and Safety - An additional item (#15) should be included titled, Surveillance and Supervision.	Section 6.1.2.1.4 will add item (15) entitled "Surveillance and Supervision".	6.1.2.1.4	Course work for health and SAFETY shall include: 1) Recreational water illness (RWI) 2) RWI prevention 3) Risk management 4) Record keeping 5) Chemical SAFETY 6) Entrapment prevention 7) Electrical SAFETY 8) Rescue equipment 9) Injury prevention 10) Drowning prevention 11) BARRIERs 12) Signage and depth markers 13) Facility sanitation 14) Emergency response 15) Surveillance and supervision
Operator Training (OT)	6.1.2.1.4	Course work for health and safety shall include: 1) Recreational Water Illness (RWI) 2) RWI Prevention 3) Risk Management 4) Record Keeping 5) Chemical Safety 6) Entrapment Prevention 7) Electrical Safety 8) Rescue Equipment 9) Injury Prevention 10) Drowning Prevention 11) Barriers 12) Signage and Depth Markers 13) Facility Sanitation Emergency Response 15) Surveillance and Supervision	Health and Safety - Missing is how to clean and sanitize the pool deck. How do you keep debris and chemicals used for cleaning away from contaminating the pool water?	None. These elements are already contained in Health and Safety in (5) chemical safety, (9) injury prevention and (13) facility sanitation.	6.1.2.1.4	Course work for health and SAFETY shall include: 1) Recreational water illness (RWI) 2) RWI prevention 3) Risk management 4) Record keeping 5) Chemical SAFETY 6) Entrapment prevention 7) Electrical SAFETY 8) Rescue equipment 9) Injury prevention 10) Drowning prevention 11) BARRIERs 12) Signage and depth markers 13) Facility sanitation 14) Emergency response 15) Surveillance and supervision
Operator Training (OT)	6.1.2.1.4.1	Recreational water illness (RWI) including: 1) How water can contain or become contaminated with parasites, bacteria, viruses, fungi, DISINFECTION BY-PRODUCTs, or unsafe levels of chemicals; and 2) The role of the operator in reducing risk.	RWI - Discuss in lay-person terms the most common RWI's, their symptoms and consequences	None. RWI is discussed in the Annex under 6.1.1.	6.1.2.1.4.1	Recreational water illness (RWI) including: 1) How water can contain or become contaminated with parasites, bacteria, viruses, fungi, DISINFECTION BY-PRODUCTS, or unsafe levels of chemicals; and 2) The role of the operator in reducing risk.
Operator Training (OT)	6.1.2.1.4.10	Injury prevention including basic steps known to decrease the likelihood of injury, at a minimum: 1) Banning the use of alcohol and glass containers at AQUATIC FACILITY, 2) Patron education, and 3) Daily visual inspection for hazards.	Injury Prevention - Stipulate required signs including content and nature of messages.	None. Signage is addressed in the Risk Management Module.	6.1.2.1.4.10	Injury prevention including basic steps known to decrease the likelihood of injury, at a minimum: 1) Banning the use of alcohol and glass containers at AQUATIC FACILITIES, 2) PATRON education, and 3) Daily visual inspection for hazards.
Operator Training (OT)	6.1.2.1.4.12	Barriers including descriptions of how fences, gates, doors, and safety covers can be used to prevent access to water; and basics of design that effectively prevent access to water.	Barriers - Barrier options and requirements in a waterpark or similar aquatic complex	None. Barriers are addressed in the Facilities Design & Construction Module.	6.1.2.1.4.12	Barriers including descriptions of how fences, gates, doors, and safety covers can be used to prevent access to water; and basics of design that effectively prevent access to water.
Operator Training (OT)	6.1.2.1.4.13	Signage and depth markers including the importance of maintaining signage and depth markers.	Signs and Depth Markers - Iterate sign requirements and offer parameters to meet them. Block Font ½" high for each 10 ft of readability; Brief Terse Messages; Separate Rules from Instructions; Sign Placement	None. Signage is addressed in the Risk Management Module.	6.1.2.1.4.13	Signage and depth markers including the importance of maintaining signage and depth markers.
Operator Training (OT)	6.1.2.1.4.14	Facility sanitation including: 1) Steps to clean and disinfect all surfaces that patrons would commonly come in contact with (e.g., deck, restrooms, and diaper-changing areas), and Procedures for implementation of CODE Section 6.5 FECAL/Vomit/Blood Contamination Response in relation to responding to a body fluid spill on these surfaces.	Facility Sanitation - Address retrieval of pool/waterslide water discharged to adjacent decks. Prohibit foot traffic in the 'retrieval area'	None. Pool/waterslide water discharge is addressed in the Facilities Design & Construction Module.	6.1.2.1.4.14	Facility sanitation including: 1) Steps to clean and disinfect all surfaces that PATRONS would commonly come in contact with (e.g., DECK, restrooms, and diaper-changing areas), and 2) Procedures for implementation of MAHC Section 6.5: Fecal-Vomit-Blood Contamination Response, in relation to responding to a body fluid spill on these surfaces.
Operator Training (OT)	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and Communication and coordination with emergency responders and local health department notification as part of an emergency action plan.	Emergency Response Plan - Included within (1) steps to respond to emergencies should include management of suspected spinal injuries. And, (2) should read "communication and coordination with emergency responders...."	6.1.2.1.4.15 (2) will be modified to read "communication and coordination"	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and 2) Communication and coordination with emergency responders and local health department notification as part of an EMERGENCY ACTION PLAN.
Operator Training (OT)	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and Communication and coordination with emergency responders and local health department notification as part of an emergency action plan.	Emergency Response Planning - Development of written emergency response plans. Inclusion of ERP in staff in-service training	None. Emergency Response Plan requirements are already included in the MAHC.	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and 2) Communication and coordination with emergency responders and local health department notification as part of an EMERGENCY ACTION PLAN.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and Communication and coordination with emergency responders and local health department notification as part of an emergency action plan.	Emergency Response Plans - Drills?	None. Drills would be included as a part of staff training. Records of staff training are required in section 6.1.2.1.4.5 (4).	6.1.2.1.4.15	Emergency response plan including: 1) Steps to respond to emergencies (at a minimum, severe weather events, drowning or injury, contamination of the water, chemical incidents), and 2) Communication and coordination with emergency responders and local health department notification as part of an EMERGENCY ACTION PLAN.
Operator Training (OT)	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (CRYPTOSPORIDIUM, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and Health effects of chloramines and DISINFECTION BY-PRODUCTs.	Causes of RWI - Change (5) to Eye/ear illness and effects of combined chlorine	Section will be changed to reflect comment 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and 7) Health effects of chloramines and disinfection by-products.	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (Cryptosporidium, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus, Naegleria), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and 7) Health effects of chloramines and DISINFECTION BY-PRODUCTS.
Operator Training (OT)	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (CRYPTOSPORIDIUM, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and Health effects of chloramines and DISINFECTION BY-PRODUCTs.	Causes of RWIs Common infectious and chemical causes of RWIs, including but not limited to: Enteric Illness / Diarrheal distress (CRYPTOSPORIDIUM, Giardia, Shigella, and NOROVIRUS) Respiratory (DBPs) Illness / Distress (ingestion, inhalation, dermal)	6.1.2.1.4.2. Deleted reference to combined chlorines in other numbers and added section to read 7) Health effects of chloramines and disinfection by-products.	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (Cryptosporidium, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus, Naegleria), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and 7) Health effects of chloramines and DISINFECTION BY-PRODUCTS.
Operator Training (OT)	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (CRYPTOSPORIDIUM, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and Health effects of chloramines and DISINFECTION BY-PRODUCTs.	Causes of RWS – (3) Change to Respiratory illness and effects of combined chlorine	Section will be changed to reflect comment 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and 7) Health effects of chloramines and disinfection by-products.	6.1.2.1.4.2	Common infectious and chemical causes of RWIs, including but not limited to: 1) Diarrheal illness (Cryptosporidium, Giardia, Shigella, and NOROVIRUS), 2) Skin rashes (Pseudomonas aeruginosa, molluscum contagiosum), 3) Respiratory illness (Legionella) 4) Neurologic infections (echovirus, Naegleria), 5) Eye/ear illness (Pseudomonas aeruginosa, adenovirus, Acanthamoeba, 6) Hypersensitivity reactions (Mycobacterium avium complex, Pontiac fever, endotoxins), and 7) Health effects of chloramines and DISINFECTION BY-PRODUCTS.
Operator Training (OT)	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and patrons need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal FECAL incident response, and Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.	RWI Prevention - Address reusable swim diapers	None. This is covered in 6.1.2.1.4.3.	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and PATRONS need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal fecal incident response, and 6) Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.
Operator Training (OT)	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and patrons need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal FECAL incident response, and Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.	RWI Prevention - Emphasize the need for frequent manual testing, standardization of automatic controllers, and adequately sized chemical feeders. Note the need for larger feeders for waterpark type attractions as compared to flat water pools	Material will be included in the Annex.	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and PATRONS need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal fecal incident response, and 6) Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and patrons need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal FECAL incident response, and Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.	RWI Prevention -- Methods of prevention of RWIs, including but not limited to chemical level controls; Why public health, operators, and patrons need to be educated about RWIs and collaborate on RWI prevention; The role of showering; The efficacy of swim diapers; Formed-stool and diarrheal FECAL, vomit and blood incident response	None. These topics are already included under this section and other modules of the MAHC.	6.1.2.1.4.3	Recreational water illness (RWI) prevention including: 1) Methods of prevention of RWIs, including but not limited to chemical level control; 2) Why public health, operators, and PATRONS need to be educated about RWIs and collaborate on RWI prevention; 3) The role of showering, 4) The efficacy of swim diapers, 5) Formed-stool and diarrheal fecal incident response, and 6) Developing a plan to minimize PATHOGEN and other biological (e.g., blood, vomit, sweat, urine, and skin and hair care products) contamination of the water.
Operator Training (OT)	6.1.2.1.4.4	Risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with AQUATIC FACILITIES open to the public.	Risk Management - Start with RM basics and interpret them in terms of the aquatic environment	None. Detailed information on Risk Management is found in the MAHC Risk Management Module	6.1.2.1.4.4	Risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with aquatic facilities open to the public.
Operator Training (OT)	6.1.2.1.4.4	Risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with AQUATIC FACILITIES open to the public.	Risk Management - This should read, "risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with aquatic facilities open to the public."	Wording will be modified to read: "Risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with AQUATIC FACILITIES open to the public."	6.1.2.1.4.4	Risk management including techniques that identify hazards and risks and that prevent illness and injuries associated with aquatic facilities open to the public.
Operator Training (OT)	6.1.2.1.4.5	Record keeping including the need to keep accurate and timely records of the following areas: 1) Operational conditions (e.g., water chemistry, water temperature, filter pressure differential, flow meter reading, and water clarity), 2) Maintenance performed (e.g., backwashing, change of equipment), 3) Incidents and response (e.g., FECAL incidents in the water and injuries), and 4) Staff training and attendance.	Record Keeping - Add daily inspection requirements and the use of specific go-no go parameters. Should result in a written authorization to open an attraction or facility by upper level management	Daily inspection requirements are covered in the MAHC Operations and Management Module. The MAHC also discusses conditions that require short term and long term closures.	6.1.2.1.4.5	Record keeping including the need to keep accurate and timely records of the following areas: 1) Operational conditions (e.g., water chemistry, water temperature, filter pressure differential, flow meter reading, and water clarity), 2) Maintenance performed (e.g., backwashing, change of equipment), 3) Incidents and response (e.g., fecal incidents in the water and injuries), and 4) Staff training and attendance.
Operator Training (OT)	6.1.2.1.1.5	Cyanuric acid (CYA) including reasons for and against use and recommended concentrations.	Safety Consideration of mixing organic and in-organic chlorines together or using the same chemical feeder to inject the chemicals	Added to 6.1.2.1.4.6 as 2) How to prevent individual chemicals and inorganic and organic chlorine products from mixing together or with other substances (including water) or in chemical feeders, and	6.1.2.1.4.6	Chemical SAFETY including steps to safely store and handle chemicals including: 1) How to read labels and material safety data sheets, 2) How to prevent individual chemicals and inorganic and organic CHLORINE products from mixing together or with other substances (including water) or in chemical feeders, and 3) Use of personal protective equipment.
Operator Training (OT)	6.1.2.1.4.6	Chemical safety including steps to safely store and handle chemicals including: 1) How to read labels and material safety data sheets, 2) How to prevent individual chemicals and inorganic and organic CHLORINE products from mixing together or with other substances (including water) or in chemical feeders, and 3) Use of personal protective equipment.	Chemical Safety - How to understand NFPA 400 Oxidizer Hazard Classifications and the respective NFPA storage recommendations for each classification	Annex material will be added to mention reading labels and material safety data sheets, including but not limited to, NFPA 400 Oxidizer Hazard Classifications and storage recommendations".	6.1.2.1.4.6	Chemical SAFETY including steps to safely store and handle chemicals including: 1) How to read labels and material safety data sheets, 2) How to prevent individual chemicals and inorganic and organic CHLORINE products from mixing together or with other substances (including water) or in chemical feeders, and 3) Use of personal protective equipment.
Operator Training (OT)	6.1.2.1.4.6	Chemical safety including steps to safely store and handle chemicals including: 1) How to read labels and material safety data sheets, 2) How to prevent individual chemicals and inorganic and organic CHLORINE products from mixing together or with other substances (including water) or in chemical feeders, and 3) Use of personal protective equipment.	Chemical Safety - Include provisions of OSHA regs including labeling, staff training etc	None. The Annex provides further information, as well, as other sections of the MAHC such as the Risk Management Module.	6.1.2.1.4.6	Chemical SAFETY including steps to safely store and handle chemicals including: 1) How to read labels and material safety data sheets, 2) How to prevent individual chemicals and inorganic and organic CHLORINE products from mixing together or with other substances (including water) or in chemical feeders, and 3) Use of personal protective equipment.
Operator Training (OT)	6.1.2.1.4.7	Entrapment prevention including: 1) Different types of entrapment (e.g., hair, limb, body, evisceration/disembowelment, and mechanical), 2) How to prevent and/or decrease likelihood of entrapment, and 3) Requirements of the Virginia Graeme Baker Pool and Spa Safety Act	Entrapment Prevention - Specifically reference APSP-7 and APSP-16	None. Section 6.1.2.1.3.3 (4) includes entrapment. References to these standards are best left in other sections of the MAHC rather than being part of course requirements.	6.1.2.1.4.7	Entrapment prevention including: 1) Different types of entrapment (e.g., hair, limb, body, evisceration/disembowelment, and mechanical), 2) How to prevent and/or decrease likelihood of entrapment, and 3) Requirements of the Virginia Graeme Baker POOL and SPA Safety Act.
Operator Training (OT)	6.1.2.1.4.8	Electrical safety including possible causes of electrical shock and steps that can be taken to prevent electrical shock (e.g., bonding, grounding, ground fault interrupters, and prevention of accidental immersion of electrical devices).	Electrical Safety - Include OSHA & NEC provisions for GFCI and Arc Protection	None. These requirements are covered in the MAHC in the Design Module and also the Risk Management Module.	6.1.2.1.4.8	Electrical safety including possible causes of electrical shock and steps that can be taken to prevent electrical shock (e.g., bonding, grounding, ground fault interrupters, and prevention of accidental immersion of electrical devices).
Operator Training (OT)	6.1.2.1.4.9	Rescue equipment including a description and rationale for the most commonly found rescue equipment including: 1) Rescue tubes, 2) Reaching poles, 3) Ring buoys and throwing lines, 4) Backboards, 5) First aid kits, 6) Emergency alert systems, and 7) Emergency phones with current numbers posted 8) Resuscitation Equipment.	Rescue Equipment - An additional item (#8) should be included titled, Resuscitation Equipment. This would include positive pressure ventilation equipment (i.e. Personal resuscitation masks and bag-valve-mask resuscitators), oxygen administration equipment (i.e. Oxygen tank, regulator, and non-rebreathing masks); airway management equipment (i.e. Manual hand-held suction devices, and oropharyngeal airways), and AEDs (automated external defibrillators	Item (8) "Resuscitation Equipment" will be added.	6.1.2.1.4.9	Rescue equipment including a description and rationale for the most commonly found rescue equipment including: 1) Rescue tubes, 2) Reaching poles, 3) Ring buoys and throwing lines, 4) Backboards, 5) First aid kits, 6) Emergency alert systems, 7) Emergency phones with current numbers posted, and 8) Resuscitation equipment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.4.9	Rescue equipment including a description and rationale for the most commonly found rescue equipment including: 1) Rescue tubes, 2) Reaching poles, 3) Ring buoys and throwing lines, 4) Backboards, 5) First aid kits, 6) Emergency alert systems, and 7) Emergency phones with current numbers posted 8) Resuscitation Equipment.	Rescue Equipment - Clearly allow either guard chairs or guard 'walking zones' as appropriate. Stipulate that not every provided chair or zone must be manned. Explain and mandate guard placement in accord with 10/20	None. The Swimming/Lifeguarding module will address these issues.	6.1.2.1.4.9	Rescue equipment including a description and rationale for the most commonly found rescue equipment including: 1) Rescue tubes, 2) Reaching poles, 3) Ring buoys and throwing lines, 4) Backboards, 5) First aid kits, 6) Emergency alert systems, 7) Emergency phones with current numbers posted, and 8) Resuscitation equipment.
Operator Training (OT)	6.1.2.1.5	Course work for operations shall include: 1) Regulations 2) Local and State Health Departments 3) Aquatic Facility Types 4) Daily/Routine Operations 5) Preventive Maintenance 6) Weatherizing 7) Aquatic Facility Renovation and Design 8) Heating 9) Air Circulation Spa and Therapy Pool Issues	Heating - ~~4) Sizing gas heaters, and 5) How to troubleshoot problems with heaters.~~	Section 6.1.2.1.5 (4) will be moved to the Design Module since sizing is more appropriately a design issue. However, an understanding of troubleshooting problems is reasonable course content and will remain.	6.1.2.1.5	Course work for operations shall include: 1) Regulations 2) Local and state health Departments 3) AQUATIC FACILITY types 4) Daily/routine operations 5) Preventive maintenance 6) Weatherizing 7) AQUATIC FACILITY renovation and design 8) Heating 9) Air circulation 10) SPA and THERAPY POOL Issues
Operator Training (OT)	6.1.2.1.5.1	Regulations including the application of local, regional, state, and federal regulations and STANDARDs relating to the operation of AQUATIC FACILITIES. Course work shall also highlight reasons why an inspector or operator would immediately close an AQUATIC FACILITY.	Regulations - Do we need to include info on personal protection, heatstroke, etc.?	None. This section pertains to regulations and standards relating to operation of aquatic facilities. Personal protection is discussed elsewhere in the MAHC and under 6.1.2.1.4.6. (3).	6.1.2.1.5.1	Regulations including the application of local, regional, state, and federal regulations and standards relating to the operation of aquatic facilities.
Operator Training (OT)	6.1.2.1.5.2	Local and state health departments including stressing the importance of a good working relationship with the local and state health department.	Local Health Departments - Stipulate in the absence of local rules established by Authority Having Jurisdiction, this MAHC shall apply	None. The MAHC is a recommended model code. It has no regulatory authority in the absence of local codes. We hope those jurisdictions not currently having regulations will use the MAHC as a template for adopting a local code.	6.1.2.1.5.2	Local and state health departments including stressing the importance of a good working relationship with the local and state health department.
Operator Training (OT)	6.1.2.1.5.3	AQUATIC FACILITY types including common AQUATIC VENUE types and settings and a discussion of features and play equipment that require specific operation and maintenance steps.	Aquatic Facility Types - See and expand classifications by APSP. Note characteristics of each type that have influence on operations, water treatment, guarding etc	None. A discussion of pool types is included in 6.1.2.1.5.3 and the corresponding annex.	6.1.2.1.5.3	aquatic facility types including common aquatic venue types and settings and a discussion of features and play equipment that require specific operation and maintenance steps.
Lifeguard & Bather Supervision (LG)	5.8.5.1.1	Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition.	*"…and safe for lifeguards to use…"* How do you define "safe" and can anything truly be insured safe? Delete this.	Partially agree. Code modified. Requirements for routine inspection of equipment already included in other modules.	6.1.2.1.5.4	Daily/Routine Operations
Lifeguard & Bather Supervision (LG)	5.8.5.1.1	Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition.	*Definition of routine maintenance.* -- Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition. Routine maintenance is defined as _____.	Partially agree. Code modified. Requirements for routine inspection of equipment have already been included in other modules.	6.1.2.1.5.4	Daily/Routine Operations
Lifeguard & Bather Supervision (LG)	5.8.5.1.1	Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition.	Does not address portable chairs/stands and the need to insure they are in the proper location, as addressed in the code comments. Add: *"…inspection of portable chairs/stands should confirm the location allows for unobstructed, direct line of sight, visual surveillance of the entire Zone, and matches the location as defined by the Zone of Protection documents for that position."*	Agree. Code revised and expanded with lifeguard locations addressed in the Policies and Management Section.	6.1.2.1.5.4	Daily/Routine Operations
Lifeguard & Bather Supervision (LG)	5.8.5.1.1	Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition.	Suggest adding: *5.8.5.1.2 "Inspections of portable stands/chairs should confirm the location allows for unobstructed, direct line of sight, visual surveillance of the entire Zone, and matches the location as defined by the Zone of Protection documents for that position."*	Agree. Code revised and expanded with lifeguard locations addressed in the Policies and Management Section.	6.1.2.1.5.4	Daily/Routine Operations
Lifeguard & Bather Supervision (LG)	5.8.5.1.1	Inspection of all lifeguard stations shall be done as routine maintenance so they are always in good working order and safe condition.	Who is responsible for performing inspection and how often	Partially agree. Code modified. Requirements for routine inspection of equipment already included in other modules.	6.1.2.1.5.4	Daily/Routine Operations

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited to: 1) Drain covers, vacuum fitting covers, skimmer equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 2) Skimmer baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 3) Inlet and return covers and any other fittings are in place, secure, and unbroken, 4) Safety warning signs and safety equipment as required by this CODE are in place and in good repair, 5) Entrapment prevention systems are operational, 6) Recirculation and DISINFECTION systems are operating, 7) Secondary and/or supplemental DISINFECTION systems are operating, 8) Underwater lights are intact with no exposed wires or water in lights, 9) Emergency communication systems are operational, 10) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 11) Water features and amenities are functioning in accordance with the manufacturer's recommendations, and Gates locks, and alarms, if required, are tested and functioning properly.	Daily Operations - Include standardization of automatic controllers, verification of performance of chemical feed equipment and adequacy of chemical supply levels	Section 6.1.2.1.5.4 has been modified to include additional daily inspections.	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited items listed : 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Entrapment prevention systems are operational, 7) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 8) Secondary and/or supplemental DISINFECTION systems are operating as required, 9) Underwater lights and other lighting are intact with no exposed wires or water in lights, 10) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 11) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 12) First aid supplies are stocked, 13) Emergency communication equipment and systems are operational, 14) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 15) Water features and amenities are functioning in accordance with the manufacturer's recommendations
Risk Management (RM)	6.6.1.2	For aquatic venues, Multi-Attraction Facilities, and Waterparks: (SEE CODE FOR FULL TEXT)	Editorial (completeness of abbreviation) -- 14) SVRS is functioning properly. – Reference: http://www.poolsafely.gov/pool-spa-safety/safety-issues/drain-entrapments/additional-prevention/	Agreed. Changed wording to "according to manufacturer's guidelines".	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited items listed: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Entrapment prevention systems are operational, 7) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 8) Secondary and/or supplemental DISINFECTION systems are operating as required, 9) Underwater lights and other lighting are intact with no exposed wires or water in lights, 10) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 11) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 12) First aid supplies are stocked, 13) Emergency communication equipment and systems are operational, 14) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 15) Water features and amenities are functioning in accordance with the manufacturer's recommendations

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.6.1.2 #14	SVR is functioning properly;	*The manufacturer should have product specific guidelines for operation and/or quality control measures for determining operational efficiency and effectiveness* -- Change functioning "properly" to "according to manufacturers guidelines"	Agree. Changed content as suggested.	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited items listed: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Entrapment prevention systems are operational, 7) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 8) Secondary and/or supplemental DISINFECTION systems are operating as required, 9) Underwater lights and other lighting are intact with no exposed wires or water in lights, 10) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 11) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 12) First aid supplies are stocked, 13) Emergency communication equipment and systems are operational, 14) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 15) Water features and amenities are functioning in accordance with the manufacturer's recommendations
Risk Management (RM)	6.6.1.2 #16	Water quality and clarity is satisfactory	*Editorial (provides specific guidance, including measures for water clarity, pH and sanitizer residual).* -- Water quality and clarity is satisfactory are compliant with sections 4.7 and 5.7 of this module (assuming those sections will be completed) or ANSI/APSP-11. -- Reference: Assoc. of Pool & Spa Professionals, "American National Standard for Water Quality in Public Pools and Spas", ANSI/APSP-11, 2009	Agreed. Added "is MAHC compliant"	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited items listed: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Entrapment prevention systems are operational, 7) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 8) Secondary and/or supplemental DISINFECTION systems are operating as required, 9) Underwater lights and other lighting are intact with no exposed wires or water in lights, 10) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 11) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 12) First aid supplies are stocked, 13) Emergency communication equipment and systems are operational, 14) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 15) Water features and amenities are functioning in accordance with the manufacturer's recommendations

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.6.1.2 #9, #13, and #14	(9) Movable fulcrum is all the way forward and secured to control spring in board; 13) Drain covers are secured and undamaged; 14) SVR is functioning properly;	*With regard to sub-9, there are no studies or statistical evidence that demonstrated that there are fewer accidents when the fulcrum is secured in the forward position then when it is not. Should be up to local facility. With regard to sub-13, should ensure all suction fittings have secure covers. With regard to sub-14, utilize the standard term for an Suction Vacuum Release System (SVRS) and add other items allowed by the VGB Act that need period inspection.* _ 6.6.1.2 9) Movable fulcrum is all the way forward and secured to control spring in board; 13) Dain covers <u>and all suction fittings</u> are secured and undamaged; 14) <u>If present,</u> SVR<u>S, Automatic Pump Shut Off, or Suction Limiting Vent System</u> is functioning properly;	Agreed. Moved content to the annex and changed code content to read, "Moveable fulcrum is adjusted properly to control spring in the board as necessary."	6.1.2.1.5.4	Daily/routine operations including listing and describing the daily inspection and maintenance requirements of an AQUATIC FACILITY including, but not limited items listed: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Entrapment prevention systems are operational, 7) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 8) Secondary and/or supplemental DISINFECTION systems are operating as required, 9) Underwater lights and other lighting are intact with no exposed wires or water in lights, 10) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 11) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 12) First aid supplies are stocked, 13) Emergency communication equipment and systems are operational, 14) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 15) Water features and amenities are functioning in accordance with the manufacturer's recommendations
Risk Management (RM)	4.5.5.2.8	Aquatic venues without an approved diving well configuration as defined by FINA or their local certifying agency shall have the international "NO DIVING" symbol.	1.) In the ANSI/APSP 1 Standard, diving well dimensions are based on extensive 3rd party testing and research, which was sponsored in large part by the NSPF. 2.) There are no certifying agencies in the US for FINA. There are national governing bodies for the competitive sports of swimming and diving as USA swimming, USA Diving, NCAA, NAIA, NJCAA, YMCA, etc. Many of these organizations utilize or refer to the FINA for their diving well, geometry, but not all. 3.) The ANSI Z 535-4 Standard was developed in cooperation with NEMA and is a recognized authoritative standard. 4.) The sign referenced in this comment was endorsed by the US Consumer Product Safety Commission, after significant study and research. This sign is also found in the ISPSC. -- AQUATIC VENUEs without an approved diving well configuration as defined by that complies with either FINA or the ANSI/NSPI 1 2003 American National Standard for Public Swimming Pools their local certifying agency shall have the international "NO DIVING" signs posted throughout the pool area symbol. AQUATIC VENUEs with an approved diving well configuration as defined above shall have "NO DIVING" signs posted in all portions of the Venue other than the diving well. All "NO DIVING" signs shall comply with the ANSI Z-535 Standards for safety signage, or be as shown in figure insert figure number or insert figure itself here or similar thereto. – Reference: A copy of the ANSI/APSP 1 can be provided by request. A copy of the ANSI Z 535 Standard must be obtained by ANSI. See Section 412.1 and Figure 412.1 of the ISPSC. www.iccsafe.org/cs/ispsc	Agree. Moved content to the annex and change content to read, "Moveable fulcrum is adjusted properly to control spring in the board as necessary."	6.1.2.1.5.4 #28	Moveable fulcrum is adjusted properly to control spring in the board as necessary;
Operator Training (OT)	6.1.2.1.5.5	Preventive maintenance including how to develop: 1) A preventive maintenance plan, 2) Routine maintenance procedures, and 3) Record keeping system needed to track maintenance performed.	Preventative Maintenance - Inspection requirements after winter shutdown and/or regular detailed inspection during operations	None. The Operations& Maintenance Module provides requirements for re-opening after short term or long term closures.	6.1.2.1.5.5	Preventive maintenance including how to develop: 1) A preventive maintenance plan, 2) Routine maintenance procedures, and 3) Record keeping system needed to track maintenance performed.
Operator Training (OT)	6.1.2.1.5.6	Weatherizing including the importance of weatherizing and the steps to prevent damage to AQUATIC FACILITIES and their mechanical systems due to very low temperatures or extreme weather conditions (e.g., flooding).	Weatherizing - Discuss acceptable chemicals for flushing or charging pipes to prevent freezing including potable water supply	None. The Operations& Maintenance Module provides requirements for re-opening after short term or long term closures.	6.1.2.1.5.6	Weatherizing including the importance of weatherizing and the steps to prevent damage to AQUATIC FACILITIES and their mechanical systems due to very low temperatures or extreme weather conditions (e.g., flooding).
Operator Training (OT)	6.1.2.1.5.7	AQUATIC FACILITY renovation and design including: 1) Definitions of AQUATIC FACILITY renovation and remodeling, 2) When it is necessary to renovate, 3) When it is necessary to notify the HEALTH AUTHORITY of planned renovations and remodeling, and 4) Current trends in facility renovation and design.	Renovation - When is professional engineering needed	None. The MAHC already discusses when A Registered Professional is required.	6.1.2.1.5.7	AQUATIC FACILITY renovation and design including: 1) Definitions of AQUATIC FACILITY renovation, remodeling, and SUBSTANTIAL ALTERATION, 2) When it is necessary to renovate, 3) When it is necessary to notify the AHJ of planned renovations and remodeling, and 4) Current trends in facility renovation and design.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.2.1.5.8	Heating issues including: 1) Recommended water temperatures and limits, 2) Factors that contribute to the water's heat loss and gain, 3) Heating equipment options, 4) Sizing gas heaters, and 5) How to troubleshoot problems with heaters.	Heating Issues - Discuss the use of Thermal covers indoors and out	None. This may be problematic when it is not clear which thermal covers are referred to, the lack of data on the impact of these covers on water quality, and the fact that jurisdictional approval for these covers can differ dramatically. Please feel free to send in more detail and specifics during the next round of public comments that can be given on this module for further consideration.	6.1.2.1.5.8	Heating issues including: 1) Recommended water temperatures and limits, 2) Factors that contribute to the water's heat loss and gain, 3) Heating equipment options, 4) Sizing gas heaters, and 5) How to troubleshoot problems with heaters.
Operator Training (OT)	6.1.2.1.5.9	Air circulation including: 1) Air handling system considerations for an INDOOR AQUATIC FACILITY, 2) The importance of regulating humidity, 3) The need to maintain negative pressure, 4) How poor indoor air quality can affect patrons and staff, and 5) How to balance air change and energy efficiency.	Air Circulation - Include discussion of dealing with airborne combined chlorine and its negative effect on infrastructure. Discuss parameters for sizing humidity control equipment	None. In 6.1.2.1.1.8 annex.	6.1.2.1.5.9	Air circulation including: 1) AIR HANDLING SYSTEM considerations for an indoor AQUATIC FACILITY, 2) The importance of regulating humidity, 3) The need to maintain negative pressure, 4) How poor indoor air quality can affect PATRONS and staff, and 5) How to balance air change and energy efficiency.
Operator Training (OT)	6.1.2.1.5.9	Air circulation including: 1) Air handling system considerations for an INDOOR AQUATIC FACILITY, 2) The importance of regulating humidity, 3) The need to maintain negative pressure, 4) How poor indoor air quality can affect patrons and staff, and 5) How to balance air change and energy efficiency.	Air Circulation ~~1) Issues to take into account when designing an air handling system for an indoor AQUATIC FACILITY,~~ 2) The importance of regulating humidity,3) The need to maintain negative pressure,	Section 6.1.2.1.5.9 (1) will be modified to read, "Air handling system considerations for an indoor Aquatic Facility".	6.1.2.1.5.9	Air circulation including: 1) AIR HANDLING SYSTEM considerations for an indoor AQUATIC FACILITY, 2) The importance of regulating humidity, 3) The need to maintain negative pressure, 4) How poor indoor air quality can affect PATRONS and staff, and 5) How to balance air change and energy efficiency.
Operator Training (OT)	6.1.3	Providers of recognized QUALIFIED OPERATOR training courses, if required by the HEALTH AUTHORITY to verify that the course meets the requirements and intent of this CODE, shall submit course information including: 1) Course development expertise 2) Course content 3) Course length 4) Instructor qualifications 5) Exam administration 6) Certificate procedures Updates of information as changes are made	Requirements for Training Courses - The lack of specificity in this entire section can allow any number of marginally qualified persons to establish a training program	None. Section 6.1.3 provides the requirements for training course providers. These are standard requirements but the local authority will need to decide how it approves course providers and content. Please submit suggested guidance in next review period.	6.1.3.1.1	Providers of recognized operator training courses, if required by the AHJ to verify that the course meets the requirements and intent of this CODE, shall submit course information including: 1) Course development expertise 2) Course content 3) Course length 4) Instructor qualifications 5) Exam administration 6) Certificate procedures, and 7) Updates of information as changes are made.
Operator Training (OT)	6.1.3.	Providers of recognized QUALIFIED OPERATOR training courses, if required by the HEALTH AUTHORITY to verify that the course meets the requirements and intent of this CODE, shall submit course information including: 1) Course development expertise 2) Course content 3) Course length 4) Instructor qualifications 5) Exam administration 6) Certificate procedures Updates of information as changes are made	~~If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.~~	None. If a course is offered online, it is reasonable for the students to have online assistance access. It is up to the authority having jurisdiction to determine whether or not to permit online training.	6.1.3.1.1	Providers of recognized operator training courses, if required by the AHJ to verify that the course meets the requirements and intent of this CODE, shall submit course information including: 1) Course development expertise 2) Course content 3) Course length 4) Instructor qualifications 5) Exam administration 6) Certificate procedures, and 7) Updates of information as changes are made.
Operator Training (OT)	6.1.3.1	qualified operator courses shall be developed by individuals or organizations with expertise in aquatic facility operation and maintenance and expertise in education or training as evidenced by combined work experience and training.	Course Providers - As written anyone with a modicum of experience can establish an acceptable course???????????	None. Section 6.1.3 provides the requirements for training course providers. These are standard requirements but the local authority will need to decide how it approves course providers and content. Please submit suggested guidance in next review period.	6.1.3.1.2	Operator courses shall be developed by individuals or organizations with expertise in aquatic facility operation and maintenance and expertise in education or training as evidenced by combined work experience and training.
Operator Training (OT)	6.1.3.3	Course agenda or syllabus shall show amount of time planned to cover each of the essential topics.	Recognized Courses - The cost of the certification courses that currently meet the proposed training requirements for an operator would be prohibitive to some organizations, especially if this recurring cost had to be applied to multiple individuals. This dilemma would be somewhat alleviated if one operator could serve as the designated operator for multiple facilities. Agencies that have significant turnover rates would be adversely affected by any training requirements that define the need for an operator at every facility.	The Operator training Module file now includes at the top proposed language from the Regulatory Program Administration Module. This should allow reviewers to understand the requirements for QUALIFIED OPERATORS as well as when and where QUALIFIED OPERATORS would be required. The proper placement for this section is under MAHC 6.3.1: Operator Staff Requirements and Availability.	6.1.3.3	Course agenda or syllabus shall show amount of time planned to cover each of the essential topics.
Operator Training (OT)	6.1.3.4	QUALIFIED OPERATOR training course providers shall furnish course instructor information including: 1) Expertise in AQUATIC FACILITY operation and maintenance—as evidenced by work experience and/or training, 2) Completion of an operator training course, which at a minimum, covers all of the essential topics as outlined in Sec 6.1.2.1, including passing the final exam, 3) Successful completion of an operator training instructor course, and If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.	Instructor Requirements - As written any person with a minimum undefined level of training or experience can become an instructor	None. Section 6.1.3.4 provides the requirements for training course instructors. These are standard requirements but the local authority will need to decide how it approves course providers and content. Please submit suggested guidance in next review period.	6.1.3.4	Operator training course providers shall furnish course instructor information including: 1) Expertise in AQUATIC FACILITY operation and maintenance—as evidenced by work experience and/or training, 2) Completion of an operator training course, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.1.2.1, including passing the final exam, 3) Successful completion of an operator training instructor course, and 4) If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	6.1.3.4	QUALIFIED OPERATOR training course providers shall furnish course instructor information including: 1) Expertise in AQUATIC FACILITY operation and maintenance—as evidenced by work experience and/or training, 2) Completion of an operator training course, which at a minimum, covers all of the essential topics as outlined in Sec 6.1.2.1, including passing the final exam, 3) Successful completion of an operator training instructor course, and If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.	Instructor Requirements ~~3) Successful completion of an operator training instructor course, and~~ ~~4) If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.~~	None. The MAHC Operator Training Technical Committee believes that all Qualified Operator Training course providers must have completed an operator instruction course and successfully passed an examination to adequately protect public health and safety.	6.1.3.4	Operator training course providers shall furnish course instructor information including: 1) Expertise in AQUATIC FACILITY operation and maintenance—as evidenced by work experience and/or training, 2) Completion of an operator training course, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.1.2.1, including passing the final exam, 3) Successful completion of an operator training instructor course, and 4) If the operator training course is online, procedures which make such an instructor available to answer students' questions during normal business hours.
Operator Training (OT)	6.1.3.5.1	QUALIFIED OPERATOR training course providers shall furnish course final exam information including: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in Sec 6.1.2.1, 2) Final exam passing score criteria, and 3) Final exam security procedures.	Final Exam - The annex section suggests the possibility of including a practical examination as part of the final exam. We are concerned about this since it could reduce the number of individuals that are able to achieve certification, and some agencies do not require that all the operators actively manage the water chemistry of the pool (i.e. service contracts). Additionally, variations in the equipment and design at facilities that host certification classes would compromise the equity of the testing process since individuals would be tested on different equipment.	None. While we believe there should be some assessment of skills for operators, the MAHC has only recommended a final exam be given. It is the responsibility of the authority having jurisdiction to determine what training and examination requirements are adopted for that jurisdiction. The Annex is intended to be a discussion area explaining the rationale for the requirement but also pointing out what the Technical Committee members saw regarding future directions	6.1.3.5	Operator training course providers shall furnish course final exam information including: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.1.2.1, 2) Final exam passing score criteria, and 3) Final exam security procedures.
Operator Training (OT)	6.1.3.5.2	QUALIFIED OPERATOR training course providers shall provide final exam administration, proctoring and security procedures including: 1) Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, 2) Final exam completion is without assistance or aids that may improve exam results, and Final exam is passed, prior to issuance of a QUALIFIED OPERATOR certificate.	Final Exam Administration -- Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam	None. This wording is already contained in this section.	6.1.3.5.1	Operator training course providers shall provide final exam administration, proctoring and security procedures including: 1) Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, 2) Final exam completion is without assistance or aids that may improve exam results, and 3) Final exam is passed, prior to issuance of a QUALIFIED OPERATOR certificate.
Operator Training (OT)	6.1.3.5.2	QUALIFIED OPERATOR training course providers shall provide final exam administration, proctoring and security procedures including: 1) Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, 2) Final exam completion is without assistance or aids that may improve exam results, and Final exam is passed, prior to issuance of a QUALIFIED OPERATOR certificate.	Final Exam Administration -- ~~QUALIFIED OPERATOR training course providers shall provide final exam administration, proctoring and security procedures including:~~ QUALIFIED OPERATOR training course providers shall not provide final exam administration. Final exam administration shall be provided by a third-party that has not provided the QUALIFIED OPERATOR training course.	None. While the authority having jurisdiction ultimately determines regulations pertaining to operator training, it is appropriate for operator training instructors to provide and proctor final exams with appropriate security procedures in place.	6.1.3.5.1	Operator training course providers shall provide final exam administration, proctoring and security procedures including: 1) Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, 2) Final exam completion is without assistance or aids that may improve exam results, and 3) Final exam is passed, prior to issuance of a QUALIFIED OPERATOR certificate.
Operator Training (OT)	6.1.3.7	Continuing Education	Continuing Education – Change to Grade C.	None. The discussion of continuing education is in the Annex wording for this section and not the code and is therefore not graded.	6.1.3.7	Continuing Education
Operator Training (OT)	6.1.3.7	Continuing Education	Continuing Education - We support the need to have trained individuals at every facility; however, given the variation in operating models among public facilities, some agencies require more or less proficiency and knowledge from the individuals that are physically stationed at a facility. Should a requirement for continuing education be included beyond re-certification, we believe that most agencies will be unable to fiscally support this.	It is the responsibility of the authority having jurisdiction to determine training requirements acceptable to that jurisdiction. At this time the MAHC is not advocating for continuing education. The Annex discussion does bring up that there is a need for long term professionalization of pool operators and that continuing education will likely be a part of that upgrade in the future as with other certificate programs.	6.1.3.7	Continuing Education
Operator Training (OT)	6.1.3.9	1) Course providers shall have procedures in place for the suspension or revocation of certificates. 2) Course providers may suspend or revoke an operator's certificate based on evidence that the operator's actions or inactions unduly created safety and health hazards. (3) Course providers may suspend or revoke an operator's certificate based on evidence of cheating or obtaining the certificate under false pretenses.	Suspension and Revocation - Add Certificate revoked if evidence of cheating or obtained under false pretenses.	Section 6.1.3.9 will have add item (3) to read, "Course providers may suspend or revoke an operator's certificate based on evidence of cheating or obtaining the certificate under false pretenses".	6.1.3.9	6.1.3.9 Certificate Suspension and Revocation OT Course providers shall have procedures in place for the suspension or revocation of certificates. 6.1.3.9.1 Evidence of Health Hazard OT Course providers may suspend or revoke a QUALIFIED OPERATOR'S certificate based on evidence that the QUALIFIED OPERATOR'S actions or inactions unduly created SAFETY and health hazards. 6.1.3.9.2 Evidence of Cheating OT Course providers may suspend or revoke a QUALIFIED OPERATOR'S certificate based on evidence of cheating or obtaining the certificate under false pretenses.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	*Different aquatic venues may have significantly different training requirements.* -- A Qualified Lifeguard shall have successfully completed a lifeguard training course provided by a training agency, as approved by the AHJ, for the particular type of facility and/or venue for which the lifeguard will be assigned.	Partially agree. The code has been restructured and revised . Pre-service and in-service requirements address venue specific issues.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	*Different aquatic venues may have significantly different training requirements.* -- A Qualified Lifeguard shall have successfully completed a lifeguard training course provided by a training agency, as approved by the AHJ, for the particular type of facility and/or venue for which the lifeguard will be assigned. All certifications should be nationally recognized	Partially agree. The code has been restructured and revised . Pre-service and in-service requirements address venue specific issues.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	This definition of "qualified lifeguard" is different from the definition listed within the Glossary.	Agree. This has been resolved.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	*This is a definition, but is it a requirement? Language needs to be changed. Should state recognized by certifying agency.* -- Delete: A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the Health Authority.	Partially agree. The code has been restructured and revised.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	*This is a definition, but is it a requirement? Language needs to be changed..* -- Delete: A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the Health Authority.	Agree. Definition revised.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1.1	A Qualified Lifeguard shall have successfully completed a lifeguard training course that is recognized by the AHJ.	*Typical of this entire annex, adds nothing to the code. Just paraphrases the code requirement. No justification is listed.* -- Delete: The duties of a lifeguard require specific skills and knowledge. While some of the skills and knowledge can be acquired through independent study, the understanding needed to apply this information can only be found through a properly developed training course which includes practical water skills and tests. Pre-employment testing as well as scheduled training is needed to verify that a lifeguard is qualified for the environment they are guarding. Any course must be accepted by the Health Authority before its certification will be valid in the agency's jurisdiction.	Partially agree. Annex comment. The code and annex have been restructured and revised.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.3.4.2.1	Lifeguards assigned to patron surveillance shall have documented training which includes discussion and active participation based on application and mastery of skills in Section 6.2.2 specific to the venue's Emergency Action Plan.	*Repetitive to 6.2.2* – Remove	Disagree. Not redundant, this section addresses in-service requirements. However, note that the code and annex have been revised and restructured.	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.3.4.2.1	Lifeguards assigned to patron surveillance shall have documented training which includes discussion and active participation based on application and mastery of skills in Section 6.2.2 specific to the venue's Emergency Action Plan.	Wording in this section most often only addresses training requirement and does not specify, *"regularly scheduled in-service (refresher) training"*. One can interpret this as only having the need for training on the subject matter and not reinforcement training of said topics. There is no mention of frequency of training or the need for regular scheduling.	Annex information to support that the committee came up as 4 hours a month as a minimum. Wording added	6.2.1	A QUALIFIED LIFEGUARD shall: 1) Have successfully completed an AHJ-recognized lifeguard training course offered by an AHJ-recognized training agency, 2) Possess a current certificate for such training, 3) Have met all pre-service requirements, and 4) Participate in continuing in-service training requirements of the AQUATIC FACILITY
Lifeguard & Bather Supervision (LG)	6.2.1	Lifeguard Qualifications and Certification	Is this the most current data available (5 year old data from 2007)? This will be 10 years old by the time of release. Suggest replacing with most recent data available.	Data updated with the most recent data up to 2009 that has become available after the module was posted.	6.2.1 Annex	Lifeguard Qualifications (See Annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2	Essential Topics in Lifeguard Training Courses	*These items should be specifically tailored to the type of aquatic facility/venues for which the lifeguard is trained. The training agency should have flexibility in designing the type of training/instruction provided. One size does not fit all here – especially for a waterpark environment. There is way too much detail and specificity in the draft. The AHJ oversight here will assure that proper training is being carried out for the particular facility/venue.* -- Delete all under 6.2.2 (6.2.2.1 through 6.2.2.6.1	Disagree . The model code provides minimum common elements to be included in an acceptable lifeguard training course. Pre-service and in-service requirements in the code address facility specific issues.	6.2.1.1	Lifeguard Training Courses shall include but not be limited to: 1) Hazard identification and injury prevention, 2) Emergencies, 3) Cardiopulmonary resuscitation (CPR/AED), 4) First aid, and 5) Legal issues.
Lifeguard & Bather Supervision (LG)	6.2.2 et al	Essential Topics in Lifeguard Training Courses	*These items should be specifically tailored to the type of aquatic facility/venues for which the lifeguard is trained. The training agency should have flexibility in designing the type of training/instruction provided. One size does not fit all here – especially for a waterpark environment. There is way too much detail and specificity in the draft. The AHJ oversight here will assure that proper training is being carried out for the particular facility/venue.* -- Delete all under 6.2.2 (6.2.2.1 through 6.2.2.6.1	Disagree . The model code provides minimum common elements to be included in an acceptable lifeguard training course. Pre-service and in-service requirements in the code address venue specific issues.	6.2.1.1	Lifeguard Training Courses shall include but not be limited to: 1) Hazard identification and injury prevention, 2) Emergencies, 3) Cardiopulmonary resuscitation (CPR/AED), 4) First aid, and 5) Legal issues.
Lifeguard & Bather Supervision (LG)	6.2.2.2	Hazard Identification and Injury Prevention	USLSC References should be eliminated due to the fact the report was not a Peer-Reviewed and Open study.	Disagree with comment - this is annex information and not the code. However, the annex and code have been restructured and revised. In terms of the peer-reviewed USLSC it was an evidence review process that followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actuality exceed these for Evidence-Based Practice and scientific reviews.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*There is no research to support this statement of which I am aware. Typical of the poor job done in the annex.* -- Delete: • Emphasize that when individuals within a population are similar in appearance, it takes longer to identify potential drowning incidents.	Partially agree. Annex and code have been restructured and revised.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	#6 whose agenda is this? Tom Griffiths? Take it out and simply add 1st aid to the end of #5	Disagree. This is addressed as an independent line item as it represents a significant and under-recognized risk.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*Citing the Lifeguard… Coallition without referencing that it is essentially an inhouse publication is inappropriate…… Delete this entire section. -- Delete: The United States Lifeguarding Standards Coalition recommended at the level of a "Guideline" that Lifeguard certifying agencies and supervisors should provide training programs and in-service protocols that cover the following: • Emphasize scanning all fields within a scanning zone using maximal head movements; • Require new lifeguards to practice scanning with supervision and feedback;• Emphasize that when individuals within a population are similar in appearance, it takes longer to identify potential drowning incidents; • Inform lifeguards that distractions greatly affect the scanning process; •When training aquatic supervisors, include information regarding the benefits of supervision and frequent encouragement*	The annex and code have been restructured and revised. In terms of the peer-reviewed and published USLSC report, it was an evidence review process that followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actuality exceed these for Evidence-Based Practice and scientific reviews.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*This is so naïve as to be completely inappropriate.* -- Delete: • When training aquatic supervisors, include information regarding the benefits of supervision and frequent encouragement.	Partially agree. Annex and code have been restructured and revised.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*This is wrong and has no evidentiary support.* -- Delete: •	Partially agree. Annex and code have been restructured and revised.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*This section should include victim identification.* -- Hazards and prevention including: 1) Victim identification, 2)Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and	Disagree. Victim identification is addressed in the "Emergency Response" portion of this section.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*This section should include victim identification. 6) should be deleted since it is an example of 5)* -- Hazards and prevention including: 1) Victim identification; 2) Identification of common hazards or causes of aquatic injuries and their prevention; 2) Responsibilities of a lifeguard in prevention strategies; 3) Basic scanning strategies; 4) Factors which impede victim recognition; 5) Health and safety issues related to lifeguarding and bather supervision, and	Disagree. Victim identification is addressed in the " Emergency Response" portion of this section , and #6 is addressed as an independent line item as it represents a significant risk.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1	Hazards and prevention including: 1) Identification of common hazards or causes of aquatic injuries and their prevention, 2) Responsibilities of a lifeguard in prevention strategies, 3) Basic scanning strategies, 4) Factors which impede victim recognition, 5) Health and safety issues related to lifeguarding and bather supervision, and 6) Health issues related to and prevention of voluntary hyperventilation and extended breath holding activities.	*This seems to have been lifted from the aforementioned lifeguard coalition. As such, its inclusion is inappropriate. Delete this entire section. Standard - Where did this come from? Under these guidelines, almost everything submitted would be at best an option. The authors have done almost nothing to show compelling reasons in the annex for the items included in the code. Starting from "The anticipated benefits. . ." This seems to imply, if it seems ok, then do it.* -- Delete: "Scientific Review and Evidence Grading Guideline Definitions for Evidence-Based Statements…. responsibilities among them when the number of patrons rises. No Recommendations"	Partially agree. Annex and code have been restructured and revised.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention, 2) Responsibilities of a QUALIFIED LIFEGUARD in prevention strategies, 3) Victim recognition 4) Victim recognition scanning strategies, 5) Factors which impede victim recognition, 6) Health and SAFETY issues related to lifeguarding, and 7) Prevention of voluntary hyperventilation and extended breath holding activities
Lifeguard & Bather Supervision (LG)	6.2.2.2.1 #1	Hazards and prevention including… 1) Identification of common hazards or causes of aquatic injuries and their prevention...	Suggest changing to: *"1) Identification of common hazards or causes of injuries at aquatic facilities, and their prevention."* Not just aquatic injuries.	Agree. Change made.	6.2.1.1.1	Hazard identification and injury prevention shall include: 1) Identification of common hazards or causes of injuries and their prevention,
Lifeguard & Bather Supervision (LG)	6.2.2.3.1	Emergency Response including: 1) Responsibilities of a lifeguard in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Rescue skills for a person who is either responsive or unresponsive on or near the surface, 4) Rescue skills for a person who is either responsive or unresponsive on or near the bottom or in transition to the bottom, 5) Skills required to extricate a person from the water, and 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues.	*This is way too far ranging. It implies, for example, that a LG course would have to include open water guarding techniques which are entirely different that those used in a four foot deep pool. In addition, some courses are facility unique.* -- Delete: 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues	Disagree with comment. This is based on type/level of course being offered, i.e. shallow water only - vs- open water courses. Also, the overall lifeguard course is not "facility unique", the code requires pre-service and in-service training to address facility specific training.	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.
Lifeguard & Bather Supervision (LG)	6.2.2.3.1	Emergency Response including: 1) Responsibilities of a lifeguard in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Rescue skills for a person who is either responsive or unresponsive on or near the surface, 4) Rescue skills for a person who is either responsive or unresponsive on or near the bottom or in transition to the bottom, 5) Skills required to extricate a person from the water, and 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues.	*This way too far ranging. It implies, for example, that the LG course would have to include open water guarding techniques which are entirely different than those used in a four foot deep pool. In addition, some courses are facility unique.* -- Delete 6	Disagree with comment. This is based on type/level of course being offered, i.e. shallow water only - vs- open water courses. Also, the overall lifeguard course is not "facility unique", the code requires pre-service and in-service training to address facility specific training.	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.3	Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation.	*A second person is not required to extricate unless unconscious or unable to get out on their own. Backboard is typical for this but not absolute – if person is small and able to lay them out on the deck to start care. The point of this is to have a second person respond to signal to help with care if that involves the extrication.* -- Another member of the Aquatic Facility Safety Team is required to be available to respond to Aquatic Emergency Action Plan activation	Agree to change to - "A lifeguard shall be able to extricate a victim from the aquatic venue according to the Emergency Action Plan."	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.3	Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation.	Delete current content; it does not address section topic of included supplemental responders.	Agree to change to - "A lifeguard shall be able to extricate a victim from the aquatic venue according to the Emergency Action Plan."	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.3	Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation.	*Does not take into account one guard facilities.* -- Remove item number 6.3.4.1.8.3.	Agree to change to - "A lifeguard shall be able to extricate a victim from the aquatic venue according to the Emergency Action Plan."	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.3	Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation.	requires that there must be at least two lifeguards present for any extrication without reference to age/size of the guest being extricated or depth of water, etc nor understanding that you can extricate a victim with a single rescuer. We did it for many years before utilization of backboard extrication	Agree to change to - "A lifeguard shall be able to extricate a victim from the aquatic venue according to the Emergency Action Plan."	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.3	Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation.	*Training agencies are the appropriate agency to detail proper method to extricate given specific circumstances. They are geared to make changes to their protocols as the science becomes available.* -- Delete section	Agree to change to - "A lifeguard shall be able to extricate a victim from the aquatic venue according to the Emergency Action Plan."	6.2.1.1.2	Emergency response content shall include: 1) Responsibilities of a QUALIFIED LIFEGUARD in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Methods to communicate in response to an emergency, 4) Rescue skills for a person who is responsive or unresponsive, in distress, or drowning, 5) Skills required to rescue a person to a position of SAFETY, 6) Skills required to extricate a person from the water with or without assistance, and 7) Components of an EMERGENCY ACTION PLAN (EAP) for AQUATIC VENUES.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2.3.1	Emergency Response including: 1) Responsibilities of a lifeguard in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Rescue skills for a person who is either responsive or unresponsive on or near the surface, 4) Rescue skills for a person who is either responsive or unresponsive on or near the bottom or in transition to the bottom, 5) Skills required to extricate a person from the water, and 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues.	*The annex comments which will be used as a un- discussed and un- approved expansion of this standard is way too broad! It has lengthened the training, increased the cost to both the facilities and students, and increased litigation exposure for all. It also will greatly impact the ability to acquire insurance. The annex went well beyond the simple benign statements that are stated in the standard/code. In the code, it states "…for emergencies in aquatic venues. In the annex, it implies that the LG training agencies need to "not limit emergency response training to water itself." Due to a facilities limited funds, it may prevent them from hiring EMT's the LG 's need to be responsible for land-based emergencies as well. This will expand the training time significantly. If the venue needs an EMT trained person, then they should hire an EMT. This is way beyond the scope of a LG course and far more than the current training agencies are training. The standard procedures for these types of "land-based emergencies" should be stabilize the patient, and call EMS. These comments in the annex open up a whole level of litigation opportunities by greatly increasing the level of responsibility for LG's. A 400 hour course is what is being prescribed here, and proficiency that takes weeks of training and practice in EMT courses. Additionally, once an EMT is licensed, they will probably do these procedures and techniques 2-3 times a shift. A LG is being required to be proficient at a skill they will do once in their carrier.* -- Re-define this skill set and or limit to aquatic emergencies only. The Annex states requirements and skill sets that greatly expand the requirements of LG's to be trained up to the level of EMT's.	Partially agree. Annex has been revised.	6.2.1.1.2 Annex	Emergency Response Skill Set (See Annex for full text)
Lifeguard & Bather Supervision (LG)	6.2.2.3.1	Emergency Response including: 1) Responsibilities of a lifeguard in reacting to an emergency, 2) Recognition and identification of a person in distress and/or drowning, 3) Rescue skills for a person who is either responsive or unresponsive on or near the surface, 4) Rescue skills for a person who is either responsive or unresponsive on or near the bottom or in transition to the bottom, 5) Skills required to extricate a person from the water, and 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues.	*This text book material for someone's text but adds nothing to the code so it should be deleted. This statement also misses the point that some courses are facility unique and implies that one shoe should fit everyone.* -- Delete: Lifeguards should have a clear understanding of the responsibilities and actions of not only the physical skills, but the cognitive and decision making skills involved in an emergency response. Training agencies should develop appropriate skills to address the variety of water depths in which a victim may be found. These skills should be trained not only for the technical aspects of the skill, but also how the skill is incorporated into a venue's Emergency Action Plan.	Partially agree. Annex has been revised.	6.2.1.1.2 Annex	Emergency Response Skill Set (See Annex for full text)
Lifeguard & Bather Supervision (LG)	6.2.2.3.1 #2	Emergency Response including... 2) Recognition and identification of a person in distress and/or drowning...	*Need for lifeguards to readily distinguish different types of drowning patterns.* -- Suggest that the training include recognition of: "active", "passive" and "distressed" swimmer conditions.	Agree. Annex revised.	6.2.1.1.2 Annex	Emergency Response Skill Set (See Annex for full text)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	This requirement may be overly burdensome to local AHJ's, and to training agencies based on shear number of potential reviews. As written this does not allow for acceptance based on higher-level AHJ review (i.e. state approves but county still must review).	Disagree. Changes made to the code, AHJ is not obligated to review courses, but must at least recognize/accept them. The training agency is obligated to make sure their course meets the established protocols and guidelines as specified.	6.2.1.1.3	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions, foreign body restriction removal, and rescue breathing for infants, children, and adults.
Lifeguard & Bather Supervision (LG)	6.3.4.1.10	Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED), First Aid, and Lifeguarding qualifications shall be current and taught by an authorized instructor of a training agency recognized and approved by this Code.	Already covered previously	Agree.	6.2.1.1.3	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions, foreign body restriction removal, and rescue breathing for infants, children, and adults.
Lifeguard & Bather Supervision (LG)	6.3.4.1.10	Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED), First Aid, and Lifeguarding qualifications shall be current and taught by an authorized instructor of a training agency recognized and approved by this Code.	*Remove as it is redundant* -- Delete: Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED), First Aid, and Lifeguarding qualifications shall be current and taught by an authorized instructor of a training agency recognized and approved by this Code.	Agree. Code has been revised and re-structured, duplications eliminated.	6.2.1.1.3	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions, foreign body restriction removal, and rescue breathing for infants, children, and adults.
Lifeguard & Bather Supervision (LG)	6.3.4.1.10	Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED), First Aid, and Lifeguarding qualifications shall be current and taught by an authorized instructor of a training agency recognized and approved by this Code.	*The AHJ approves the training agency.* -- To clarify, change to read "…training agency that is recognized and approved by the AHJ."	Partially agree. The code and annex have been revised and restructured . Generally, recognition of the course by AHJ or other, language has been removed.	6.2.1.1.3	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions, foreign body restriction removal, and rescue breathing for infants, children, and adults.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.5	Lifeguards shall be trained in emergency response, cardio-pulmonary resuscitation (CPR/AED) and first aid scenarios that are specific to the aquatic facility which they are employed.	*This implies that AED's have a place in the treatment of drowning. I am not aware of any documented case where AED's have been useful to treat drowning.* -- Delete the AED reference: Lifeguards shall be trained in emergency response, cardio-pulmonary resuscitation (CPR) and first aid scenarios that are specific to the aquatic facility which they are employed.	Disagree with comment. Any incident (drowning induced or not) that progresses to loss of pulse requires immediate analysis by an AED to allow for maximum available standard of care delivery.	6.2.1.1.3	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions, foreign body restriction removal, and rescue breathing for infants, children, and adults.
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	Does not provide information regarding other certifying agencies compliance and whether or not those agencies would have a variance. …… It does not state whether or not other CPR certifying agencies would be acceptable. …….. Were other agencies taken into consideration when writing this code?	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	*Extremely specific. What is professional level? The required skill set and course requirements should be left up to recognized lifeguard training courses. Also, why were the (ECCU) and (ILCOR) guidelines chosen?* -- Delete entire section	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	*Local EMS guidelines should be followed not other standards.* -- add "or as required by the Aquatic Facilities' Emergency Medical Services provider".	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	mandates that lifeguard training/certification agencies must teach CPR/AED protocols consistent with the Emergency Cardiovascular Care Update and/or the International Liaison Committee on Resuscitation without reference to what local EMS providers may recommend or mandate	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	sets forth requirements that CPR/AED skills for an operator/owner must be consistent with the Emergency Cardiovascular Care Update and/or the International Liaison Committee on Resuscitation. The Module does not provide information regarding other certifying agencies compliance and whether or not those agencies would have a variance.	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	sets forth requirements that First Aid skills be consistent with the Emergency National First Aid Science Advisory Board on treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries. The Module does not provide information regarding other certifying agencies compliance and whether or not those agencies would have a variance.	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	*Unnecessarily proscriptive. Should just specify follow national guide lines. Why would the ECCU of American Heart be the only agency to establish guidelines* -- Delete: Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	*Unnecessarily proscriptive. Should just specify follow national guide lines. Why would the ECCU of American Heart be the only agency to establish guidelines? This implies that AED's have a place in the treatment of drowning. I am not aware of any documented case where AED's have been useful to treat drowning.* -- Delete: Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults,	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.4.1	Cardiopulmonary Resuscitation (CPR/AED) and other resuscitation skills shall be professional level skills that follow treatment protocols consistent with the current Emergency Cardiovascular Care Update (ECCU) and/or, the International Liaison Committee on Resuscitation (ILCOR) guidelines for cardiac compressions and rescue breathing for infants, children, and adults.	Why no mention of the ECCU as it is referenced in the Code.	Agree. Annex revised to include information regarding ECCU.	6.2.1.1.3 Annex	CPR Skills (See Annex for details)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	Remove LAND based spinal injuries – requires in-depth training not provided by any lifeguard certifying agency	Disagree - the code speak to the emergency care of a suspected spinal injury on land. Care does not necessarily mean backboard.	6.2.1.1.4	First Aid training shall include: 1) Basic treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries as per the guidelines of the National First Aid Science Advisory Board, 2) Knowing when and how to activate the EMS, 3) Rescue and emergency care skills to minimize movement of the head, neck and spine until EMS arrives for a person who has suffered a suspected spinal injury on land or in the water, and 4) Use and the importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines.
Lifeguard & Bather Supervision (LG)	6.2.2.5.1 #2	First Aid including... 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water…	Emergency Care skills for LAND based suspected spinal injuries contain skills/student content/Instructor content that is beyond professional level CRP/Standard FA training. These land based skills for neck/back injuries are found in EMT level courses and require more than 6-8 hours of specialty content, training and equipment in order to provide care. This includes the use of a c-collar that has been and should continue to be a skill managed by responding EMS or in-house EMT level trained individuals. Patients with land based neck/back injuries are not in any danger of drowning and, as such, is out of the purview/scope of a lifeguard.	Disagree - the code speaks to the emergency care of a suspected spinal injury on land. Care does not necessarily mean backboard.	6.2.1.1.4	First Aid training shall include: 1) Basic treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries as per the guidelines of the National First Aid Science Advisory Board, 2) Knowing when and how to activate the EMS, 3) Rescue and emergency care skills to minimize movement of the head, neck and spine until EMS arrives for a person who has suffered a suspected spinal injury on land or in the water, and 4) Use and the importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines.
Lifeguard & Bather Supervision (LG)	6.2.2.5.1 #2	First Aid including... 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water…	Land based spinal injuries contain skills that is beyond what lifeguards are taught. C-spine protocols are EMT level skills and require specialized training. Additionally, every EMS department / Fire Company has specific recommendations on how they want to handle land based situations. Take out. Not in the scope of the responsibility of a lifeguard.	Disagree - the code speak to the emergency care of a suspected spinal injury on land. Care does not necessarily mean backboard.	6.2.1.1.4	First Aid training shall include: 1) Basic treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries as per the guidelines of the National First Aid Science Advisory Board, 2) Knowing when and how to activate the EMS, 3) Rescue and emergency care skills to minimize movement of the head, neck and spine until EMS arrives for a person who has suffered a suspected spinal injury on land or in the water, and 4) Use and the importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines.
Lifeguard & Bather Supervision (LG)	6.2.2.5.1 #2	First Aid including... 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water…	REMOVE the reference to LAND bases suspected spinal injuries and related skills.	Disagree - the code speaks to the emergency care of a suspected spinal injury on land. Care does not necessarily mean backboard.	6.2.1.1.4	First Aid training shall include: 1) Basic treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries as per the guidelines of the National First Aid Science Advisory Board, 2) Knowing when and how to activate the EMS, 3) Rescue and emergency care skills to minimize movement of the head, neck and spine until EMS arrives for a person who has suffered a suspected spinal injury on land or in the water, and 4) Use and the importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines.
Lifeguard & Bather Supervision (LG)	6.2.2.5.1 #4	First Aid including… 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries are already addressed in section 6.2.2.5.1 subsection 1) above	Agree. Change made to eliminate duplication.	6.2.1.1.4	First Aid training shall include: 1) Basic treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries as per the guidelines of the National First Aid Science Advisory Board, 2) Knowing when and how to activate the EMS, 3) Rescue and emergency care skills to minimize movement of the head, neck and spine until EMS arrives for a person who has suffered a suspected spinal injury on land or in the water, and 4) Use and the importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	Add "or as required by the Aquatic Facilities' Emergency Medical Services provider"	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	*Another example of appeal to a unique board that no one knows or deals with.* -- Delete: Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	Does not provide information regarding other certifying agencies compliance and whether or not those agencies would have a variance. …….. It does not state whether or not other first aid certifying agencies would be acceptable. …….. Were other agencies taken into consideration when writing this code?	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	*Local EMS guidelines should be followed* -- Add "or as required by the Aquatic Facilities' Emergency Medical Services provider"	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	mandates that lifeguard training/certification agencies must teach treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries without reference to what local EMS providers may recommend or require	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.2.5.1	First Aid including: 1) Training agencies shall follow treatment guidelines as recommended by the National First Aid Science Advisory Board for the treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries, 2) Rescue and emergency care skills for a person who has suffered a suspected spinal injury on land or in the water, 3) Use and importance of universal precautions and personal protective equipment in dealing with body fluids, blood, and preventing contamination according to current Occupational Safety and Health Administration (OSHA) guidelines, 4) Treatment of bleeding, shock, sudden illness, and muscular/skeletal injuries.	*Very specific and why was the National First Aid Science Advisory Board guidelines chosen? There are a number of reputable organizations to choose from.* -- Delete section 1	Disagree. See Annex for explanation for how these standards/protocols are established and by whom.	6.2.1.1.4 Annex	First Aid (See Annex for details)
Lifeguard & Bather Supervision (LG)	6.2.2.6.1	Basic concepts related to lifeguards including but not limited to: 1) duty to act; 2) standard of care; 3) negligence; 4) consent; 5) refusal of care; 6) abandonment; 7) confidentiality; and 8) documentation.	*Delete as these are legal terms that are applicable to EMT's and First Responders. PD, FD, and EMT's. These are terms will not come in contact with during their normal daily routines. Under the refusal of care, a DNR may come into play and that is well beyond the scope of a LG.* -- Basic Concepts related to LG's Delete	Disagree. These topics should be addressed in general terms, see Annex for discussion.	6.2.1.1.5	Course content related to legal issues shall include but not be limited to: 1) Duty to act, 2) Standard of care, 3) Negligence, 4) Consent, 5) Refusal of care, 6) Abandonment, 7) Confidentiality, and 8) Documentation
Lifeguard & Bather Supervision (LG)	6.2.2.6.1	Basic concepts related to lifeguards including but not limited to: 1) duty to act; 2) standard of care; 3) negligence; 4) consent; 5) refusal of care; 6) abandonment; 7) confidentiality; and 8) documentation.	*It is not necessary and may be counterproductive to try to teach teenagers the subtleties of tort law. These legal precepts may also change from jurisdiction to jurisdiction. Lifeguards should be trained as to what their specific duties are in various situations and about confidentiality. Not all lifeguards will be asked to provide documentation. At Water World, this is the duty of the lead guard.* -- Delete	Disagree. These topics should be addressed in general terms, see Annex for discussion.	6.2.1.1.5	Course content related to legal issues shall include but not be limited to: 1) Duty to act, 2) Standard of care, 3) Negligence, 4) Consent, 5) Refusal of care, 6) Abandonment, 7) Confidentiality, and 8) Documentation
Lifeguard & Bather Supervision (LG)	6.2.3.2.1	An educational delivery system including standardized and comprehensive student and instructor materials shall be used to convey all topics listed under 6.2.2.1 through Sec 6.2.2.6.	*See comments regarding 6.2.2* -- An educational delivery system including standardized and facility-specific, comprehensive student and instructor materials shall be used to convey course training materials."	Disagree. Pre-service and in-service requirements in the code address facility specific issues.	6.2.1.2.1	The educational delivery system shall include standardized and student and instructor materials to convey all topics including but not limited to those listed per MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.2.2	Actual training of lifeguarding skills shall include in-water and out-of-water skill practices.	*To clarify the instructor-led activity.* -- Actual training of lifeguarding skills shall include in-water and out-of-water skill practices led by an appropriately certified instructor.	Agree. Change made.	6.2.1.2.2	Physical training of lifeguarding skills shall include in-water and out-of-water skill practices led by an individual currently certified as an instructor by the training agency which developed the lifeguard course materials.
Lifeguard & Bather Supervision (LG)	6.2.3.6.3	Lifeguards which are assigned to depths of five feet (1.52 m) or less may be trained in depths of five feet or less.	Eliminate "or less" as this wording suggests you can guard in 5 feet if you only trained in 3 feet, which does not clearly illustrate the intent of the depth association requirement. As an alternative, add another line that states that at least some portion of training must be done at 5 feet.	Agree. Code revised.	6.2.1.2.3	If a training agency offers a certification with a distinction between "shallow water" and "deep water" lifeguards, candidates for shallow water certification shall have training and evaluation in the deepest depth allowed for the certification.
Lifeguard & Bather Supervision (LG)	6.2.3.6.5	Lifeguards which are assigned to water which may include depths greater than five feet (1.52 m) shall be trained in water depths greater than five feet.	Suggested Addition: *6.2.3.6.5.1: The maximum depth at which a lifeguard was trained shall be included on training agency certificate issued to the lifeguard.*	Partially agree. No change to current language regarding certification however, change made to "Pre-Service " requirements to include training specific to the facility's water depth.	6.2.1.2.4	If a training agency offers a certification with a distinction between "shallow water" and "deep water" lifeguards, candidates for deep water certification shall have training and evaluation in at least the minimum depth allowed for the certification.
Lifeguard & Bather Supervision (LG)	6.2.3.3.1	Course length shall provide sufficient time to cover all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6.	Course length should be determined by the training agency and based on their requirements.	Disagree . The model code provides minimum common elements to be included in an acceptable lifeguard training course. The course length must be adequate to cover the required content, practice , skills and evaluation of competency.	6.2.1.2.5	Course length shall provide sufficient time to cover content, practice, skills, and evaluate competency for the topics listed in MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.3.1	Course length shall provide sufficient time to cover all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6.	*See comments regarding 6.2.2* -- Course length shall provide sufficient time to cover all of the essential topics.	Not clear what change is proposed.	6.2.1.2.5	Course length shall provide sufficient time to cover content, practice, skills, and evaluate competency for the topics listed in MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.3.1	Course length shall provide sufficient time to cover all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6.	*This should be deleted as it contains no information. What constitutes essential topics? Either a course covers the topics listed or it doesn't.* -- Course length shall provide sufficient time to cover all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6.	Partially agree. The model code provides minimum common elements to be included in an acceptable lifeguard training course. The course length must be adequate to cover the required content, practice , skills and evaluation of competency. Wording altered.	6.2.1.2.5	Course length shall provide sufficient time to cover content, practice, skills, and evaluate competency for the topics listed in MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.3.1	Course length shall provide sufficient time to cover all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6.	*To include the word practice* -- Course length shall provide sufficient time to cover and practice all of the essential topics listed in Sec 6.2.2.1 through Sec 6.2.2.6	Agree. Changes made to indicate course length shall provide sufficient time to cover, practice, and evaluate competency/understanding of all of the essential topics listed.	6.2.1.2.5	Course length shall provide sufficient time to cover content, practice, skills, and evaluate competency for the topics listed in MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.4.1	Qualified Lifeguard training agencies shall develop minimum instructor prerequisites that include, but are not limited to those outlined in MAHC Section 6.2.3.4.	*The training agencies should be able to determine proper instructor training requirements.* -- delete all after "prerequisites".	Disagree. The model code provides minimum common elements to be included in an acceptable lifeguard instructor training course.	6.2.1.2.5	Course length shall provide sufficient time to cover content, practice, skills, and evaluate competency for the topics listed in MAHC Section 6.2.1.1.
Lifeguard & Bather Supervision (LG)	6.2.3.4.2	Only course instructors with experience in aquatic facility lifeguarding as evidenced by work and/or training shall be used to teach lifeguard courses.	? goes to the adage Those who can do, those who can't teach, those who can't teach, teach teachers. May not be completely accurate but who gets to decide based on what experience etc.?	Agree. Experience in lifeguarding has been removed.	6.2.1.2.6	Courses shall be taught only by individuals currently certified as instructors by the training agency which developed the lifeguard course materials.
Lifeguard & Bather Supervision (LG)	6.2.3.4.2	Only course instructors with experience in aquatic facility lifeguarding as evidenced by work and/or training shall be used to teach lifeguard courses.	How is this *"experience/training"* determined, and does working in a flat-water environment allow for instruction of waterpark or open water curriculum?	Agree. Experience in lifeguarding has been removed.	6.2.1.2.6	Courses shall be taught only by individuals currently certified as instructors by the training agency which developed the lifeguard course materials.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.4.2	Only course instructors with experience in aquatic facility lifeguarding as evidenced by work and/or training shall be used to teach lifeguard courses.	*Not sure what this means. How is this statement satisfied?* -- Delete: Only course instructors with experience in aquatic facility lifeguarding as evidenced by work and/or training shall be used to teach lifeguard courses.	Agree. Experience in lifeguarding has been removed.	6.2.1.2.6	Courses shall be taught only by individuals currently certified as instructors by the training agency which developed the lifeguard course materials.
Lifeguard & Bather Supervision (LG)	6.2.3.4.4	Courses shall be taught only by individuals currently certified as instructors by the agency which developed the materials.	*Need to be consistent* -- add "training' before "agency".	Agree. Change made.	6.2.1.2.6	Courses shall be taught only by individuals currently certified as instructors by the training agency which developed the lifeguard course materials.
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	*All the topics covered in a lifeguard training course are essential or they should not be included* -- Delete the word "essential"	Agree. Change made.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	Being able to perform basic levels skills should also be addressed, as the ability for an instructor to demonstrate said skills is essential to being able to instruct beginners in the performance of said skills.	Disagree - there are exceptional instructors in all walks of life who can teach far better than most but cannot do basic skills that they previously could do . Someone else can demonstrate a skill and the instructor can explain it while it is being demonstrated.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	*Include the phrase basic-level* -- Prior to instructing lifeguard training, instructors are required to have completed a basic-level lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam	Disagree. Unnecessary to include phrase "basic level" as essential topics to be covered are specified.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	Agree. Change made.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	Suggested Change: *"Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training and a lifeguard instructor training course which, at a minimum, covers all of the essential topics as outlined in section 6.2.2, including passing both the final written and final practical exams."*	Agree. Change made.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.4.3	Prior to instructing lifeguard training, instructors are required to have completed a lifeguard training course which at a minimum covers all of the essential topics as outlined in sec. 6.2.2 including passing both the final written and final practical exam.	*The training agencies should be able to determine proper instructor training requirements.* -- change all after "course" to read "from a training agency, as approved by the AHJ."	Disagree with Comment. Evaluation of skill competencies should be part of the instructor certification process.	6.2.1.2.6.2	Prior to instructing lifeguard training, instructors are required to have successfully completed a lifeguard training course which complies with MAHC Section 6.2.1.1 and a lifeguard instructor training course which includes, at a minimum, the following: 1) Mastery and knowledge of lifeguard training course content; 2) Demonstration of the ability to effectively deliver lifeguard training course content; 3) An evaluation and feedback process to improve instructor candidate presentation skills/techniques; 4) Course management and administration procedures; and 5) Testing and evaluation procedures.
Lifeguard & Bather Supervision (LG)	6.2.3.4.6	Training agencies shall have a quality control system in place to monitor lifeguard instructors.	Quality Control. This entry needs additional requirements. Several lifeguard-training agencies DO NOT require Lifeguard Instructors to re-qualify essential lifeguard skills that they are teaching to lifeguard candidates. Any quality control program MUST require re-qualification, at a maximum, every two years. How can an Instructor, who may not have ben able to perform rescue skills or pre-requisite skills as a Lifeguard/Lifeguard Instructor, be considered a quality Instructor?	Disagree - there are exceptional instructors in all walks of life who can teach far better than most but cannot do basic skills that they previously could do. Someone else can demonstrate a skill and the instructor can explain it while it is being demonstrated.	6.2.1.2.6.4	Training agencies shall have a quality control system in place for evaluating a lifeguard instructor's ability to conduct courses.
Lifeguard & Bather Supervision (LG)	6.2.3.4.6	Training agencies shall have a quality control system in place to monitor lifeguard instructors.	Suggest the following be added… *"Lifeguard Instructors are required to re-qualify, at a maximum, every two years, by completing a Renewal Instructor Program. Renewal Instructors must objectively complete Pre-requisite screening, all skills to Instructor level demonstration quality, complete the Practical and written test in order to renew their Instructor credentials."*	Partially agree. A requirement for instructor recertification/reauthorization has been added.	6.2.1.2.6.4	Training agencies shall have a quality control system in place for evaluating a lifeguard instructor's ability to conduct courses.
Lifeguard & Bather Supervision (LG)	6.2.3.4.6	Training agencies shall have a quality control system in place to monitor lifeguard instructors.	*This is overly burdensome on the training agency. The burden should be on the end user, not on the national agency. This is litigation prone and will be very difficult to do.* -- Delete: Training agencies shall have a quality control system in place to monitor lifeguard instructors.	Disagree . It is the training agencies responsibility to monitor their instructor's performance, not the end users.	6.2.1.2.6.4	Training agencies shall have a quality control system in place for evaluating a lifeguard instructor's ability to conduct courses.
Lifeguard & Bather Supervision (LG)	6.2.3.4.6	Training agencies shall have a quality control system in place to monitor lifeguard instructors.	*This is overly burdensome on the training agency. The burden should be on the end user, not on the national agency. This is litigation prone and will be very difficult to do. Very difficult to understand what is intended. Why not* -- Delete: Training agencies shall have a quality control system in place to monitor lifeguard instructors	Disagree . It is the training agencies responsibility to monitor their instructor's performance, not the end users. Wording modified to clarify	6.2.1.2.6.4	Training agencies shall have a quality control system in place for evaluating a lifeguard instructor's ability to conduct courses.
Lifeguard & Bather Supervision (LG)	6.2.3.2.3	Lifeguarding skills shall be tested to a level of proficiency accepted by the training agency to meet requirements of the job of a lifeguard.	*Clarify* -- Lifeguarding skills shall be tested by an appropriately certified instructor to a level of proficiency accepted by the training agency to meet requirements of the job of a lifeguard.	Agree. Change made.	6.2.1.3.1	Lifeguarding skills per MAHC Section 6.2.1.1 shall be tested, by a certified instructor, to a level of proficiency accepted by the training agency.
Lifeguard & Bather Supervision (LG)	6.2.3.2.3	Lifeguarding skills shall be tested to a level of proficiency accepted by the training agency to meet requirements of the job of a lifeguard.	How do you measure this? Each employer is different	Disagree. This section addresses the Training Agency requirements, not the employer.	6.2.1.3.1	Lifeguarding skills per MAHC Section 6.2.1.1 shall be tested, by a certified instructor, to a level of proficiency accepted by the training agency.
Lifeguard & Bather Supervision (LG)	6.2.3.2.3	Lifeguarding skills shall be tested to a level of proficiency accepted by the training agency to meet requirements of the job of a lifeguard.	Reword: "the requirement of the lifeguard are defined by the venue or employer, not the certifying agency.	Disagree. This section addresses the Training Agency requirements , not an employer.	6.2.1.3.1	Lifeguarding skills per MAHC Section 6.2.1.1 shall be tested, by a certified instructor, to a level of proficiency accepted by the training agency.
Lifeguard & Bather Supervision (LG)	6.2.3.5.1	Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, 4) Final exam containing theoretically, experientially- and physically-based skills.	*1) Final exam should be tailored to specifics of the individual training course; 2) Poorly defined, not specific; 3) Security specific exam questions not relevant; 4) Poorly defined, not specific* -- Remove sub points 1), 2), 3) and 4)	Disagree . The model code provides minimum common elements to be included in an acceptable lifeguard training course , with corresponding final exam . Final exam requirements have been re-worded for clarity.	6.2.1.3.2	Lifeguard training course providers shall have a final exam including but not limited to: 1) Written and practical exams covering topics outlined in MAHC Section 6.2.1.1, 2) Final exam passing score criteria including the level of proficiency needed to pass practical and written exams, and 3) Security procedures for proctoring the final exam to include: a. Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, and b. Final exam is passed, prior to issuance of a certificate

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.5.1	Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, 4) Final exam containing theoretically, experientially- and physically-based skills.	*Final exam to include both theory based and practical skills? --* Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, and 4) Final exam to include both theory based and practical skills.	Partially agree. Wording changed to state "...written and practical exams covering topics outlined in MAHC …."	6.2.1.3.2	Lifeguard training course providers shall have a final exam including but not limited to: 1) Written and practical exams covering topics outlined in MAHC Section 6.2.1.1, 2) Final exam passing score criteria including the level of proficiency needed to pass practical and written exams, and 3) Security procedures for proctoring the final exam to include: a. Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, and b. Final exam is passed, prior to issuance of a certificate
Lifeguard & Bather Supervision (LG)	6.2.3.5.1	Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, 4) Final exam containing theoretically, experientially- and physically-based skills.	*See comments regarding 6.2.2 --* A Qualified Lifeguard training course shall include a final exam with the following requirements:" 1) Coverage of all of the essential topics; 2) Theoretical, experiential and physical skills; 3) Passing score criteria including the level of proficiency needed to pass required skills; 4) Examination security procedures.	Disagree. The model code provides minimum common elements to be included in an acceptable lifeguard training course, with corresponding final exam. Final exam requirements have been re-worded for clarity.	6.2.1.3.2	Lifeguard training course providers shall have a final exam including but not limited to: 1) Written and practical exams covering topics outlined in MAHC Section 6.2.1.1, 2) Final exam passing score criteria including the level of proficiency needed to pass practical and written exams, and 3) Security procedures for proctoring the final exam to include: a. Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, and b. Final exam is passed, prior to issuance of a certificate
Lifeguard & Bather Supervision (LG)	6.2.3.5.1	Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, 4) Final exam containing theoretically, experientially- and physically-based skills.	*Very difficult to understand what is intended. Why not: Final exam to include both theory based and practical skills? --* Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the topics as outlined in MAHC Section 6.2.2; 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical; 3) Final exam security procedures; 4) Final exam to include both theory based and practical skills.	Agree. Re-worded for clarity.	6.2.1.3.2	Lifeguard training course providers shall have a final exam including but not limited to: 1) Written and practical exams covering topics outlined in MAHC Section 6.2.1.1, 2) Final exam passing score criteria including the level of proficiency needed to pass practical and written exams, and 3) Security procedures for proctoring the final exam to include: a. Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, and b. Final exam is passed, prior to issuance of a certificate
Lifeguard & Bather Supervision (LG)	6.2.3.5.1	Qualified Lifeguard training course providers shall include a final exam including but not limited to: 1) Final exam, which at a minimum, covers all of the essential topics as outlined in MAHC Section 6.2.2, 2) Final exam passing score criteria including the level of proficiency needed to pass physical skills and theoretical, 3) Final exam security procedures, 4) Final exam containing theoretically, experientially- and physically-based skills.	Wording on 2,3 does not make sense as written	Agree. Re-worded for clarity.	6.2.1.3.2	Lifeguard training course providers shall have a final exam including but not limited to: 1) Written and practical exams covering topics outlined in MAHC Section 6.2.1.1, 2) Final exam passing score criteria including the level of proficiency needed to pass practical and written exams, and 3) Security procedures for proctoring the final exam to include: a. Checking student's government-issued photo identification, to ensure that the individual taking the exam is the same person who is given a certificate documenting course completion and passing of exam, and b. Final exam is passed, prior to issuance of a certificate
Lifeguard & Bather Supervision (LG)	6.2.3.5.2	The instructor of record, certified by the AHJ, shall be physically present during all the written and physical testing.	Needs rewording, as Instructors are not certified by any AHJ. They are certified by an "approved training agency" as recognized by the AHJ. Suggested Change: *"The instructor of record, certified by an approved training agency as recognized by the AHJ, shall be physically present during all the written and physical testing."*	Agree. Re-worded and revised to require the instructor of record to be physically present during practical testing.	6.2.1.3.3	The instructor of record shall be physically present during the practical testing.
Lifeguard & Bather Supervision (LG)	6.2.3.5.2	The instructor of record, certified by the AHJ, shall be physically present during all the written and physical testing.	Needs rewording, instructors are not certified by any AHJ. They are certified by an "approved training agency" as recognized by the AHJ.	Agree. Re-worded.	6.2.1.3.3	The instructor of record shall be physically present during the practical testing.
Lifeguard & Bather Supervision (LG)	6.2.3.5.2	The instructor of record, certified by the AHJ, shall be physically present during all the written and physical testing.	*The instructor of record should be certified by the training agency not the AHJ and there is no need for the instructor of record to be present if there are assurances of proper testing procedures. --* The instructor of record or his designee shall be present during all the written and physical testing.	Partially agree. Instructor certification re-worded. Disagree regarding presence of instructor of record. The wording has been revised to require the instructor of record to be physically present during practical testing.	6.2.1.3.3	The instructor of record shall be physically present during the practical testing.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.5.2	The instructor of record, certified by the AHJ, shall be physically present during all the written and physical testing.	*To allow for some online testing that would test for the online portion of the training. Many agencies offer blended learning lifeguard courses that would do some online testing. Also have onsite written exams so makes sense for the instructor to be present for that but the way it was written implies the only testing can be done in person. It is understood that the intention here is to ensure that the content that covers non-psychomotor skills should be in a setting in which the instructor is present. Not sure how to reflect that.* -- The instructor of record, certified by the AHJ, shall be physically present during psychomotor lifeguarding skills testing.	Agree. Changes made to require the instructor of record to be physically present during practical testing.	6.2.1.3.3	The instructor of record shall be physically present during the practical testing.
Lifeguard & Bather Supervision (LG)	6.2.3.1.1	Lifeguard and lifeguard instructor certifications shall be issued by an AHJ approved agency or organization.	*Need to be specific on Training Agency* -- Lifeguard and lifeguard instructor certifications shall be issued by a Training Agency approved by the AHJ after appropriate completion of all applicable requirements.	Agree. Code and Annex have been restructured and revised , comment addressed in revised content.	6.2.1.3.4	Lifeguard and lifeguard instructor certifications shall be issued to recognize successful completion of the course as per the requirements of MAHC Section 6.2.1.1 through 6.2.1.4.3.3.
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*"The time periods listed in this Code are acceptable only if ongoing in-service and pre-service standards are followed."* The reality of the code is that there are no in-service standards as relates to frequency?	Agree. Code and annex have been revised and now address timing and/or frequency for training.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	American Red Cross standards have changed -- Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of two years for Cardiopulmonary Resuscitation (CPR/AED). – REFERENCE: American Red Cross "Lifeguarding" program http://www.redcross.org	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation:- The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*As recommended by certification agency.* -- Two years to stay in synchronization with lifeguard certification	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	Concerned the American Red Cross currently extended CPR certifications to 2 years to match that of the Lifeguarding Certification. – REFERENCE: American Red Cross	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	EMT certifications in many states are valid for 3 years. If the facility is required to conduct pre- and in-service training programs in order to "qualify" their lifeguards, then why should this code address the certification validity period. If the certifying agency certifies the course graduates for 3-years, then that should be sufficient, as long as the facility maintains their pre- and in-service training. Also, the American Heart Association is the leading certification agency for CPR training. They certify their course graduates for 2-years, and the American Red Cross is now doing the same for professional rescuers. I do not feel this standard should address the validity periods of the certifying agencies.	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation:- The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*Over the last several years American Red Cross and other certifying agencies have changed the duration of certifications for lifeguarding, first aid, and CPR/AED. Additionally, all three certifications have had varied time restrictions over the years. Recently, both the American Red Cross and American Heart Association have changed the validity period of CPR/AED to two years. ARC has also changed the lifeguarding and first aid validity period from three to two years. By providing a maximum time frame the MAHC will not inhibit future changes in duration for shorter periods, but will require strategic thinking before elongating the duration of said certifications.* -- The length of a valid certification shall be a maximum of 2 years for lifeguarding, first aid, and CPR/AED. – REFERENCE: *Editorial:* Sponsoring agencies such as ARC and AHA have conducted research and studies regarding the validity period of lifeguarding, first aid, and CPR/AED certifications.	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	Should indicate whatever the training agency dictates	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*Streamline so that all certifications match up.* -- The length of a valid certification shall be a maximum of two years for Lifeguarding, First Aid & CPR/AED – REFERENCE: American Red Cross and American Heart Association all have certification programs in CPR/AED with a certification of 2 years. Most recently the ARC has changed their certification for Lifeguarding to a 2-year validity period for all requirements. It only makes sense to follow their recommendations.	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*Studies show that CPR skills degrade in as little as 3 months – it is not feasible to have a 3 month certification. All professional responders, after certification, should participate in regular refreshers and in-service trainings to keep skills and knowledge sharp.* -- Length of valid certification shall be a maximum of two years for lifeguarding, first aid and CPR/AED, however, in-service training on this knowledge and skills shall be conducted regularly to maintain skill competency.	Partially agree. Agree with in-service comment however, disagree with 2 year certification . Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	The length of valid certification should follow the training agency protocol or the AHJ.	Disagree . Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	the Red Cross recently moved away from the one year validation of CPR certification to a two year validation. Does this mean they would have to go back to a one year validation?	A CPR certificate will only be accepted for 1 year from the date of certification. This does not preclude agencies from validating for a longer period	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*This should be streamlined so that all certifications match up.* -- The length of a Valid Certification shall be a maximum of 2 years for Lifeguarding and First Aid as well as CPR/AED – REFERENCE: The American Red Cross and American Heart Association all have certification programs in CPR/AED with a certification of 2 years. Most recently the American Red Cross changed their certification for Lifeguarding to a 2-year validity period for all requirements. It is best to follow their recommendations on this matter.	Disagree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5	Length of valid certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.9.1	Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).	*The United States Lifeguarding Standards Coalition final report, the scientific review by the American Red Cross, and the technical committee agree that lifeguarding skills need to be refreshed as often as possible. The time periods listed in this Code are acceptable only if ongoing in-service and pre-service standards are followed. There does not appear to be an actual number of years provided. Should be directly stated, not referenced by another code.* -- ~~Length of Valid Certification shall be a maximum of two years for lifeguarding and first aid, and a maximum of one year for Cardiopulmonary Resuscitation (CPR/AED).~~	Annex comment. Partially agree. Statistically/scientifically it has been shown that skills begin to erode after only 3 months. The AHA Guidelines for CPR states: "Education and Implementation: The quality of rescuer education and frequency of retraining are critical factors in improving the effectiveness of resuscitation. Ideally retraining should not be limited to 2-year intervals. More frequent renewal of skills is needed, with a commitment to maintenance of certification..." The Resuscitation Council of the UK states: "For guidance, skills should be refreshed at least once a year, but preferably more often." There are many other studies that reflect this.	6.2.1.3.5 Annex	Number of Years (See annex for text)
Lifeguard & Bather Supervision (LG)	6.2.3.6.1	Course documentation of training shall identify level of training and expiration date.	Add "Course Record" to the definitions section of this module.	Partially agree. Course documentation details now specified.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification
Lifeguard & Bather Supervision (LG)	6.2.3.6.1	Course documentation of training shall identify level of training and expiration date.	Suggested Additions: *6.2.3.6.1.1: Training Agency Certifications shall be issued only to lifeguards who successfully meet the requirements of the course. 6.2.3.6.1.2: Training Agencies (or instructors) shall keep a "Course Record" for all lifeguard course conducted by the agencies certified instructors.*	Agree. Changes made.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification
Lifeguard & Bather Supervision (LG)	6.2.3.6.1	Course documentation of training shall identify level of training and expiration date.	Suggested Additions: *Training Agency Certifications shall be issued only to lifeguards who successfully meet the requirements of the course.*	Agree. Re-worded.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification
Lifeguard & Bather Supervision (LG)	6.2.3.6.1	Course documentation of training shall identify level of training and expiration date.	The requirement for a "Course Record" needs to be included in this section somewhere as it is mentioned but not defined. Suggestion: *6.2.3.6.1.2 "A Course Record shall be completed for each course conducted by the training agency (or it's instructors), and shall contain the course dates, individual lifeguard candidate names, certification numbers issued to said candidates, verification of meets/does not meet all course requirements for each candidate, and instructors signature."*	Agree. Course documentation details now specified.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification
Lifeguard & Bather Supervision (LG)	6.2.3.6.2	Training agency certifications shall clearly state any restrictions on depth of water for which the lifeguard is qualified for duty.	The maximum depth at which training has been conducted is the key here. Restrictions must be clearly defined based on depth that training was conducted in, not based on a depth the training agency arbitrarily assigns to a certificate. Suggest rewording: *"Training agency certifications shall clearly state the maximum depth at which the lifeguard has been trained, and any depth restrictions for which the lifeguard is qualified."*	Partially agree. No change to current language regarding certification however, change made to "Pre-Service" requirements to include training specific to the facility's water depth.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification
Lifeguard & Bather Supervision (LG)	6.2.3.6.6	An identifier of the instructor of record shall be recorded legibly on the lifeguard's certificate and on the course record.	This should also include a signature, not just an identifier, to insure that the instructor is the one issuing the certification.	Disagree. Signatures may be hard to read and identify. Code has been revised to require identifier of instructor of record and the agency providing the certification.	6.2.1.3.6	Course documentation of training and certificates shall identify the following: 1) name 2) level of training, 3) expiration date, 4) restrictions on depth of water for which the lifeguard is qualified, 5) identifier of the instructor of record, 6) any other restrictions that maybe applied by the training agency, 7) identifier of the agency providing the certification

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.6.1	Course documentation of training shall identify level of training and expiration date.	*"…requiring the expiration date of the certification allows employers and the AHJ to be reasonably sure that the skills and knowledge of the lifeguard remain adequate."* Disagree, documented pre-service and regular in-service training is the only way to be reasonably sure...	Annex comment. Agree, annex revised so as not to suggest that skills "remain " adequate.	6.2.1.3.6 Annex	Documentation (See Annex for text)
Lifeguard & Bather Supervision (LG)	6.2.3.8.1	When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills.	Add a challenge element if provided by the training agency	Agree. A challenge provision has been added.	6.2.1.3.7.1	A QUALIFIED LIFEGUARD challenge program, when utilized, shall be completed in accordance with the training of the original certifying agency, by an instructor certified by the original certifying agency, and include but not be limited to: 1) Pre-requisite screening, 2) A final practical exam demonstrating all skills, in and out of the water required in the original lifeguard course for certification, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, and 3) Final written, proctored exam.
Lifeguard & Bather Supervision (LG)	6.2.3.8.4	Any lifeguard challenge program shall be done in accordance with the agency of the certifying instructor	*Lifeguarding recertification should include some review of information and/or skill instruction/feedback. Should not just test out. Do the national training agencies have Lifeguard Challenge courses?* -- Delete challenge courses for Lifeguarding.	Disagree. This item addresses candidate's option to "challenge" for recertification. As such it is not intended for the instructor to provide course review and/or instruction.	6.2.1.3.7.1	A QUALIFIED LIFEGUARD challenge program, when utilized, shall be completed in accordance with the training of the original certifying agency, by an instructor certified by the original certifying agency, and include but not be limited to: 1) Pre-requisite screening, 2) A final practical exam demonstrating all skills, in and out of the water required in the original lifeguard course for certification, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, and 3) Final written, proctored exam.
Lifeguard & Bather Supervision (LG)	6.2.3.8.4	Any lifeguard challenge program shall be done in accordance with the agency of the certifying instructor	Need to define lifeguard challenge program	Agree. Code revised to include criteria for a challenge program.	6.2.1.3.7.1	A QUALIFIED LIFEGUARD challenge program, when utilized, shall be completed in accordance with the training of the original certifying agency, by an instructor certified by the original certifying agency, and include but not be limited to: 1) Pre-requisite screening, 2) A final practical exam demonstrating all skills, in and out of the water required in the original lifeguard course for certification, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, and 3) Final written, proctored exam.
Lifeguard & Bather Supervision (LG)	6.2.3.8.4	Any lifeguard challenge program shall be done in accordance with the agency of the certifying instructor	*This is out of place. It implies that such a course must be taught* -- Delete: Any lifeguard challenge program shall be done in accordance with the agency of the certifying instructor.	Partially agree. Code has been restructured and revised . Challenge program is further defined and clarified.	6.2.1.3.7.1	A QUALIFIED LIFEGUARD challenge program, when utilized, shall be completed in accordance with the training of the original certifying agency, by an instructor certified by the original certifying agency, and include but not be limited to: 1) Pre-requisite screening, 2) A final practical exam demonstrating all skills, in and out of the water required in the original lifeguard course for certification, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, and 3) Final written, proctored exam.
Lifeguard & Bather Supervision (LG)	6.2.3.8.4	Any lifeguard challenge program shall be done in accordance with the agency of the certifying instructor	*"This demonstration is performed without prior review and/or instruction at the time of the challenge by the instructor."* How does one gain particular agency skills and knowledge without prior review and/or instruction? This is ridiculous.	Annex comment. Disagree. The code and annex have been revised and restructured for clarity. This item addresses a candidate's option to "challenge" for recertification. As such it is not intended for the instructor to provide course review and/or instruction.	6.2.1.3.7.1 Annex	Challenge Program (See Annex for text)
Lifeguard & Bather Supervision (LG)	6.2.3.8.1	When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills.	*Existing language is confusing. See also comments regarding 6.2.2* -- When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by taking a course designated by the training agency which includes passing a final exam and in and out of water skills.	Partially agree. The code has been revised and restructured for clarity.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.3.8.1	When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills.	*This is better language than what was used above.* -- When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills	Comment unclear, however the code has been revised and restructured for clarity.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.
Lifeguard & Bather Supervision (LG)	6.2.3.8.1	When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills.	This sounds like a test-out challenge. Suggested Change: *"When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2, or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 and passing a final exam, which includes in and out of water skills."*	Partially agree. The code has been revised and restructured for clarity.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.
Lifeguard & Bather Supervision (LG)	6.2.3.8.1	When the period of certificate validity is expired as delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec. 6.2.2 through passing a final exam, which includes in and out of water skills.	*To include knowledge portion of the review – not just skills but to include review of scanning, surveillance, injury prevention, etc.* -- When the period of certificate validity is expired as B delineated by the training agency, certificate renewal may be achieved by retaking an entire course that meets the requirements delineated in Sec. 6.2.2 or by taking a review course that meets the course requirements delineated in Sec 6.2.2 and includes passing written and skills final exams for lifeguarding knowledge and rescue skills.	Agree. A final written proctored exam is included.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.
Lifeguard & Bather Supervision (LG)	6.2.3.8.2	Accepted courses for certificate renewal shall meet requirements delineated by the training agency.	Suggest changing to: *"Training agencies should retain the right to devise alternative ways for a lifeguard to renew certification, but only if instructor course includes a test-out of skills and prerequisites."*	Disagree. However, the code has been restructured and revised for clarity.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.
Lifeguard & Bather Supervision (LG)	6.2.3.8.2	Accepted courses for certificate renewal shall meet requirements delineated by the training agency.	*Why is this included? Certainly an agency which issues a certificate renewal will mandate that its requirements be met.* -- Delete: Accepted courses for certificate renewal shall meet requirements delineated by the training agency.	Agree. The code has been revised and restructured for clarity.	6.2.1.3.7.2	Certificate renewal, when utilized, shall include the following: 1) Completion prior to certificate expiration, 2) Conducted in accordance with the training of the original certifying agency, 3) Taught by an instructor certified by the original certifying agency, 4) Conducted with a demonstration of skills, in and out of the water, required in the original course, which complies with MAHC Section 6.2.1.1, and uses the equipment specified in MAHC Section 6.2.1.2.7, 5) A final written, proctored exam, and 6) A final practical exam with a certified instructor present.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	IF the elements of Supervisor responsibility are to remain in the code THEN the Supervisor must be provided and REQUIRED to be at the very least lifeguard trained, which would provide at least the basis to understand 6.2.4.1 and 6.2.4.2.	Agree. supervisor training has been revised and now includes, among other elements, training and previous experience as a lifeguard.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*Inadequate quality of product pushed by a "proposed CDC Timeline" -- Liability exposure for Owner/Operator, and Code Administrator* -- IF the elements of Supervisor responsibility are to remain in the code THEN the Supervisor must be provided and REQUIRED to be at the very least lifeguard trained, which would provide at least the basis to understand 6.2.4.1 and 6.2.4.2.	Partially agree. Supervisor training has been revised and now includes, among other elements, training and previous experience as a lifeguard.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*Inadequate quality of product pushed by a "proposed CDC Timeline" -- Liability exposure for Owner/Operator, and Code Administrator* -- This entire section lacks common sense and practical application. How can a Supervisor (that is not required to be trained in CRP/FA/AED) have the ability to "identify the extent of trauma in an incident and be able to make a decision on the necessity of advanced care" (6.2.4.1 #2)? This is ludicrous and embarrassing that this type of entry is being sent to the public for comment. This is "anti-safety"…designating a responsible person who has LESS training than a lifeguard.	Partially agree. Supervisor training has been revised and now includes, among other elements, first aid, CPR/AED training/certification.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*Inadequate quality of product pushed by a "proposed CDC Timeline" -- Liability exposure for Owner/Operator, and Code Administrator* -- This entire section lacks common sense and practical application. How can a Supervisor 1) establish/evaluate scanning/vigilance systems, 2) implement and monitor effectiveness of In-Service, Pre-Service, facility specific training for lifeguards, 3) gain strategies to reduce risk and mitigate health and safety hazards and 4) develop and evaluate zones of patron surveillance WHEN they are not even trained as a lifeguard? Where do they gain this "valuable and critically important knowledge and experience"?	Partially agree. Supervisor training has been revised and now includes, among other elements, training and previous experience as a lifeguard.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	This entire section lacks common sense and practical application. How can a Supervisor 1) establish/evaluate scanning/vigilance systems, 2) implement and monitor effectiveness of In-Service, Pre-Service, facility specific training for lifeguards, 3) gain strategies to reduce risk and mitigate health and safety hazards and 4) develop and evaluate zones of patron surveillance WHEN they are not even trained as a lifeguard? Where do they gain this "valuable and critically important knowledge and experience"?	Partially agree. Supervisor training has been revised and now includes, among other elements, training and previous experience as a lifeguard.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*"Although some of the duties are the same, these duties and decisions should not be considered equal to those of the lifeguard and should incorporate advanced knowledge and skills."* In this passage the Annex states clearly that the level of Supervisor knowledge/skills should be advanced from that of Lifeguard. However the actual Code does not even require a minimum of lifeguard training.	Agree. Supervisor training has been revised and now includes, among other elements, training, and previous experience as a lifeguard.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	*"Lifeguard employers should screen candidates for untreated sleep apnea because these individuals have a decreased ability to maintain vigilance. This could be ascertained on applications for employment."* Ugh, this is an awful requirement and poses all kinds of exposure… Opens up question of what else should be screened for ADHD, Vision, Seizures, Anxiety, High Blood Pressure, etc.… that all can have a negative impact on lifeguards.	Annex comment. This information has been deleted from annex.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	1, what do you show as applicable training on lg supervision? This is a bit arbitrary and may want to consider changing unless you can define this.	Agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	As stated above in the comments relative to 6.2.4… the training and experience outlined in 6.3.1.2 Will NOT provide any person with the knowledge/ability or practical application of the knowledge to meet 6.2.4.	Partially agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	*Beyond the scope of most lifeguard supervisors.* -- Remove point #2	Partially agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	*Original wording is vague as to what type of training is required.* -- 1) Have completed and documented supervisor training as defined by the aquatic facility.	Partially agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	*This seems, more than anything else, to be a poor attempt to mandate a particular agencies program* -- Delete: An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations. Note, requirements for Supervisor training and staffing have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator.	USLSC References should be eliminated due to the fact the report was not a Peer-Reviewed and Open study.	Disagree. The report is published in a peer-reviewed journal. It used an evidence review process that followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actuality exceed these for Evidence-Based Practice and scientific reviews.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English.
Lifeguard & Bather Supervision (LG)	6.3.1.2 AND ANNEX	An aquatic supervisor shall 1) Have completed and documented current training on lifeguard supervision and management, or 2) Have completed lifeguard training on all items set forth in 6.2.4, have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator. ***See ANNEX for TEXT****	*Contradictory, ill defined, repetitive and unnecessary (Supervisor training and documentation defined elsewhere)* -- Strike or remove. Page 5 of the ANNEX states: "The annexes accompanying the code sections are intended to provide support and assistance to those charged with applying and using Model Aquatic Health Code provisions. No reference is made in the text of a code provision to the annexes which support its requirements." Yet, page 21, section 6.3.1.2 states "An aquatics Supervisor shall… have read the annex of this Code, and/or provides the documentation of experience and experiential understanding of items 6.3.1.1 through 6.3.1.6 to the owner/operator – REFERENCE: Even with the removal of the requirement to read the ANNEX, "…documentation of experience and experiential understanding"… is vague and unnecessary.	Partially agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English. (See Annex for Text)
Lifeguard & Bather Supervision (LG)	6.3.1.2 #1	An aquatic supervisor shall… 1) Have completed and documented current training on lifeguard supervision and management...	Where does an aquatic supervisor obtain this training? Is there a training program already in existence that is set forth by an organization? Is this a training program that is developed by each facility?	Partially agree. Requirements for Supervisor training have been revised.	6.2.2.1	LIFEGUARD SUPERVISOR candidate prerequisites shall include but not be limited to: 1) Successful completion of a lifeguard training course in the past, 2) Previous experience as a lifeguard of at least 3 months, and 3) Ability to effectively communicate verbally in English. (See Annex for Text)
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	A Supervisor that is not required to be trained in CRP/FA/AED does not have the ability to "identify the extent of trauma in an incident and be able to make a decision on the necessity of advanced care. Furthermore this entire section is facility specific and isn't necessary for seasonal supervisor to do their jobs correctly. MAHC should not get into how facilities are managed. For example, a facility manager can do a perfectly fine job managing a facility without a lifeguard certification. The managers need to manage and run the facility which is a different skillset than say a lifeguard.	Partially agree. supervisor training has been revised and now includes, among other elements, first aid, CPR/AED training/certification. Disagree with comment about being facility specific and unnecessary. supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Note, requirements for supervisor training and staffing have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*There is no definition for "lifeguard supervisor" or "manager". Who is this training for? Is it for the Aquatic Supervisor? Why is the AHJ approving management training under the lifeguard module?* -- Essential Topics for Aquatic Supervisor Training	Agree. The code , including Supervisor training requirements, have been revised and restructured and address requirements for staffing under "Staff Management".	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	This entire section lacks common sense and practical application. How can a Supervisor (that is not required to be trained in CRP/FA/AED) have the ability to "identify the extent of trauma in an incident and be able to make a decision on the necessity of advanced care" (6.2.4.1 #2)? This is ludicrous and embarrassing that this type of entry is being sent to the public for comment. This is "anti-safety"…designating a responsible person who has LESS training than a lifeguard.	Partially agree. Supervisor training has been revised and now includes, among other elements, first aid, CPR/AED training/certification.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*This entire section should be deleted as it does not reflect current practice or even best practice in the industry. Many of these topics are covered in different agency instructor courses. As such it is unduly burdensome and expensive to require people to have a course that does not reflect current best practices and has no evidence to support its need.* -- Delete entire 6.2.4 Section	Disagree. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	*This is out of place. It implies that such a course must be taught….. This entire section should be deleted as it does not reflect current practice or even best practice in the industry. Many of these topics are covered in different agency instructor courses. As such it is unduly burdensome and expensive to require people to have a course that does not reflect current best practices and has no evidence to support its need. --* Delete entire 6.2.4 Section…… Delete Essential in Essential Topics for Lifeguard Supervision and Management Training…… Delete Training In Essential Topics for Lifeguard Supervision and Management Training	Disagree. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations. Note, requirements for supervisor training and staffing have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	Do not need the ability to develop EAP's but should know how to activate and their responsibilities should be listed in the EAP's and only medical technicians/doctors are qualified to identify levels of trauma	Partially agree. Code revised to remove " develop" and include "activate" and "execute" Emergency Action Plans. Additionally, Supervisor training has been revised to include, among other elements, first aid, CPR/AED training/certification. The requirement in 2) "Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care." has been deleted.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*The development of EAPs may be outside the scope of many lifeguard supervisors. Ability to activate is the primary concern. --* 1) Ability to activate Emergency Action Plans…	Agree. Code revised to remove " develop" and include "activate" and "execute" Emergency Action Plans.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*There is no definition for "lifeguard supervisor" or "manager". Who is this training for? Is it for the Aquatic Supervisor? Why is the AHJ approving management training under the lifeguard module?* -- Aquatic Supervisor training shall include, at a minimum, the following teaching elements: Note: "Aquatic Supervisor" is defined in the glossary and should be capitalized as above for each usage in the Code.	Agree. The code , including Supervisor training requirements, have been revised and restructured and address requirements for staffing under "Staff Management".	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*This is an exceptionally high level of experience and training that is being required and is an EMS of EMT function.* -- Delete	Partially agree. Supervisor training has been revised and now includes, among other elements, first aid, CPR/AED training/certification. The requirement in 2) "Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care." has been deleted.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*This is an exceptionally high level of experience and training that is being required and is an EMS or EMT function* -- Delete: 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	Partially agree. Supervisor training has been revised and now includes, among other elements, first aid, CPR/AED training/certification. The requirement in 2) "Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care." has been deleted.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements: 1) Ability to develop and activate Emergency Action Plans (EPAs), and 2) Knowledge to identify the extent of trauma in an incident and to be able to make a decision on the necessity of advanced care.	*This is mixing up the roles of what might be called an upper level manager and what might be described as a lower level supervisor. As such, it does not currently reflect the level of sophistication that is common in more complex facilities where the duties are relegated to different levels* -- Delete: All lifeguard supervision and management training recognized by the Health Authority shall include, at a minimum, the following teaching elements:	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Note, requirements for Supervisor training and staffing have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.1 #1	All lifeguard supervision and management training recognized by the AHJ shall include, at a minimum, the following teaching elements… 1) Ability to develop and activate Emergency Action Plans (EPAs), and…	"EPAs" should be "EAPs	Agree. Change made.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs)….
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	Already covered in 6.3.1.2	Agree. Code has been revised and re-structured, duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	*Delete this section as it contains no new information. In addition, this requires a greater degree of education than currently exists for lifeguards. Without at least EMT or even paramedic experience, no one could identify the extent of a trauma.* -- Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non life threatening trauma in an incident	Agree. Requirements for Supervisor training and responsibilities have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	*Delete this section as it contains no new information. In addition, this requires a greater degree of education than currently exists for lifeguards. Without at least EMT or even paramedic experience, no one could identify the extent of a trauma.* -- Delete: Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident	Agree. Requirements for Supervisor training and responsibilities have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	Disagree. If the Lifeguard is trained, why does the Supervisor have to be? Flight attendants don't know how to fly a plane. This gets too specific into facility operation which can vastly vary across different facilities.	Disagree. Statement doesn't support proposal to delete. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff are performing as trained and expected, as such the supervisor must be knowledgeable in the training requirements. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations. Note, requirements for Supervisor training and staffing have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	*Inadequate quality of product pushed by a "proposed CDC Timeline" **********Training same as lifeguard ******* Liability exposure for Owner/Operator, and Code Administrator* -- This entry attempts to provide a requirement for meeting the skills for 6.2.4, however, First Aid is not listed and skills are required in 6.2.4 for First Aid. The entry also does not specify the level of the training, which should be equivalent to Professional Level (same as lifeguards). If not listed at all and/or not listed as Professional Level, then the Supervisor and the lifeguards would be trained in two separate protocols for delivery of CPR (layperson versus professional).	Agree. Requirements for Supervisor training and responsibilities have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	This entry attempts to provide a requirement for meeting the skills for 6.2.4, however, First Aid is not listed and skills are required in 6.2.4 for First Aid. The entry also does not specify the level of the training, which should be equivalent to Professional Level (same as lifeguards). If not listed at all and/or not listed as Professional Level, then the Supervisor and the lifeguards would be trained in two separate protocols for delivery of CPR (layperson versus professional).	Agree. Requirements for Supervisor training and responsibilities have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.5	Aquatic supervisors shall have first aid and CPR/AED training in the skills necessary to identify the extent of life threatening and non-life threatening trauma in an incident.	*To equal the CPR training of the LG staff.* -- Aquatic supervisors shall have first aid and professional-level CPR/AED…	Agree. Requirements for Supervisor training and responsibilities have been revised.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	This is repetitive from section 6.2.4.2. If they must demonstrate these skills, then they must have some training in order to perform them.	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	*Delete this section as it is redundant.* -- Delete: Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	*Delete this section as it is redundant.* -- Delete: Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	*Repetitive to 6.2.4.2* – Remove	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	This section is an exact duplicate of Section 6.2.4.2 (repeated from section 6.2.4.2) and should be removed.	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.3.1.6	Additional training for an aquatic supervisor shall include, but is not limited to: 1) Scanning, vigilance, and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service training, in-service training, and facility-specific training for lifeguards, and 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff.	This section is an exact duplicate of Section 6.2.4.2 (repeated from section 6.2.4.2) and should be removed. This also does not provide for any resource or requirement to gain the skills training… where does one receive this?	Agree. Requirements for Supervisor training and responsibilities have been revised, code re-structured and duplications eliminated.	6.2.2.2	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*"It is essential that aquatic supervisors have a working knowledge beyond the fundamentals taught in the typical lifeguard training course, including how to evaluate the performance of the lifeguard's essential functions, to implement improvement strategies, and also to plan, prepare, and implement the necessary functions, duties, and responsibilities of the lifeguard."* In this passage the annex once again contradicts the code in practical application	Agree. Supervisor training has been revised and now includes, among other elements, training and previous experience as a lifeguard.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*As is most of this section, this is extremely vague and non informative.* -- Delete: 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and	Disagree. The code is identifying the necessary understanding/knowledge of concepts needed by Supervisors to be able to monitor their implementation by lifeguard staff.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*Development of zones may be outside the scope of some lifeguard supervisors.* -- Ability to communicate and enforce zones of patron surveillance to lifeguards.	Disagree. The supervisor must possess all of the skills and training as specified in the revised Supervisor training program to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. It addresses the need for the Aquatic to be able to identify the possible zones of patron surveillance to eliminate confusion and non/inadequate-zone coverage.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*Here you are requiring vigilance which I believe is omitted from the skills listed for lifeguards. Vigilance has a technical definition and this sort of lack of understanding of technical issues related to modern lifeguarding is commonly evidenced throughout this document* -- Delete: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational	Disagree. Statement doesn't support proposal to delete. Note-Supervisor training requirements have been revised and restructured	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*How do you require ability? Should this not address something that is measureable?* -- Delete: 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards	Agree. Changes made.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	Supervisor should be responsible for over-seeing but does not have to implement	Agree. Change made.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*This is a very complicated issue and far beyond the ability of most supervisors. It also implies that once zones are set, they are static. Such is not the case as zones are moved all the time as experience in the facility dictates* -- 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue	Disagree. The Supervisor must possess all of the skills and training as specified in the revised Supervisor training program to best supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. It does not suggest or state that zones are static but rather addresses the need for the Supervisor to be able to identify the possibilities to eliminate confusion and non/inadequate-zone coverage.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	This section lacks practical application for all facilities. First, who provides this training? Where is information provided about this training? How often must they be trained? This overarching requirement for training does not provide enough information about the source of the training. Second, this does not consider larger facilities with multiple supervisors who oversee different operational aspects. Some facilities have a supervisor whose specialty is lifeguard training. If that supervisor is the only person who is going to be handling training, then there is no reason for all supervisors to be trained in training.	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff are performing as trained and expected. The requirements for Supervisor training and staffing have been revised and includes specifications for course development, delivery and certification.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*To have an "aquatic supervisor" trained at this level at each aquatic venue is extremely costly and does not reflect current standard practices. The industry standard for an "aquatic supervisor" is to have one position training and overseeing multiple facilities.* -- Delete	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Note, requirements for Supervisor training and staffing have been revised.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*Vague as to what strategies are required.* -- Remove point #3.	Disagree. The code is identifying the necessary understanding/knowledge of concepts needed by Supervisors to be able to monitor their implementation by lifeguard staff.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.2	Additional skills for an aquatic supervisor shall include, but are not limited to: 1) Scanning and vigilance and how to ensure that systems which accomplish these goals are in place and operational, 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards, 3) Strategies to reduce risk and mitigate the health and safety hazards to both the patrons and the staff, and 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*Vague as what is required. Scanning and vigilance is not unique to supervision but rather a requirement of all lifeguards.* -- Remove point #1	Disagree. The code is identifying the necessary understanding/knowledge of concepts needed by Supervisors to be able to monitor their implementation by lifeguard staff.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2 #2	Additional skills for an aquatic supervisor shall include, but are not limited to... 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards...	The supervisor does not have to be the one to implement training but must be able to oversee the process. Suggest revising to: *"The ability to oversee and insure the implementation of required training, and to monitor…"*	Agree. Changes made.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2 #2	Additional skills for an aquatic supervisor shall include, but are not limited to... 2) An ability to implement required training and to monitor the effectiveness of pre-service testing, in-service training, and facility specific training for lifeguards...	The supervisor does not have to be the one to implement training but must be able to oversee the process	Agree. Changes made.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.2.4.2 #4	Additional skills for an aquatic supervisor shall include, but are not limited to… 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*"Zone of Patron Surveillance Responsibility Diagrams"* should be defined and included in Definitions section above.	Partially agree. The code and annex have been revised and restructured. Zones of Patron Surveillance Responsibility Diagrams are addressed in detail in the Aquatic Facility Staffing Plan section.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.2 #4	Additional skills for an aquatic supervisor shall include, but are not limited to… 4) Ability to develop and evaluate zones of patron surveillance responsibility diagrams for an aquatic venue.	*"Zone of Patron Surveillance Responsibility Diagrams"* should be defined and included in Definitions section above.	Partially agree. The code and annex have been revised and restructured. Zones of Patron Surveillance Responsibility Diagrams are addressed in detail in the Aquatic Facility Staffing Plan section.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4.3	An aquatic supervisor shall have knowledge of the legal issues and responsibilities relating to lifeguarding as listed in 6.2.2.6.1	*Repetitive to 6.2.2.6.1* – Remove	Disagree. Section 6.2.2.6.1 addresses requirements for a lifeguard course; Section 6.2.4.3 addresses Supervisor course requirements.	6.2.2.3	LIFEGUARD SUPERVISOR training shall include, at a minimum, the following: 1) Activation and execution of EMERGENCY ACTION PLANS (EAPs), 2) CPR/AED and first aid training that complies with MAHC Sections 6.2.1.1.3 and 6.2.1.1.4 or present an unexpired certificate issued by an AHJ-approved agency documenting the required training has been completed, 3) Scanning and vigilance requirements and how to ensure that systems which accomplish these goals are in place and operational, 4) Development and evaluation of zones of PATRON surveillance responsibility diagrams for an AQUATIC VENUE, 5) MONITORING lifeguard performance as it relates to lifeguard and facility-specific training, including pre-service assessments, 6) Strategies to reduce risk and mitigate the health and SAFETY hazards to both the PATRONS and the staff, 7) Knowledge of the legal issues and responsibilities relating to lifeguarding as listed in MAHC Section 6.2.1.1.5, and 8) Knowledge of the proper use and maintenance of the equipment required per MAHC Section 5.8.5.
Lifeguard & Bather Supervision (LG)	6.2.4	Essential Topics for Lifeguard Supervision and Management Training	How will this be evaluated/enforced?	As with any code requirement, the AHJ will evaluate for conformance/compliance with code requirements. Note, requirements for Supervisor training and staffing have been revised.	6.2.2.4.1	Lifeguard supervisor training course providers shall have a method to evaluate proficiency of the content in MAHC Section 6.2.2.2.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.3.1 ANNEX	Operator Availability (see Annex for full text)	This module talks about all the negative things that can occur, but no where do we look at the cost benefit of requiring full time supervision. I think the research needs to include a cost benefit analysis. -- Numerous studies have concluded that pools with operators that have gone through formal training on maintenance and operation of pools, have less violations than pools without a trained person available. Results from a cross-sectional study after a 2006 outbreak in Nebraska demonstrated that pools without certified operators are more likely to have free chlorine and pH violations than those with certified operators and might pose increased risk of recreational water illness. Another study showed significant differences between certified versus non-certified operators in levels of pH and combined chlorine, and compliance with combined chlorine standards. The authors conclude the need for increased knowledge and training on maintaining safe chemical conditions in the water. The etiologic agent of approximately one quarter to one-third of reported recreational water illness outbreaks associated with treated venues are chlorine sensitive. This indicates that the implicated venues were poorly operated and maintained. The occurrence of waterborne disease outbreaks associated with inadequate public pool operation concludes the need for trained operators. The need for trained personnel on site at aquatic facilities and accessible on weekends when pool use is highest is also illustrated by surveillance data.	A statement recommending further cost-benefit analyses of the requirement of having trained staff at aquatic facilities.	6.3.1	Operators Requirements and Availability
Regulatory (REG)	6.3.1.1.1	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) Venues that include spray features; or 4) A venue used for therapy; or 5) A venue used to provide swimming training.	#3 would require an operator at a stand-alone spray pad?? This would shut down every spray pad that is a stand-alone attraction.	Agreed. Modified to clearly state that this only applies to spray pads that use recirculated water and that operators need to be available within two hours.	6.3.1.1.2	A QUALIFIED OPERATOR shall be on-site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) AQUATIC VENUES that include AQUATIC FEATURES with recirculated water; or 4) An AQUATIC VENUE used as a THERAPY POOL ; or An AQUATIC VENUE used to provide swimming training.
Regulatory (REG)	6.3.1.1.1	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) Venues that include spray features; or 4) A venue used for therapy; or 5) A venue used to provide swimming training.	*I believe the intent for requiring a qualified operator would only be where water is being treated and recirculated, not for city water that passes through once and goes to waste.* -- A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) Venues that include recirculating spray features; or 4) A venue used for therapy; or 5) A venue used to provide swimming training	Section was changed to include "recirculated water"	6.3.1.1.2	A QUALIFIED OPERATOR shall be on-site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) AQUATIC VENUES that include AQUATIC FEATURES with recirculated water; or 4) An AQUATIC VENUE used as a THERAPY POOL ; or An AQUATIC VENUE used to provide swimming training.
Regulatory (REG)	6.3.1.1.1	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) Venues that include spray features; or 4) A venue used for therapy; or 5) A venue used to provide swimming training.	*There are a significant number of public stand alone spraygrounds that do not have standing water and do not have a fulltime operator (or even lifeguards) on hand during all hours of operation. This requirement would undoubtedly force the closing of many of these facilities. There are also a considerable amount of therapy venues which may simply include small rehabilitation tanks that probably should not be burdened by this requirement.* -- A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; ~~or 3) Venues that include spray features; or 4) A venue used for therapy~~; or 5) A venue used to provide swimming training.	This section was amended due to a previous comment to only include spray features that use recirculated water. The committee believes that venues used for therapy should be included in this more protective category but allows a 2 hour interval for being at the venue.	6.3.1.1.2	A QUALIFIED OPERATOR shall be on-site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that has: 1) More than two AQUATIC VENUES; or 2) An AQUATIC VENUE of over 50,000 gallons of water; or 3) AQUATIC VENUES that include AQUATIC FEATURES with recirculated water; or 4) An AQUATIC VENUE used as a THERAPY POOL ; or An AQUATIC VENUE used to provide swimming training.
Regulatory (REG)	6.3.1.1.2	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that is: 1) Frequented by an average of more than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.	"1) Frequented by an average of more than 200 bathers daily: or" is not a reliable method. In order for this to be a measurable requirement, all facilities must be required to track and log usage (including Hotels, resorts, community/HOA pools, campgrounds, apartment complexes etc.). All usage logs would need to be submitted to the AHJ to prevent facilities from saying that they average less than 200 per day. Is there a distinction between year round and seasonal pools? Many year round pools could well exceed the average number during their peak season but because the non peak time is far less than the average, a facility that should have a qualified operator on site may be allowed, by code, not to have one.	Language added to use permitted bather load rather than an exact measurement.	6.3.1.1.3	A QUALIFIED OPERATOR shall be on site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that is: 1) Permitted BATHER LOAD is greater than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.3.1.1.2	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that is: 1) Frequented by an average of more than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.	"3) Operated by a school." Is there a difference in the type of school? (Pre-schools held in commercial or residential buildings, Public schools, Private schools, Church schools etc.) The term "school" may need to be defined.	MAHC sees no difference in the type of school as they serve the public and would require permitting. No change.	6.3.1.1.3	A QUALIFIED OPERATOR shall be on site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that is: 1) Permitted BATHER LOAD is greater than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.
Regulatory (REG)	6.3.1.1.2	A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that is: 1) Frequented by an average of more than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.	*Is there any science looking at the cost benefit analysis for this requirement? The annex is filled with scientific research on inspection studies. Is the committee aware that for a seasonal facility this burden would likely be in the $25,000 range and for a year around facility the burden would be in the $75,000 range. This is one more financial reason not to build or operate a pool, which may result in fewer people learning the life skill of swimming. This could be very detrimental to school districts and cities. Also, see comment to section 6.3.1.1.1 pertaining to spraygrounds and therapy pools.* -- ~~A QUALIFIED OPERATOR shall be available on-site during all hours of operation at an AQUATIC FACILITY that is: 1) Frequented by an average of more than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.~~	The committee respectfully disagrees with the proposed suggested change, but has changed the requirement for an on-site qualified operator to an immediately available qualified operator within 2 hours.	6.3.1.1.3	A QUALIFIED OPERATOR shall be on site or immediately available within two hours during all hours of operation at an AQUATIC FACILITY that is: 1) Permitted BATHER LOAD is greater than 200 BATHERS daily; or 2) Operated by a municipality; or 3) Operated by a school.
Regulatory (REG)	6.3.1.2.1	All other aquatic facilities shall have an on-site qualified operator or a contract with a qualified operator for a minimum of weekly visits and assistance whenever needed.	*Sometimes weekly is not enough.* -- …or on a schedule determined by the AHJ, based on compliance and complexity of operation.	All sections relating to the AHJ were removed from the Code and placed in a separate document. The existing language states a minimum of weekly visits. We believe this allows the AHJ to require more frequent visits if necessary.	6.3.1.2	All other aquatic facilities shall have an on-site qualified operator immediately available within two hours or a contract with a qualified operator for a minimum of weekly visits and assistance whenever needed.
Regulatory (REG)	6.3.1.2.5	All aquatic facilities without a full time, on-site qualified operator shall have a designated on-site responsible supervisor.	*See comment to section 6.3.1.1.1 pertaining to spraygrounds and therapy pools.* -- ~~All AQUATIC FACILITIES without a full time, on-site QUALIFIED OPERATOR shall have a designated on-site RESPONSIBLE SUPERVISOR.~~	The committee believes a minimum of a responsible supervisor is required. A 2 hour gap has been added	6.3.1.2.5	All aquatic facilities without a full time, on-site qualified operator shall have a designated on-site responsible supervisor.
Lifeguard & Bather Supervision (LG)	6.3.1	Staff Requirements and Availability	*The Aquatic Supervisor requirements under this draft code describe an upper level manager and it would be extremely costly and excessive to implement this requirement.* -- Delete or add language allowing for one person to fulfill the "Aquatic Supervisor" role and oversee multiple facilities and not be required to be on-site at all times	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Note, requirements for Supervisor training and staffing have been revised.	6.3.2	Aquatic Facilities Requiring Qualified Lifeguards
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	Many counties and states have the rules "No Solo Swimming" and "Children under a certain age of __ have to be accompanied by an parent or guardian" all in an attempt to provide safety / aid in case of an emergency. But I've found in the last 5 or so years the new pool designs have made these rules useless or not as helpful as they once were with our old square pools. In recent years we have had pools in "L" shapes wrapping around buildings or "U" shapes with concessions or gazebo in the center or huge play apparatuses in the middle of the pool. These new designs or structure additions have created blind spots where partners or children can be lost, they'll be on the other side of the building or other side of the "U". I would like to suggest that pools be required to have guards if "designed such that the entire pool surface can not be viewed from all required pool deck areas (Example: The view is blocked by slides, landscaping, cabañas, covered areas, etc.). This would prevent parents from having to run around the entire pool because their child went to the other side of the play device or "U " or around the building . Or prevent the parent from having to choose between which child to watch because the one leg of the pool goes around the build. You know having to decide which child the five year old or the six year old swims the best. A lot of times these problems can be worked out in the beginning before construction begin. But if not the owner needs to know this protection must be supplied.	This comment is related to section 6.3.3.1. Partially agree. However proposed change not incorporated. The potential impact of the proposal on aquatic facilities without data to support the change could be significant. The code and annex have been revised and restructured. The conditions requiring lifeguards address the need for parental supervision for children under the age of 14 years. Also included is venue size and configuration as it impacts ability of an untrained individual to provide assistance and components that pose a risk to the users, as explained in the annex.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*3) If there is a one on one lesson being performed, can the instructor be the lifeguard? 4) Is it currently the industry standard to have a lifeguard on duty for pools over 5 feet deep? Is this language changing the industry standard? What makes a pool 4 feet deep safer? Certainly patrons can still drown in shallower water. 6) Could a wall inlet be misconstrued by the legal system that this is a current pool? Suggest better definition for current features. Maybe say current feature not a part of the filtration system. -- Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open. This list includes but shall not be limited to the following: 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. An exception is granted for one-on-one private lessons in which case the lifeguard may also be the instructor. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 6) Any aquatic venue with an induced current or wave action that is not a part of the filtration system (e.g. currents created by wall inlets) including but not limited to wave aquatic venues, cortex aquatic venues, and endless/leisure or lazy rivers.*	Wording has been revised. Some venues without standing water maybe excluded from this code by the AHJ.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*An aquatic venue includes spray pads and interactive fountains which do not require lifeguards.* -- Need to delete general reference to "Aquatic Venue"	"Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. Wording has been added to clarify that some venues without standing water may be excluded from this code by the AHJ."	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*An aquatic venue includes spray pads and interactive fountains which do not require lifeguards.* -- Need to delete general reference to "Aquatic Venue"	"Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. Some venues without standing water maybe excluded from this code by the AHJ."	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	Because facilities differ greatly, there is no way that you can have a blanket "when you need a lifeguard" code entry. This cannot be a one entry fits all approach as needs are different across different facilities.	Code and Annex have been extensively revised. Some venues without standing water maybe excluded from this code by the AHJ.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*Does this include spray grounds? Are natural bodies of water omitted?* -- Modify to address whether splashpads need lifeguards: and what to do about natural bodies of water. Aquatic venues with any of the following environment are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but not be limited to the following:	Some venues without standing water maybe excluded from this code by the AHJ. The MAHC by definition does not include natural bodies of water.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	Environmental factors? Not sure right title. Also, How does this work for previously stated unguarded facilities?	Took out the word environmental.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*Impossible to cover all types of aquatic facilities and venues* -- Incorrect use of aquatic facilities and venues throughout – Remove – REFERENCE: Staffing requirements vary to greatly	Partially agree. Code and annex revised and restructured. Use of terms "aquatic facility" and "aquatic venue" checked and revised for consistency.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*In larger waterparks, one or more venues may be closed and do not require lifeguard patron surveillance if properly secured from patron access.* -- Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all time the aquatic venue is open:	Agree. Change made.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*Inadequate quality of product pushed by a "proposed CDC Timeline"*******Clarification*********Remove Lifeguard Training from list; instructors (lifeguards) are monitoring/guarding participants* -- This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. This section confuses us a bit as there may be a need for the entries listed here if they are applied to aquatic venues with standing water. However, by definition Aquatic Venues include spray pads and other attractions, which may not contain standing water. This is a piece that needs much more thought to cover the different scenarios that the code allows with respect to guarded and unguarded venues. This cannot be a one entry fits all approach as needs are different here.	"Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. Some venues without standing water maybe excluded from this code by the AHJ."	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	Is this realistic?	Yes - in some situations the AHJ needs to be the one that decides especially in special use facilities.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*Should include action rivers.* -- Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure, action or lazy rivers	Agree	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. This section confuses us a bit as there may be a need for the entries listed here if they are applied to aquatic venues with standing water. However, by definition Aquatic Venues include spray pads and other attractions, which may not contain standing water. This is a piece that needs much more thought to cover the different scenarios that the code allows with respect to guarded and unguarded venues. This cannot be a one entry fits all approach as needs are different here.	Wording changed. Some venues without standing water maybe excluded from this code by the AHJ.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*This is the single most important section of this module. There needs to be more specificity in order to enforce this policy effectively. How do "amusement rides" play into this? Does the amusement ride code trump MAHC? There is a conflict in some of the policies here.* -- This section is too vague and can be easily misinterpreted by uninformed AHJ (Health inspectors who are not LG certified or history with aquatic operations). Will Shallow Water Attendants fall into this category? #1- Should be dependent upon the facility type (competition pool, lap pool, waterpark, etc.) #5- For entire venue or for each body of water? , #6- FlowRider and slow moving rivers should not be included. FlowRider does not have standing water (though FA certification should be required), and SlowMoving rivers (1 mph) does not affect balance; #7- Should be based upon pool depth.	Some venues without standing water maybe excluded from this code by the AHJ. Check revised wording.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	we are a facility that requires 2 certified lifeguards on at all times. We have had the local high schools that use our facility try and get the City to let them have the pool without lifeguards. We are strongly against this but just for clarification would they fall into the completive swimming category? It was also noticed while there is reference made to competitive swimming there is none made to water polo. Also in this section if there was more clear separation of having one guard vs. having two guards. This is another area where the high schools have tried to use the coaches' certifications as being sufficient to take care of any problem that may arise with their swimmers or water polo players.	Agree with comment --- the MAHC intent is for any use of the pool and this is clarified in 6.3.1.1	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1 #1	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years...	*By definition of an aquatic venue it could include spray pads in a park. I don't think that's the intention.* -- Any aquatic venue with water depths three feet or greater which allows for unescorted children under the age of 14 years.	Agreed. Wording has been modified to include "standing water" so that some venues without standing water maybe excluded from this code requirement by the AHJ. Disagree with the recommendation for the depth of 3 feet.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1 #4	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance...	*Concern is this condition while desirable will not be economically feasible for most of the pool facilities at apartments, condominiums, homeowner associations, mobile home parks, etc. that already have pools that exceed 5 feet in depth. Perhaps encouraging shallow water pools for new facilities may help, but this seems like a tough issue. In our state we have experienced resistance to the lifeguarding requirements that we have in place now.* -- While I value lifeguards at facilities, this condition will require all aquatic facilities greater than 5 feet in depth to have lifeguards. Has any state developed a rule that requires lifeguards in these conditions?	Agree. Section revised.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1 #5	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck...	any pool whose size or shape is such that there is any point in the pool that cannot be reached by throwing a device (e.g. life ring) to reach 30 feet into the water from the deck. Does this mean that the ring must reach to the other side of the pool, which means the pool can only be 30 feet wide? Or does this mean that the ring must reach to the center of the pool from either side, which means the pool can be 60 feet wide?	No changes proposed by commenter. In response to the question, potentially the pool can be 60 feet wide as the code has been revised for clarity and now states " 5) Any aquatic venue with a configuration in which any point on the aquatic venue surface exceeds 30 feet from the nearest deck. "	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1 #7	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide...	Ensure if I understand what is meant by 8 feet of elevation? Are you talking of distance from the top of the slide to the water level, the water depth at the end of the slide, a runout that is 8 feet out? If you are running with a depth of 5 feet for lifeguards in item (4), why would you accept a greater depth (if it does refer to depth) for installation of a water slide?	The code has been revised and restructured , slide height has been deleted as a determining factor.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1 #7	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide...	*Many splashdown pools and slide runouts do not require a lifeguard no matter what the height of the slide. As these contain little or no depth of water, a trained lifeguard is not required.* -- Include a minimum depth of no less than two feet.	Wording has been added to clarify that some aquatic venues without standing water are not included.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1 #7	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide...	The description in this section is very confusing. This needs to be worded in a way that makes the meaning clear on how to measure a slide.	Section revised.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1 #7	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide...	Was the payroll aspect of operations taken into consideration for larger sized aquatic facilities? Was consideration paid to year round facilities and multiple attraction facilities?	Safety is the prime issue. This requirement was deleted.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Lifeguard & Bather Supervision (LG)	6.3.3.1 #8	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following... 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*"8) There should be absolutely no head first entries in the water in 5 feet (1.52 m) of water or less from the deck or any elevations without proper training and lifeguard supervision."* Does this mean that a facility that allows headfirst entry from the deck shall be required to have lifeguards as defined in this code? 6.3.3.1 Code entry does not include this.	This would follow under the risk management section. Here we are saying if you have these items you need to be a guarded venue.	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.
Risk Management (RM)	6.3.3.1. to 6.3.3.1.6	Aquatic venues with any of the following environmental factors are required to have a lifeguard(s) conducting patron surveillance at all times the aquatic facility is open: This list includes but shall not be limited to the following: 1) Any aquatic venue which allows for unescorted children under the age of ¬¬14 years. 2) Any aquatic venue while it is being used for the recreation of youth groups including but not limited to childcare usage or school groups. 3) Any aquatic venue while it is being used for training, including but not limited to competitive swimming, lifeguard training, and swimming lessons. 4) Any aquatic venue deeper than 5 feet (1.52 m) at any point built since the date of acceptance of this Code. Current aquatic venues having water depths greater than 5 feet (1.52 m) will have 5 years from the date of acceptance of this Code to come into compliance. 5) Any aquatic venue whose size, shape, or surface area is such that there is any point in the aquatic venue that cannot be reached with a throwing device 30 feet (9.14 m) into the water from the deck. 6) Any aquatic venue with an induced current or wave action including but not limited to wave aquatic venues, vortex aquatic venues, and endless/leisure or lazy rivers. 7) Any catch pool, splash pool, run-out or shutdown lane for any water slide whose elevation at any point is 8 feet (2.4 m) or more as measured from that point to the surface of the water at the terminus of the slide. 8) Any aquatic venue which allows the usage of diving boards of any type or starting platforms.	*Common sense.* -- Lifeguard & Bather supervision also uses similar terms ... need to be clear that we define EAP's by area. For example "Aquatic" EAP's or Maintenance EAP's. If not there will be major redundancies	*Agreed. As the MAHC modules are knitted together these redundancies will be consolidated, reconciled or removed.*	6.3.2.1	Note: This list includes but shall not be limited to the following: 1) For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than 5 feet (1.5 m) at any point. 2) Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years. 3) Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups. 4) Any AQUATIC VENUE while it is being used for group training, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons. 5) Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet from the nearest DECK. 6) Any AQUATIC VENUE with standing water and with an induced current or wave action including but not limited to WAVE POOLS, vortex AQUATIC VENUES, waterslide CATCH POOLS, and LAZY RIVERS. 7) Any AQUATIC VENUE which allows the usage of diving boards of any type or starting platform.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.1 to 6.3.3.3	See Code for Full text	*The requirement of a lifeguard and second responder will cause a financial burden to aquatic venues in low income areas resulting in many aquatic venues closing for lack of funds to accommodate the lifeguard and second responder requirement stipulated in this draft. Fewer pools result in fewer people who know how to swim.* -- Delete number 4 and 5; the requirement to have a lifeguard based upon the depth of water or the size of the pool. Rather limit the use of these pools to require those under 16 years to be accompanied by an adult to use the pool.	Partially agree. Section revised	6.3.2.1, 6.3.4.2, & 6.3.4.3	See Code for full text\
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	sets forth requirements that owner/operators must have documented an Aquatic Emergency Action Plan that is facility specific, emergency communication procedures, emergency closure guidelines, and employee safety training policies. The Module does not specify what documentation is being required to be assembled by an Aquatics professional.	Safety plan requirements have been revised, reorganized and address details for implementation at unguarded facilities.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	Should add that EAP be posted for all patrons	Agree. Key emergency contact and notification information is required to be posted .	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	*This does not seem to make any sense. If there is no staff, who is going to enact the EAP? This needs to be deleted and then rewritten to reflect the real world and include what is really needed* -- Delete: Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1. Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code; 2. Emergency Communications procedures; 3. Emergency closure guidelines; 4. Employee safety training policies and procedures.	Disagree. Safety plan requirements have been revised, reorganized and address details for implementation at unguarded facilities.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. If this is for Aquatic facilities WITHOUT lifeguards, who would 1) be available or part of an EAP? 2) Who would initiate/participate in, a communications procedure? 3) What employees are being trained at an UNGUARDED facility?	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. This section confuses us a bit as there may be a need for the entries listed here if they are applied to unguarded aquatic venues within an Aquatic Facility that does have lifeguards/supervisors on duty. However, there is no need for them if the facility itself is unguarded as comment below addresses. This is a piece that needs much more thought to cover the different scenarios that the code allows with respect to guarded and unguarded venues as stand alone facilities or as part of a larger Aquatic Facility that does have lifeguards. This cannot be a one entry fits all approach as needs are different here.	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.1	Aquatic venues not required to have lifeguards shall have a safety plan that includes all the following but not limited to: 1) Emergency Action Plan that is venue appropriate and consistent with guidelines set forth in this code. 2) Emergency Communications procedures. 3) Emergency closure guidelines. 4) Employee safety training policies and procedures.	This is not practical for unguarded facilities. There would be no one available to activate the EAP, and also no one available to participate in the communication procedure. There would also be no trained employees at an unguarded facility. Finally, there are so many different possible scenarios that can take place, you can't just make a blanket statement regarding this.	Disagree. Safety plan requirements have been revised, reorganized and address details for implementation at unguarded facilities.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	*"…the trained person should be the person most likely to be available and accountable for the surveillance of the pool…"* The *"Pool"* is defined as Unguarded and therefore no legal duty is applied to surveillance. HOWEVER this line now adds a "duty" to the person, and inherently the Owner/Operator, to *"provide surveillance and accountability"*?	Agree. Annex comment. The meaning of "surveillance" in the context of the Annex was not intended to be the same as for lifeguard surveillance of a pool. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	½ hour is not realistic may want to rethink this	Agree. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	A response by management should be based on the nature of the complaint. By creating a time limit to respond, it places an unnecessary burden on facility management to take action based on time not on the severity of the incident.	Agree. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	*Delete as it adds nothing to the code* -- Delete: Management must be in position to act as quickly as possible to any aquatic venue issue.	Agree. Annex comment. Annex revised.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	*How will this be documented and monitored? An after-hours call on an answering machine should not qualify as notification. Is an e-mail an acceptable means of notification? What if the e-mail is not readily available and or not read until after 30 minutes has passed? This is a litigation "gold mine" for plaintiff attorneys. Strongly consider removing this standard.* -- Delete this standard: A response by management shall be required no greater than one half hour after receiving notification of a complaint.	Agree. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	Response to a complaint shall be the right of the management and no mandated timeframe should even be considered	Disagree. Management should be responsible to respond to a complaint where patron or staff health or safety is jeopardized. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	*Unreasonable* -- Delete.	Agree. Code revised- response to complaints/emergencies to be addressed in required Safety Plan.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.3.7.1	A response by management shall be required no greater than one half hour after receiving notification of a complaint.	What does this even mean? If I was interpreting this, this would mean someone had to be on site and available at all time during operation. Doesn't even address minimum ½-hour response as stated in code? This means as soon as possible, which could be more than ½-hour? How was ½-hour chosen as time standard?	Agree. Annex comment. Annex revised.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.2.2.3.1 #6	Emergency Response including… 6) Components of Emergency Action Plans (EAPs) for different types of aquatic venues.	*Assuring readiness to respond* -- Consider adding some detail on minimum components that should be considered in the EAP. Including, roles and responsibilities of the different guards and support staff, actions to be taken by each when an emergency presents itself, communication system identified for response, consideration of some emergency conditions that will be included in the staff readiness, plans for routine testing of the EAP	Partially agree. Details for Aquatic Facility Safety Plan including Emergency Action Plan are contained in a different code section (6.3.2)	6.3.3	Safety Plan (see this section for details)
Lifeguard & Bather Supervision (LG)	6.3.5.2	Aquatic Facility Safety Plan and Procedures	The header of this section calls the plan "Aquatic Facility Safety Plan and Procedures," but in the subsections, the plan is often referred to as the, "Aquatic Safety Plan." The same term should be used throughout.	Agree.	6.3.3	Safety Plan (see this section for details)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.2.3	All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code.	*No reference to what items or what code.* -- Remove	Partially agree. Code revised and restructured . Aquatic Facility Safety Plan requirements for facilities with and without lifeguards are clarified and specified.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3	All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code.	This section does not make sense, because it is incredibly vague. First of all, "Aquatic venues" should say "Aquatic facilities." Second, the plan "documents their conformance to certain items in this Code," but this is so vague that it cannot be properly adhered to. What items must be conformed to? How are the documents to demonstrate conformance? With so little information, this cannot be properly enforced or adhered to.	Agree to edit to the following - All aquatic facilities requiring a lifeguard(s) shall have an Aquatic Facility Safety Plan which documents their conformance to this Code.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3	All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code.	*Too vague* -- All aquatic venues requiring a lifeguard(s) shall C have an Aquatic Safety Plan which documents their conformance to ~~certain items in~~ this Code.	Agreed to cut "certain items"	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3	All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code.	*Which items? Why does the code not specify what is required? Delete this section.* -- Delete: All aquatic venues requiring a lifeguard(s) shall have a Safety Plan which documents their conformance to certain items in this Code.	Disagree with comment but agree to edit to the following - All aquatic facilities requiring a lifeguard(s) shall have an Aquatic Facility Safety Plan which documents their conformance to this Code.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3	All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code.	*Which items? Why does the code not specify what is required? Delete this section.* -- Delete: Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan.	Disagree with comment - Members of the aquatic facility safety team shall receive a copy of, and training on, the facility's/venue's Emergency Action Plan for their specific job title/responsibilities at the Aquatic Facility	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.2	The Aquatic Safety Plan shall include, but is not limited to the following: 1) Pre-Service Plan for potential Lifeguards contained in this Code from 6.3.4.1.1 to 6.3.4.1.5, 2) Plan for In-service training for Lifeguards and other safety team members contained in this Code from 6.3.4.2.1 to 6.3.4.2.3, 3) Plan for Aquatic Venue Lifeguard Staffing contained in this Code from 6.3, 6.3.2, 6.3.3 to 6.3.5.1.3, 4) Lifeguard Rotation Plan and Procedures 6.3.5.1 to 6.3.5.1.1.5, 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6, 6) Plan for Single lifeguarded aquatic venues if applicable contained in this Code from 6.3.3.2 and 6.3.3.3, and 7) The Emergency Action Plan that is venue appropriate and consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	Delete: 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6	Disagree with comment - they give no reason to delete.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.2	The Aquatic Safety Plan shall include, but is not limited to the following: 1) Pre-Service Plan for potential Lifeguards contained in this Code from 6.3.4.1.1 to 6.3.4.1.5, 2) Plan for In-service training for Lifeguards and other safety team members contained in this Code from 6.3.4.2.1 to 6.3.4.2.3, 3) Plan for Aquatic Venue Lifeguard Staffing contained in this Code from 6.3, 6.3.2, 6.3.3 to 6.3.5.1.3, 4) Lifeguard Rotation Plan and Procedures 6.3.5.1 to 6.3.5.1.1.5, 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6, 6) Plan for Single lifeguarded aquatic venues if applicable contained in this Code from 6.3.3.2 and 6.3.3.3, and 7) The Emergency Action Plan that is venue appropriate and consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	*It is unreasonable to require each venue to have a full blown Safety Plan. Most of the information required is facility wide. Additional information can be added for particular venues when required.* -- Each Aquatic Facility Safety Plan shall include, but is not limited to, the following Code requirements: 1. Lifeguard pre-service; 2. Lifeguard in-service; 3. Applicable lifeguard staffing; 4. Applicable lifeguard rotation and procedures; 5. Single lifeguard aquatic venue plan (if appropriate) 6. Applicable emergency action plans."	Disagree with comment. Most Facility Plans do have venue specific plans within. - Change Aquatic Safety Plan to "Aquatic Facility Safety Plan"	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.2	The Aquatic Safety Plan shall include, but is not limited to the following: 1) Pre-Service Plan for potential Lifeguards contained in this Code from 6.3.4.1.1 to 6.3.4.1.5, 2) Plan for In-service training for Lifeguards and other safety team members contained in this Code from 6.3.4.2.1 to 6.3.4.2.3, 3) Plan for Aquatic Venue Lifeguard Staffing contained in this Code from 6.3, 6.3.2, 6.3.3 to 6.3.5.1.3, 4) Lifeguard Rotation Plan and Procedures 6.3.5.1 to 6.3.5.1.1.5, 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6, 6) Plan for Single lifeguarded aquatic venues if applicable contained in this Code from 6.3.3.2 and 6.3.3.3, and 7) The Emergency Action Plan that is venue appropriate and consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	These documents and trainings are meant to be fluid and change over time. Always using the same inservice trainings are not effective.	Content may change but overall plan of attack does not. If it changes, the code will have the ability to update when justified. It also says it is not limited to the following.	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.2 #5	The Aquatic Safety Plan shall include, but is not limited to the following... 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6...	What type of plan for Lifeguard Supervision/ Management? What is the plan supposed to detail?	As outlined in 6.3.1.-6.3.1.6	6.3.3	All AQUATIC FACILITIES shall create and implement a SAFETY PLAN to include, but not be limited to the following elements: 1) Staffing Plan, 2) EMERGENCY ACTION PLAN, 3) Biohazard action plan 4) Pre-Service Training Plan, and 5) In-service Training Plan
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	*So is a diagram required? If so, where is it located?* -- The Aquatic Facility Safety Plan shall identify those zones where the lifeguard is required to have a rescue tube on their person at all times.	Agree. Code revised . Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	"Necessarily" instead of necessary.	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	*Is a diagram required? If so where is it located?* -- The Aquatic safety Plan shall identify those zones where the lifeguard is required to have a rescue tube on their person at all times	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	Needless micro management	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	*Repetitive to 5.8.5.2.3 and 5.8.5.2.3.1* -- Remove.	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	Repetitive, this is addressed in the previous two sections. Remove this section.	Agree. Code revised . Details regarding zones, # of guards, diagrams, etc removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	*See comments for 5.8.5.2.3 make it unnecessary, also it's too complex for little (if any) gain* -- Delete	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	The diagram should also indicate where the rescue tube is located, if it does not have to be kept on the lifeguard's person.	Agree. Code revised . Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	This is a great example of why this code is redundant and overly verbose. This entry is a repeat for administrative means…the previous 2 entries clearly define when the rescue tube is required. DELETE this entry.	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	5.8.5.2.3.2	The zone of patron surveillance responsibility diagram will indicate for each lifeguard station what zones require the rescue tube to be on the lifeguard's person at all times or what surveillance positions permit the rescue tube to be immediately available but not necessary worn in accordance with 5.8.5.3.1.	*Zones and number of lifeguards can change depending on bather load. Also, is a diagram required and if so, where is it located?* -- Suggest having a surveillance plan for maximum occupancy and then have the ability to scale down the coverage as the bather load decreases. Also, rescue tubes only required for deep-water aquatic facilities.	Agree. Code revised. Details regarding zones, # of guards, diagrams, etc. removed from this section and now included under Section 6.3 Aquatic Facility Management.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*A response time would be beneficial in the training of guards.* -- The time element should be at least 30 seconds – REFERENCE: Current research on this topic is on-going. The ARC identifies 30 seconds for response in your zone. Ellis & Associates uses the 10/20 rule which is a total of 30 seconds	Disagree with comment - this code does not take into account detection it just deals with response time which is extremely important to positive outcomes.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*In our professional opinion with over 190 years of public pool operation there is no research to dictate that any time requirement is better then another. However, looking at the realism of Lifeguarding we agree that including a time is needed so that operators can test their lifeguards. We strongly advocate for that time to be changed. If we set a time standard the testing conditions should be defined too. i.e. in conditions without public interference.* -- The time element should be increased to 30 seconds. Why is 20 seconds designated as the length of time? – REFERENCE: Current research on this topic is on-going and there are lifeguard companies that have certain time requirements that are different. Currently the American Red Cross Lifeguard Program identifies 30 seconds for response in your zone of coverage. Page #45. Ellis & Associates uses the 10/20 rule but this is a total of 30 seconds to respond to an emergency in your zone.	Disagree with comment -the 20 second response only time (does not include detection time) is important to successful outcomes. We are talking about operational requirements and this does not involve lifeguard training agencies.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*In our professional opinion with over 190 years of public pool operation there is no research to dictate that any time requirement is better then another. However, looking at the realism of Lifeguarding we agree that including a time is needed so that operators can test their lifeguards. We strongly advocate for that time to be changed.* -- The time element should be increased to 30 seconds. Why is 20 seconds designated as the length of time? – REFERENCE: Current research on this topic is on-going and there are lifeguard companies that have certain time requirements that are different. Currently the American Red Cross Lifeguard Program identifies 30 seconds for response in your zone of coverage. Page #45. Ellis & Associates uses the 10/20 rule but this is a total of 30 seconds to respond to an emergency in your zone.	Disagree with comment - this code does not take into account detection it just deals with response time which is extremely important to positive outcomes.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*Increasing to 30 seconds allows for real life operations where crowds or other circumstances may impact water entry, etc. The 20 seconds to reach all areas of the zone will be tested under "clean" conditions when swimmers are not present most likely. The additional 10 seconds still creates the urgency which is the spirit of the MAHC and is no more scientific than the 20 seconds.* -- The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 30 seconds.	Disagree with comment -the 20 second response only time (does not include detection time) is important to successful outcomes. We are talking about operational requirements and this has nothing to do with lifeguard training agencies.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*Strongly Recommended* -- Change to 30 seconds	Disagree with comment - this code does not take into account detection it just deals with response time which is extremely important to positive outcomes.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance from middle of assigned zone within 20 seconds	Disagree with comment -needs to be able to do this from the lifeguards assigned position(s).	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*This timing may vary based on the specific aquatic venue and the dictates of the training agency.* -- "20 seconds" should be deleted and replaced with "within the time period required by the aquatic training agency."	Disagree with comment -the 20 second response only time (does not include detection time) is important to successful outcomes. We are talking about operational requirements and this has nothing to do with lifeguard training agencies.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	Why 20 seconds? Are we now dictating a 10/20 standard or similar? Should this be predicated on facility design, zone schemes or facility specific? When does the 20 seconds start/end?	Disagree with comment - this code does not take into account detection it just deals with response time which is extremely important to positive outcomes.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.2.2	The lifeguard shall be able to reach the furthest extent of the assigned zone of patron surveillance within 20 seconds.	*Why was 20 seconds chosen? Need to allow the recognized lifeguard certification agencies to determine the surveillance time.*	Disagree with comment -the 20 second response only time (does not include detection time) is important to successful outcomes. We are talking about operational requirements and this has nothing to do with lifeguard training agencies.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.4	Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times.	*LG plans vary based upon programming, bather load, and elements.* -- It is unrealistic to provide lifeguard diagrams for every situation.	Disagree with comment. Comment fails to recognize code guidance on staffing that does not relate to any programming activities.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4	Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times.	*Maintained where?* -- Where are the diagrams maintained? Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times	Maintained at each aquatic facility	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4	Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times.	*Maintained Where?* -- Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times	Agreed. Wording added to clarify the plan is maintained at each aquatic facility	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4	Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times.	*This is also seriously litigation prone.* -- Where are the diagrams maintained?	Wording added to clarify the plan is maintained at each aquatic facility	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.4	Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times.	*Zones often change throughout the day – mandating specific zones would create a system that is too inflexible.* -- Remove item number 6.3.3.4.	Disagree - Entirely possible and currently being done at many facilities	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4 & 6.3.3.4.1	6.3.3.4--- Zones of patron surveillance responsibility diagrams for each lifeguard station configuration shall be identified and maintained at all times. 6.3.3.4.1--- The zone of patron surveillance responsibility diagrams shall indicate whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard stations.	*Where should the documents be kept? Lifeguards may work at multiple facilities. Do their certification records need to be kept at each work site?* -- Combine and clarify	Maintained at each aquatic facility - not speaking of certifications	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4.1	The zone of patron surveillance responsibility diagrams shall indicate whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard stations.	*Improve flexibility for assuring guard stays on task.* -- It would be preferable that this section provide "flexibility" for assuring the guard is stationed within their assigned area to assure their position is dynamic to the conditions presented. For instance, if the original context is to have the guard in a chair, but glare issues reduce their effectiveness to cover their assigned zone, the provide the flexibility for the guard to have a range of area to achieve their need to observe their zone and maintain vigilance. Suggested modification follows: The zone of patron surveillance responsibility diagrams shall ~~indicate~~ ensure the lifeguard is able to effectively observe their assigned zone and includes provision for maintaining vigilance, whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard	Flexibility is already there, just needs to be defined properly when creating documents. Conditions listed need to be accounted for as they change.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.3.4.1	The zone of patron surveillance responsibility diagrams shall indicate whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard stations.	*Not necessary does not address variability of bather attendance, operating conditions, etc.* _ Remove – REFERENCE: Not possible to define and document all possible scenarios in every instance.	Partially agree. The code and annex have been revised and restructured. Zones of Patron Surveillance Responsibility are addressed in detail in the Aquatic Facility Staffing Plan section.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.1	The zone of patron surveillance responsibility diagrams shall indicate whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard stations.	*Specifically call out the depth* -- Prior to active duty, aquatic supervisors shall ensure that lifeguards can proficiently perform the skills required for a rescue, as outlined in the Safety Plan specific to that aquatic facility or venue, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	Agreed	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.4.1.1	The zone of patron surveillance responsibility diagrams shall indicate whether the lifeguard is in an elevated stand, walking, in-water and/or other approved lifeguard stations.	*This should read management staff as this document has already identified what it thinks is a supervisor.* -- Prior to active duty, aquatic managerial staff shall ensure that lifeguards can proficiently perform the skills required for a rescue, as outlined in the Safety Plan specific to that aquatic facility or aquatic venue.	The supervisor must ensure but other agents can be involved in the process.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.3	Zones of patron surveillance responsibility diagrams for each lifeguard station shall be identified and maintained at all times	*LG coverage varies depending upon programming, user, bather load, and elements.* -- Not all situations can be diagramed.	Disagree with comment. It is currently being done and is entirely possible and necessary to avoid confusion and lack of coverage. A Zone of Patron Responsibility Diagram is a graphic illustration of a lifeguard's position and Zone boundaries and, as such, must illustrate the area to which the lifeguard is assigned swimmer protection. A Zone of Patron Responsibility Diagram should also illustrate any overlapping areas of responsibility with those of adjacent Zones (where applicable).	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.3	Zones of patron surveillance responsibility diagrams for each lifeguard station shall be identified and maintained at all times	*Repetitive to 6.3.3.4* – Remove	Agree. Code ahs been revised and restructured.	6.3.3.1.1	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include diagrammed zones of PATRON surveillance for each AQUATIC VENUE such that: 1) The QUALIFIED LIFEGUARD is capable of viewing the entire area of the assigned zone of PATRON surveillance, 2) The QUALIFIED LIFEGUARD is able to reach the furthest extent of the assigned zone of PATRON surveillance within 20 seconds, 3) Identify whether the QUALIFIED LIFEGUARD is in an elevated stand, walking, in-water and/or other approved position, 4) Identifying any additional responsibilities for each zone, and 5) All areas of each AQUATIC VENUE are assigned a zone of PATRON surveillance.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.1	*Lifeguard Rotation Plan and Procedures*	Agency specific items should not be quoted in the code. ARC recommendations should be removed. Speak to it generically.	Annex comment. Disagree. The annex provides background, rationale, data and references for code content.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1	*Lifeguard Rotation Plan and Procedures*	This section does not address single guarded facility Rotation Plans. Guidelines must be established for these facilities. See comments for section 6.3.5.1.1 below.	Agree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1	*Lifeguard Rotation Plan and Procedures*	This section should address single guarded facility rotation plans. Guidelines must be established for these facilities.	Agree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1	*Lifeguard Rotation Plan and Procedures*	USLSC References should be eliminated due to the fact the report was not a Peer Reviewed and Open study.	Incorrect. Peer-reviewed citation added.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1	There shall be defined, practiced and evaluated lifeguard rotation procedures.	Suggest adding 6.3.5.1.1.2 as follows: *"Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."*	Agree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.1.1	There shall be defined, practiced and evaluated lifeguard rotation procedures.	Rotation procedures needs to be defined: There shall be defined, practiced and evaluated lifeguard rotation procedures.	Agreed.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1	There shall be defined, practiced and evaluated lifeguard rotation procedures.	Single guarded facilities should have a rotation plan that provides at least 10 minutes of non-patron surveillance for the lifeguard time. This Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time.	Agree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1	There shall be defined, practiced and evaluated lifeguard rotation procedures.	*Undefined term.* -- Rotation procedures needs to be defined: There shall be defined, practiced and evaluated lifeguard rotation procedures.	Agreed	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.1	The aquatic supervisor shall establish a lifeguard rotation plan that will document the lifeguard rotation procedures to be practiced at that aquatic facility.	Re-word to "there shall be an established lifeguard rotation…" Does not need to place responsibility	Unclear on intent of comment	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.2	The lifeguard rotation plan shall identify all zones of patron surveillance and responsibilities for each lifeguard station at the aquatic facility.	*Poorly worded. There may be some areas which are closed or out of service.* -- Needs to be reworded because all areas may not be in use. The lifeguard rotation plan shall identify all zones of patron surveillance and responsibilities for each lifeguard station at the aquatic facility.	Disagree with comment. There still needs to be a rotation plan that includes everything. It can be adjusted as attractions are not open, but still needs to be documented and communicated.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.2	The lifeguard rotation plan shall identify all zones of patron surveillance and responsibilities for each lifeguard station at the aquatic facility.	*Repetitive to 6.3.3.4* – Remove	Disagree. Not redundant.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4	The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	*Financial burden to many organizations that require a single opening lifeguard shift.* -- The Lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard at the same station for more than 120 minutes.	Agree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4	The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	Suggest clarifying: Lifeguard should not remain at the same patron surveillance location for more than 60 minutes.	Agree. Section Revised	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4	The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	*The United States Lifeguard Standards referenced in the Annex provides no support for a 60 minute limit.* -- Delete	Disagree with comment - this is annex information and not the code. The peer-reviewed USLSC report was a review of the evidence process that followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actually exceed these for Evidence-Based Practice and scientific reviews.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4	The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	*Does not take into account one guard facilities.* -- The item number should take into account 1 guard facilities	Edited to state "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4	The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	What do you do @ 1 guard facilities? Does not address this.	Disagree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.4 & 5	6.3.5.1.1.4--- The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes. 6.3.5.1.1.5--- The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	*In regards to 6.3.5.1.1.4, the code seems fine, but the annex references language that can be interpreted as a lifeguard needs to have a surveillance break every 60 minutes. Though they can rotate stations more often than every 60 minutes, providing a break every 60 minutes is not always feasible for operations.* -- The lifeguard rotation plan shall contain period(s) of non-patron surveillance ~~activity.~~	Partially agree. Code and annex revised for clarity. Note, the requirement has been revised to clearly indicate that a period of non-patron surveillance activity is needed after 60 minutes maximum of continuous patron surveillance activities.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.5	The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	*Another example of where the committee had something in mind but did an exceptionally poor job of explaining the issue. Suggest this section be deleted as it provides no useful content or direction.* -- Delete: The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	Disagree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time." Off-scanning time is essential to lifeguard surveillance performance.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.5	The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	Change "non-patron surveillance" to "no patron surveillance"	Partially agree. Phrase not changed however section revised and reworded for clarity.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.5	The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	*Extremely poorly worded. Needs to be re-written in clear un-ambiguous language. Is there justification for 60 minutes? This is a major litigation issue.* -- Delete: The lifeguard rotation plan shall contain a change of lifeguard station for each lifeguard with no lifeguard remaining at the same station for more than 60 minutes.	Disagree with comment - "Single lifeguard facilities shall have a rotation plan that indicates a minimum of 10 minutes per hour of non-patron surveillance time for the lifeguard. Rotation Plan should address procedure for accomplishing this without compromising patron surveillance during this time."	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.5	The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	*Need to define "non-patron surveillance activity".* -- Delete	Partially agree. Phrase not changed however section revised and reworded for clarity.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.5.1.1.5	The lifeguard rotation plan shall contain period(s) of non-patron surveillance activity.	*Repetitive. Delete*	Disagree. Not repetitive.	6.3.3.1.2	When QUALIFIED LIFEGUARDS are used, the STAFFING PLAN shall include QUALIFIED LIFEGUARD rotation procedures such that: 1) Identifying all zones of PATRON surveillance responsibility at the AQUATIC FACILITY, 2) Operating in a manner so as to provide an alternation of tasks for each QUALIFIED LIFEGUARD conducting PATRON surveillance activities such that no QUALIFIED LIFEGUARD conducts PATRON surveillance activities for more than 60 continuous minutes, 3) Have a practice of maintaining coverage of the zone of PATRON surveillance during change of QUALIFIED LIFEGUARD, 4) Have period(s) of at least 10 minutes of non-PATRON surveillance activity for the purpose of providing an alternation of task.
Lifeguard & Bather Supervision (LG)	6.3.4.1.5	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge for all the venue's emergency closure issues before active patron surveillance.	*Facilities have multiple emergency closure plans outside those for aquatic venues. These may be outside the scope of a lifeguard.* -- Documentation shall be maintained…all lifeguards have demonstrated knowledge of emergency closure for all aquatic venues that the lifeguard has been trained to staff.	No change proposed by commenter. However, note that the code and annex have been revised and restructured.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.5	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge for all the venue's emergency closure issues before active patron surveillance.	How does a lifeguard demonstrate this knowledge? This should be a topic for pre-service training, something to be discussed, but demonstration would be difficult.	Testing at completion of training… performing during in-service training, check list review etc…	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.5	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge for all the venue's emergency closure issues before active patron surveillance.	*Lifeguards should not be making that decision.* -- Documentation shall be maintained and be available for inspection that all ~~lifeguards~~ Aquatic Supervisors have demonstrated knowledge for all the venue's emergency closure issues before active patron surveillance.	Disagree with comment. The lifeguards are the frontline people who will generally see this issue first regardless of decision making authority. It is not saying one way or the other if they have closure authority. They need to be able to identify the need and notify the Supervisor.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2	Lifeguards and other aquatic venue safety team members shall receive training on all emergency procedures specific to the aquatic venue.	Wording in this section most often only addresses training requirement and does not specify, *"regularly scheduled in-service (refresher) training".* One can interpret this as only having the need for training on the subject matter and not reinforcement training of said topics. There is no mention of frequency of training or the need for regular scheduling.	Annex information to support that the committee came up with 4 hours a month as a minimum.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2	Lifeguards and other aquatic venue safety team members shall receive training on all emergency procedures specific to the aquatic venue.	"Aquatic venue" should say "aquatic facility." Larger facilities have multiple venues that the staff work at. They should know the facility's emergency procedures which would include those of the venues	Agree.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.2.2	Lifeguards and other aquatic venue safety team members shall receive training on all emergency procedures specific to the aquatic venue.	*Delete the word all as this requires psychic powers to foresee.* -- Lifeguards and other aquatic venue safety team members shall receive training on emergency procedures specific to the aquatic venue.	Agree with comment	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2	Lifeguards and other aquatic venue safety team members shall receive training on all emergency procedures specific to the aquatic venue.	*There are a number of emergency procedures that may require specific professional skills not held by most lifeguards such as electrical shut down, pump operations, etc. Training should be only as to what is in the level of competency of the particular Team member. Lifeguards are part of the Team and need not be mentioned separately. Why is there a reference to "aquatic venue safety team"? Is this different than the AFST?* -- Aquatic Facility Safety Team Members shall receive training on all applicable emergency procedures specific to the Aquatic Venue(s) to which they are assigned.	Agree with comment	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.2.2	Lifeguards and other aquatic venue safety team members shall receive training on all emergency procedures specific to the aquatic venue.	What is an Aquatic Venue Safety Team? This is not in the definitions section. It is important to use the same language throughout. This phrase should be replaced with Aquatic Facility Safety Team.	Agreed. Definition added	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.1	Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan.	"Venue's" should say "facility's"	Agree.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.1	Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan.	*Facility EAPs contain more than procedures for aquatic venues and may be outside the scope of the lifeguard.* -- Lifeguards shall receive training on aquatic venue EAP in which they are assigned.	Partially agree. Code revised and restructured. Aquatic Facility Safety Team requirements for facilities with and without lifeguards are clarified and specified. Definition of Aquatic Facility Safety Team is included.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.1	Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan.	*Impractical to distribute to every lifeguard. Should be readily available and accessible but not required to distribute copies*-- Lifeguards and other members of the aquatic facility safety team shall receive a copy '*or have access to a copy'* and training on the venue's EAP	Disagree with comment - Members of the aquatic facility safety team shall receive a copy of, and training on, the facility's/venue's Emergency Action Plan for their specific job title/responsibilities at the Aquatic Facility	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.1	Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan.	*Non code language. What constitutes aquatic safety team.* -- Delete: Lifeguards and other members of the aquatic facility safety team shall receive a copy and training on the venue's Emergency Action Plan	Disagree with comment. It is clearly defined in code although lifeguards can be deleted as they are part of the "Aquatic Facility Safety Team" - possible rewording "Members of the aquatic facility safety team shall receive a copy of, and training on, the facility's/venue's Emergency Action Plan for their specific job title/responsibilities at the Aquatic Facility".	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.2	Lifeguards and aquatic facility safety team shall receive a copy and training on policy and procedures for the specific aquatic facility personnel.	Are the policy and procedures for the facility, or are they personnel policies? For instance, are these facility rules such as no diving, or are they personnel policies such as, pay checks will be distributed every other Friday?	Policies applicable to them so they can do their job.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.2.2	Lifeguards and aquatic facility safety team shall receive a copy and training on policy and procedures for the specific aquatic facility personnel.	*Cost-prohibitive and lifeguards do not keep them for reference. Having them available for their reference is more effective and they can be updated as necessary.* -- Lifeguards and aquatic facility safety team shall keep on file an acknowledgement of facility policies and procedures and retain a copy of policy and procedures for the specific aquatic facility personnel to be referenced at any time.	Disagree with comment. These documents can electronic, printed or other low cost means. The Aquatic Facility Safety Team member needs to have their own copies.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.2	Lifeguards and aquatic facility safety team shall receive a copy and training on policy and procedures for the specific aquatic facility personnel.	*Lifeguards are part of the Team and need not be mentioned separately. Waterparks may contain many venues and not all Team members will have specific responsibilities for all venues.* -- Aquatic Facility Safety Team Members shall receive a copy of and training on policy and procedures for their specific job title/responsibilities at the Aquatic Facility	Agreed. It is clearly defined in code although lifeguards can be deleted as they are part of the "Aquatic Facility Safety Team"	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.2	Lifeguards and aquatic facility safety team shall receive a copy and training on policy and procedures for the specific aquatic facility personnel.	Should say "the aquatic facility safety team."	Agree.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.2	Lifeguards and aquatic facility safety team shall receive a copy and training on policy and procedures for the specific aquatic facility personnel.	*Unclear as to meaning behind aquatic facility personnel.* -- Lifeguards shall receive a copy and training on policy and procedures for specific aquatic venues.	Partially agree. Code revised and restructured. Aquatic Facility Safety Team requirements for facilities with and without lifeguards are clarified and specified. Definition of Aquatic Facility Safety Team is included.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.4	The Aquatic Safety Plan shall contain documentation that all Aquatic Safety Team members have knowledge for all the venue's emergency closure issues contained in 6.3.4.1.11 of this Code.	The Aquatic Safety Plan shall contain documentation that all Aquatic Supervisors have knowledge for all the venue's emergency closure issues contained in 6.3.4.1.11 of this Code	Emergency closure issues will be defined in another area of the code. This could deal with fecal, vomitus, environmental, etc. The lifeguard is the frontline staff member to see these issues first.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.4	The Aquatic Safety Plan shall contain documentation that all Aquatic Safety Team members have knowledge for all the venue's emergency closure issues contained in 6.3.4.1.11 of this Code.	*Repetitive to 6.3.4.1.4* – Remove	Agree. Code has been revised and restructured.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.4	The Aquatic Safety Plan shall contain documentation that all Aquatic Safety Team members have knowledge for all the venue's emergency closure issues contained in 6.3.4.1.11 of this Code.	*The documentation is required pursuant to the Plan not as an actual part of the plan. In aquatic facilities with larger on-site staffs, lifeguards may be tasked with specific duties/responsibilities for an emergency situation. However, they may not be tasked with duties/ responsibilities for all of emergency closing procedures and should not be tasked with knowledge of items not related to their specific duties. Also, the word "issues" is undefined and confusing. Should be "Aquatic Facility Safety Plan"* -- The Aquatic Facility Safety Plan shall require documentation that all lifeguards have demonstrated knowledge of their responsibilities in any of the aquatic venue's emergency closing procedures".	Emergency closure issues are defined in another area of the code. This could deal with fecal, vomitus, environmental, etc. The lifeguard is the frontline staff member to see these and report issues first.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.4	The Aquatic Safety Plan shall contain documentation that all Aquatic Safety Team members have knowledge for all the venue's emergency closure issues contained in 6.3.4.1.11 of this Code.	*The documentation is required pursuant to the Plan not as an actual part of the plan. In aquatic facilities with larger on-site staffs, lifeguards may be tasked with specific duties/responsibilities for an emergency situation. However, they may not be tasked with duties/responsibilities for all of emergency closing procedures and should not be tasked with knowledge of items not related to their specific duties. Also, the word "issues" is undefined and confusing. Should be "Aquatic Facility Safety Plan"* - - The Aquatic Facility Safety Plan shall require documentation that all lifeguards have demonstrated knowledge of their responsibilities in any of the aquatic venue's emergency closing procedures"	Emergency closure issues will be defined in another area of the code. This could deal with fecal, vomitus, environmental, etc. The lifeguard is the frontline staff member to see these issues first.	6.3.3.3.1	Prior to active duty all members of the SAFETY TEAM shall be trained on and receive a copy of and/or have a copy posted and always available, the specific policies and procedures for the following: 1) STAFFING PLAN, 2) EMERGENCY ACTION PLAN, 3) Emergency closure, and 4) Fecal, vomit, and blood contamination on surfaces and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.1.4	Aquatic supervisors and other aquatic safety team members shall be able to activate Emergency Action Plans (EAPs).	*Delete this section. How do you tell if someone is able to activate an EAP?* -- Delete: Aquatic supervisors and other aquatic safety team members shall be able to activate Emergency Action Plans (EAPs).	Disagree. Statement doesn't support proposal to delete. Determination of ability to activate EAP is based on staff performing procedures detailed in the required written EAP. Note- Supervisor training requirements have been revised and restructured	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.1.4	Aquatic supervisors and other aquatic safety team members shall be able to activate Emergency Action Plans (EAPs).	*Repetitive to 6.2.4.1* -- Remove	Agree. Code has been revised and re-structured, duplications eliminated.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.1.4	Aquatic supervisors and other aquatic safety team members shall be able to activate Emergency Action Plans (EAPs).	The term Aquatic Supervisor should be changed to "employee responsible for safety." There is so standard definition for positions such as "lead guard", "head guard" or "aquatic supervisor".	Disagree. Supervisor is defined in the code .	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.11	The Aquatic Facility Safety Team shall be trained to recognize all emergency closure issues.	*AFST members includes "any employee…that has job responsibilities related to" the emergency action plan. This might include a guest service worker whose only duty is to supervisor unaccompanied minors. This worker should not be required to have training on all emergency procedures.* -- The members of the Aquatic Facility Safety Team shall be trained to recognize emergency closure issues within their level of competency.	Disagree with comment. They are not required to enact emergency closure but should be able to identify those issues and be able to inform Supervisor. We are not talking about all emergency procedures only emergency closure issues as defined in this code.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.11	The Aquatic Facility Safety Team shall be trained to recognize all emergency closure issues.	*Ambiguous as to what constitutes emergency closure issues.* - - Delete: The Aquatic Facility Safety Team shall be trained to recognize all emergency closure issues.	The closure items are defined elsewhere in the code.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.11	The Aquatic Facility Safety Team shall be trained to recognize all emergency closure issues.	*Each member of the aquatic staff should be trained in emergency closure issues* -- Change language from "Aquatic Facility Safety Team" to "Trained Aquatic Staff".	Disagree with comment. They are not required to enact emergency closure but should be able to identify those issues and be able to inform Supervisor. We are not talking about all emergency procedures only emergency closure issues as defined in this code.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.11	The Aquatic Facility Safety Team shall be trained to recognize all emergency closure issues.	Who performs this training? Is there an agency that teaches this, or is this developed by the facility?	Facility specific training done in-house - along with MAHC guidelines for pool closures.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.12	The aquatic supervisor shall ensure all Aquatic Facility Safety Team members have been trained in proper Fecal, Vomit and Blood Contamination Incident Response in accordance with the AHJ guidelines.	*See comments directly above*	Disagree - swimmer protection is partly done through understanding closure issues.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.12	The aquatic supervisor shall ensure all Aquatic Facility Safety Team members have been trained in proper Fecal, Vomit and Blood Contamination Incident Response in accordance with the AHJ guidelines.	*See comments directly above (6.3.4.1.11)*	Unclear comment	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.12	The aquatic supervisor shall ensure all Aquatic Facility Safety Team members have been trained in proper Fecal, Vomit and Blood Contamination Incident Response in accordance with the AHJ guidelines.	Understanding closure issues and asking or inferring (by way of the Annex education) is different than stating lifeguards should be the ones to determine or identify such issues when the primary responsibility is swimmer protection. Suggesting otherwise is counterproductive and an exposure.	Disagree - swimmer protection can be improved by understanding closure issues.	6.3.3.3.2	Prior to active duty, all members of the SAFETY TEAM shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Understand their responsibilities and of others on the AQUATIC FACILITY SAFETY TEAM, 2) Ability to execute the EMERGENCY ACTION PLAN, 3) Know what conditions require closure of the facility, and 4) Know what actions to take in response to a fecal, vomit, or blood contamination on a surface and in the water as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	Agency specific content.	Disagree	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	*Agency specific content. ******* Content being used as an "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group ******** "A" grade is reserved for practiced standard. No practice standard like this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- The phrase "water rescue sequence" should be removed. This is a term specifically generated by the Vice Chair of the committee and is directly taken from the ARC textbook and content. Agency specific items have no place in this code and in fact this item was specifically identified to be excluded as part of the draft code.	The Annex has been extensively re-written.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	*Agency specific content. Content being used as an "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group "A" grade is reserved for practiced standard. No practice standard like this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- The phrase "water rescue sequence" should be removed. This is a term specifically generated by the Vice Chair of the committee and is directly taken from the ARC textbook and content. Agency specific items have no place in this code and in fact this item was specifically identified to be excluded as part of the draft code.	Disagree - the author has no personal gain, this codes agrees with peer reviewed materials and review of the research. Unethical would as if an agency were to use a "rescue protocol" that has been reviewed by medical science as dangerous and should be done.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	*Competency should be judged on the particular aquatic venues where the lifeguards are stationed.* -- At all times during their employment, all aquatic facility lifeguards shall be able to demonstrate rescue competency for the aquatic venues they are assigned to guard, by consecutively performing the following rescue sequence:" Note: some aquatic venues have little or no standing water.	Agreed	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	*Competency should be judged on the particular aquatic venues where the lifeguards are stationed.* -- At all times during their employment, all aquatic facility lifeguards shall be able to demonstrate rescue competency for the aquatic venues they are assigned to guard, by consecutively performing the following rescue sequence:" Note: some aquatic venues have little or no standing water.	Agreed	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	International Life Saving Federation Pool Lifeguard Requirements should also not be placed in Annex, as the organization does not even have a Lifeguard Training Program.	Extensive re-wording of Annex has occurred.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	The entry of this concept is unethical. It is a direct concept of the Vice Chairman of the committee, who authored the USLSC, (where this concept appears). Additionally, the author is an Advisory board member of the ARC and an author of the ARC manual.	Disagree - Extensive re-wording of Annex has occurred.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	The phrase “water rescue sequence” should be removed. This is a term specifically generated by the Vice Chair of the committee and is directly taken from the ARC textbook and content. Agency specific items have no place in this code and in fact this item was specifically identified to be excluded as part of the draft code.	Disagree - this codes agrees with peer reviewed materials and review of the research.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	This concept ignores the reality of Team management of skills and events. No single lifeguard would ever have to perform the sequence put forth. This sets lifeguarding back 20 years to “stud duck” type lifeguards.	Extensive re-wording of Annex has occurred.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8	At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence:	USLSC references should be eliminated. The concept in this entry was NOT practiced anywhere, prior to the latest ARC lifeguard textbook in 2012. How can this be given a rating of a "Standard" within USLSC, and a grade of "A" in this Code when in fact it had not even been implemented by any agency prior to 2012?	Disagree - the USLSC report was published in a peer reviewed publication. The largest lifeguarding agency in the world uses the protocol in their training as does the Boy Scouts of America.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8 + SUBSECTIONS	6.3.4.1.8--- At all times during their employment all aquatic facility lifeguards shall be able to demonstrate the aquatic venue rescue competency, irrespective of their type or level of certification, by consecutively performing the following water rescue sequence: 6.3.4.1.8.1--- Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds. 6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3. 6.3.4.1.8.5--- Lifeguards shall be trained in emergency response, cardio-pulmonary resuscitation (CPR/AED) and first aid scenarios that are specific to the aquatic facility which they are employed. 6.3.4.1.8.6---	*Repetitive to 6.3.4.1.1* – Remove	Disagree. Not redundant, this section addresses pre-service requirements. However, note that the code and annex have been revised and restructured.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*20 seconds is not always the appropriate minimum based on the type of aquatic venue.* -- Change language to: Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds or a differing time period designated by the aquatic training agency.	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*20 seconds is not always the appropriate minimum based on the type of aquatic venue.* -- Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds or a differing time period designated by the aquatic training agency.	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*Consistency* -- This would need to change to be compatible with 6.3.22	Disagree - it is consistent at 20 seconds for response time	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*Consistency with the time change* -- Will need modification should the time change from section 6.3.2.2	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*Increasing to 30 seconds allows for real life operations where crowds or other circumstances may impact water entry, etc. The 20 seconds to reach all areas of the zone will be tested under "clean" conditions when swimmers are not present most likely. The additional 10 seconds still creates the urgency which is the spirit of the MAHC and is no more scientific than the 20 seconds.* -- Lifeguards shall be able to respond to a victim in any part of their zone of patron surveillance within 30 seconds.	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*Repetitive. Delete*	Disagree as not redundant.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	*Strongly Recommended* -- Change to 30 seconds	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.1	Lifeguards shall be able to respond to a victim in any part of the zone of patron surveillance within 20 seconds.	The only thing needed here is: *"ANSI/APSP 9 20.4.3.2 Reaching Victim Lifeguards, attendants, and staff assigned to maintain guest surveillance in aquatic facilities shall be positioned and provided equipment in order to reach the victim within 20 seconds of identification of a trauma or incident."* Delete existing content, as it is unrelated to Code content	Disagree - Current ANSI Standard - leave as is - 20 second response only time (does not include detection time) is important to successful outcomes.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2	A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety.	USLSC References should be eliminated due to the fact the report was not a Peer Reviewed and Open study.	Incorrect. Reference is cited and was peer-reviewed.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	*Agency specific content. ******** Content being used as a "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group ******** "A" grade is reserved for practiced standard. No practice standard likes this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- Any and all references or use of agency specific content should be stricken from this draft and/or final code.	The Annex has been extensively re-written. The document mentioned is a peer-reviewed review of the literature.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	*Agency specific content. ******** Content being used as a "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group ******** "A" grade is reserved for practiced standard. No practice standard likes this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- The term "water rescue sequence" comes directly from an exclusive (non peer reviewed) document called the USLSC, which was a document produced by the ARC, YMCA and USLA, and authored by individuals who ALL have relationships or direct committee membership on one or more of the agencies listed. Comments sent by the agency sending this comment form, were never vetted, followed up, or replied to, during or after the comment period, or prior the final publication of the USLSC.	The annex has been extensively re-written.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	*Agency specific content. Content being used as an "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group "A" grade is reserved for practiced standard. No practice standard likes this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- Any and all references or use of agency specific content should be stricken from this draft and/or final code.	Disagree with comment - this is annex information and not code and the peer-reviewed reference is cited.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	*Agency specific content. Content being used as an "A" grade from a non-peer reviewed study sponsored by an exclusive and non-open group "A" grade is reserved for practiced standard. No practice standard likes this exists in the industry. (water rescue sequence used by ARC came out in the new book in 2012* -- The term "water rescue sequence" comes directly from an exclusive (non peer reviewed) document called the USLSC, which was a document produced by the ARC, YMCA and USLA, and authored by individuals who ALL have relationships or direct committee membership on one or more of the agencies listed. Comments sent by the agency sending this comment form, were never vetted, followed up, or replied to, during or after the comment period, or prior the final publication of the USLSC.	Disagree with comment - this is annex information and not the code. In terms of the USLSC it was evidence review process it followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actuality exceed these for Evidence-Based Practice and scientific reviews. The review was published in the peer review journal International Journal of Aquatic Research and Education.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	Any and all references or use of agency specific content should be stricken from this draft and/or final code.	Disagree - this codes agrees with peer reviewed materials and review of the research.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	The phrase “water rescue sequence” should be removed. Agency specific items should be removed from MAHC.	Disagree - but would be willing to change if a better suggestion for the "water rescue sequence" was suggested.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.8.2 to 6.3.4.1.8.4	6.3.4.1.8.2--- A lifeguard shall be able to rescue a victim in any part of the zone of patron surveillance including extrication to a position of safety. 6.3.4.1.8.3--- Extrication shall include another member of the Aquatic Facility Safety Team required to respond to Aquatic Emergency Action Plan activation. 6.3.4.1.8.4--- A lifeguard shall be able to perform resuscitation skills for a victim after 6.3.4.1.8.1 to 6.3.4.1.8.3.	The term “water rescue sequence” comes directly from an exclusive (non peer reviewed) document called the USLSC, which was a document produced by the ARC, YMCA and USLA, and authored by individuals who ALL have relationships or direct committee membership on one or more of the agencies listed. Comments sent by the agency sending this comment form, were never vetted, followed up, or replied to, during or after the comment period, or prior the final publication of the USLSC.	Disagree - this code agrees with peer reviewed materials and review of the research.	6.3.3.3.4	When QUALIFIED LIFEGUARDS are used, they shall demonstrate knowledge and skill competency specific to the AQUATIC FACILITY for the following criteria: 1) Ability to reach the bottom at the maximum water depth of the venue to be assigned, 2) Ability to identify all zones of PATRON surveillance responsibility to which they could be assigned, 3) Ability to recognize a victim in their assigned zone of PATRON surveillance, 4) Ability to reach the furthest edge of assigned zones of PATRON surveillance within 20 seconds, 5) Water rescue skills outlined in MAHC Section 6.2.1.1.2, 6) CPR/AED and First Aid, 7) Ability to execute EMERGENCY ACTION PLAN, 8) Emergency Closure Issues, and 9) Fecal, Vomit and Blood Contamination Incident Response as outlined in MAHC Section 6.5.
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	*Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific 6.3.4.1.4aquatic venue prior to active patron surveillance.* -- Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	Agreed. Wording added to clarify the plan is maintained at the aquatic facility.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	Lifeguard competency is documented at the time certification is conferred. Documentation of skills proficiency verification prior to active patron surveillance should not be necessary beyond this.	It is LG Training record as well as site specific training records for that venue/facility. Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	*Specifically call out the depth* -- Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	Suggest that this be added to/included in 6.3.4.1.1 as follows: *"… as outlined in the Safety Plan specific to that Aquatic Facility or Aquatic Venue. Documentation of skills proficiency verification prior to active patron surveillance shall be maintained and available for inspection."*	Agree. It is LG Training record as well as site specific training records for that venue/facility. Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	This needs to define where this documentation will be maintained. Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	At the individual aquatic facility. Wording modified.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervisio n (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	*This needs to define where this documentation will be maintained.* -- This needs to define where this documentation will be maintained.	Agreed. Wording added to clarify the plan is maintained at the aquatic facility.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	Water rescue competency? Is lg training not this? May want to indicate facility specific orientation training instead	It is LG Training record as well as site specific training records for that venue/facility. Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance, including but not limited to being able to submerge to the deepest point of the aquatic facility and perform a water rescue.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervisio n (LG)	6.3.4.1.3	Documentation shall be maintained and be available for inspection verifying that all lifeguards have demonstrated water rescue competency for the specific aquatic venue prior to active patron surveillance.	What type of documentation is required to demonstrate water rescue competency? Is a training attendance sheet sufficient?	Agreed. Documentation required can be better defined here.	6.3.3.3.6	Documentation verifying the pre-service requirements shall be completed by the person conducting the pre-service training, maintained at the facility for 3 full years, and be available for inspection.
Lifeguard & Bather Supervisio n (LG)	6.3.4.2	In-Service Training	USLSC References should be eliminated due to the fact the report was not a Peer Reviewed and Open study.	Incorrect. Peer-reviewed citation added	6.3.3.4	In-Service Training
Lifegu ard & Bather Super vision (LG)	6.3.4.2 ANNEX	Please see Annex for full text	*Please indicate what NEHA is. There is no mention of this in the code's list of acronyms.*	Agreed.	6.3.3.4 ANNEX	In-Service Training (SEE ANNEX FOR FULL TEXT)
Lifeguard & Bather Supervision (LG)	6.3.4.1.4	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance.	"Aquatic venue" should say "aquatic facility."	Agree. Note- Code revised and restructured, EAP's and Aquatic Facility Safety Plans are detailed in the revised code.	6.3.3.4.1	Documentation verifying the in-service requirements shall be completed by the person conducting the in-service training, maintained at the aquatic facility for 3 years, and available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.4	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance.	*There seems to be some confusion about what constitutes an EAP. This requirement should be rolled into the one above it. Most guards participation in an EAP will be limited to rescue and immediate support.*-- Delete: Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance.	Partially agree. Code revised and restructured, EAP's and Aquatic Facility Safety Plans are detailed in the revised code.	6.3.3.4.1	Documentation verifying the in-service requirements shall be completed by the person conducting the in-service training, maintained at the aquatic facility for 3 years, and available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.4.1.4	Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance.	*There seems to be some confusion about what constitutes an EAP. This requirement should be rolled into the one above it. Most LG's participation in an EAP will be limited to rescue and immediate support.* -- Delete: Documentation shall be maintained and be available for inspection that all lifeguards have demonstrated knowledge and active practice for the specific aquatic venue's Emergency Action Plan before active patron surveillance.	Disagree with comment.	6.3.3.4.1	Documentation verifying the in-service requirements shall be completed by the person conducting the in-service training, maintained at the aquatic facility for 3 years, and available for inspection.
Lifeguard & Bather Supervisi on (LG)	6.3.5.2.3.5	The Aquatic Safety Plan shall contain documentation regarding in-service training contained in this Code from 6.3.4.2.1 to 6.3.4.2.2.2	*Repetitive to 6.3.4.2.2.2* -- Remove	Agree. Code has been revised and restructured	6.3.3.4.1	Documentation verifying the in-service requirements shall be completed by the person conducting the in-service training, maintained at the aquatic facility for 3 years, and available for inspection.
Lifeguard & Bather Supervisi on (LG)	6.3.5.2.3.5	The Aquatic Safety Plan shall contain documentation regarding in-service training contained in this Code from 6.3.4.2.1 to 6.3.4.2.2.2	*The documentation is required pursuant to the Plan not as an actual part of the plan. Should be "Aquatic Facility Safety Plan* -- The Aquatic Facility Safety Plan shall require documentation of all in-service training."	Agree with comment - The Aquatic Facility Safety Plan shall require documentation of all in-service training.	6.3.3.4.1	Documentation verifying the in-service requirements shall be completed by the person conducting the in-service training, maintained at the aquatic facility for 3 years, and available for inspection.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.3	The Aquatic Safety Plan shall contain documentation that all lifeguards have demonstrated water rescue competency for the specific aquatic venue as contained in this Code 6.3.4.1.8 to 6.3.4.1.8.3 prior to active patron surveillance.	*The documentation is required pursuant to the Plan not as an actual part of the plan.* -- change "contain" to "require". Change "Aquatic Safety Plan" to "Aquatic Facility Safety Plan"	Agree	6.3.3.4.5	When QUALIFIED LIFEGUARDS are used, they shall be able to demonstrate proficiency in the skills as outlined by MAHC Section 6.2.1 and have the ability to perform the following water rescue skills consecutively so as to demonstrate the ability to respond to victim and complete the rescue: 1) Reach the furthest edge of zones of PATRON surveillance within 20 seconds, 2) Recover a simulated victim including extrication to a position of SAFETY consistent with MAHC Section 6.2.1.1.2, and 3) Perform resuscitation skills consistent with MAHC Section 6.2.1.1.3.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.3	The Aquatic Safety Plan shall contain documentation that all lifeguards have demonstrated water rescue competency for the specific aquatic venue as contained in this Code 6.3.4.1.8 to 6.3.4.1.8.3 prior to active patron surveillance.	*Repetitive to 6.3.4.1.3* – Remove	Agree. Code has been revised and restructured.	6.3.3.4.5	When QUALIFIED LIFEGUARDS are used, they shall be able to demonstrate proficiency in the skills as outlined by MAHC Section 6.2.1 and have the ability to perform the following water rescue skills consecutively so as to demonstrate the ability to respond to victim and complete the rescue: 1) Reach the furthest edge of zones of PATRON surveillance within 20 seconds, 2) Recover a simulated victim including extrication to a position of SAFETY consistent with MAHC Section 6.2.1.1.2, and 3) Perform resuscitation skills consistent with MAHC Section 6.2.1.1.3.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.3	The Aquatic Safety Plan shall contain documentation that all lifeguards have demonstrated water rescue competency for the specific aquatic venue as contained in this Code 6.3.4.1.8 to 6.3.4.1.8.3 prior to active patron surveillance.	What type of documentation? Is a pre-service attendance record sufficient?	As required by the AHJ	6.3.3.4.5	When QUALIFIED LIFEGUARDS are used, they shall be able to demonstrate proficiency in the skills as outlined by MAHC Section 6.2.1 and have the ability to perform the following water rescue skills consecutively so as to demonstrate the ability to respond to victim and complete the rescue: 1) Reach the furthest edge of zones of PATRON surveillance within 20 seconds, 2) Recover a simulated victim including extrication to a position of SAFETY consistent with MAHC Section 6.2.1.1.2, and 3) Perform resuscitation skills consistent with MAHC Section 6.2.1.1.3.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3 & 6.3.5.2.3.1	6.3.5.2.3--- All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code. 6.3.5.2.3.1--- The Aquatic Safety Plan will be kept on file for review by the AHJ.	*all references should be to the "Aquatic Facility Safety Plan" not the "Aquatic Safety Plan" ….. It is unreasonable to require each venue to have a full blown Safety Plan. … Most of the information required is facility wide. Additional information can be added for particular venues when required.* -- All aquatic facilities requiring a lifeguard shall have an Aquatic Facility Safety Plan which documents conformance with this Code."	Agree to edit to the following - All aquatic facilities requiring a lifeguard(s) shall have an Aquatic Facility Safety Plan which documents their conformance to this Code.	6.3.3.5.1 & 6.3.3.5.2	6.3.3.5.1 Safety Plan on File LG The SAFETY PLAN shall be kept on file at the AQUATIC FACILITY. 6.3.3.5.2 Safety Plan Implemented LG The elements detailed in the SAFETY PLAN must be implemented and in evidence in the AQUATIC FACILITY operation and is subject to review for compliance by the AHJ at any time.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3 & 6.3.5.2.3.1	6.3.5.2.3--- All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code. 6.3.5.2.3.1--- The Aquatic Safety Plan will be kept on file for review by the AHJ.	*Clarification ***** Also, all references should be to the "Aquatic Facility Safety Plan" not the "Aquatic Safety Plan" It is unreasonable to require each venue to have a full blown Safety Plan. Most of the information required is facility wide. Additional information can be added for particular venues when required.* -- All aquatic facilities requiring a lifeguard shall have an Aquatic Facility Safety Plan which documents conformance with this Code."	Agree to edit to the following - All aquatic facilities requiring a lifeguard(s) shall have an Aquatic Facility Safety Plan which documents their conformance to this Code.	6.3.3.5.1 & 6.3.3.5.2	6.3.3.5.1 Safety Plan on File LG The SAFETY PLAN shall be kept on file at the AQUATIC FACILITY. 6.3.3.5.2 Safety Plan Implemented LG The elements detailed in the SAFETY PLAN must be implemented and in evidence in the AQUATIC FACILITY operation and is subject to review for compliance by the AHJ at any time.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3 & 6.3.5.2.3.1	6.3.5.2.3--- All aquatic venues requiring a lifeguard(s) shall have an Aquatic Safety Plan which documents their conformance to certain items in this Code. 6.3.5.2.3.1--- The Aquatic Safety Plan will be kept on file for review by the AHJ.	*Clarification Also, all references should be to the "Aquatic Facility Safety Plan" not the "Aquatic Safety Plan" It is unreasonable to require each venue to have a full blown Safety Plan. Most of the information required is facility wide. Additional information can be added for particular venues when required.* -- All aquatic facilities requiring a lifeguard shall have an Aquatic Facility Safety Plan which documents conformance with this Code."	Agree to edit to the following - All aquatic facilities requiring a lifeguard(s) shall have an Aquatic Facility Safety Plan which documents their conformance to this Code.	6.3.3.5.1 & 6.3.3.5.2	6.3.3.5.1 Safety Plan on File LG The SAFETY PLAN shall be kept on file at the AQUATIC FACILITY. 6.3.3.5.2 Safety Plan Implemented LG The elements detailed in the SAFETY PLAN must be implemented and in evidence in the AQUATIC FACILITY operation and is subject to review for compliance by the AHJ at any time.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.1	The Aquatic Safety Plan will be kept on file for review by the AHJ.	*Delete this requirement* -- Delete: 5) Plan for Lifeguard Supervision/Management contained in this Code from 6.3.1 to 6.3.1.6	Disagree with comment. Wording clarified.	6.3.3.5.2	The elements detailed in the Safety plan must be implemented and in evidence in the aquatic facility operation and is subject to review for compliance by the AHJ at any time.
Lifeguard & Bather Supervision (LG)	6.3.2.1 ANNEX	Both the ANSI/APSP 1 Public Swimming Pools and ANSI/APSP 9 standards state that the lifeguard "shall be positioned and provided equipment in order to reach the victim within 20 seconds of identification of a trauma or incident." Some training agencies have mandated this in their management programs. Currently many lifeguards are being held to this standard in a court of law.	*<u>Editorial Comment:</u> The annex does not provide the rationale or matches the intent of the stated code (6.3.2.1) - "The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column." The annex states – "Both the ANSI/APSP 1 Public Swimming Pools and ANSI/APSP 9 standards state that the lifeguard "shall be positioned and provided equipment in order to reach the victim within 20 seconds of identification of a trauma or incident." Some training agencies have mandated this in their management programs. Currently many lifeguards are being held to this standard in a court of law." There is no relation to the code and the annex. The code indicates what a lifeguard can see (scan) within his or her zone of responsibility and not the response time within that zone.* -- Delete annex section	Agree. The code and annex have been revised and restructured.	6.3.4.3	Lifeguard Staff (See Annex for full text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.2.1	The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column.	*No one will understand this statement. What water column? Does this mean that the LG is responsible for the air above the water? Suggest: surface, bottom and area in-between. This statement also seems to reflect an absence of knowledge about the fact that victims do not go part way down and stop.* -- Change: The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column. To: The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and the area in-between	Partially agree. Code revised, "water column" deleted.	6.3.4.3.1	Where QUALIFIED LIFEGUARDS are used, the AQUATIC FACILITY shall provide, prior to opening the AQUATIC FACILITY to the public, the minimum number of QUALIFIED LIFEGUARDS and staff required per the provisions of the SAFETY PLAN such that: 1) All zones of PATRON surveillance are staffed during operation, 2) Rotations can be conducted while all zones are staffed, and 3) Supervisor is present.
Lifeguard & Bather Supervision (LG)	6.3.2.1	The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column.	*Number of guards and stations should be based on size, shape, depth, and features of each venue.* – Remove	Partially agree. The code has been revised and restructured for clarity	6.3.4.3.1	Where QUALIFIED LIFEGUARDS are used, the AQUATIC FACILITY shall provide, prior to opening the AQUATIC FACILITY to the public, the minimum number of QUALIFIED LIFEGUARDS and staff required per the provisions of the SAFETY PLAN such that: 1) All zones of PATRON surveillance are staffed during operation, 2) Rotations can be conducted while all zones are staffed, and 3) Supervisor is present.
Lifeguard & Bather Supervision (LG)	6.3.2.1	The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column.	Suggested Change: *"The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, without the use of secondary monitoring devices as defined in this code, including from the bottom to the surface and above the water"*	Partially agree. The code has been revised and restructured for clarity.	6.3.4.3.1	Where QUALIFIED LIFEGUARDS are used, the AQUATIC FACILITY shall provide, prior to opening the AQUATIC FACILITY to the public, the minimum number of QUALIFIED LIFEGUARDS and staff required per the provisions of the SAFETY PLAN such that: 1) All zones of PATRON surveillance are staffed during operation, 2) Rotations can be conducted while all zones are staffed, and 3) Supervisor is present.
Lifeguard & Bather Supervision (LG)	6.3.2.1	The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column.	This standard should also address the maximum length of time required for the lifeguard to "view the entire area of the zone…."	Disagree. No recommendation with supporting data provided for a change.	6.3.4.3.1	Where QUALIFIED LIFEGUARDS are used, the AQUATIC FACILITY shall provide, prior to opening the AQUATIC FACILITY to the public, the minimum number of QUALIFIED LIFEGUARDS and staff required per the provisions of the SAFETY PLAN such that: 1) All zones of PATRON surveillance are staffed during operation, 2) Rotations can be conducted while all zones are staffed, and 3) Supervisor is present.
Lifeguard & Bather Supervision (LG)	6.3.2.1	The number of lifeguards and lifeguard stations shall be established so that the lifeguard is capable of viewing the entire area of the zone of patron surveillance, including from the bottom to the surface and above the water column.	*Unclear, needs to be defined*	Partially agree. The code has been revised and restructured for clarity.	6.3.4.3.1	Where QUALIFIED LIFEGUARDS are used, the AQUATIC FACILITY shall provide, prior to opening the AQUATIC FACILITY to the public, the minimum number of QUALIFIED LIFEGUARDS and staff required per the provisions of the SAFETY PLAN such that: 1) All zones of PATRON surveillance are staffed during operation, 2) Rotations can be conducted while all zones are staffed, and 3) Supervisor is present.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	"The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty." There is no discussion regarding who or what determines this requirement exists in the first place or what level of visual acuity differing from 20/20 should bring about a requirement for corrective lenses	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*Again, the term "aquatic supervisor is used when "Management" is what is meant.* -- Management shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	Disagree - this is standard terminology in the document.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	Difficult to enforce with large numbers of employees	Disagree - change the word requires to uses - There is no standard mentioned - just if the lifeguard "uses" correctives lenses for normal actives they must wear them on duty. Just as you may require the lifeguard to have a whistle for doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*How do we define "require corrective lenses" what if the corrective lenses are just for seeing close (like reading glasses). What is the correction standard ie, even corrective lenses don't always achieve 20/20 vision. Is that required? This is a potentially significant ADA issue – needs science/data behind it…more than level C. Drop if can't clarify.* -- The aquatic supervisor shall ensure that any lifeguard that normally wears corrective lenses for distance sight must wear corrective lenses while on duty.	Disagree with comment - Not an ADA issue when it comes to the safety of those you are assigned to watch	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	How does an aquatic supervisor know if a lifeguard requires corrective lenses?	Disagree - change the word requires to uses - There is no standard mentioned - just if the lifeguard "uses" correctives lenses for normal actives they must wear them on duty. Just as you may require the lifeguard to have a whistle for doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*Impossible to enforce. Also conflicts with the requirement to where polarized sunglasses if the lifeguards needs corrective lenses and is unable to where contacts due to a medical condition.* -- Delete or change language from "ensure" to encourage".	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty. It can be a simple question on a job application - "do you wear corrective lenses?"	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*It is not reasonable or possible for a supervisor to continually ensure that a LG is wearing their corrective lenses at all time.* -- The ~~aquatic supervisor~~ Lifeguard shall ensure that any corrective lenses that are required must be worn while on duty.	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty. Just like you may require the lifeguard to have a whistle for doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*The committee agrees that there is no established guideline of what the minimum level of visual acuity needed to lifeguard without corrective lenses.* -- Delete this section.	Disagree - change the word requires to uses - There is no standard mentioned - just if the lifeguard "uses" correctives lenses for normal actives they must wear them on duty. Just you may require the lifeguard to have a whistle for the doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*The supervisor cannot always ensure – they can require but short of inspecting the eyes, cannot ensure.* -- The aquatic supervisor shall require that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*There is no standard provided to determine whan a lifeguard "requires corrective lenses".* -- Delete	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*There is no standard provided to determine when a lifeguard "requires corrective lenses".*	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	*This puts a burden on the supervisor that they cannot control and not qualified to enforce. The Supervisor has no way of determining if a lifeguard requires corrective lenses. They are not a doctor. Putting the burden on the supervisor that they wear glasses if required is also inappropriate. This burden belongs with the lifeguard.* -- ~~The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.~~	Disagree - change the word requires to uses - There is no standard mentioned - just if the lifeguard "uses" correctives lenses for normal actives they must wear them on duty. Just as you may require the lifeguard to have a whistle for doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	USLSC References should be eliminated due to the fact the report was not a Peer Reviewed and Open study.	Incorrect. Peer-reviewed reference cited	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.9	The aquatic supervisor shall ensure that any lifeguard that requires corrective lenses must wear the corrective lenses while on duty.	Wearing corrective lenses is a personal responsibility of the lifeguard. It is unreasonable for a facility to assume responsibility for compliance. Driver's licenses have vision restrictions, but no one is required to confirm compliance before one operates a vehicle. It is personal responsibility. Same for FAA pilots.	Disagree - There is no standard mentioned - just if the lifeguard requires correctives lenses for normal actives they must wear them on duty. Just like you may require the lifeguard to have a whistle for doing the job.	6.3.4.3.2	QUALIFIED LIFEGUARD responsibilities shall include but not be limited to: 1) Monitor PATRONS within the zone of PATRON surveillance responsibility, 2) Enforce facility rules, 3) Respond to emergencies including water rescue, CPR, and First Aid, 4) Identify health and SAFETY hazards and take action to mitigate or avoid the hazard, 5) Maintain skills at a test-ready level of proficiency, 6) Wear the identifying uniform, 7) If needed for effective PATRON surveillance, wear corrective eyewear, 8) If exposed to UV, wear polarized sunglasses and SPF 15 or greater UV protection, 9) Know where personal protective equipment is located and use it when required.
Lifeguard & Bather Supervision (LG)	6.2.3.6.4	Shallow water guards shall not be assigned to a body of water in which any part of the water's depth is greater five feet (1.52 m).	*"Shallow Water Lifeguard"* should be listed as a definition in "Definitions" section above.	Partially agree. Code revised.	6.3.4.3.3	Qualified lifeguards certified for shallow water depths shall not be assigned to a body of water in which any part of the water's depth is greater than the depth for which they are certified.
Lifeguard & Bather Supervision (LG)	6.2.3.6.4	Shallow water guards shall not be assigned to a body of water in which any part of the water's depth is greater five feet (1.52 m).	*Lacks definition of shallow water guards. What is wrong with having a shallow guard on the shallow end of a wave pool? This would preclude a shallow guard from being the person assigned to lifejackets at a wave pool.* -- Delete: Shallow water guards shall not be assigned to a body of water in which any part of the water's depth is greater five (5) feet.	Agree. Code revised	6.3.4.3.3	Qualified lifeguards certified for shallow water depths shall not be assigned to a body of water in which any part of the water's depth is greater than the depth for which they are certified.
Lifeguard & Bather Supervision (LG)	6.2.3.6.4, 6.2.3.6.5, 6.2.3.6.6	6.2.3.6.4--- Shallow water guards shall not be assigned to a body of water in which any part of the water's depth is greater five feet (1.52 m). 6.2.3.6.5--- Lifeguards which are assigned to water which may include depths greater than five feet (1.52 m) shall be trained in water depths greater than five feet. 6.2.3.6.6--- An identifier of the instructor of record shall be recorded legibly on the lifeguard's certificate and on the course record.	*These sections are hard to understand. Also, lifeguards work in a variety of depths and should be trained accordingly.* -- Combine these sections to read, "Lifeguards should be trained in depths of water they will guard".	Disagree. Code has been revised for clarity. Revised code addresses site specific conditions in the pre-service , in-service and Staff Management Sections.	6.3.4.3.3	Qualified lifeguards certified for shallow water depths shall not be assigned to a body of water in which any part of the water's depth is greater than the depth for which they are certified.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	*When?* -- Timing issues associated with the assignments need to be addressed: Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	Wording added to clarify times.	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	*Not practical and may present as overly-burdensome… Common Sense* -- This section does not address all aquatic facilities as defined in the glossary. Example: Catch pools with riding devices. The lifeguard responsible for the zone of patron surveillance is immersed in the pool, able to scan said zone of patron surveillance, and able to respond to a victim within 20 seconds per Safety Plan (EAP) of the aquatic facility. It is unnecessary to restrict this lifeguard's tasks exclusively to patron surveillance. – REFERENCE: Satisfies 6.2.2.3 (emergency response) 6.3.2.1 (view zone), 6.3.2.2 & 6.3.4.8.1 (reach), and 6.3.4.1.1 (rescue skills) and 6.3.5.2.1 (EAP)	Argument can be made that tasks identified in this comment do not intrude on patron surveillance responsibilities.	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	*For clarification. I assume that it is acceptable for a guard to be completing other tasks when they are not providing direct surveillance.* -- Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance. Lifeguards may complete other tasks while not tasked to provide direct surveillance.	Agree. Code changed for clarification	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	Lifeguards assigned for the direct supervision of bathers shall not be assigned other tasks that intrude on patron supervision.	Not sure what comment refers to but text has been clarified	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	*There are many facilities who assign a lifeguard to help with patron surveillance, but they are also in charge of swim tests. This lifeguard is not absolutely required for patron surveillance but are an added layer.* -- Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance, except in the case of when there are more lifeguards than needed. At that point, the lifeguard can be reassigned to non-patron surveillance duties.	These extra lifeguards should not be assigned a specific zone of patron surveillance but rather should be assigned other tasks as primary responsibility. If they can provide some sort of additional surveillance coverage, then that is even better.	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.6	Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	Timing issues associated with the assignments need to be addressed: Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance	Wording clarified	6.3.4.3.4	Qualified lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance while performing patron surveillance activities.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6 & 6.3.4.1.7	6.3.4.1.6--- Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance 6.3.4.1.7--- Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices while conducting patron surveillance.	The RID Factor is a committee member's concept and has no place in this Code when attached to a formal TERM. The author is also an Advisory Board member of the Red Cross.	Still referred to but clarified that it is accepted by "some" groups.	6.3.4.3.4 & 6.3.4.3.5	6.3.4.3.4 Direct Surveillance LG QUALIFIED LIFEGUARDS assigned for the direct surveillance of BATHERS shall not be assigned other tasks that intrude on PATRON surveillance while performing PATRON surveillance activities. 6.3.4.3.5 Distractions LG While conducting PATRON surveillance, QUALIFIED LIFEGUARDS shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6 & 6.3.4.1.7	6.3.4.1.6--- Lifeguards assigned for the direct surveillance of bathers shall not be assigned other tasks that intrude on patron surveillance 6.3.4.1.7--- Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices while conducting patron surveillance.	The RID Factor is NOT accepted by all lifeguard-training agencies. This is a direct lie on the part of the author…this appears in only one Lifeguard textbook-ARC.	Still referred to but clarified that it is accepted by "some" groups.	6.3.4.3.4 & 6.3.4.3.5	6.3.4.3.4 Direct Surveillance LG QUALIFIED LIFEGUARDS assigned for the direct surveillance of BATHERS shall not be assigned other tasks that intrude on PATRON surveillance while performing PATRON surveillance activities. 6.3.4.3.5 Distractions LG While conducting PATRON surveillance, QUALIFIED LIFEGUARDS shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices.
Lifeguard & Bather Supervision (LG)	6.3.4.1.6 ANNEX	The RID (Recognition, Intrusion, Distraction) Factor has been accepted by all lifeguarding agencies as a major contributor to drowning in guarded venues. Nothing should be allowed to interfere with a lifeguard's duty to perform patron surveillance. The Committee all agreed that lifeguards performing patron surveillance should not be doing other tasks that could distract them. Oregon DUTIES. When on duty, a lifeguard shall scan and supervise the pool with no other distracting activities such as cleaning, water testing, or minimal unnecessary conversing with patrons.	Correction: The YMCA of the USA as well as the National Aquatic Safety Company does not reference the RID Factor within their respective lifeguarding programs. Y-USA does indicate "Limit Distractions: While scanning. Lifeguards should have no duties other than to focus on scanning and preventing accidents. Never stop scanning even when speaking with a patron or supervisor. Even a brief distraction can cause you to miss important information that might prevent an accident or aid a victim." -- The RID Recognition, Intrusion, Distraction) Factor has been accepted by all Many lifeguarding agencies indicate that distractions and performing non-patron surveillance tasks while on duty contribute to the lack of victim recognition by a lifeguard as a major contributor to drowning in guarded venues. Nothing should be allowed to interfere with a lifeguard's duty to perform patron surveillance. The Committee all agreed that lifeguards performing patron surveillance should not be doing other tasks that could distract them. – REFERENCE: YMCA On the Guard manual (2011) ********** National Aquatic Safety Company Lifeguard Textbook (rev. 2011), http://nascoaquatics.com/wp-content/uploads/2012/02/lifeguard-textbook-2012.pdf	The terms are used to illustrate intent and are valid. Wording revised	6.3.4.3.4 ANNEX	The factors of recognition, intrusion, and distraction have been identified as major contributor to drowning in guarded venues. Nothing should be allowed to interfere with a lifeguard's duty to perform patron surveillance. The Technical Committee all agreed that qualified lifeguards performing patron surveillance should not be doing other tasks that could distract them. When on duty, a qualified lifeguard should scan and supervise the aquatic venue with no other distracting activities such as cleaning, water testing, and minimize unnecessary conversing with patrons.
Lifeguard & Bather Supervision (LG)	6.3.4.1.7	Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices while conducting patron surveillance.	Address the issue here; Distraction provided by non-emergency electronic devices. Perhaps cite driving and cell phone use research as it relates to distraction to emphasize point. That at least would be relevant.	Agree. Annex revised.	6.3.4.3.5	While conducting patron surveillance, qualified lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices.
Lifeguard & Bather Supervision (LG)	6.3.4.1.7	Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices while conducting patron surveillance.	*How is this regulated? What is the definition of social conversations?* -- Delete "social conversations"	Disagree. Annex revised to clarify intent.	6.3.4.3.5	While conducting patron surveillance, qualified lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices.
Lifeguard & Bather Supervision (LG)	6.3.4.1.7	Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices while conducting patron surveillance.	*This section is hopelessly proscriptive It is impossible to comply with. If you say "Hello" then you have engaged in a social conversation. So it must be okay to have a non-electronic device.* -- Delete: Lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players or other similar non-emergency electronic devices while conducting patron surveillance	Disagree. Annex revised to clarify intent.	6.3.4.3.5	While conducting patron surveillance, qualified lifeguards shall not engage in social conversations or have on their person or lifeguard station cellular telephones, texting devices, mp3 players, or other similar non-emergency electronic devices.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.1.7 ANNEX	The RID (Recognition, Intrusion, Distraction) Factor has been accepted by all lifeguarding agencies as a major contributor to drowning in guarded venues. Nothing should be allowed to interfere with a lifeguard's duty to perform patron surveillance. Oregon DUTIES. When on duty, a lifeguard shall scan and supervise the pool with no other distracting activities such as cleaning, water testing, or minimal unnecessary conversing with patrons.	*Correction: The YMCA of the USA as well as the National Aquatic Safety Company does not reference the RID Factor within their respective lifeguarding programs. Y-USA does indicate "Limit Distractions: While scanning. Lifeguards should have no duties other than to focus on scanning and preventing accidents. Never stop scanning even when speaking with a patron or supervisor. Even a brief distraction can cause you to miss important information that might prevent an accident or aid a victim." Point of Information: The United States Lifeguards Standards Coalition report includes the following information on distractions: Scanning Techniques Distractions: It is possible that an increase in incidents or rule violations interrupts scanning. Increasing the number of distractions decreases search performance. Also, as the number of children in a pool increases, lifeguards tend to observe the children more than the adults. Guideline: Lifeguard certifying agencies and supervisors should provide training programs and in-service protocols that cover the following: (1) Emphasize scanning all fields within a scanning zone using maximal head movements. (2) Require new lifeguards to practice scanning with supervision and feedback. (3) Emphasize that when individuals within a population are similar in appearance, it takes longer to identify potential drowning incidents. (4) Inform lifeguards that distractions greatly affect the scanning process. When training aquatic supervisors, include information regarding the benefits of supervision and frequent encouragement.* -------- Many lifeguarding agencies indicate that distractions and performing non-patron surveillance tasks while on duty contribute to the lack of victim recognition by a lifeguard. Nothing should be	The terms are used to illustrate intent and are valid. Wording revised	6.3.4.3.5 ANNEX	When qualified lifeguards are engaged in conversations while performing patron surveillance activities their attention is distracted from surveillance. As a parallel, research has shown that even hands-free cell phone conversations can cause drivers to be distracted.
Lifeguard & Bather Supervision (LG)	6.3.1.1	Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	*Delete this section as this was never vetted by the entire committee and would require a whole new course for most facilities and will be extremely costly* -- Delete: Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	Disagree. Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations. Note, requirements for Supervisor training and staffing have been revised.	6.3.4.4.1	Aquatic facilities that are required to have two or more qualified lifeguards per the zone plan of patron surveillance responsibility in MAHC Section 6.3.2.1.1 shall have at least one person located at the aquatic facility during operation designated as the lifeguard supervisor who meets the requirement of section MAHC Section 6.2.2.
Lifeguard & Bather Supervision (LG)	6.3.1.1	Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	I am considered the lifeguard supervisor at me facility. When the document is referring to have a lifeguard supervisor on at all times is it intend to mean the someone who is in what we call a lead lifeguard position who is in charge of the staff that day?	Response to question- The requirements for Supervisor training and staffing have been revised . Details regarding staffing are included in the Staff Management section.	6.3.4.4.1	Aquatic facilities that are required to have two or more qualified lifeguards per the zone plan of patron surveillance responsibility in MAHC Section 6.3.2.1.1 shall have at least one person located at the aquatic facility during operation designated as the lifeguard supervisor who meets the requirement of section MAHC Section 6.2.2.
Lifeguard & Bather Supervision (LG)	6.3.1.1	Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	*Not on duty at all times.* -- Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor on payroll.	Not clear what/if changes are requested. Requirements for Supervisors have been revised.	6.3.4.4.1	Aquatic facilities that are required to have two or more qualified lifeguards per the zone plan of patron surveillance responsibility in MAHC Section 6.3.2.1.1 shall have at least one person located at the aquatic facility during operation designated as the lifeguard supervisor who meets the requirement of section MAHC Section 6.2.2.
Lifeguard & Bather Supervision (LG)	6.3.1.1	Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	There is no benefit to some of the supervisor requirements if there is no requirement for a supervisor to be on site. Suggest change: *"Aquatic facilities that are required to have lifeguards shall have at least one employee, on-site during all hours of operation, designated as the aquatic supervisor who meets the requirement of this code to be an Aquatic Supervisor."*	Agree. Change made.	6.3.4.4.1	Aquatic facilities that are required to have two or more qualified lifeguards per the zone plan of patron surveillance responsibility in MAHC Section 6.3.2.1.1 shall have at least one person located at the aquatic facility during operation designated as the lifeguard supervisor who meets the requirement of section MAHC Section 6.2.2.
Lifeguard & Bather Supervision (LG)	6.3.4.2.3	Each aquatic venue shall be responsible for maintaining the quality and ensuring the performance of its lifeguards and other members of the Aquatic Facility Safety Team.	A venue cannot be responsible for maintaining anything. The facility's management should be responsible for maintaining a high quality of lifeguards.	Agree.	6.3.4.4.3	LIFEGUARD SUPERVISOR responsibilities shall include but not be limited to: 1) Monitor performance of QUALIFIED LIFEGUARDS in their zone of PATRON surveillance responsibility, 2) Make sure the rotation is conducted in accordance with the SAFETY PLAN, 3) Coordinate staff response and PATRON care during an emergency, 4) Identify health and SAFETY hazards and communicate to staff and management to mitigate or otherwise avoid the hazard, and 5) Make sure the required equipment per MAHC Section 5.8.5 is in place and in good condition.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.2.3	Each aquatic venue shall be responsible for maintaining the quality and ensuring the performance of its lifeguards and other members of the Aquatic Facility Safety Team.	*An aquatic venue is an attraction, not a person.* -- The Aquatic Facility Aquatic Supervisor shall be responsible …..	Agree	6.3.4.4.3	LIFEGUARD SUPERVISOR responsibilities shall include but not be limited to: 1) Monitor performance of QUALIFIED LIFEGUARDS in their zone of PATRON surveillance responsibility, 2) Make sure the rotation is conducted in accordance with the SAFETY PLAN, 3) Coordinate staff response and PATRON care during an emergency, 4) Identify health and SAFETY hazards and communicate to staff and management to mitigate or otherwise avoid the hazard, and 5) Make sure the required equipment per MAHC Section 5.8.5 is in place and in good condition.
Lifeguard & Bather Supervision (LG)	6.3.4.2.3	Each aquatic venue shall be responsible for maintaining the quality and ensuring the performance of its lifeguards and other members of the Aquatic Facility Safety Team.	*Unclear as to what is being required.* -- Remove	Agree. The code and annex have been revised and restructured including the requirements for pre-service and in-service training and the supporting annex information.	6.3.4.4.3	LIFEGUARD SUPERVISOR responsibilities shall include but not be limited to: 1) Monitor performance of QUALIFIED LIFEGUARDS in their zone of PATRON surveillance responsibility, 2) Make sure the rotation is conducted in accordance with the SAFETY PLAN, 3) Coordinate staff response and PATRON care during an emergency, 4) Identify health and SAFETY hazards and communicate to staff and management to mitigate or otherwise avoid the hazard, and 5) Make sure the required equipment per MAHC Section 5.8.5 is in place and in good condition.
Lifeguard & Bather Supervision (LG)	6.3.4.2.3	Each aquatic venue shall be responsible for maintaining the quality and ensuring the performance of its lifeguards and other members of the Aquatic Facility Safety Team.	What does it mean to "ensure the performance?" When is this to be done?	Regular evaluation done consistently	6.3.4.4.3	LIFEGUARD SUPERVISOR responsibilities shall include but not be limited to: 1) Monitor performance of QUALIFIED LIFEGUARDS in their zone of PATRON surveillance responsibility, 2) Make sure the rotation is conducted in accordance with the SAFETY PLAN, 3) Coordinate staff response and PATRON care during an emergency, 4) Identify health and SAFETY hazards and communicate to staff and management to mitigate or otherwise avoid the hazard, and 5) Make sure the required equipment per MAHC Section 5.8.5 is in place and in good condition.
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.6	The Aquatic Safety Plan shall contain an Emergency Action Plan that details the levels of response to specific aquatic emergencies. It should also identify the responder (at each level), their tasks and equipment that are part of their task/response. The emergency response shall be consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	*Include non-aquatic emergencies such as medical emergencies in locker room, bee stings, etc. Also tried to change wording so that it is not the agency training but the fact that all staff should be using consistent response skills.* -- The Aquatic Safety Plan shall contain Emergency Action Plan that details the levels of response to specific aquatic emergencies and non-aquatic emergencies. It should also identify the responder (at each level), their tasks and equipment that are a part of the planned task/response. The emergency response shall include consistent level/type of response in 6.2.2.3 to 6.2.2.5.1	Agree to edit to - The Aquatic Facility Safety Plan shall contain an Emergency Action Plan that details the levels of response to specific aquatic and non-aquatic emergencies and should identify the appropriate responder(s), tasks and equipment.. The emergency response shall be consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	6.3.4.5	Emergency Response and Communications Plans (See Code for full details)
Lifeguard & Bather Supervision (LG)	6.3.5.2.3.6	The Aquatic Safety Plan shall contain an Emergency Action Plan that details the levels of response to specific aquatic emergencies. It should also identify the responder (at each level), their tasks and equipment that are part of their task/response. The emergency response shall be consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	*Last sentence is not necessary. Should be "Aquatic Facility Safety Plan"* -- The Aquatic Facility Safety Plan shall contain an Emergency Action Plan that details the levels of response to specific aquatic emergencies and should identify the appropriate responder, tasks and equipment.	Agree to edit to - The Aquatic Facility Safety Plan shall contain an Emergency Action Plan that details the levels of response to specific aquatic and non-aquatic emergencies and should identify the appropriate responder(s), tasks and equipment.. The emergency response shall be consistent with the agency training in 6.2.2.3 to 6.2.2.5.1.	6.3.4.5	Emergency Response and Communications Plans (See Code for full details)
Risk Management (RM)	6.3.3.1.1	Aquatic facilities shall create and maintain operating procedures manual containing information on the emergency response and communications plan including an Emergency Action Plan (EAP), Facility Evacuation Plan, and Inclement Weather Plan.	*There does not seems to be a reason to keep all of this information in one manual when different levels of staff will have different procedures that they must be trained on.* -- Aquatic facilities shall create and maintain operating procedures manual(s) containing information on the emergency response and communications plan including but not limited to an Emergency Action Plan (EAP), Facility Evacuation Plan, and Inclement Weather Plan.	*Agreed. Note that the MAHC wording just requires that these procedures be in an Operations Guide. There is flexibility in the physical location so an aquatic facility could have multiple Operation Guides in different locations for different roles.*	6.3.4.5.1	Aquatic facilities shall create and maintain an operating procedure manual containing information on the emergency response and communications plan including an EAP, Facility Evacuation Plan, and Inclement Weather Plan.
Risk Management (RM)	6.3.3.1.3	The EAP shall be reviewed with the facility staff and management annually or more frequently as required when changes occur with the dates of the review indicated at the bottom of the EAP.	*Why does it have to be at the bottom, why do we care when it was reviewed prior to the last review date?* -- The EAP shall be reviewed with the facility staff and management annually or more frequently as required when changes occur with the most recent date of the review recorded in the EAP.	Agreed. Altered wording to not prescribe where the review date should be located.	6.3.4.5.3	The EAP shall be reviewed with the aquatic facility staff and management annually or more frequently as required when changes occur with the dates of the review recorded in the EAP.
Risk Management (RM)	6.3.3.1.5	The written EAP shall include training frequency and documentation of those who have been trained.	*Why would the EAP need to include all training records?* -- The written EAP shall include training frequency and identify where to find documentation of those who have been trained.	Agree. Changed content to, "Documentation from employees trained in current EAP shall be available upon request."	6.3.4.5.5	Documentation from employees trained in current EAP shall be available upon request.
Risk Management (RM)	6.3.3.1.6.1	The accidental chemical release plan shall include procedures for response and cleanup, provision for training staff in these procedures, and a list of equipment and supplies for clean-up.	*Current Requirement.* -- Chemical storage and EAP/evacuation info also must be filed with local fire/hazmat agency according to quantities and chemical types stored. Reference: EPA's "EPCRA Sections 311-312 (40 CFR 300) ...	Agree. This content was removed and added to the annex.	6.3.4.5.6.1	The accidental chemical release plan shall include procedures for response and cleanup, provision for training staff in these procedures, and a list of equipment and supplies for clean-up.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.3.3.1.7.1	This plan shall include at a minimum: (1) Actions to be taken in cases of drowning, serious illness or injury, chemical handling accidents, weather emergencies, and other serious incidents; and (2) Defined roles and responsibilities for all staff.	*Redundancy.* -- Check for redundancies with Lifeguard Bather Supervision module	*Agreed. As the MAHC modules are knitted together these redundancies will be consolidated, reconciled or removed.*	6.3.4.5.7.1	This plan shall include at a minimum: 1) Actions to be taken in cases of drowning, serious illness or injury, chemical handling accidents, weather emergencies, and other serious incidents; and 2) Defined roles and responsibilities for all staff.
Risk Management (RM)	6.3.3.2.4	Lifeguard-based remote monitoring shall not a substitute for a lifeguard present when conditions deem a lifeguard is necessary.	*Lack of definition.* -- Define "conditions". This is a bad term... suggest delete all language after the word lifeguard	Agree. Removed code language and placed in annex. Changed code to read, "…shall not replace the need for lifeguards."	6.3.4.6.1	Lifeguard-based remote safety monitoring systems shall not replace the need for qualified lifeguards.
Risk Management (RM)	6.3.3.2.4	Lifeguard-based remote monitoring shall not a substitute for a lifeguard present when conditions deem a lifeguard is necessary.	Suggest adding word "be" between "not" and "a" in this sentence.	This section changed to read "Lifeguard-based remote safety monitoring systems shall not replace the need for lifeguards." This section has also been re-arranged to clarify remote monitoring for bather distress and for water quality measurements.	6.3.4.6.1	Lifeguard-based remote safety monitoring systems shall not replace the need for qualified lifeguards.
Risk Management (RM)	6.3.3.2.1	*Remote monitoring safety systems may be used to aid the operation but not in lieu when critical areas such as blind spots in an aquatic venue or area of slide cannot be viewed by lifeguard/slide operators.*	*Liability exposure.*-- Remove references to blind spots... operation exposure that should be eliminated by definition	Agree. This content was moved to the annex as a recommendation of how to inspect for, be aware of, and avoid glare. Also, replaced "blind spots" with "glare" and added, "…which can block visibility to the pool floor."	6.3.4.6.1.1	Remote safety monitoring systems may be used to aid the operation but not as a substitute for staffing when critical areas such as blind spots in an aquatic venue or area of a slide cannot be viewed by qualified lifeguards/slide operators.
Risk Management (RM)	6.3.3.3.1 and 6.3.3.3.2	(6.3.3.3.1) Operators shall not permit employees who are ill with diarrhea in the water or in a lifeguard role. (6.3.3.3.2) Operators shall not permit employees with open wounds in the water or in a lifeguard role.	*Too restrictive. Keep objective not subjective.* -- Why would the lifeguard not be permitted to work in a "dry" position such as slide dispatch?	Agree partially. Employees with diarrhea should not be in positions where they may have to get in the water the same as food employees shouldn't be making food if ill with diarrhea. Wound infection wording amended to allow physician approval or the use of a waterproof occlusive bandage since risk is to the employee with a wound/entry point for pathogens.	6.3.4.7.1 & 6.3.4.7.2	6.3.4.7.1 Illness Policy RM Supervisors shall not permit employees who are ill with diarrhea to enter the water or perform in a QUALIFIED LIFEGUARD role. 6.3.4.7.2 Open Wounds RM Supervisors shall permit employees with open wounds in the water or in a QUALIFIED LIFEGUARD role only if they have healthcare provider approval or wear a waterproof, occlusive bandage to cover the wound.
Risk Management (RM)	6.3.3.3.2	Operators shall not permit employees with open wounds in the water or in a lifeguard role.	*Since a burst blister is an open wound, it seems this might be too limiting without allowing for the guidance of a trained medical physician.* -- Operators shall not permit employees with open wounds in the water or in a lifeguard role without physician approval.	Agreed. Have changed the wording to allow for physician approval or wearing "a waterproof, occlusive bandage to cover the wound." The risk of swimming with open wounds is really to the swimmer who has an entry point for pathogens not other patrons.	6.3.4.7.2	Supervisors shall permit employees with open wounds in the water or in a qualified lifeguard role only if they have healthcare provider approval or wear a waterproof, occlusive bandage to cover the wound.
Facility Maintenance and Operation (FMO)	6.4.1.1 ANNEX	The facility design consultant can provide valuable assistance with preparation of a manual based on their knowledge of the physical system. The facility owner/operator must provide their preferences for operation and maintenance activities, based on location, climate, programs, budget, etc. (SEE ANNEX FOR FULL TEXT)	*It's typically not reasonable for the pool engineering firm to have a role in review of the O&M manuals, but not to provide them. It's typical for this to come from the contractor.* -- The facility design consultant can provide valuable assistance with review ~~preparation~~ of a manual based on their knowledge of the physical system. The facility owner/operator must provide their preferences for operation and maintenance activities, based on location, climate, programs, budget, etc	*Disagree; Design engineer should provide operating manuals, including manufacturer manuals for all equipment.*	6.4.1.1.1 ANNEX	The facility design consultant can provide valuable assistance with preparation of a manual based on their knowledge of the physical system. The facility owner/operator must provide their preferences for operation and maintenance activities, based on location, climate, programs, budget, etc. (See Annex for complete text)
Facility Maintenance and Operation (FMO)	6.4.1.1.2	The manual shall include, but not be limited to, basic information, chemical data, and operation and maintenance policies and instructions, including fecal/vomit and body fluid contamination response protocols, about each pool, spa and spray ground feature at the facility.	*Broaden aspects of the manual to incorporate more safety aspects.* -- The manual shall include, but not be limited to: a. Physical pool facility components, water quality & signage; b. Personnel; c. User & spectators; d. Emergency response provisions; e. Environmental conditions, ~~basic information, chemical data, and operation and maintenance policies and instructions, including fecal/vomit and body fluid contamination response protocols, about each POOL, spa and spray ground feature at the facility.~~ REFERENCE: WAC 246-260-131(1)	Disagree. The MAHC TC felt this is a good opportunity for future research because it is difficult to be prescriptive, and they can't conceive of every issue. Aquatic Facilities have the freedom to add more components as they deem necessary.	6.4.1.1.2	The manual shall at minimum include, but not be limited to the following items: 1) Basic information, 2) Chemical data, and 3) Operation and maintenance policies and instructions, including fecal/vomit and body fluid contamination response protocols, for each AQUATIC VENUE and AQUATIC FEATURE at the facility.
Regulatory (REG)	6.4.1.3.1.1	The qualified operator or responsible supervisor shall make daily inspections before the aquatic facility opens and record the results in a log or form maintained at the aquatic facility for two years.	OEM Manuals state 3 years	Agree, changed to three years.	6.4.1.2.2	The qualified operator or responsible supervisor shall make daily safety and preventive maintenance inspections before the aquatic facility opens during seasons or periods when the aquatic facility is open and record the results in a log or form maintained at the aquatic facility.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.4.1.3.1.2	The operator's daily AQUATIC FACILITY inspections shall include: 1) Drain covers, vacuum fitting covers, skimmer equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 2) Skimmer baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 3) Inlet and return covers and any other fittings are in place, secure, and unbroken, 4) Safety warning signs and safety equipment as required by this CODE are in place and in good repair, 5) Entrapment prevention systems are operational, 6) Recirculation and DISINFECTION systems are operating, 7) Secondary and/or supplemental DISINFECTION systems are operating, 8) Underwater lights are intact with no exposed wires or water in lights, 9) Emergency communication systems are operational, 10) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available, 11) Water features and amenities are functioning in accordance with the manufacturer's recommendations, 12) Fencing/barriers, gates, and locks are tested and functioning properly, and 13) Alarms, if required, are tested and functioning properly.	Is this allowable numbering? Or should each list item be assigned a subsection number? (ex. 6.4.1.3.1.2.1, 6.4.1.3.1.2.2, etc.) This is seen in several places in this module	Formatting is acceptable and used throughout the MAHC. No change	6.4.1.2.2.1	The QUALIFIED OPERATOR'S daily AQUATIC FACILITY preventive maintenance inspections shall include: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Safety equipment as required by this CODE are in place and in good repair, including emergency instructions and phone numbers, 7) Entrapment prevention systems are operational, 8) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 9) Secondary and/or supplemental DISINFECTION systems are operating as required, 10) Underwater lights and other lighting are intact with no exposed wires or water in lights, 11) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 12) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 13) First aid supplies are stocked, 14) Emergency communication equipment and systems are operational, 15) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available
Facility Maintenance and Operation (FMO)	6.4.1.3.4	Inspection results including, but not limited to the following, shall be recorded daily before the pool opens: (1) Skimmer baskets, weirs, lids, flow adjusters, and suction outlet lines are free of any blockage, (2) Inlet and return covers any other fittings are in place, secure, and unbroken, (3) Safety warning signs are in place around the pool or spa, including emergency instructions and phone numbers, and (4) Entrapment prevention system is operational.	Support the concept, but requiring daily recording all this data will create pushback from owner/operators. I could see item 2 for outlet and item 4 and maybe adding for proper barrier door/gate closure. – REFERENCE: Issues we ran into when writing our rule and established monitoring requirements for recording and monitoring.	Addressed. Clarified language in Annex. Specified what items require daily records, but facilities may choose to record additional items.	6.4.1.2.2.1	The QUALIFIED OPERATOR'S daily AQUATIC FACILITY preventive maintenance inspections shall include: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Safety equipment as required by this CODE are in place and in good repair, including emergency instructions and phone numbers, 7) Entrapment prevention systems are operational, 8) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 9) Secondary and/or supplemental DISINFECTION systems are operating as required, 10) Underwater lights and other lighting are intact with no exposed wires or water in lights, 11) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 12) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 13) First aid supplies are stocked, 14) Emergency communication equipment and systems are operational, 15) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.6.1.1 (9)	The operator shall develop inspections for opening and closing the aquatic venue for the following items: ……..Electrical devices including GFCI, electrical panels, outlets, radios, laptops, video, TV, or other electrical equipment are not in proximity to the water.	*Editorial (provides specific guidance).* -- …or other electrical equipment are not ~~in proximity to~~ within 6 feet of the water. (Alternative: keep the original wording, but define *in proximity* by cross referencing to a section like 4.6.11.4.) -- Reference: 2008 NEC – Art. 680.22. See also section 4.6.11.4 of this module of the MAHC	Disagree. Content was previously adjusted based on another comment to include reference to the NEC Article 680.22. No change.	6.4.1.2.2.1	The QUALIFIED OPERATOR'S daily AQUATIC FACILITY preventive maintenance inspections shall include: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Safety equipment as required by this CODE are in place and in good repair, including emergency instructions and phone numbers, 7) Entrapment prevention systems are operational, 8) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 9) Secondary and/or supplemental DISINFECTION systems are operating as required, 10) Underwater lights and other lighting are intact with no exposed wires or water in lights, 11) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 12) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 13) First aid supplies are stocked, 14) Emergency communication equipment and systems are operational, 15) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available
Risk Management (RM)	6.6.1.1 (9)	The operator shall develop inspections for opening and closing the aquatic venue for the following items: ……..Electrical devices including GFCI, electrical panels, outlets, radios, laptops, video, TV, or other electrical equipment are not in proximity to the water.	*Current language is too vague and mixes permanently installed with plug and cord connected appliances.* -- Delete current 9) and replace with the following: "9) all electrical devices shall be checked for any disrepair such as missing or broken faceplates and knockouts, broken conduits and fittings, exposed wiring, damaged/unattached underwater lights, and proper functioning of GFCIs, switches, emergency disconnects. Non-permanent electrical devices shall also be checked to ensure they are not in close proximity to water."	Agree. Modified content to include reference to the NEC. Additional information also added to the Annex for guidance.	6.4.1.2.2.1	The QUALIFIED OPERATOR'S daily AQUATIC FACILITY preventive maintenance inspections shall include: 1) Walkways/DECK and exits are clear, clean, free of debris, 2) Drain covers, vacuum fitting covers, SKIMMER equalizer covers, and any other suction outlet covers are in place, secure, and unbroken, 3) SKIMMER baskets, weirs, lids, flow adjusters, and suction outlets are free of any blockage, 4) INLET and return covers and any other fittings are in place, secure, and unbroken, 5) SAFETY warning signs and other signage are in place and in good repair, 6) Safety equipment as required by this CODE are in place and in good repair, including emergency instructions and phone numbers, 7) Entrapment prevention systems are operational, 8) Recirculation, DISINFECTION systems, controller(s), and probes are operating as required, 9) Secondary and/or supplemental DISINFECTION systems are operating as required, 10) Underwater lights and other lighting are intact with no exposed wires or water in lights, 11) Slime and biofilm has been removed from accessible surfaces of AQUATIC VENUE, slides, and other AQUATIC FEATURES, 12) Doors to nonpublic areas (chemical STORAGE, offices, etc.) are locked, 13) First aid supplies are stocked, 14) Emergency communication equipment and systems are operational, 15) Fecal/vomit/blood incident contamination response protocols, materials, and equipment are available
Regulatory (REG)	6.4.1.3.3	*Illness and Injury Reports*	The code requires only a bound journal entry for accidents. The annex says to report certain incidents immediately to the permit issuing official… I would make them agree. In fact I think the annex language is more appropriate. We don't want to find out months later that an injury, fatality, or communicable disease occurred. I like the idea of a bound log for inspection purposes, but require mandatory reporting. Add to the requirement before the log: "The AQUATIC FACILITY operator shall report any drowning or near drowning incidents, any illness reports, and any serious injuries requiring EMS response or emergency medical follow-up."	Agree, changes made.	6.4.1.2.3	Illness and Injury Incident Reports
Regulatory (REG)	6.4.1.3.3 ANNEX	Illness and Injury Reports (see Annex for full text)	This is inconsistent with the code. The code suggests a logbook available on site. This requires immediate reporting. Frankly I think immediate reporting is more effective, although a logbook is a good idea so it can be reviewed during an inspection.	Agree. Changes made in code language	6.4.1.2.3 ANNEX	Illness and Injury Reports

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.4.1.3.3.1	The AQUATIC FACILITY operator shall record in a bound journal which shall be available for inspection by the AHJ that includes: 1) All complaints of illness and injury; and 2) All lifesaving actions and assists taken either by lifeguards, support staff or the public including the date, time, names and addresses of the individuals involved, the actions taken, equipment used and the outcome.	"2) All lifesaving actions and assists taken….." The terms <u>all</u> and <u>assists</u> can be vague causing inconsistent interpretations of the requirement. What determines a lifesaving assist? A lifeguard in an active catch pool could potentially "assist" hundreds and maybe thousands of visitors to their feet each day. If they don't assist them, is the situation life threatening? Possibly. The amount of required paperwork would virtually shut down every waterpark or water slide in the country. Assists need to be defined.	Lifeguard assists are now defined "where the lifeguard enters the water or uses a reaching pole or other equipment to help a struggling swimmer".	6.4.1.2.3.1	The qualified operator, lifeguard supervisor, or owner/operator shall make a record of all complaints or reports of illness and injury, deaths, and all lifesaving activities that require resuscitation, CPR, Oxygen or AED use, or transportation of the victim to a medical facility.
Regulatory (REG)	6.4.1.3.3.1	The AQUATIC FACILITY operator shall record in a bound journal which shall be available for inspection by the AHJ that includes: 1) All complaints of illness and injury; and 2) All lifesaving actions and assists taken either by lifeguards, support staff or the public including the date, time, names and addresses of the individuals involved, the actions taken, equipment used and the outcome.	Overly broad. Define specific events to be reported -- Delete #2 or suggest...Lifeguard activity that requires resuscitation, CPR, Oxygen or AED use.	Agree, modified which types of incidents must be reported within 24 hours.	6.4.1.2.3.1	The qualified operator, lifeguard supervisor, or owner/operator shall make a record of all complaints or reports of illness and injury, deaths, and all lifesaving activities that require resuscitation, CPR, Oxygen or AED use, or transportation of the victim to a medical facility.
Facility Maintenance and Operation (FMO)	6.4.1.3.6	An Injury/Incident report shall be made for each occurrence that Results in death, Requires resuscitation, Results in immediate transport to a hospital or emergency medical facility, Results in an illness connected to the water/air quality at the facility, or Is reported by a patron to the facility after the incident.	*Clarifying the intent of the original wording of #5* -- 5) Is reported by a patron to the facility after the incident falling under the above criteria.	Yes.	6.4.1.2.3.1	The qualified operator, lifeguard supervisor, or owner/operator shall make a record of all complaints or reports of illness and injury, deaths, and all lifesaving activities that require resuscitation, CPR, Oxygen or AED use, or transportation of the victim to a medical facility.
Regulatory (REG)	6.4.1.1.3.1	N/A	New Proposed language: Owners shall notify the AHJ of a drowning, near drowning, death, serious injury or serious illness associated with the Aquatic Facility within 48 hours after the occurrence. -- Reference: If serious public health and safety problems occur at facilities, AHJ's need to be aware of the conditions and promptly respond to protect public health and safety (WAC 246-260-121(1)(b)	Language was added to include 24 hour notice for all lifesaving activities that require resuscitation, CPR, Oxygen or AED use, or transportation of the victim to a medical facility.	6.4.1.2.3.3	In addition to making such records, the operator shall notify the AHJ within 24 hours of the occurrence of such activities or complaints.
Risk Management (RM)	6.4.1.3.1	Operators of public swimming aquatic venues shall keep records pertaining to the operation and maintenance of the venue which they operate.	*An established timeline is warranted* -- <u>Add</u> a timeline for record retention at the end of the provision… "for a minimum of 3 years, unless otherwise established by applicable state or local record retention laws, regulations or guidelines"	Agreed. Maintenance and Operation has set the time at 3 years minimum. *As the MAHC modules are knitted together these overlap areas will be consolidated, reconciled or removed.*	6.4.1.2.5	Daily monitoring and testing records shall include, but are not limited to the following: 1) pH, disinfectant residuals, and combined CHLORINE concentrations logged when measured, 2) Operating pressures of water recirculation pumps and filters and the corresponding rate of flow meter readings, 3) If used, cyanuric acid levels, 4) Maintenance and malfunctioning of equipment, including dates and time of all equipment calibration including WQTDs, 5) If heated, AQUATIC VENUE water temperature when DISINFECTANT and pH tests run, 6) The time of filter backwash or cleaning-logged weekly, 7) Calcium hardness, 8) Total alkalinity, 9) SATURATION INDEX, 10) Microbiological testing, if applicable, – dates/times samples were taken and results, 11) Any equipment failure, power outage or error resulting in the interruption of the circulation, filtration or DISINFECTION systems for more than one hour, and 12) The daily attendance at the AQUATIC FACILITY is to be recorded. In POOLS where attendance is not ordinarily recorded, a guest sign in book can be used to track attendance, 13) SECONDARY DISINFECTION SYSTEMS and SUPPLEMENTAL TREATMENT SYSTEMS as outlined in MAHC 5.7.3.8.6 and 5.7.3.8.7, 14) Evidence of expiration dates being checked on water quality reagents,
Facility Maintenance and Operation (FMO)	6.4.1.3.7	A log shall be kept for recording releases of body fluids into the pool and deck.	Really?	Please refer to Fecal, Vomit, and Blood Guidelines outlined in the MAHC	6.4.1.2.8.1	A Body Fluid Contamination Response Log shall be maintained to document each occurrence of contamination of the water or its immediately adjacent areas by formed or diarrheal fecal material, whole stomach discharge of vomit, and blood.
Regulatory (REG)	6.4.2 ANNEX	Patron-Related Management Aspects (see Annex for full text)	Don't confuse the issue with health department completed forms. Remember we are talking to pool operators. Some of this is good language for a special section on AHJ administration. I doubt CDC wants these completed by the pool operator. I know our department would not want them submitted by operators to the CDC.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	6.4.2 Annex	Patron-Related Management Aspects (see Annex for full text)
Regulatory (REG)	6.4.2.1 / 6.4.2.2 / 6.4.2.3	6.4.2.1 Bather Load 6.4.2.2 Signage 6.4.2.3 User Guidelines	These are all missing. I hope this content will be available for public comment. It could have many ramifications.	The first section is in Contamination Burden: the other two are in Risk Management and have both been open for public comment	6.4.2.1 / 6.4.2.2 / 6.4.2.3	6.4.2.1 Bather Load 6.4.2.2 Signage 6.4.2.3 User Guidelines (See Code for updated text)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.4.2.1.1	Facilities that typically operate with low bather occupancy shall have a plan in place to adjust to potential higher patron use.	*Definition/clear objective.* -- If this refers to lifeguard staffing then it should be removed. Staffing is not based upon occupancy but rather zone assignment.	*This is bather load specific issues. This statement is asking the facility to make necessary changes which could include water chemistry monitoring, additional staffing, etc that would be bather load specific. No change.*	6.4.2.1.1	Aquatic facilities that typically operate with low bather occupancy shall have a plan in place to adjust to potential higher patron use.
Risk Management (RM)	6.4.2.2	Signage	Add: It is recommended to post signs in alternative languages as patron ethnicity may require.	Disagree. Facilities have the freedom to add to the requirements. No change to code section. Have added a recommendation to the annex to consider the needs of their clients and provide effective communication which could include signs in more than one language, Braille, etc.	6.4.2.2	Signage
Risk Management (RM)	6.4.2.2.3	The lettering shall be legible and at least 1 inch (12.5mm) (36 point type) high, with a contrasting background.	*1" text is really large, even ADA only requires 5/8 inch if horizontal viewing distance is less than 5'.* -- The lettering shall be legible and at least 5/8 inch high, with a contrasting background (must comply with 703.5.5 of the 2010 ADA Guidelines for Accessible Design).	Disagree. This was determined using technical data so that the sign is visible from across the aquatic venue so that only one sign is needed per venue so the 5 ft distance in ADA was deemed inadequate for this purpose.	6.4.2.2.3	The lettering shall be legible and at least 1 inch (12.5mm) (36 point type) high, with a contrasting background.
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	11) Any persons known or suspected of having a communicable disease shall not use the pool. – Reference: CT Public Health Code Section 19-13-B33b(b)(17).	Disagree. Added content to annex but not to the code. It is not clear what communicable disease means to the public and diarrhea is really the illness most likely to be spread via water. This category (communicable) could include respiratory illness and other illnesses that are unlikely to be waterborne.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	6) Shower, with warm water and soap, before entering the pool. – Reference: CT Public Health Code Section 19-13-B33b(b)(17).	Disagree. Shower before entering is the agreed statement because we now have both cleansing and rinse showers defined. Pool rinse showers provided on pool decks are prohibited from having soap. No change	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	*Common sense.* -- Bather load not practical for a large/multiple facility operation. The whole sign could be dedicated to individual bather capacity. For whose purpose? Stick to rules that make sense for users and not for regulatory needs.	Disagree. Bather capacity is per venue and should be posted to prevent overcrowding as is done in building code.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	*For multi aquatic venue facilities, not all of these rules are should be required to be restated at each venue. Many facilities already ban glass. See above comments on 911 calls, Rule 2 can be posted at the main facility entrance, Rule 4 needs to be reworded, Rules 5 and 6 are already covered under hygiene signs 6.4.2.2.7. Except for service dogs, many facilities do not allow animals at all. We don't want to have so much signage that our guests don't pay attention to any signage.* -- AQUATIC VENUE signs shall have the following included on the sign, where applicable:	Agree. Included content to allow signage to meet the intent and clarify intent and differences for multi-venue facilities.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	Hours of Operation on each venue sign at a multiple venue facility would be tedious, especially due to time changes. Identify where patrons can go to find the operating hours, or keep a blanket, "Venue use is prohibited during hours of non-operation"	Agree. Added content to allow for flexibility on posted content (includes the following information or text complying with the intent of the following information). The hours of operation relate to non-secure facilities like an apartment complex.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	*In multi-venue enclosures this would be a lot of information to place at each aquatic venue.* -- Signs should be placed at the entrance of the aquatic venue enclosure that includes the following information, or text complying with the intent of the following information:	Agree. Have allowed the full sign to be posted at the entrance to the multi-venue facility and allow an abbreviated version at each venue.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.4.2.2.4	Aquatic venue signs shall have the following included on the sign: (SEE CODE FOR FULL TEXT)	*Supervision is vital to protect against drowning. Our state uses age 12, data may support different age, but we do need to clearly stipulate responsibility.* -- Replace item #9 with: "In facilities that are not guarded, persons under age ?(12?) shall not use pool without adult supervision" – Reference: (1)WAC 246-260-131(9)(c); (2)Archives: Pediatric Medicine 200903 –Child Water Safety Advice; (3)Analysis of Drownings Involving Children Aged 5 years and under in NSW.	*Agree. Wording altered to "No Lifeguard on Duty: Children under 12 years old must have adult supervision.*	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4 #1	1) In case of an emergency dial 911	*In a waterpark environment, emergency response may be quicker by notifying a staff member than by pulling out a cell phone and dialing 911.* -- In case of emergency : [insert text here]…	Agree. Addressed in 4.6.11.1 and wording added to allow changing the sign if such personnel are on site.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4 #2	Hours of operation; aquatic facility use prohibited at any other time	*Including "aquatic facility use prohibited at any other time" seems unnecessary in waterpark environments.* -- Hours of Operations…	Agreed. Added wording to note that this wording is only intended for non-secure facilities such as apartment complexes.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.4.2.2.4 #7	No glass or shatterable items in the aquatic venue or on the aquatic venue deck	*Since eye glasses would fall in to this category it seems excessive.* -- OPTIONAL: No glass or shatterable items in the aquatic venue or on the aquatic venue deck.	Disagree. This is a common requirement due to the bare feet around a pool deck and to prevent broken glass from getting in the water. To exclude all items such as eye glasses that might be at the facility would require far more words than necessary since this is about intent. Note the MAHC says to use this wording OR text complying with the intent so facilities are free to put all the exceptions or change wording if they choose.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4 #8	No animals in the aquatic venue or on the aquatic venue deck	*Excluding all animals is against ADA guidelines.* -- Non-service animals not allowed in the aquatic venue or on the aquatic venue deck.	*Agreed. Have added wording indicating the deck is open to service animals.*	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)
Risk Management (RM)	6.4.2.2.4 #1	1) In case of an emergency dial 911	*See above. Also, we don't believe there is a requirement to shower after getting out of one AQUATIC VENUE and getting into an adjacent AQUATIC VENUE. (See 6.4.2.2.4 6))* -- Exception: for facilities containing multiple AQUATIC VENUES, applicable rules set forth in 6.4.2.2.4 need be provided only on facility main entry signage.	Agree. Included content to allow signage to meet the intent. Note that new construction will have rinse showers at each venue that we do want bathers to use.	6.4.2.2.4	Signage shall be placed at the entrance of the AQUATIC FACILITY ENCLOSURE that includes the following information, or text complying with the intent of the following information: 1) In case of an emergency dial 911 2) Hours of operation; AQUATIC FACILITY use prohibited at any other time (if facility is not a secured facility such as an apartment complex) 3) BATHER capacity 4) Pollution of AQUATIC VENUE prohibited 5) Do not swim if you have open wounds 6) Do not swim if you are ill with diarrhea or have had diarrhea within the past two weeks 7) Shower before entering 8) No glass or shatterable items in the AQUATIC VENUE or on the DECK 9) No voluntary hyperventilation or extended breath holding activities 10) No animals in the AQUATIC VENUE and no animals on the DECK (except service animals) 11) No Lifeguard on Duty: Children under 12 years must have adult supervision (if lifeguard is not provided)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Risk Management (RM)	6.4.2.2.6	At a minimum, spa venues shall have the following on their signs in addition to the aquatic venue requirements. (SEE CODE FOR FULL TEXT)	For consistency with ISPSC -- Consider adding language to this section found in 509.1 and 509.2 of the ISPSC. – Reference: See Sections 509.1 and 509.2 of the ISPSC. www.iccsafe.org/cs/ispsc	Have altered wording in section to clarify and wording has been added to the annex	6.4.2.2.6	At a minimum, SPAs shall have, in addition to the AQUATIC VENUE MAHC 6.4.2.2.4 requirements, the following information, or text complying with the intent of the following information: 1) Maximum water temperature is 104° F (40°F). 2) Children under age 5 and people using alcohol, narcotics or other drugs that cause drowsiness shall not use SPAs. 3) Pregnant women and people with heart disease, high blood pressure or other health problems should not use SPAs without prior consultation with a healthcare provider. 4) Children under 12 years of age shall be supervised by an adult. 5) Use of the SPA when alone is prohibited (if no lifeguards on site)
Risk Management (RM)	6.4.2.2.6	At a minimum, spa venues shall have the following on their signs in addition to the aquatic venue requirements. (SEE CODE FOR FULL TEXT)	4) Do not use alone. – Reference: CT Public Health Code Section 19-13-B33b(e)(4).	Agreed. Wording added. Discussion added to annex. 6.4.2.2.6	6.4.2.2.6	At a minimum, SPAs shall have, in addition to the AQUATIC VENUE MAHC 6.4.2.2.4 requirements, the following information, or text complying with the intent of the following information: 1) Maximum water temperature is 104° F (40°F). 2) Children under age 5 and people using alcohol, narcotics or other drugs that cause drowsiness shall not use SPAs. 3) Pregnant women and people with heart disease, high blood pressure or other health problems should not use SPAs without prior consultation with a healthcare provider. 4) Children under 12 years of age shall be supervised by an adult. 5) Use of the SPA when alone is prohibited (if no lifeguards on site)
Risk Management (RM)	6.4.2.2.6	At a minimum, spa venues shall have the following on their signs in addition to the aquatic venue requirements. (SEE CODE FOR FULL TEXT)	*This is a common requirement in codes and is a good safe use limit.* – Add: 15 minute maximum use	Disagree. The MAHC would like to see a review of the health data concerning spa use and upper temperature limits to better inform a decision here. No change pending that review. Suggested wording has been added to the annex wording.	6.4.2.2.6	At a minimum, SPAs shall have, in addition to the AQUATIC VENUE MAHC 6.4.2.2.4 requirements, the following information, or text complying with the intent of the following information: 1) Maximum water temperature is 104° F (40°F). 2) Children under age 5 and people using alcohol, narcotics or other drugs that cause drowsiness shall not use SPAs. 3) Pregnant women and people with heart disease, high blood pressure or other health problems should not use SPAs without prior consultation with a healthcare provider. 4) Children under 12 years of age shall be supervised by an adult. 5) Use of the SPA when alone is prohibited (if no lifeguards on site)
Risk Management (RM)	6.4.2.2.6 #1	Pregnant women, small children, people with health problems (more detail) and people using alcohol, narcotics or other drugs that cause drowsiness should not use spa aquatic venues without first consulting a doctor.	*Not sure we can take the risk of a parent telling us that the doctor said it was okay for their infant to be in a 104 degree spa.* -- Small children are not allowed in the spa aquatic venue.	*Agreed. Signage wording has been altered and wording added to the annex.*	6.4.2.2.6	At a minimum, SPAs shall have, in addition to the AQUATIC VENUE MAHC 6.4.2.2.4 requirements, the following information, or text complying with the intent of the following information: 1) Maximum water temperature is 104° F (40°F). 2) Children under age 5 and people using alcohol, narcotics or other drugs that cause drowsiness shall not use SPAs. 3) Pregnant women and people with heart disease, high blood pressure or other health problems should not use SPAs without prior consultation with a healthcare provider. 4) Children under 12 years of age shall be supervised by an adult. 5) Use of the SPA when alone is prohibited (if no lifeguards on site)
Risk Management (RM)	6.4.2.2.7	Signage shall be posted at hygiene facility exit used to access aquatic venues stating: (SEE CODE FOR FULL TEXT)	*Facilities should have the ability to present this information in whatever way they find more appropriate for the type of patron attending their facility.* -- Signage shall be posted at hygiene facility exit used to access aquatic venues stating or containing text that complies with the intent of the following:	Agree. Changed as suggested so that facilities just have to comply with the intent.	6.4.2.2.7	Signage shall be posted at the HYGIENE FACILITY exit used to access AQUATIC VENUES stating or containing information, or text complying with the intent of the following information: 1) Do not swim when ill with diarrhea. 2) Do not swim with open wounds and sores. 3) Shower before entering the water. 4) Check your child's swim diapers/rubber pants regularly. 5) Diaper changing on the DECK is prohibited. 6) Do not poop or pee in the water. 7) Do not swallow or spit water.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Hygiene (HYG)	4.10.4.4.4	Signage shall be posted at DIAPER-CHANGING STATIONS stating: 1) Dispose of used disposable diapers in the diaper bucket or receptacle provided. 2) Dump contents from reusable diapers into toilets and bag diapers to take home. 3) Use the materials provided to clean/sanitize the surface of the DIAPER-CHANGING STATION before and after each use. 4) Wash your hands and your child's hands after diapering. 5) Do not swim if ill with diarrhea.	*This is not consistent with current guidelines* -- 2) Dump contents from reusable diapers into toilets and bag diapers to take home. -- No rinsing or dumping of the contents of the diaper shall be performed at the child care facility. *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs Third Edition - Chapter 3 (3.2.1.1) and If reusable cloth diapers are used, put the soiled cloth diaper and its contents (without emptying or rinsing) in a plastic bag or into a plastic–lined, hands-free covered can to give to parents/guardians or laundry service. Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Educational Programs Third Edition Chapter 3 (3.2.1.4 Step 4-b)*	Aquatic venues are not child care facilities. The protocol for handling reusable diapers for child care facilities was made in order to minimize caregiver exposure to feces and carrying soiled diapers from a changing location to a toilet. At aquatic facilities, this is a different situation as there is a parent with their child (exposure to fewer children) in a setting where the changing table should be closer to a toilet. We feel that setting a scenario where parents may bring bagged feces into the pool area rather than flushing down the toilet poses an additional risk. No Change.	6.4.2.2.8	Signage shall be posted at DIAPER-CHANGING STATIONS stating: 1) Dispose of used disposable diapers in the diaper bucket or receptacle provided. 2) Dump contents from reusable diapers into toilets and bag diapers to take home. 3) Use the materials provided to clean/sanitize the surface of the diaper-changing station before and after each use. 4) Wash your hands and your child's hands after diapering. 5) Do not swim if ill with diarrhea.
Ventilation (VEN)	5.6.2.3.2	Indoor aquatic facility operator shall develop and implement a public information and health messaging program to inform facility patrons of their impact on building air quality.	Ventilation System Manufacturer must provide DDC control c/w logging of Space & Unit Entering Air: Temp & RH, OA/Fresh Air: Temp & RH, Exhaust Air Temp & RH, All Water In/Out Temps if applicable, Supply Air: Temp & RH, Fault Logging, System Alarm Notification, & Moisture Removal Lbs/hr or equivalent logging. Total, Free, & Combine Chlorine as well as PH logging from 3rd party controllers.	Comment unclear; doesn't correlate with cited code section.	6.4.2.4.1	The owner/operator shall develop and implement a public information and health messaging program to inform indoor aquatic facility patrons of their impact on indoor aquatic facility air quality.
Ventilation (VEN)	5.6.2.3.2	Indoor aquatic facility operator shall develop and implement a public information and health messaging program to inform facility patrons of their impact on building air quality.	~~INDOOR AQUATIC FACILITY operator shall develop and implement a public information and health messaging program to inform facility patrons of their impact on building air quality.~~ -- Until this actually says something useful, eliminate it. Where would an operator get such information? What kind of messages? What impact? Most pool operators would normally want to have the pool space in good condition otherwise patrons will stop coming.	Disagree. Annex contains explanatory information.	6.4.2.4.1	The owner/operator shall develop and implement a public information and health messaging program to inform indoor aquatic facility patrons of their impact on indoor aquatic facility air quality.
Regulatory (REG)	6.4.2.4.1	The permit to operate and the results of the most recent inspection of the facility shall be posted for public view at the aquatic facility.	*Is this really necessary and will it have an impact on public health?* -- ~~The permit to operate and the results of the most recent inspection of the facility shall be posted for public view at the AQUATIC FACILITY.~~	Most Pool Codes require posting of operating permit. Posting of the last inspection report is one of the current changes being made in jurisdictions to increase transparency and public information. Having the public be able to choose where they eat based on inspection score has been shown to improve restaurant compliance and would be hoped to do the same for aquatics.	6.4.2.4.2	The permit to operate and the results of the most recent AHJ inspection of the facility shall be posted for public view at the aquatic facility.
Regulatory (REG)	6.4.2.4.2	Originals or legible copies of required qualified operator, lifeguard or safety personnel training certificates shall be posted for public view at the aquatic facility.	Lifeguard and staff certifications are not checked by the public and should not be displayed. For what purpose…the Permit to operate confers the presence and validity of these items. This is the type of overkill (dog and pony show) that has not affect on safety and only puts an undue burden on the facility for no practical reason.	Agee, eliminated public posting requirement.	6.4.2.4.3	Originals or legible copies of required qualified operator, qualified lifeguard, or safety personnel training certificates shall be retained at the aquatic facility and be readily available for review by the AHJ.
Regulatory (REG)	6.5.0	Fecal/Blood/Vomit Contamination Response	It should be confirmed that the language is inserted into the code and not linked to a website that could inadvertently change without following proper protocol. -- Fecal/Blood/Vomit Contamination Response Previously posted at http://www.cdc.gov/healthywater/swimming/pools/ mahc/structure-content/	The link was just pointing to the MAHC module containing this information. It will be part of the MAHC when modules are merged.	6.5.	Fecal/Blood/Vomit Contamination Response
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	If there is an on-site requirement for this person, then some of the other comments listed within this document may need to be revisited for appropriateness and/or alteration.	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	*If this person is not present at the location, why is this required?* -- Delete: A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Blood Borne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	Disagree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	*Liability exposure to operator/owners and Code Administrator as written* -- What is the intent of this entry? There is no requirement for this person to be present at the facility, at any time, yet the code assumes (and the public will expect) that the code elements are met, which they cannot be IF there is no one present.	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	mentions a person responsible for operation and maintenance of the pool yet does not clarify if this is a 40 hour per week position (that oversees this operation) or if these are various staff members working on various shifts during the hours when the pool is open. Would any property employee be qualified to perform maintenance work? Could requirements for CPR coverage overlap with other employee duties? This needs further discussion and clarification.	Agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	Nice thought but if they simply take care of the pool do they need this? What about private contractors?	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	Suggest adding: *"This person (s) shall also be trained in imminent health hazard closure items of an aquatic facility as defined in this code and shall be authorized to make said closures as necessary."*	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	Suggest adding: *"This person(s) must be on site at all times of operation"*, as there is no purpose in requiring this training if they are not present.	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	There is no national certification for BBP training. What if no staff is present at the facility? Does this person need to be on site at all times? I understand what you are trying to accomplish, but it just isn't practical, especially for unguarded and single guard facilities.	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	There is no requirement for any person to be on-site at all times as the code is currently written, and therefore there may be no one to fulfill this duty. (Examples include home owners assoc. pools, apartment complexes, etc., that may not have anyone at the facility during some/all operating hours, simply someone who does the bare minimum maintenance checks. Also applies to pool management companies.)	Partially agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	There is no requirement for lifeguard training for this person. How do we expect someone without lifeguard training to be responsible for responding to an aquatic emergency? *"… be the person expected to respond to emergencies…",* needs removed.	Disagree. Annex comment. Response to an emergency can incorporate many different tasks , it does not mean performing as a lifeguard.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Lifeguard & Bather Supervision (LG)	5.8.5.3.2	A person(s) responsible for the operation and maintenance of an unguarded swimming pool shall be required to be certified and be current in Bloodborne Pathogen Training, Cardiopulmonary Resuscitation (CPR/AED), and First Aid.	What is the intent of this entry? There is no requirement for this person to be present at the facility, at any time, yet the code assumes (and the public will expect) that the code elements are met, which they cannot be IF there is no one present.	Agree. The provisions in the code regarding facility management, staffing and safety plan have been reorganized and revised.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Fecal, Vomit, Blood (FVB)	6.3.3.4.1	All recreational water facility operators, maintenance staff, and lifeguard staff shall be: (a) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and (b) Trained in Universal Precautions, Personal Protective Equipment, and other measures to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment. Additionally, staff shall be informed of any updates to the response plan.	Please provide a definition of "Universal Precautions	MAHC changed to delete reference to this term. MAHC refers readers to OSHA bloodborne pathogen standard.	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Fecal, Vomit, Blood (FVB)	6.3.3.4.1	All recreational water facility operators, maintenance staff, and lifeguard staff shall be: (a) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and (b) Trained in Universal Precautions, Personal Protective Equipment, and other measures to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment. Additionally, staff shall be informed of any updates to the response plan.	Suggest that only designated incident responders are required to be trained.	Agreed. Changed to "at least one incident responder is available at all times pools are open for operation."	6.5.1.2.1	A minimum of one person on-site while the AQUATIC FACILITY is open for use shall be: 1) Trained in the procedures for response to formed-stool contamination, diarrheal contamination, vomit contamination, and blood contamination; and 2) Trained in Personal Protective Equipment and other OSHA measures including the Bloodborne Pathogens Standard 29 CFR 1910.1030 to minimize exposure to bodily fluids that may be encountered as employees in an aquatic environment.
Fecal, Vomit, Blood (FVB)	6.5.1.3	The availability of equipment and supplies for remediation procedures shall be verified by the operator at least weekly.	Suggest removal of this Section. If equipment and supplies are not readily available, it only hinders the operator in a longer downtime, and does not specifically address a safety or regulatory need.	Disagree, no change. Operators should verify weekly with their other routine activities to ensure proper equipment and supplies are readily available. If items are not available, the proper procedure cannot be followed and may lead to improper procedures or equipment being used which would place employee and bather safety at risk.	6.5.1.3	The availability of equipment and supplies for remediation procedures shall be verified by the qualified operator at least weekly.
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3 ANNEX	Chlorine (see Annex for full text)	*You should recommend the use of FAS-DPD chlorine test kits that are more accurate than most DPD tests, especially visually-read DPD tests. FAS-DPD does not bleach out (you just add more powder if the pink disappears initially) and one can count the drops and measure with a resolution of 0.2 ppm and accuracy to within 10% or 0.2 ppm, whichever is greater, for both Free Chlorine (FC) and Combined Chlorine (CC).* -- Accuracy of FAC tests: POOL test kits have been reported to give FAC results which diverge significantly from true values although peer-reviewed data is lacking.	Recommendations for use of particular test kits or methodologies are more appropriately addressed in the Monitoring and Testing module. Agreed, DPD-FAS test kits are recommended and the language has been clarified.	6.5.2.3	Many conventional test kits cannot measure FREE AVAILABLE CHLORINE levels up to 20 mg/l. Operators should use, in order of preference, a FAS- DPD titration test kit with or without dilutions using CHLORINE-free water, or use test strips that measure FREE AVAILABLE CHLORINE in a range that includes 20 mg/L. The inactivation time should only be started once testing indicates that the intended free CHLORINE level (20 ppm or other free CHLORINE concentration based on inactivation time in table above) has been reached in the POOL. FAS-DPD should be used instead of a color comparator DPD test.
Fecal, Vomit, Blood (FVB)	6.5.3.2	Diarrheal-stool contaminated water shall have the free chlorine residual checked and the free chlorine residual raised to 20.0 mg/L and maintained for at least 12.75 hours or an equivalent CT value as shown in the Annex.	*Another option for checking high chlorine levels are the commercially available DPD titration powder test kits.* -- Annex Section 6.5.3.2 changed to: Operators should use chlorine test strips that can measure free available chlorine in a range that includes 20 mg/L, ~~or~~ make dilutions using chlorine-free water for use in a standard DPD test kit, <u>or use a DPD titration powder test kit</u>.	Agreed. Changes made in document.	6.5.3.2	Diarrheal-stool contaminated water shall: 1) Check the FREE CHLORINE RESIDUAL and then raise the FREE CHLORINE RESIDUAL to 20.0 mg/L and maintain for at least 12.75 hours (or an equivalent time and concentration to reach the CT VALUE) before reopening the AQUATIC VENUE, or 2) Circulate the water through a SECONDARY DISINFECTION SYSTEM to reduce the number of Cryptosporidium OOCYSTS in the AQUATIC VENUE below 1 OOCYST/100ml as outlined in MAHC Section 4.7.3.3.2.4.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Fecal, Vomit, Blood (FVB)	6.5.3.2 Annex	Diarrheal-stool contaminated water shall have the free chlorine residual checked and the free chlorine residual raised to 20.0 mg/L and maintained for at least 12.75 hours or an equivalent CT value as shown in the Annex.	don't suggest using test strips to measure high chlorine levels. The FAS-DPD chlorine test can easily measure up to 50 ppm FC, though one should use a small sample size to save on reagent when measuring high shock levels (i.e. use a 5 ml sample size so that one drop equals 1 ppm FC).	This section has been reworded to offer a solution in preferred order of use, however test strips are still included as an option, although not the best. The food service industry uses test strips routinely	6.5.3.2 Annex	For diarrheal-stool contamination, inactivation times are based on *Cryptosporidium* (Crypto) inactivation times. The CT Value for Crypto is 15,300. If a different chlorine concentration or inactivation time is used, an operator must ensure that the CT Values remain the same. For example, to determine the length of time needed to disinfect a pool at 20 mg/L after a diarrheal accident use the following formula: C x T = 15,300. Solve for time: T= 15,300 ÷ 20 mg/L = 12.75 hours. It would take 12.75 hours to inactivate Crypto at 20 mg/L. See table below: (SEE ANNEX FOR TABLE)
Fecal, Vomit, Blood (FVB)	6.5.3.2 ANNEX, Second Paragraph	For diarrheal-stool contamination, inactivation times are based on Cryptosporidium (Crypto) inactivation times. The CT value for Crypto is 15,300. If a different chlorine concentration or inactivation time is used, an operator must ensure that the CT values remain the same. For example, to determine the length of time needed to disinfect a pool at 20 mg/L after a diarrheal accident use the following formula: C x T = 15,300. Solve for time: T= 15,300 ÷ 20 mg/L = 12.75 hours. It would take 12.75 hours to inactivate Crypto at 20 mg/L. See table below: (SEE ANNEX FOR FULL TEXT)	*"The inactivation time should only be started once the chlorine level is reached in the pool."* -- It is unclear what is intended by this statement. Does the chlorine level have to reach a particular level before the inactivation time can be started? Or is it started when you take your first measurement? Perhaps it could be made clearer by replacing the word "reached" with "measured."	Agreed. Language changed in document.	6.5.3.2 Annex	For diarrheal-stool contamination, inactivation times are based on *Cryptosporidium* (Crypto) inactivation times. The CT Value for Crypto is 15,300. If a different chlorine concentration or inactivation time is used, an operator must ensure that the CT Values remain the same. For example, to determine the length of time needed to disinfect a pool at 20 mg/L after a diarrheal accident use the following formula: C x T = 15,300. Solve for time: T= 15,300 ÷ 20 mg/L = 12.75 hours. It would take 12.75 hours to inactivate Crypto at 20 mg/L. See table below: (SEE ANNEX FOR TABLE)
Fecal, Vomit, Blood (FVB)	6.5.3.2.1	In pool water that contains chlorine stabilizer such as cyanuric acid, the pH shall be lowered to 6.5 and the free chlorine residual shall be raised to 40 mg/L and maintained for at least 30 hours or an equivalent CT value as shown in the Annex.	*Any operator that uses a chlorine disinfectant that includes stabilizer (cyanuric acid, dichlor, or trichlor) would not likely have non-stabilized chlorine to raise the residual to 40 ppm. If trichlor or dichlor is used to raise the free chlorine to 40 ppm, a high level of cyanuric acid would remain in the pool after the disinfection process. Dilution of the pool water with fresh water is the only way to reduce the level of cyanuric acid. Storage of non-stabilized chlorine "in case of an incident" is not an option, since it would degrade over time, render it less effective, and waste money. Therefore, a non-stabilized chlorine compound would probably have to be purchased after the incident occurred.* -- change to "In pool water that contains chlorine stabilizer such as cyanuric acid, the pH shall be lowered to 6.5 and the free chlorine residual shall be raised to 40 mg/L <u>using a non-stabilized chlorine product</u> and maintained for at least 30 hours or an equivalent CT value as shown in the Annex.	Annex Section 6.5.3.2 had the following added to the end of the section: "It is important that the operator use a non-stabilized chlorine product when raising the free chlorine residual to 40 mg/L. If a stabilized product such as dichlor or trichlor were used, a high level of cyanuric acid would remain in the pool after the hyperchlorination process. The cyanuric acid level in pool water can only be lowered by dilution of pool water with make-up water. Since chlorine products degrade over time, it is not recommended that non-stabilized chlorine products be stored in case of a fecal incident. The operator could either purchase a non-stabilized product at a pool supply store or buy unscented household bleach (sodium hypochlorite) product that has a label indicating it is EPA-approved for use as a drinking water disinfectant. Along with the pH level and free chlorine residual, the cyanuric acid level should be checked and adjusted if necessary prior to reopening the pool." Agreed; changes made in document.	6.5.3.2.1	In POOL water that contains cyanuric acid or a stabilized CHLORINE product, water shall be treated by: 1) Lowering the pH to 6.5, raising the free CHLORINE residual to 40 mg/L using a non-stabilized CHLORINE product, and maintaining at 40mg/L for at least 30 hours or an equivalent time and concentration needed to reach the CT VALUE. Measurement of the inactivation time required shall start when the AQUATIC VENUE reaches the intended free CHLORINE level or,. 2) Circulating the water through a SECONDARY DISINFECTION SYSTEM to reduce the number of Cryptosporidium OOCYSTS in the AQUATIC VENUE below 1 OOCYST/100ml as outlined in MAHC Section 4.7.3.3.2.4 or, 3) Draining the AQUATIC VENUE completely
Fecal, Vomit, Blood (FVB)	6.5.3.2.1	In pool water that contains chlorine stabilizer such as cyanuric acid, the pH shall be lowered to 6.5 and the free chlorine residual shall be raised to 40 mg/L and maintained for at least 30 hours or an equivalent CT value as shown in the Annex.	Suggest that this Section be stricken from the Code until further research can establish a more robust set of requirements for pools that may utilize chlorine stabilizers. If the requirement must stay, suggest softer language (i.e. as is currently drafted in the CDC Guidelines for response to fecal release). The inactivation time should only be started once <u>testing indicates that</u> the <u>intended free</u> chlorine level <u>(20 ppm or other free chlorine concentration based on inactivation time in table above) has been</u> ~~is~~ reached in the pool.	Agreed. 6.5.3.2.1. has been moved to the annex with softer language. The additional wording suggested has also been included in the language.	6.5.3.2.1	In POOL water that contains cyanuric acid or a stabilized CHLORINE product, water shall be treated by: 1) Lowering the pH to 6.5, raising the free CHLORINE residual to 40 mg/L using a non-stabilized CHLORINE product, and maintaining at 40mg/L for at least 30 hours or an equivalent time and concentration needed to reach the CT VALUE. Measurement of the inactivation time required shall start when the AQUATIC VENUE reaches the intended free CHLORINE level or,. 2) Circulating the water through a SECONDARY DISINFECTION SYSTEM to reduce the number of Cryptosporidium OOCYSTS in the AQUATIC VENUE below 1 OOCYST/100ml as outlined in MAHC Section 4.7.3.3.2.4 or, 3) Draining the AQUATIC VENUE completely
Fecal, Vomit, Blood (FVB)	6.5.3.3	Vomit-contaminated water shall have the free chlorine residual checked and the free chlorine residual raised to 2.0 mg/L (if less than 2.0 mg/L) and maintained for at least 25 minutes (or an equivalent CT value as shown in the Annex.) before reopening the pool.	I have no issue with the guidelines except wanting clarification on the Blood and Vomit part of the proposed guidelines. We currently are not allowed to have swimmers in the pool with open wounds, but have always used the idea that a water proof band-aid covering would be sufficient coverage. But since a band-aid gets bloody It appears with the guidelines as proposed any amount of blood is sufficient to requiring pool closure. Is that the intent? The same on the vomit, if a swimmer has a hard workout and or swallows water causing them to vomit even a small amount does this require a closure of the pool? We already follow CDC guidelines on fecal matter so it would only require a small tweak of our procedures to meet the new MAHC guidelines, but clarification on the others would be appreciated.	Vomit has the potential to contain pathogens causing GI illness such as norovirus so vomit contamination should be considered as potentially infectious. The most likely risk would be from norovirus. De-contamination would be similar to a formed fecal accident. It is difficult for a code to differentiate between the causes of vomiting (reflux vs. infections) so the MAHC has to cover the potential for pathogen exposure. Vomiting of a little water is unlikely to be observed while vomiting up the contents of a meal as worded in the MAHC (e.g., whole stomach discharge of vomit in 6.4.1.3.4.1) is likely to be observed and will require remediation. No change to section.	6.5.3.3	Vomit-contaminated water shall have the free chlorine residual checked and the free chlorine residual raised to 2.0 mg/L (if less than 2.0 mg/L) and maintained for at least 25 minutes (*or an equivalent time and concentration to reach the CT Value*) before reopening the aquatic venue.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Fecal, Vomit, Blood (FVB)	6.5.3.4	Blood-contaminated water shall have the free chlorine or bromine residual checked at the time of the incident. If below the required minimum residual level, the operator shall immediately close the affected water feature until the free chlorine or bromine residual is verified at or above the required minimum.	I have no issue with the guidelines except wanting clarification on the Blood and Vomit part of the proposed guidelines. We currently are not allowed to have swimmers in the pool with open wounds, but have always used the idea that a water proof band-aid covering would be sufficient coverage. But since a band-aid gets bloody It appears with the guidelines as proposed any amount of blood is sufficient to requiring pool closure. Is that the intent? The same on the vomit, if a swimmer has a hard workout and or swallows water causing them to vomit even a small amount does this require a closure of the pool? We already follow CDC guidelines on fecal matter so it would only require a small tweak of our procedures to meet the new MAHC guidelines, but clarification on the others would be appreciated.	There is little if any public health hazard from a well maintained pool being contaminated with blood since bloodborne pathogens do not survive well under extreme dilution or in 1-3 ppm free chlorine. This is also discussed in the MAHC Annex. The risk from swimming with an open wound is to the swimmer with the wound as there is increased potential for pathogens entering the open wound---no open wounds should be allowed in the aquatic venue unless they are covered with a waterproof, occlusive bandage. The section has been altered to make closure due to blood contamination voluntary (e.g., to satisfy swimmer concerns) as the MAHC intended.	6.5.3.4	6.5.3.4 Blood-Contamination FVB Blood contamination of a well-maintained AQUATIC VENUES' water does not pose a public health risk to swimmers. 6.5.3.4.1 Operators Choose Treatment Method FVB Operators may choose whether or not they want to close the AQUATIC VENUE and treat as a formed stool contamination as in MAHC Section 6.5.3.1 to satisfy PATRON concerns.
Risk Management (RM)	6.6.1	Inspections	Recommendation: The standard would benefit from more specific guidance, at least in the annex, if not in the body. E.g. 6.6.1.2, item 7 what constitutes "good condition" or item 14 how should an SVRS be tested, and what measurable criteria must it meet?	Agreed. Wording altered	6.6.1	Inspection Process (See Code for full text)
Regulatory (REG)	6.6.1.1	The AHJ shall have the right to inspect or investigate the operation and management of an aquatic facility.	Remove the word "investigate". Are we in a police state?	No Change. The word investigate was used because of its use in "waterborne illness investigations", which are conducted routinely by public health personnel.	6.6.1.1	The AHJ shall have the right to inspect or investigate the operation and management of an aquatic facility.
Regulatory (REG)	6.6.1.2	The AHJ, upon presenting identification, shall have the right to enter at all reasonable times any aquatic facility area or environment, including, but not limited to the pool, spa, water recreation attraction or natural bathing place facility, building, storage, equipment room, or office area to inspect and investigate for compliance with this code, to review records, to question any person, or to locate, to identify, and to assess the condition of the aquatic facility.	Same as above	No Change. The word investigate was used because of its use in "waterborne illness investigations", which are conducted routinely by public health personnel.	6.6.1.2	Upon presenting proper identification, an authorized employee or agent of the AHJ shall be permitted to enter any AQUATIC VENUE area, including the recirculation equipment and piping area, at any reasonable time for the purpose of inspecting the AQUATIC VENUE or AQUATIC FEATURES to do any of the following: 1) Inspect the AQUATIC VENUE, 2) Determine if there has been a violation of this CODE, 3) Verify compliance with previously written violation orders, 4) Secure samples or specimens, 5) Examine and copy relevant documents and records, or 6) Obtain photographic or other evidence needed to enforce this CODE.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	"Aquatic Safety Team" should say "Aquatic Facility Safety Team."	Agree.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Does this code really have the power to list the authority and responsibility of the health agency?* -- Delete: The Health Authority shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	Disagree with comment. This code would be adopted by a health authority so it is appropriate to say that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Liability exposure for Owner/Operator and AHJ* -- This entry presents a Liability exposure to the AHJ. Why? The code gives them authority to check/inspect. However, the reality is, the actual inspector of the AHJ most likely will not have the actual training knowledge or competency to adequately and properly evaluate performance standards or skills. By and large the AHJ will not avail themselves of this ability, however, when a facility has failed to provide, and where AHJ has failed to check, both the owner/operator and AHJ will be liable for the resulting negligent actions.	Disagree - it saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Many AHJ inspectors (Health Department) send out slightly informed inspectors. Though they have the code in front of them, they are in no way actually qualified to interpret that code according to the needs of the customer and the operations.* -- The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and inservice training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated. The AHJ inspector shall be a certified lifeguard and have documented experience operating an aquatic facility of similar size and scope to the one they are evaluating.	Disagree - it saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Overly broad. AHJ already has authority to inspect facilities.* – Remove	Partially agree. The code and annex have been revised and restructured including the requirements for pre-service and in-service training and the supporting annex information.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Provides some detail that the AHJ needs to include within their inspection routine.* -- Not sure all environmental health staff could accurately assess all of these conditions to ensure compliance, but it could help improve their abilities. It seems that another piece is needed here though, related to the depth of inspections., Possibly in a subset of this or a new point. To the effect of: :The AHJ shall include review of the Aquatic Safety Plan and review assessment skills documentation provided for the guards by the aquatic manager as part of their inspection duties to assure the lifeguard skills are being routinely evaluated.	The AHJ shall have discretion to check aquatic facility lifeguards and aquatic safety team members required certifications and in-service training records and whatever else is in the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*Questionable whether an AHJ would be qualified to assess lifeguard skills. This should be left up to the recognized lifeguard certification agencies and the AHJ should only assure the aquatic venue has valid certifications on file. – Delete*	Disagree - it saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	*The previous version is too vague. Can they require it at any time? How many skills? What is the AHJ's qualification to determine skill competency? By who's standard? ARC, Ellis, Y, etc. Also where is the "grade" recommendation on this?* -- The AHJ shall have discretion to check aquatic facility lifeguards and aquatic safety team members required certifications and in-service training records	Disagree - it is saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	This entry presents a Liability exposure to the AHJ. The code gives them authority to check/inspect. However, the reality is, the actual inspector of the AHJ most likely will not have the actual training knowledge or competency to adequately and properly evaluate performance standards or skills. By and large the AHJ will not avail themselves of this ability, however, when a facility has failed to provide, and where AHJ has failed to check, both the owner/operator and AHJ will be liable for the resulting negligent actions.	Disagree - it saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	This entry presents a Liability exposure to the AHJ. Why? The code gives them authority to check/inspect. However, the reality is, the actual inspector of the AHJ most likely will not have the actual training knowledge or competency to adequately and properly evaluate performance standards or skills. By and large the AHJ will not avail themselves of this ability, however, when a facility has failed to provide, and where AHJ has failed to check, both the owner/operator and AHJ will be liable for the resulting negligent actions.	Disagree with comment. It is saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Lifeguard & Bather Supervision (LG)	6.3.4.2.4	The AHJ shall have the discretion to check or inspect any or all of the aquatic facility lifeguards and aquatic safety team members on any required performance standards, certifications, and in-service training records and can ask for any skill specified in-service training or pre-service requirements to be demonstrated.	Will this person be trained through every lifeguard certifying agency? Is there a min/max number of times the AHJ can request this to be done? Inclusion of owner/operators rights to request demonstration be performed after/before facility hours should be present. Detriment to owner/operator right to operate their business?	Disagree - it saying in the annex that the AHJ has the ability to review that the venue or facility is in compliance with the code. This part is dealing with facilities and training agencies.	6.6.1.2.1	The AHJ shall have the right to do the following: 1) inspect, investigate, or evaluate for compliance with this CODE, 2) to review records, collect samples, make copies, take photographs, 3) to question any person, or 4) to locate, to identify, and to assess the condition of the AQUATIC FACILITY.
Regulatory (REG)	6.6.1.3	Inspections shall be risk-based, focusing on behaviors, practices, and procedures that are likely to lead to out-of-control recreational water injury and illness risk factors and asking management and employees questions to supplement actual observations.	Word "out of control" should be deleted	Agree. Removed from 6.6.1.3. All sections relating to the AHJ were removed from the Code and placed in a separate document.	6.6.1.3	An aquatic facility's inspection frequency may be amended based on a risk of recreational water injury and illness.
Regulatory (REG)	6.6.1.8	It is a violation of this code for a person to interfere with, deny, or delay an inspection or investigation conducted by the AHJ.	Same as above	No Change. The word investigate was used because of its use in "waterborne illness investigations", which are conducted routinely by public health personnel.	6.6.1.4	It is a violation of this code for a person to interfere with, deny, or delay an inspection or investigation conducted by the AHJ.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.3.1	Upon receipt of the following properly completed forms, the AHJ shall approve or deny the following applications in accordance with the provisions in this CODE. 1) Application for AQUATIC FACILITY Exemption Status 2) Application for Approval of AQUATIC FACILITY Plans. 3) Application for AQUATIC FACILITY Operating Permit/Authorization. 4) Application for Annual Renewal or Reissuance of AQUATIC FACILITY Operating Permit 5) Application for AQUATIC FACILITY Variance	I'm not sure why this needs to be in a separate section. Again, the code is not the place to tell the health department how to do their job. If the section is appropriate at all, the language must be changed to permissive language; "may".	Left in code as deemed applicable for jurisdictions that have oversight by a higher authority.	6.6.3.1	Upon receipt of the following properly completed forms, the AHJ shall approve or deny the following applications in accordance with the provisions in this CODE as long as the operation will not present a danger 1) Application for Aquatic Facility Exemption Status 2) Application for Approval of Aquatic facility Plans. 3) Application for Aquatic facility Operating Permit/Authorization. 4) Application for Annual Renewal or Reissuance of Aquatic facility Operating Permit 5) Application for Aquatic facility Variance
Regulatory (REG)	6.6.4	Imminent Health Hazards	Reverse the language to require the operator to close the pool, and threaten that the AHJ may order closure if the operator has not acted.	Language revised to require the operator or AHJ to close the pool.	6.6.4	Imminent Health Hazards
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	#15 & 19…way too subjective. Make a list of non-approved and allow everything else.	Disagree. The approved chemicals are in the MAHC. Not all hazards can be foreseen or enumerated. The AHJ needs some discretion to allow for public protection when confronted with hazards not specifically itemized in this code.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	7) Overhead electrical wiring within 20 feet of the pool would mean an indoor pool with an 18 foot ceiling could not have overhead lighting. Wiring in a conduit attached in a permanent manner that prevents the wiring from water exposure and provides an adequate safety barrier should be considered based on the facility and building code.	Clarified as unprotected electrical wiring.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	9) Failure to maintain an emergency lighting Source for indoor pools	Discussed that this can apply to outdoor pools with lighting. They need some emergency source if the main lights go out at night when the pool is in use. No change.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	Add…Failure of Aquatic facility to provide required staffing as determined by (enter code list form Lifeguard/bather Supervision).	Agreed. Added “and staffing”	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	*I think it's needed to define what protected is or an inspector could arbitrarily define unprotected (#8). Has the committee evaluated how #9 will impact outdoor pools? The word "prevent" is a huge burden (#14). This could be interpreted beyond what the barrier requirement of the MAHC is stating. I could see this being used in court to make a case that the designer failed in their duty by not preventing a 17 year old from entering the pool. Pools could end up looking like prisons with guard turrets with this language. Be careful with the wording. I don't have a problem with closing the pool for overcrowding, but how will poor supervision be determined. Which came first the poor supervision or the overcrowding? I think this could be a problem in court. Re-word.* -- Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5; 4) PH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) ~~Unprotected~~ Non-GFI protected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC	Agree with suggested changes to items 8 and 14. Language changed as suggested. Disagree with comment to eliminate overcrowding section.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	*Many of the test kits available through such companies as Biolab, Hach, LaMotte, Taylor etc. have many test kits common to the pool industry that are different then the ranges described.* -- Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE; 3) PH level below 6.5 or if testing equipment doesn't measure below this level, pH level at or below the lowest value of the test equipment; 4) PH level above 8.0 or if testing equipment doesn't measure above this level, pH level at or above the highest value of the test equipment.	Agreed, section modified.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	*Regarding #12: Our state cannot enforce this requirement for pools built before the depth marking requirement was enacted. There is some concern that this may not present the level to make this a closure item but possibly a quick fix. Regarding #13: This would not merit an imminent hazard in our state currently, Would request consideration that these be removed and for AHJ's so inclined to enforce, they could include in 19).* -- 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water; 16) Broken or missing main drain grate in the AQUATIC VENUE; 17) Overcrowding of the AQUATIC VENUE that results in poor supervision of BATHERS; 18) Glass or sharp objects in AQUATIC VENUE or on deck area; or 19) Any other item determined to be a public health hazard by the AHJ.	Section modified to specify the total absence of depth markings but kept in code.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;
Regulatory (REG)	6.6.4.1	Any of the following violations are imminent health hazards which shall require the AHJ to order immediate correction or to immediately institute action as provided in this CODE: 1) Failure to provide adequate supervision of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum disinfectant residual levels listed in various sections of this CODE 3) PH level below 6.5 4) PH level above 8.0 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of any required lifesaving equipment on AQUATIC VENUE DECK; 11) AQUATIC VENUE bottom not visible; 12) Absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewerage system and the AQUATIC VENUE filter backwash facilities; 14) Failure to provide and maintain an enclosure around the AQUATIC VENUE area that will prevent access to the AQUATIC VENUE during the hours in which the AQUATIC VENUE is closed for use; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE	*These are electrical code requirements. We may close, but would have to refer to electrical authority for ultimate enforcement. Prefer this in the annex or allow AHJ to include as part of item 19* . -- 7) Overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Unprotected electrical circuits or wiring within 10 feet of the AQUATIC VENUE;	Committee decided to retain these sections in the code to enable the AHJ to take immediate action to protect the public when needed.	6.6.4.1	Any of the following violations are IMMINENT HEALTH HAZARDs which shall require immediate correction or immediate POOL closure: 1) Failure to provide adequate supervision and staffing of the AQUATIC FACILITY as prescribed in this CODE; 2) Failure to provide the minimum DISINFECTANT residual levels listed in various sections of this CODE 3) pH level below 6.5; 4) pH level above 8.0; 5) Failure to continuously operate the AQUATIC VENUE filtration and DISINFECTION equipment; 6) Use of an unapproved or contaminated water supply source for potable water use; 7) Unprotected overhead electrical wires within 20 feet horizontally of the AQUATIC VENUE; 8) Non GFCI protected electrical receptacles within 20 feet of the inside wall of the AQUATIC VENUE; 9) Failure to maintain an emergency lighting source; 10) Absence of all required lifesaving equipment on DECK; 11) AQUATIC VENUE bottom not visible; 12) Total absence of or improper depth markings at an AQUATIC VENUE; 13) Plumbing cross-connections between the drinking water supply and AQUATIC VENUE water or between sewage system and the AQUATIC VENUE INCLUDING filter backwash facilities; 14) Failure to provide and maintain an ENCLOSURE around the AQUATIC VENUE area that will inhibit unauthorized access to the AQUATIC VENUE; 15) Use of unapproved chemicals or the application of chemicals by unapproved methods to the AQUATIC VENUE water;
Regulatory (REG)	6.6.5.1	Where an imminent public health hazard is found, the aquatic venue shall be placarded to prohibit use until the hazard is corrected in order to protect the public health or safety of bathers.	Does this mean, if I as an operator close my pool for an imminent health hazard, I have to placard it? If not; remove it.	Yes, code language clarified. If the operator closes the pool, he must placard it and he can remove the "closed" sign when the hazard has been corrected.	6.6.5.1	Where an imminent public health hazard is found, the aquatic venue shall be placarded to prohibit use until the hazard is corrected in order to protect the public health or safety of bathers.
Regulatory (REG)	6.6.5.1	Where an imminent public health hazard is found, the aquatic venue shall be placarded to prohibit use until the hazard is corrected in order to protect the public health or safety of bathers.	*Providing the option for the owner/operator to voluntarily close is a workable model in our state that eliminates some of the formal enforcement actions.* -- Where an imminent public health hazard is found, the AQUATIC VENUE shall be placarded voluntarily by the owner/operator or formally by the AHJ to prohibit use until the hazard is corrected in order to protect the public health or safety of BATHERS.	Language was changed in 6.6.5.2.1 to make it clear that either party can placard a pool.	6.6.5.1	Where an imminent public health hazard is found, the aquatic venue shall be placarded to prohibit use until the hazard is corrected in order to protect the public health or safety of bathers.
Regulatory (REG)	6.6.5.3	Within 15 days of the placarding of an aquatic facility, the operator of such facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health.	If the 15 day hearing is a requirement before operation is resumed, I don't believe the code is practical. The facility should be allowed to reopen once they are in compliance and pass a re-inspection. The re-inspection schedule should be timely, but at the discretion of the AHJ. A hearing should only be required if a facility has consistently violated the code. This will not make pools safer; it will just add more bureaucracy.	Agree. It never was the intent to require the pool to stay closed until the hearing; Language added to clarify this	6.6.5.3	Within 15 days of the AHJ placarding an aquatic facility, the operator of such aquatic facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health. If the imminent health hazard(s) have been corrected, the operator can contact the AHJ prior to the hearing and request a follow-up inspection.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.5.3	Within 15 days of the placarding of an aquatic facility, the operator of such facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health.	This could wipe out a season for a summer operation. For example, if you're closed June25th and you're not able to re-open or challenge the determination until July 10th. That would have the potential to put a private swimming club out of business very quickly. I think the authority has duty to be much more responsive when taking such action. I say 72 hours. -- Within 15 days 72 hours of the placarding of an AQUATIC FACILITY, the operator of such facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health.	It was never the intent to require a closure for 15 days if the violation was corrected. This section has been changed to clarify that based on a previous comment.	6.6.5.3	Within 15 days of the AHJ placarding an aquatic facility, the operator of such aquatic facility shall be provided with an opportunity to be heard and present proof that continued operation of the facility does not constitute a danger to the public health. If the imminent health hazard(s) have been corrected, the operator can contact the AHJ prior to the hearing and request a follow-up inspection.
Regulatory (REG)	6.6.6.1.1	Any person who fails to comply with any such regulation shall be in violation of this code.	*Request that the responsible party include the owner of the facility who bears ultimate responsibility of their staff.* -- An owner ~~Any person~~ who fails to comply with any such regulation shall be in violation of this CODE.	Committee agreed that "person" can be owner or operator and gives more flexibility to the AHJ. No change.	6.6.6.1.1	Any person who fails to comply with any such regulation shall be in violation of this code.
Regulatory (REG)	6.6.6.1.2	For each such offense, violators shall be liable for a potential civil penalty.	Civil penalties may be a state statue issue.	Where they are not pre-empted by state law this gives the local AHJ the authority. No change.	6.6.6.1.2	For each such offense, violators shall be liable for a potential civil penalty.
Regulatory (REG)	6.6.6.3	Falsifying or presenting to the AHJ falsified documentation and or certificates shall be a civil violation as specified by the AHJ.	Falsifying government forms or submitting false information is a crime in every state; therefore this is not needed in the MAHC.	Law enforcement agencies may chose not to enforce their laws. This section enables the AHJ to pursue enforcement. No Change.	6.6.6.3	Falsifying or presenting to the AHJ falsified documentation and or certificates shall be a civil violation as specified by the AHJ.
Regulatory (REG)	6.6.8.1	The following fees and corresponding amounts shall be assessed by the AHJ. Some typical fees include: 1) Owner's permit application fee, 2) Plan review and construction inspection fee, 3) Pre-operational re-inspection fee, 4) Variance and/or exemption application fee, and 5) Late fees.	Good intent, but I cannot require that I have to do something, by code or rule. Make the "shall"…"may." There are times I "may" waive the fee for some reason. "Late" fees seem to often be the subject of waiver.	Added language to allow AHJ to waiver fees.	6.6.8.1.1	The AHJ may waive fees as appropriate.
Regulatory (REG)	5.1.2.3	The fees for pre-operational re-inspections are as established by the AHJ.	"The AQUATIC FACILITY is prohibited for operating without an operating permit(license). The facility shall remain closed until a permit(license) is issued by the AHJ.	The existing language allows the AHJ to close an Aquatic Facility that does not have a permit, but also gives the AHJ the flexibility to allow the facility to remain open. This discretion is needed because there are instances when a permit cannot be issued due to a minor omission such as a required signature or fee payment (and the omissions are being addressed), but the facility is in compliance with all other requirements of the code.	6.6.8.2	The fees for pre-operational re-inspections are as established by the AHJ.
Ventilation (VEN)	4.6.2.1.7 #1	1) Flat Water - aquatic venue in which the water line is static except for movement made by users.	1) All flat water should not be treated equally. Athletes training at a high level are ventilating 3 times what a person playing would be. Training/racing athletes also splash/release more DBP into the air compared to casual recreational users. Competition/training pools should have a higher factor than recreational flat water. Flat water pools are often competitive in nature. Indoor pools with diving boards often have water agitators to allow divers to see the surface of the water and sparger systems for training only. The use of these mechanical water agitators should not change the flat water classification. Small tot pools often have a simple bubbler or water jet. When less than 7% of the flow rate, this should not change the status of the pool or natatorium type. Agitated water will be eliminated in many instances depending on how strict the interpretation is from code officials. One bit of spray should not classify one as "agitated." -- 1) Flat Water – Aquatic Venue in which the water line is static except for movement made by users or by mechanical means of which the agitation is source is less than 7% of the filter recirculation water flow rate. Diving spargers do not void the flat water definition.	Partially Agree. Diving sparger addressed as suggested.	Appendix 2	· Flat water – area of an aquatic venue in which the water line is static except for movement made by users. Diving spargers do not void the flat water definition
Ventilation (VEN)	4.6.2.1.7 #4 & Table 1	1) For indoor AQUATIC FACILITIES with more than one type of AQUATIC VENUE, each AQUATIC VENUE area shall be calculated individually, added together with the total deck and/or spectator/stadium seating area requirements and then added to the minimum ASHRAE 62 air requirements. Table 1. Factors for Calculating Outside Air Requirements for Aquatic Facilities. (See Code for Table)	Based on experience, an Occupant Density Factor of 20 for a Flat Water pool seems excessive from the perspective of actually occupancy. A high occupant density for ventilation calculations is conservative, but may be unrealistic for other applications -- Add: "Density Factors used in this Section are used for calculating Ventilation Requirements only, and are not intended for calculation of Exiting Requirements or for Surge Tank calculations.	Agree. Code revised.	APPENDIX 2	The Density factor in Appendix 2 Table could be modified if the designer/engineer of the INDOOR AQUATIC FACILITY can document the intended use is different (i.e., a swimming POOL is a FLAT WATER venue and is normally 20 ft2 per person, but when designing a FLAT WATER WADING POOL, which has a higher density of BATHERS, the number could be modified to15 ft2 per person). For INDOOR AQUATIC FACILITIES with more than one type of water or seating, the total outside air required is calculated by adding together the air required for each type. (SEE APPENDIX 2 FOR FULL TEXT)

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.7.3	The Density factor in Table 1 may be increased, but not reduced, if the intended use is different (i.e., a wading pool is a flat water venue and intended density will be 10 ft^2 per person vs. a swimming pool with a density of 20 ft^2 per person).	Some areas relying solely on natural ventilation could exceed 90 degree air temp. -- Assume this is intended to be *water* temperature.	Agree. Changed as suggested.	Appendix 2	The Density factor in Appendix 2 Table could be modified if the designer/engineer of the INDOOR AQUATIC FACILITY can document the intended use is different (i.e., a swimming POOL is a FLAT WATER venue and is normally 20 ft2 per person, but when designing a FLAT WATER WADING POOL, which has a higher density of BATHERS, the number could be modified to15 ft2 per person). For INDOOR AQUATIC FACILITIES with more than one type of water or seating, the total outside air required is calculated by adding together the air required for each type. (SEE APPENDIX 2 TABLE FOR VALUES)
Contamination Burden (CB)	Footnote 1, pg 12	WHO (2000): Guidelines for safe recreational-water environments, Volume 2: Swimming pools, spas and similar recreational-water environments. Final draft for consultation, August 2000.	The WHO Guidelines were revised and issued in 2006. The newer reference should be used. Footnote 1 is from Chapter 4. -- WHO (2000): Guidelines for safe recreational-water environments, Volume 2: Swimming pools, spas and similar recreational-water environments. Final draft for consultation, August 2000 2006, Chapter 4. Available at http://www.who.int/water_sanitation_health/bathing/bathing2/en/.	Agree, changed as suggested.	Footnote #65	WHO (2006). Guidelines for safe recreational-water environments, Volume 2: Swimming pools, spas and similar recreational-water environments.
Recirculation and Filtration	3.0 Glossary	N/A	Add "Water Features" means an interactive device or structure such as a water fountain, water spray, dancing water jet, waterfall, dumping bucket or shooting water cannon through which water is directed to the pool user. -- To differentiate the features from the pool (spray grounds) – REFERENCE: Definition from Calif Code of Regulations, Title 22.	Terms have been defined in different modules. Terminology/definitions will be reconciled in the complete "knitted" version of the MAHC.	Glossary	"Interactive Water Play Aquatic Venue" means any indoor or outdoor installation that includes sprayed, jetted or other water sources contacting patrons and not incorporating standing or captured water as part of the patron activity area. These aquatic venues are also known as splash pads, spray pads, wet decks. For the purposes of the MAHC, only those designed to recirculate water and intended for public use and recreation shall be regulated.
Design & Construction (D&C)	4.12.2.1.2	A water slide must consist of one or more flumes, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.	*Waterslide is already defined in the glossary.* – Delete	Language moved to the glossary definition	Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	4.12.4.3	Hydrotherapy or jet systems shall be independent of the recirculation, filtration, and heating systems.	What is a recirculation system? Disinfection? Needs Definition.	Definition added to the glossary.	Glossary	"Recirculation System" means the combination of the main drain, gutter or skimmer, inlets, piping, pumps, controls, surge tank or balance tank to provide pool water recirculation to and from the pool and the treatment systems.
Design & Construction (D&C)	4.12.5	Leisure Rivers	*Leisure rivers are only one type of current channel; expand application* -- Leisure rivers, activity rivers, current channels and vortex pools	Refer to glossary. "Leisure Rivers" refers to manufactured streams in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices. This is intended to capture "leisure rivers," "activity rivers," and "current channels."	Glossary	"Lazy River" means a channeled flow of water of near−constant depth in which the water is moved by pumps or other means of propulsion to provide a river−like flow that transports patrons over a defined path. A lazy river may include play features and devices. A leisure river may also be referred to as a tubing pool, leisure pool or a current channel. "Leisure Rivers" means manufactured streams in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices.
Ventilation (VEN)	4.6.2.1	Building Ventilation	A definition of "building ventilation system" is needed for clarification throughout the Ventilation Module. The ASHRAE definition of "Ventilation" is "the intentional introduction of air from the outside into a building". The MAHC Ventilation Module uses the term "building ventilation system" in a much broader sense in 4.6.2.3 (Humidity Control), 4.6.2.4 (Mechanical Systems), and in 4.6.2.1.8 (Design Factors and Performance Requirements), encompassing the total air distribution system, not just the outside air. It can be defined as the "air delivery system" in which the total airflow is comprised of two components – fresh air and recirculated air. A procedure for calculating the fresh air is given in 4.6.2.1.7. Guidelines for the total airflow should be added to 4.6.2.4, currently titled Mechanical Systems. I recommend changing the title of 4.6.2.4 to "Total Airflow & Air Distribution".	Partially Agree. Definition added. Code revised and reformatted , "Mechanical Systems" changed to " Performance Requirements for Air Handling System".	Glossary	"Air Handling System" means equipment that brings in outdoor air into a building and removes air from a building for the purpose of introducing air with fewer contaminants and removing air with contaminants created while bathers are using aquatic venues. The system includes components which move, transport, and condition the air for humidity and temperature control and stratification.
Ventilation (VEN)	4.6.2.1.2	Ventilation design requirements shall apply to a new or modified indoor aquatic facility including the area of the building's aquatic venues, the surrounding bather and spectator/stadium seating area, mechanical rooms, bath and locker rooms, and any associated rooms which have a direct opening to the aquatic facility.	"INDOOR AQUATIC FACILITY" is not defined -- Delete the word INDOOR.	Partially Agree. Definition added.	Glossary	"Indoor Aquatic Facility" means a physical place that contains one or more aquatic venues and the surrounding bather and spectator/stadium seating areas within a structure that meets the definition of "Building" per the 2012 International Building Code. It does not include equipment, chemical storage, or bather hygiene rooms or any other rooms with a direct opening to the aquatic facility.
Design & Construction (D&C)	4.6.4	Drinking Fountains	*Clarify what is considered a POOL ENCLOSURE* -- POOL ENCLOSURE is used repeatedly in this entire section but is not defined in the glossary	"Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.	Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.6.5.1	A sufficient number of receptacles shall be provided within a pool enclosure to ensure that garbage and refuse can be disposed of properly to maintain safe and sanitary conditions.	*Clarify* -- What is a POOL ENCLOSURE?	"Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.	Glossary	"Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.
Design & Construction (D&C)	4.6.5.1	A sufficient number of receptacles shall be provided within a pool enclosure to ensure that garbage and refuse can be disposed of properly to maintain safe and sanitary conditions.	Change "pool enclosure" to "facility/venue enclosure"	Recommendation implemented.	Glossary	"Aquatic Facility or Venue Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.
Design & Construction (D&C)	4.6.7	Spectator Areas	*Needs clarification in entire section* -- Define POOL ENCLOSURE"	"Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.	Glossary	"Aquatic Facility or Venue Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.
Recirculation and Filtration	4.7.1.2.2	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. Note: Please see language inserted below, taken from MAHC Disinfection and Water Quality Draft Guidance, MAHC Code Section 4.7.3.3.1.2: The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and 2) Therapy pools.	2) There is no definition for Therapy pools. They are alluded to in the "Increased Risk Aquatic Venue" definition, but what is a therapy pool and how are they considered as increased risk?	Agree. Definition provided in MAHC.	Glossary	"Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.
Recirculation and Filtration	4.7.1.2.2	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. Note: Please see language inserted below, taken from MAHC Disinfection and Water Quality Draft Guidance, MAHC Code Section 4.7.3.3.1.2: The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and 2) Therapy pools.	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and ~~2) Therapy pools.~~ -- As noted previously, secondary disinfection for "therapy" pools is excessive and I'm not aware of any current standard where this is currently required. Aqua aerobics are the primary purpose of "therapy" pools. But in many communities, these classes take place in traditional lap pools which would not be "increased risk."	Disagree. The following definition provided in MAHC, "Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.	Glossary	"Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.
Recirculation and Filtration	4.7.1.2.2	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. Note: Please see language inserted below, taken from MAHC Disinfection and Water Quality Draft Guidance, MAHC Code Section 4.7.3.3.1.2: The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and 2) Therapy pools.	Provide a definition in the definition section on "Therapy pools". Include in the definition the use and defining features -- With no definition provided applying the requirement is subjective	Agree. Definition provided in MAHC.	Glossary	"Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.2.2	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. Note: Please see language inserted below, taken from MAHC Disinfection and Water Quality Draft Guidance, MAHC Code Section 4.7.3.3.1.2: The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and 2) Therapy pools.	Provide a definition in the definition section on "wading aquatic venues". Include in the definition the use and defining features> -- With no definition provided applying the requirement is subjective	Agree. Definition provided in MAHC.	Glossary	"Wading Pool" means any pool used exclusively for wading and intended for use by children where the depth does not exceed 2 feet (0.6 m).
Recirculation and Filtration	4.7.1.2.2	If SECONDARY DISINFECTION is required for an INCREASED RISK AQUATIC VENUE/FEATURE as per MAHC Section 4.7.3.3.1.2, then SECONDARY DISINFECTION shall be required for all treatment systems that are combined with the INCREASED RISK AQUATIC VENUE/FEATURE. Note: Please see language inserted below, taken from MAHC Disinfection and Water Quality Draft Guidance, MAHC Code Section 4.7.3.3.1.2: The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading AQUATIC VENUES, b. water activity AQUATIC VENUES, c. interactive water features with no standing water, and 2) Therapy pools.	The New Construction of the following increased risk aquatic venue ….. -- Remove "or substantial renovation as there is no clear definition of what this means it is too open for interpretation. A re-plaster or filter replacement could be deemed a substantial renovation so unless there is clear understanding of what "substantial renovation it should be removed.	Agree. Definition added.	Glossary	"Substantial Alteration" means the alteration, modification, or renovation of an aquatic venue (for outdoor aquatic facilities) or indoor aquatic facility (for indoor aquatic facilities) where the total cost of the work exceeds 50% of the replacement cost of the aquatic venue (for outdoor aquatic facilities) or indoor aquatic facility (for indoor aquatic facilities).
Recirculation and Filtration	4.7.1.3.1.1, 4.7.1.6.2.1, & Glossary	"Hydraulically balanced" means both the relative difference between the water flow over the gutter or through the skimmers compared with the water flow through the main drain; and the even distribution of treated water returned to different areas of the pool through the inlets.	"Hydraulically ~~balanced~~ apportioned" means both the relative difference between the water flow over the gutter or through the skimmers compared with the water flow through the ~~main drain~~ suction outlet; and the even distribution of treated water returned to different areas of the pool through the inlets. 4.7.1.3.1.1 The RECIRCULATION SYSTEM shall be designed with sufficient flexibility to achieve a HYDRAULIC ~~BALANCE~~ APPORTIONMENT that will ensure the following: 1) Effective distribution of treated water, and 2) Maintenance of a uniform disinfectant residual and pH throughout the AQUATIC VENUE. 4.7.1.6.2.1 A minimum of two HYDRAULICALLY ~~BALANCED~~ APPORTIONED outlets are required in the bottom at the deepest level. --- The "hydraulically balanced" definition conflicts with previous usage, where it meant equal flow resistance of two similar elements. The present definition will typically be understood to mean EQUAL FLOW RATE through the various paths, which is CONTRARY to the intent of this document. The term should be "hydraulically apportioned." Where the "hydraulically balanced" term is used within the MAHC, such as 4.7.1.3.1.1 & 4.7.1.6.2.1, it should be changed to "hydraulically apportioned." In addition, the obsolete term "main drain" should be replaced by "suction outlet" to conform to all recent standards and the current CPSC usage. One could use the parenthetical form "suction outlet (formerly called main drain)" or tie in under a definition for "suction outlet" the fact it was formerly called a main drain. --- REFERENCE: APSP-16; CPSC – VGB successor standard	Agree. Code revised.	Glossary	"Hydraulically apportioned" means both the relative difference between the water flow over the gutter or through the skimmers compared with the water flow through the main drain; and the even distribution of treated water returned to different areas of the pool through the inlets.
Disinfection and Water Quality (DWQ)	4.7.3.3 ANNEX	Secondary Disinfection Systems (See Annex for full text)	*Certain types of therapy pools, yes. But personal experience with regulating authorities caution clearly understanding current pool industry vernacular. The majority are "wellness" pools used for aqua aerobics and other similar activities.* -- Therapy POOLS, for example, are often utilized by individuals with compromised immune systems and / or open wounds.	We have added a definition to the glossary for feedback. We agree that this needs to be a tight definition since the intent is that it is not a pool used by the general public.	Glossary	"Therapy Pool" means a pool used exclusively for aquatic therapy, physical therapy, and/or rehabilitation to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer. This could include wound patients or immunocompromised patients whose health could be impacted if there is not additional water quality protection.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3.1.2	The new construction or substantial renovation of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and e. Therapy pools	*What constitutes "substantial renovations?" If a municipality is contemplating some needed renovations (such as pool structural work, pump replacements, etc.), it's reasonable to assume that they may postpone these repairs because of a mandatory secondary disinfectant system that may cost around $50,000 per pool if it complies with this draft (remote alarms, interlocks, etc.).* -- The new construction ~~or substantial renovation~~ of the following INCREASED RISK AQUATIC VENUES shall be required to use a SECONDARY DISINFECTION SYSTEM after adoption of this CODE: 1) AQUATIC VENUES designed primarily for diaper-aged children (children <5 years old), such as a. wading POOLS, b. water activity POOLS, c. interactive water features with no standing water, d. SPRAY PADs, and 2) Therapy pools	Agreed that definition is vague. Definition of substantial alteration has been revised but not deleted.	Glossary	"Substantial Alteration" means the alteration, modification, or renovation of an aquatic venue (for outdoor aquatic facilities) or indoor aquatic facility (for indoor aquatic facilities) where the total cost of the work exceeds 50% of the replacement cost of the aquatic venue (for outdoor aquatic facilities) or indoor aquatic facility (for indoor aquatic facilities).
Design & Construction (D&C)	4.8.1.5.2.2	This area may overlap the circulation path.	Define "Circulation Path"	Definition added to glossary.	Glossary	"Circulation Path" means an exterior or interior way of passage from one part of an aquatic facility to another for pedestrians, including, but not limited to walkways, pathways, decks, and stairways. This must be considered in relation to ADAAG Guidelines.
Design & Construction (D&C)	4.8.4	Pool Slides	Suggest modifying this term to "sliding board" that is limited to 6 feet height and 10-12 feet of run. The entire section here is attempting to broaden the type of slide that was originally envisioned in the CPSC standard. I believe the 1207 consideration should be removed from consideration for public facilities. We did make this change in our rule in 2004, directing all slides to conform with water slide standards. Many of these slides have steep slopes and can create high velocities for the persons coming into the pool. – REFERENCE: WWA 1.2.4; Diving Injuries A critical Insight and Recommendations.	This section has merged with the overall waterslide section and the definition of "pool slide" has been updated to hopefully give more clarity to intent and purpose.	Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs, and facilities for the disinfection and chemical treatment of the water.
Design & Construction (D&C)	4.8.4.2	POOL SLIDES shall: 1) Have a flow rate of less than 100 GPM, 2) Not exceed 10 feet in height, and 3) Terminate at or below the normal operating water level in the pool except as specified 4.12.2.4.1.	*POOL SLIDE and limitations are already defined in the Glossary – no need to repeat.* – Delete	Recommendation implemented.	Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs,
Design & Construction (D&C)	4.8.4.2	POOL SLIDES shall: 1) Have a flow rate of less than 100 GPM, 2) Not exceed 10 feet in height, and 3) Terminate at or below the normal operating water level in the pool except as specified 4.12.2.4.1.	*This section unnecessarily restricts the height and flow rate for water slides.*	Only intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure. Refer to section 4.12 for the majority of waterslide regulations.	Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs,
Design & Construction (D&C)	4.8.4.2 #3	POOL SLIDES shall… 3) Terminate at or below the normal operating water level in the pool except as specified 4.12.2.4.1.	Most do not terminate at or below the normal operating level, as they terminate above surface.	This requirement has been deleted and this section has been located solely in the glossary since these requirements define a pool slide.	Glossary	"Water Slide" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more flumes, landing areas, catch pools or slide run-outs,
Design & Construction (D&C)	4.9.1	Equipment Room	"Equipment Room" needs defined as waterparks/larger facilities have a lot of equipment in a lot of rooms.	Definition added to glossary.	Glossary	"Equipment Room" means a space intended for the operation of pool pumps, filters, heaters, and controllers. This space is not intended for the storage of hazardous pool chemicals.
Facility Maintenance and Operation (FMO)	5.6.3.4.4	Damaged grounding conductors or grounding electrodes, associated with recirculation or disinfection equipment or with underwater lighting systems, shall be repaired by a qualified person.	Who is a "qualified person"? Implication by saying this is that other repairs do not have to be made by a qualified person. I would suggest that all electrical repairs be performed by licensed electrician.	Added definition to Glossary.	Glossary	"Qualified Person" means a person who has the proper and/or necessary skills, training, or credentials to carry out the tasks associated with a particular function.
Facility Maintenance and Operation (FMO)	5.6.3.4.4	Damaged grounding conductors or grounding electrodes, associated with recirculation or disinfection equipment or with underwater lighting systems, shall be repaired by a qualified person.	Define qualified person	Addressed. Defined in glossary	Glossary	"Qualified Person" means a person who has the proper and/or necessary skills, training, or credentials to carry out the tasks associated with a particular function.
Operator Training (OT)	6.1.1	Operator Qualifications and Certification	Operator Qualifications and Certification - Need to define 'operator' role and responsibilities/authority in context of this code.	Added. Qualified Pool Operator is currently defined as a person who meets the requirements specified in MAHC 6.1.1. This is now added to the Operator Training Module.	Glossary	"Qualified Operator" means an individual who has successfully completed an AHJ-recognized operator training course offered by an AHJ-recognized training agency and holds a current certificate for such training.
Operator Training (OT)	6.1.2.1.1.4	CHLORINE including: 1) Definition of CHLORINE as an element, 2) Its use as a residual disinfectant and oxidizer in water, 3) CHLORINE chemistry and the role of PH, 4) The DISINFECTION role of hypochlorous acid, 5) Unstabilized products (sodium hypochlorite, calcium hypochlorite, lithium hypochlorite, and CHLORINE gas), 6) Stabilized products (sodium dichloro-s-triazinetrione and sodium trichloro-s-triazinetrione), 7) Safe chemical handling, and On-site CHLORINE generation.	Chlorine - Define Oxidizer	OXIDIZER will be defined in the definitions section. All words in BLOCK capitals will be defined in the Glossary. At this time the Glossary is changing so often that it has not yet been posted.	Glossary	"Oxidation" means the process of changing the chemical structure of water contaminants by increasing the number of oxygen atoms or reducing the number of electrons of the contaminant, which allows the contaminant to be more readily removed from the water or made more soluble in the water. It is the "chemical cleaning" of pool water. Oxidation can be achieved by common disinfectants (e.g., chlorine, bromine), secondary disinfection/sanitation systems (e.g. ozone) and oxidizers (e.g. potassium monopersulfate).

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	3.0 Acronyms	N/A	Add DCV – Demand Control Ventilation. This is one area of study that is evolving and testing is happening to see about truly bringing in fresh air as necessary to eliminate chloramines contamination. We have a test site right now, but it will be some time before anything is ready in this area and more research is required, but would be good to have the acronym defined.	Disagree. Term not used in module so there is no need to include a definition.	N/A	N/A
Risk Management (RM)	3.0 Acronyms	N/A	Editorial (to eliminate misuse of the term acronym). See rationale to left in square brackets. -- "Acronyms Abbreviations in this Module" [An acronym is a word (or a pronounceable name) formed from the initial letters of words in a compound term, e.g. radar, scuba, or snafu. While some of the abbreviations listed may be pronounced as single words e.g. FINA (fee'·nah), ASHRAE (ash ·ray) and occasionally ORP (orp) —most are not.] – Reference: http://www.thefreedictionary.com/acronym	Agree. Added Initialisms to title as well as Acronyms.	N/A	N/A
Design & Construction (D&C)	3.0 Glossary	"Splash Pool" means a pool having a water depth not exceeding 18 inches (45.7 cm) that has as its intended primary use random play by small children. The pool could include constructed play devices including small flume type water slides and other play devices.	Term "Splash Pool". Reference to "flume type water slides" is confusing as this is too similar to "Flume Slide" as defined above but which is completely different Suggest Changing to "…small waterslides" as there is no need to differentiate between slide types	Definition deleted.	N/A	N/A
Design & Construction (D&C)	3.0 Glossary	"Splash Pool" means a pool having a water depth not exceeding 18 inches (45.7 cm) that has as its intended primary use random play by small children. The pool could include constructed play devices including small flume type water slides and other play devices.	Term "Splash Pool". This is confusing as splash pool is what a slide catch pool is commonly referred to in the industry. Suggest Changing term to "Wading Pool" as there is no need to differentiate between pools that are 2' in depth vs.- those that are 18"	Definition deleted.	N/A	N/A
Chap 1-3	3.0 Glossary	N/A	"The amount of free chlorine that must be added to the water to achieve breakpoint chlorination is approximately ten times the amount of combined chlorine in the water." The above statement is not true. The rough 10x rule is only true for oxidation of ammonia (not CC or monochloramine) with chlorine when the amounts of chlorine and ammonia are each measured in their respective ppm basis, specifically with chlorine measured as ppm Cl2 (chlorine gas) and ammonia measured as ppm N (atomic nitrogen). The 10x rule is not true when determining the Free Chlorine (FC) needed to oxidize already formed Combined Chlorine (CC) for two reasons. First, 2/3rds of the required FC has already been used in the formation of CC. Second, CC is measured in the same units as FC, namely as ppm Cl2 (chlorine gas) so the proper ratio is far less and is stoichiometrically only 0.5 in ppm Cl2 units if there were no side reactions (in practice, it's probably between 0.6 and 0.7 ppm, so a rule using 1 is reasonable). **See Public Comments for full text**	Under consideration. The term is not referred to in these modules	N/A	N/A
Disinfection and Water Quality (DWQ)	3.0 Glossary	N/A	*This module does not require the supplemental systems to meet the same requirements as secondary systems. This does not make sense. Supplemental systems need to meet the requirements of secondary systems.* -- "Supplemental treatment systems" – means those disinfection processes or systems which are optional and not required on an aquatic venue for health and safety reasons. Supplemental treatment systems shall meet the same requirements as secondary treatment systems.	Disagree. Only venues that are classified as "increased risk" are required to have secondary systems installed that meet the requirements listed in the MAHC. If an operator wants to install a system in a venue that is not classified as an "increased risk" venue then they can choose to do so. Since it is not required and entirely voluntary, the MAHC has no part in requiring what the system does or that it meets certain criteria when there is no requirement for it to be installed in the first place. We hope the operator would understand the benefits of meeting the "secondary disinfection" benefits and strive to meet the same criteria but don't feel it can be mandated.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	3.0 Glossary	N/A	• Those terms should be defined by the MAHC as everybody can have is own definition. – o "wading POOLS" means a small pool to be used mainly by non-swimming children, and those supervising the children. o "water activity POOLS" A water recreation attraction which has water related activities such as rope, ladders, rope swings, cargo nets and other similar activities. o "interactive water features with no standing water" means any indoor or outdoor installation maintained for public recreation that includes water sprays, dancing water jets, waterfalls, dumping buckets, or shooting water cannons in various arrays for the purpose of wetting the persons playing in the spray streams o "SPRAY PADs" means a specific area consisting of a play surface, spray features, and drains, upon which the bathers stand and are sprayed with water. o "Therapy pools" pools used exclusively for water therapy to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed physical therapist, occupational therapist, or athletic trainer;	• The SC is reconciling the definitions so that they are consistent between modules. Suggested changes as follows: "Pool" means a subset of aquatic venues designed to have captured water for total or partial bather immersion. It can include, but is not limited to: o "wading POOLS" means a small pool to be used mainly by non-swimming children, and those supervising the children. o "water activity POOLS" A water recreation attraction which has water related activities such as rope, ladders, rope swings, cargo nets and other similar activities. o "interactive water features with no standing water" means any indoor or outdoor installation maintained for public recreation that includes water sprays, dancing water jets, waterfalls, dumping buckets, or shooting water cannons in various arrays for the purpose of wetting the persons playing in the spray streams o "SPRAY PADs" means a specific area consisting of a play surface, spray features, and drains, upon which the bathers stand and are sprayed with water. "Therapy pools" pools used exclusively for water therapy to treat a diagnosed injury, illness, or medical condition, wherein the therapy is provided under the direct supervision of a licensed person.	N/A	N/A
Ventilation (VEN)	3.0 Glossary	N/A	The terms 'fresh air" is used interchangeably with "outdoor air" and "outside air", but each is defined differently by ASHRAE. The intent of Standard 62 is to provide Outdoor air. -- Add the term "OUTDOOR AIR" defined as follows: "OUTDOOR" is air taken from outside a building or taken from outdoors and not previously circulated through the system, and that complies with the National Ambient Air Quality Standard. – REFERENCE: ASHRAE Terminology of Heating, Ventilation, Air Conditioning, & Refrigeration, Second Edition; ASHRAE Standard 62	Partially Agree. The term "outdoor air" is now used.	N/A	N/A
Contamination Burden (CB)	3.1. and 3.2. (New section between)	N/A	*Editorial. In the absence of existing scientific literature proposing models, you should propose a reasonable one yourself that can then be tested/validated (i.e. a hypothesis).* -- Chlorine demand from bathers may be modeled by looking at three different sources of such demand: (1) Initial introduction of chemicals that leave the bather's skin and swimsuit when first entering the pool. This includes accumulated sweat and urine as well as excess suntan lotion and other personal care products. This chlorine demand may be significantly reduced by rinsing off prior to entry into the pool. This demand is a one-time event for each unique bather and is not a function of how long the bather is in the pool. (2) Continued introduction of sweat and urine into the pool water. The amount varies by bather and the amount of sweat increases with greater physical activity. Thus the nature of pool use will affect chlorine demand with wading creating lower demand and competitive swimming creating higher demand. This demand is a function of how long the bather is in the pool. (3) Continued reaction of chlorine with skin (including lotions remaining on skin), hair and swimsuits. Some of this demand may be reduced by rinsing, but a fixed amount remains that is largely proportional to the surface area exposed to the water. This demand is a function of how long the bather is in the pool.	Disagree. Modeling cannot be done until sufficient data are generated. Model systems for measuring the inputs outlined above are being developed and data collected. With those data, modeling can be done systematically.	N/A	N/A
Regul atory (REG)	4.1.3.2.4	Documentation of proposed changes shall be maintained in the AHJ's aquatic facility files.	*Cannot self-direct the AHJ in their own rules* – Remove… While I agree with the statement, it doesn't belong here	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	4.1.5.3	If a building permit is not required, plans and specifications shall be submitted to the AHJ for review and approval.	~~If a building permit is not required, plans and specifications shall be submitted to the AHJ for review and approval.~~ —The only permits we are discussing in this section deal with the AHJ requirements. This is implying there is not a need to go to the AHJ.	Section was inaccurate and unnecessary and therefore deleted.	N/A	N/A
Regulatory (REG)	4.1.5.3	If a building permit is not required, plans and specifications shall be submitted to the AHJ for review and approval.	No specific recommended change, but rather a specific concern: I am not clear on what this section means based on the definition of an AHJ. "If a building permit is not required plans and specification shall be submitted to the AHJ for review and approval." By whom is it not required?	This section has been deleted based on similar comments.	N/A	N/A
Regulatory (REG)	4.1.5.3.2 ANNEX	It is recommended to create or use the established appeals process in the AHJ. Additionally the MAHC recommends the creation of an Aquatic Health Advisory Committee (AHAC) (MAHC Section 6.7) in the AHJ. The AHAC plays an important "independent" review function in the overall appeals process.	Most states already have disputed actions rights and procedures. It is not recommended that new procedures be developed. An AHAC might be recommended, but the state legislature or AG would have to put the AHAC into the appeals process. Any decision would have to be advisory unless the committee membership was granted that authority by the legislature.	The section clearly states their role as advisory. No Change	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.12.3.3.3	An audible warning system shall be provided to alert bathers of the beginning of wave generation.	*Audible warnings systems can be counterproductive as they may result in persons running to get into the wave pool or running in the shallow areas to get into the deeper areas – all as soon as they hear the sound.* – Delete	Recommendation implemented. This will be left to the discretion of the designer / engineer / owner.	N/A	N/A
Design & Construction (D&C)	4.12.5.2.2	Access/egress prohibited except at designated locations established by the designer.	*No safety justification for this in a shallow water leisure river. Counterproductive as bathers will hold onto handholds clogging up the river flow/access to others.* – Delete	Recommendation implemented.	N/A	N/A
Design & Construction (D&C)	4.12.7.3	The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm).	*A 5 inch opening will allow head or body entrapment that could be prevented if the opening is less than 4 inches.* -- The bulkhead shall be designed, installed and operated so that either: 1) The bulkhead extends down to the pool floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than ~~5 inches (12.7 cm)~~4 inches, or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than ~~5 inches (12.7 cm)~~4 inches.	This section has been deleted.	N/A	N/A
Design & Construction (D&C)	4.12.7.3	The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm).	*This is not the current industry standard. Is there science or data to suggest that there is currently an issue that should be addressed here? None that I'm aware of or addressed in the annex.* -- ~~The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm).~~	Recommendation implemented. Section deleted	N/A	N/A
Design & Construction (D&C)	4.12.7.3	The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm).	Use SI. Suggest (760 mm) & (125 mm) the same in 2)	Section deleted.	N/A	N/A
Design & Construction (D&C)	4.12.7.4	A line of contrasting color at least 4 inches (10.2 cm) wide shall mark the bottom edge of the bulkhead.	Suggest (100mm)	Recommendation implemented.	N/A	N/A
Design & Construction (D&C)	4.12.7.4	A line of contrasting color at least 4 inches (10.2 cm) wide shall mark the bottom edge of the bulkhead.	*This is not typical and I don't understand the purpose / benefit.* -- ~~A line of contrasting color at least 4 inches (10.2 cm) wide shall mark the bottom edge of the BULKHEAD~~	Recommendation implemented. Section deleted.	N/A	N/A
Design & Construction (D&C)	4.2.1.5.1	The roughness or irregularity of the finish shall not cause injury or discomfort to the feet during normal use.	*American Concrete Institute & National Plasters Council* -- Please note that all cementicious surface are rough to the touch and capable of causing "injury or discomfort" during normal use. – REFERENCE: ACI 506 and NPC Technical Manual; Section 1.0	This paragraph has been deleted in its entirety.	N/A	N/A
Design & Construction (D&C)	4.2.1.5.1	The roughness or irregularity of the finish shall not cause injury or discomfort to the feet during normal use.	*The term "discomfort" has no objective meaning in this context, is highly subjective and unenforceable.* -- 4.2.1.5.1 The roughness or irregularity of the finish shall not cause injury ~~or discomfort~~ to the feet during normal use.	This subparagraph has been deleted in its entirety.	N/A	N/A
Design & Construction (D&C)	4.2.2.1.2	Interior finish materials that become wet due to splashing or uncontrolled condensation shall not support the growth of biological contaminants.	"Uncontrolled Condensation" needs defined	This paragraph has been removed	N/A	N/A
Design & Construction (D&C)	4.2.2.1.2	Interior finish materials that become wet due to splashing or uncontrolled condensation shall not support the growth of biological contaminants.	*Do these exist? Recommend deleting.* -- Interior finish materials that become wet due to splashing or uncontrolled condensation shall not support the growth of biological CONTAMINANTs.	Modified to read "contribute to" the growth of biological contaminants.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.2.2.1.2	Interior finish materials that become wet due to splashing or uncontrolled condensation shall not support the growth of biological contaminants.	*It is nearly impossible to have a surface that does not support the growth of biological contaminants when wet. The wording in Section 4.2.2.5.2 is better: "that do not contribute to the growth of biological contaminants."* -- Interior finish materials that become wet due to splashing or uncontrolled condensation shall not contribute to ~~support~~ the growth of biological CONTAMINANTs.	Changed to "contribute to..."	N/A	N/A
Design & Construction (D&C)	4.2.2.2.2.2	Unless specifically forbidden by the manufacturer, the paint or coating shall be applied in two or more coats.	*This is a means and methods direction and does not belong in a code.* -- ~~Unless specifically forbidden by the manufacturer, the paint or coating shall be applied in two or more coats.~~	Recommendation implemented.	N/A	N/A
Design & Construction (D&C)	4.2.2.5.4	Natatorium windows shall be glazed to the interior side or be otherwise constructed to minimize the risk of uncontrolled condensation.	*Can you "glaze" a window to minimize the risk of condensation? I think this might be bad terminology.* -- Natatorium windows shall be glazed to the interior side or be otherwise constructed to minimize the risk of uncontrolled condensation. – REFERENCE: Common types of glazing that are used in architectural applications include clear and tinted float glass, tempered glass, and laminated glass as well as a variety of coated glasses, all of which can be glazed singly or as double, or even triple, glazing units.	Section deleted. The terminology is correct; however, after further discussion, it was felt this would be best removed and some modest commentary on design practices should be added to the annex. It reads: "Windows are usually maintained above natatorium-air dew point to prevent condensation and mold growth by heated supply air flowing over them. Heavy window frames on the interior side interfere with the proper flow of this heated air by the Coanda effect (a corollary of Bernoulli's principle). There are many ways mechanically to address window condensation issues. Air supply can be dumped on glazing from both above and below. Fin tube heaters have also been effectively employed along sills in many instances."	N/A	N/A
Design & Construction (D&C)	4.5.14.4 NEW PROPOSED SECTION	N/A	For therapy similar special fitness pools used under supervision, hand holds may consist of stainless steel or non-corrosive horizontal exercise (ballet) bars if the top of bar is installed not more than 9 inches above or 3 inches below the static water level.	Specific therapy pool design requirements would be in section 4.12.4. However, this was not added since it was viewed as a generally acceptable handhold for all types of pools. Refer to 4.5.14.1.	N/A	N/A
Design & Construction (D&C)	4.5.2.4.1	If the central location includes main drains, the entire area of the main drains may be level.	*Possible misinterpretation could be that drains need to be "centrally located" in all pools.* -- ~~If the central location includes main drains~~, the entire area of the main drains may be level.	Paragraph removed.	N/A	N/A
Design & Construction (D&C)	4.5.4.1.1 and 1.2	4.5.4.1.1 At least one access/egress point shall be at the shallow end of the aquatic venue. 4.5.4.1.2 At least one access / egress point shall be at the deep end of the aquatic venue.	*In many aquatic venues, there is not pool and many have the same depth of water throughout. Ingress/egress should be based on manufacturer requirements.* -- Change "aquatic venues" to "pools" used primarily for recreational swimming"	Manufacturers don't have ingress/egress requirements unless we're talking about waterslides, etc. These two sections are in the majority of current standards today and are more for smaller pools. For most pools, 4.5.4.3 would apply requiring ingress/egress every 75 feet.	N/A	N/A
Design & Construction (D&C)	4.5.4.1.2	At least one access / egress point shall be at the deep end of the aquatic venue.	Again, many factors must be considered here such as type of venue and safety/need of doing so.	Recommendation not implemented. There are exemptions and reliefs from these and other requirements for "non-traditional" pools in section 4.12.	N/A	N/A
Design & Construction (D&C)	4.5.4.1.2	At least one access / egress point shall be at the deep end of the aquatic venue.	*European Committee for Standardization* -- The requirement for an ingress / egress point at the deep end of the aquatic venue may be too restrictive in specific instances. It is recommended that a "Risk Assessment" type of analysis be required. – REFERENCE: EN Standards	It's not clear what specific instances are being referred to that would prohibit the installation of recessed steps or a ladder. No changes made.	N/A	N/A
Design & Construction (D&C)	4.5.4.1.2	At least one access / egress point shall be at the deep end of the aquatic venue.	*Exception needed for wave pools.* -- Exception to entry required in deep water: wave pools	Specific ingress/egress requirements for wave pools are addressed in 4.12.2.	N/A	N/A
Design & Construction (D&C)	4.5.4.1.2	At least one access / egress point shall be at the deep end of the aquatic venue.	I would refer to the recent APSP -5 language change proposal, if I completely understand their reason for the change. -- *Might want to rethink this wording. Some pools do not have a "deep end," but a deep middle or some other configuration.*	Changed to the "deepest portion" of the pool and similarly, 4.5.4.1.1 has been changed to the "shallowest portion."	N/A	N/A
Risk Management (RM)	4.5.5.2.8.2	*NO DIVING symbols are not required to be installed where competition diving is in practice.*	*Not practical.* -- It is hard to believe that there are facilities that ONLY are used for competitive diving. This should be removed	Agreed. This section has been deleted.	N/A	N/A
Risk Management (RM)	4.5.5.2.8.2	*NO DIVING symbols are not required to be installed where competition diving is in practice.*	*To say "where competition diving is in practice" is incongruous. Practice and training are synonymous with respect to sports and are the opposite of competition.* -- NO DIVING symbols are not required to be installed where competition diving is in practice. "NO DIVING" symbols are not required to be installed where competitive diving and training are permitted.	Agreed. It is unlikely that this scenario occurs so the section has been deleted.	N/A	N/A
Risk Management (RM)	4.5.5.2.8.2	*NO DIVING symbols are not required to be installed where competition diving is in practice.*	*Not necessary for this signage where there is no access or access is restricted.*-- Include at end of present sentence "or controlled access AQUATIC VENUES such as an activity pool, lazy river, etc. -- Reference: Tracks the language of 4.5.5.1.7; Also required to be on signage as per 6.4.2.2.4	Agreed. This section has been deleted since exclusivity for diving is unlikely.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Design & Construction (D&C)	4.5.8.7.1	A gutter shall be considered a step.	*Not all gutter configurations are safe as steps. Certainly open gutters without grates are not.* -- A covered or grated gutter may be used as a step.	Recommendation implemented.	N/A	N/A
Design & Construction (D&C)	4.5.8.7.1	A gutter shall be considered a step.	This entry causes a problem with gutter being less than required minimum step height to go from gutter to deck if defined as a step. Many pools have only a 2" step up to deck from gutter surface, which would make them noncompliant with this Code as written.	This section has been deleted, but more to just merge with 4.5.8.8. If we were to make the gutter meet all of the recessed step requirements, only deck level or fully recessed gutters would be acceptable due to both the elevation and set back differences between many gutters and decks.	N/A	N/A
Design & Construction (D&C)	4.5.9.4.1	Ladders outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of MAHC Sections 4.5.9.4.2 to 4.5.9.4.5, below.	*Ladders are not an ADA approved means of access. The ADA 2010 Standards have specific requirements. No need to repeat them here.* -- Delete	Recommendation implemented.	N/A	N/A
Design & Construction (D&C)	4.5.9.4.1	Ladders outside dimensions intended to serve as a means of ADA accessibility shall conform to requirements of MAHC Sections 4.5.9.4.2 to 4.5.9.4.5, below.	Reference should be made to the specific ADA standard here and not to MAHC sections.	This paragraph has been deleted. This was included as an oversight initially since ladders are not an acceptable means of access per ADA.	N/A	N/A
Design & Construction (D&C)	4.6.11.1	N/A	*911 not available in all areas* -- REPLACE TO SAY " A telephone capable of directly dialing 911 or emergency personnel where 911 service is not available shall be provided and accessible to all AQUATIC VENUE users"	Not FD&C Module. Covered in Risk Management.	N/A	N/A
Ventilation (VEN)	4.6.2.1.11	Ventilation system design may not consider retractable roofs as part of the fresh air calculations for the indoor aquatic facility.	Change "fresh air" to "OUTDOOR AIR". Delete the word "INDOOR	Partially Agree. All references to "fresh air" changed to OUTDOOR AIR.	N/A	N/A
Ventilation (VEN)	4.6.2.1.11	Ventilation system design may not consider retractable roofs as part of the fresh air calculations for the indoor aquatic facility.	~~Ventilation system design may not consider retractable roofs as part of the fresh air calculations for the INDOOR AQUATIC FACILITY.~~ -- This is covered in the subsequent sections	Agree. Code revised and re-worded.	N/A	N/A
Ventilation (VEN)	4.6.2.1.12	Ventilation system design shall consider the effects of the planned opening of an open roof, door, and windows, if they exist in the indoor aquatic facility.	Delete the word "INDOOR AQUATIC FACILITY" with "NATATORIUM"	Disagree. The term Natatorium is too restrictive on defining the broad based application where the code will be used.	N/A	N/A
Ventilation (VEN)	4.6.2.1.19	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or safety alerts.	This should not be the responsibility of the design engineer. -- AQUATIC FACILITY ventilation system ~~design engineer and/or the ventilation system~~ manufacturer or installer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or SAFETY alerts.	Agree. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.1.19	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or safety alerts.	Requiring the design engineer to make such notifications is an unreasonable expectation and likely creates uninsurable professional liability. -- This should be sole responsibility of manufacturer. – REFERENCE: Recommend consulting professional liability insurance industry opinion on this.	Agree. (Note- incorrect code section cited-should be 4.6.2.1.19.) Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.1.19	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or safety alerts.	The designer would not have access to this information. -- AQUATIC FACILITY ventilation system ~~design engineer and/or~~ the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or SAFETY alerts.	Agree. This section has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.1.19	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or safety alerts.	This is impractical and unenforceable. The design engineer is not in a position to know about product changes or alerts and there may be dozens of equipment manufacturers associated with the job. This is a product liability issue that is outside the scope of a health code. – DELETE	Agree. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.1.19	Aquatic facility ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or safety alerts.	~~AQUATIC FACILITY ventilation system design engineer and/or the ventilation system manufacturer shall provide facility owner with notifications of relevant ventilation system recalls, part changes, or SAFETY alerts.~~ -- This requirement while seemingly serious cannot be accomplished nor can it be verified. It has no time limit which would make the mfgr and engineer responsible forever. How would a code inspector know if this section has been complied with. A design engineer and the manufacturer is hired (paid money) to make the design and provide the equipment. They are NOT paid to keep providing updates forever. Any required notifications for equipment recalls would be made in the normal course of business.	Agree. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.1.9	Ventilation system design fresh air calculations may include surge tank and gutter systems that introduce fresh air into the indoor aquatic facility.	This is an unnecessary statement that adds confusion. None of the previous or subsequent paragraphs describe HOW the ventilation air will be transported, so nothing in this model code as written would prohibit air transport via a new technology. Future technological developments may reduce the need for OUTDOOR AIR ventilation, but that should be addressed in the future after adequate experience is gained. -- Delete this entirely.	Agree. Code revised to be more general about other outdoor air introductions not associated with the ventilation system.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.1.9	Ventilation system design fresh air calculations may include surge tank and gutter systems that introduce fresh air into the indoor aquatic facility.	~~Ventilation system design fresh air calculations may include surge tank and gutter systems that introduce fresh air into the INDOOR AQUATIC FACILITY.~~ -- This statement seems to be pandering to a specific type of design which could give an unfair advantage to other manufacturers. If you want to include other things that may reduce the combined chlorine products, the place for it is in the calculation equation so people know how to deal with it and not as a separate clause.	Agree. Code revised to address other outdoor air introductions.	N/A	N/A
Monitoring and Testing (M&T)	4.6.2.2	N/A	Air Quality – Health – *I have yet to attend a pool where I did not smell the chloramine odor. "Smell" is very ambiguous. Remediation cannot occur unless precise data is being captured. However, simple testing kits are not available. This presents a chicken or the egg problem. They will not become available unless there is a requirement for them.* -- Existing Language: "Monitoring for trichloramines can be effectively accomplished by training pool operators to be on alert for the distinctive chloramine odor. The odor threshold for trichloramine is 0.1 mg/m3 and health symptoms start happening around 0.3-0.5 mg/m3, so odor monitoring generally works well as an early warning system" Proposed Language: "Monitoring for trichloramines is necessary to ensure the pulmonary health of users and staff. Trichloramine levels shall be reported with pool water test reports. Any levels exceeding 0.3 mg/m3 shall include a description of activity occurring in the pool and the action the pool operator took to reduce trichloramine levels in the air. An audible alarm shall sound when levels reach or exceed 0.5 mg/m3."	The MAHC committees are not aware of a rapid and commercially available test to quantify trichloramines in the air and this wording has been added to the Annex. Requiring testing when no rapid, commercially available test is available means that facilities automatically fail this code requirement which is not acceptable for any regulatory authority or facility. Commercial tests are being discussed that will meet the market need. This is certainly a potential research agenda. Please see the MAHC Ventilation Module, the Disinfection and Water Quality Module, and Hygiene Module Code and Annex for further guidance on improving air quality.	N/A	N/A
Ventilation (VEN)	4.6.2.2.5	Indoor aquatic facility ventilation system design, construction, and installation shall include a conspicuous permanent data plate or label on the exterior of the equipment, which provides ventilation system information that affects health and safety, including the minimum number of cubic feet per minute of fresh air furnished by each sub-unit of the indoor aquatic facility's ventilation system.	~~INDOOR AQUATIC FACILITY ventilation system design, construction, and installation shall include a conspicuous permanent data plate or label on the exterior of the equipment, which provides ventilation system information that affects health and SAFETY, including the minimum number of cubic feet per minute of fresh air furnished by each sub-unit of the INDOOR AQUATIC FACILITY's ventilation system.~~ -- What equipment? There may be several pieces of equipment including air handlers, dehumidifiers, exhaust fans etc. What is a "sub-unit"? Normally a data plate is put on by the equipment manufacturer. Any data plates that appear on the equipment imply responsibility for the information. Equipment manufacturers do not have the knowledge and ability to control this information.	*Agree. Requirement for permanent data plate/label deleted.*	N/A	N/A
Ventilation (VEN)	4.6.2.2.5	Indoor aquatic facility ventilation system design, construction, and installation shall include a conspicuous permanent data plate or label on the exterior of the equipment, which provides ventilation system information that affects health and safety, including the minimum number of cubic feet per minute of fresh air furnished by each sub-unit of the indoor aquatic facility's ventilation system.	Data tags on exterior fade and disappear. Equipment supplier should include this data on the interior as well in a control cabinet. -- Data tag required on interior in addition to exterior	Agree. *Requirement for permanent data plate/label deleted.*	N/A	N/A
Ventilation (VEN)	4.6.2.2.5	Indoor aquatic facility ventilation system design, construction, and installation shall include a conspicuous permanent data plate or label on the exterior of the equipment, which provides ventilation system information that affects health and safety, including the minimum number of cubic feet per minute of fresh air furnished by each sub-unit of the indoor aquatic facility's ventilation system.	Tagging each piece of equipment is insufficient to communicate the entire picture to the operator; furthermore, designs and equipment might be changed in the future rendering the information on old tags obsolete. A one-line diagram is easy to maintain and update. -- Delete entirely and replace with: "Post a NATATORIUM ventilation system one-line diagram that diagrammatically shows and identifies the fans, ductwork, air intakes and exhausts, including controlled exterior openings and quantifies the OUTDOOR airflow CFM into the NATATORIUM and EXHAUST airflow CFM out of the NATATORIUM. The diagram shall include the date of the design and identify the design engineer." Add definition "CFM means cubic feet per minute of airflow".	Agree. Requirement for permanent data plate/label deleted.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	1) Exception 1: The design of facilities where the air temperature is to be maintained more than 2F below water temperature shall require special engineering consideration of evaporation rates and heating of the air by the pool. Exception 2: The design of facilities where the air temperature is to be maintained more than 8F above water temperature shall require special engineering consideration of maximum air temperatures for health.— re: Exception 1 - The present language unnecessarily restricts smaller special venues, especially those where the natatorium is used temporarily for other purposes, such as social gatherings. In this case, there may be multiple set points. Examples are available. re: Exception 2 – The present language un-necessarily restricts smaller special venues, especially those involving cultural/religious uses, such as cold-plunge pools.	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	Having such a large difference in dry bulb facility air is again very dangerous and will cause more problems and legal implication than what is trying to be accomplished. When you allow for the air to swing by 6 degrees and if the section above is not altered than when the ventilation system is designed for the 8F to maintain the 24 hour 65%RH and occupants complain about the chilling effect which they will certainly do, owner lowers the air temperature and ventilation system will be undersized dramatically and RH will soar over 70% to 75% for the same 24 hour period. I would strongly suggest that the above 2.6.2.3.1 be changed and the following wording be changed to: facility air temperature at no more than 3F above or 0F below the average aquatic venue water temperature, I would also add the warning that the ventilation system design engineer and manufacturer provide performance information to the owner in writing as to the under or over performance of the proposed ventilation system to be specified and/or installed.	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	It is very simple for an air handling system to meet this requirement, but there is a very large associated change in the required dehumidification due to evaporation as well as a significant effect on bather comfort. Keeping the air temperature 2 degrees above the water temperature helps to limit the dehumidification load and keep swimmers from freezing as they exit the water. This recommendation is in no way specific to any manufacturer or any type of system, and is a very important design parameter for both the design engineer and owner to understand. – REFERENCE: ASHRAE Applications Handbook 4.6, Load Estimation	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	Same as above, need caveat for ventilation only systems.	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	The standard as proposed does not address cold plunge pools. It is not uncommon for some therapy pools to be in the 40°F range. This would result in a room 48°F. -- Indoor Aquatic Facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average Aquatic Venue water temperature, without including Aquatic venues that are below 65°F or exceed 90°F in this design calculation – REFERENCE: http://www.swimex.com/therapy/pools/hot_spa_cold_plunge.html	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	~~INDOOR AQUATIC FACILITY ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average AQUATIC VENUE water temperature,~~ -- This requirement would FORCE most pool designs to include some form of mechanical cooling. Pool facilities constructed on a limited budget or that are designed with equipment that may not be capable of providing mechanical cooling would not be allowed. This would eliminate a whole class of equipment and cause a significant first cost and operating increase to the owner.	Requirement for air temperature has been deleted.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.3.2	Indoor aquatic facility ventilation system design shall be capable of maintaining the facility air temperature at no more than 8° above or 2° below the average aquatic venue water temperature, without including aquatic venues that exceed 90° F (32°C) in this design calculation.	The temperature range given is too broad and not useful for designers. ASHRAE publishes ranges to give a designer an approximation of operating conditions but a discussion with the end user to establish their intention is critical. – REFERENCE: ASHRAE gives guidelines that should be referenced.	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.3.2 ANNEX	Air Temperature The Oklahoma pool code states that air temperature should be no more than 8° above pool temp and no lower than 2° less than pool temp based on a max pool temp of 90oF (32°C), excluding spas and hot tubs. The committee felt these parameters were satisfactory to utilize in the MAHC. It is recognized that air temperature is largely a comfort factor, but high air temperatures do affect air circulation and could lead to heat exhaustion in users.	It is very simple for an air handling system to meet this temperature requirement, but there is a very large associated change in the required dehumidification due to evaporation as well as a significant effect on bather comfort. Include a statement "Keeping the air temperature 2 degrees above the water temperature helps to limit the dehumidification load and keep swimmers from freezing as they exit the water." This recommendation is in no way specific to any manufacturer or any type of system, and is a very important design parameter for both the design engineer and owner to understand. This does not apply to Hot Water pools. – REFERENCE: ASHRAE Applications Handbook 4.6, Load Estimation	Requirement for air temperature has been deleted.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	Add State FPM as guideline. Since ASHRAE evaporation formula are based on 10 FPM which again in my opinion is too low. 30 to 60 FPM should be a standard as I had mentioned before these facilities have two unique operating conditions 1] heating i.e. 30 fpm and 2] cooling 60 fpm. This has been discovered by the more than 6 CFD natatorium analysis's I have been part of since 2007 including Great Wolf Lodge Mason Ohio.	Agree. Drafts on bathers deleted from code.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	The pool surface should have 10 to 50 FPM air speed to remove disinfection by-products. This may require non-zero air speed across the deck. -- To reduce direct drafts on BATHERs, INDOOR AQUATIC FACILITY ventilation system design shall minimize air velocities at deck level ~~to reduce direct drafts on BATHERs~~ to that necessary to produce proper air speed across the pool surface.	Agree. Drafts on bathers deleted from code.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	The words "minimize" and "reduce" are ambiguous and no measure of meeting the standard can be defined. There are gutter air return systems that pull through the gutter or at deck level that violate this language. This language is not in the best interest of the industry. -- ~~Indoor Aquatic Facility ventilation system design shall minimize the air velocities at deck level to reduce direct drafts on Bathers~~	Agree. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	This recommendation is incorrect. Air movement on the deck and into the breathing area is critical towards good IAQ. Your recommendation will have a negative impact on IAQ.	Agree.. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	This requirement is inconsistent with the desire of the MAHC to provide better guidance than is currently available, as illustrated with the second bullet point in 4.6.2 from the Annex which correctly notes that existing codes are "vague", have "very general language". In this requirement, the terms "minimize" and "reduce" are not defined. Further, this could be interpreted as being in conflict with 4.6.2.1.8 Item 8, which requires collection of return air near all venue surfaces. ASHRAE recommends not exceeding 30 fpm face velocity. Suggested new language – ""The INDOOR AQUATIC FACILITY ventilation system design shall have air velocity at deck level of no greater than 30 fpm to reduce direct drafts on bathers" – REFERENCE: ASHRAE Applications Handbook 2007 4.6 Duct Design	Partially agree. Drafts on bather deleted from this section.	N/A	N/A
Ventilation (VEN)	4.6.2.4.2	Indoor aquatic facility ventilation system design shall minimize air velocities at deck level to reduce direct drafts on bathers.	INDOOR AQUATIC FACILITY ventilation system design shall ~~minimize air velocities at deck level to reduce direct drafts on BATHERs.~~ Provide air velocities of 25 ft/ min at the deck level to eliminate off gassing contaminants. Higher values should be avoided to minimize the effect on water evaporation rate. -- Drafts are the least of a bather's worries. – REFERENCE: Manual SPS HVAC Design for Pools and Spas, ANSI/ACCA 10 Manual SPS-2010, ACCA, Arlington VA, pg 77	Agree. Drafts on bathers has been deleted from the code.	N/A	N/A
Ventilation (VEN)	4.6.2.4.4	Indoor aquatic facility ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.	~~INDOOR AQUATIC FACILITY ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.~~ -- This is not code language! There is no way to either decide what "effective" is or any way to enforce it.	Agree. Code revised.	N/A	N/A
Ventilation (VEN)	4.6.2.4.4	Indoor aquatic facility ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.	Meeting the standard above will accomplish this? -- INDOOR AQUATIC FACILITY ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.	Agree. Code revised.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	4.6.2.4.4	Indoor aquatic facility ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.	Recommend the use of specialized carbon chloramine air filtration as another means to lower fresh air requirements if the "Ventilation System" gets feedback confirming that the Combined Chlorine Levels are at a ____ ppm acceptable level. If this level should increase than the "Ventilation System" shall proportionally increase the amount of OA until the calculated amount has been reached.	This has been added to the annex as part of further research for reduction of outdoor air	N/A	N/A
Ventilatio n (VEN)	4.6.2.4.4	Indoor aquatic facility ventilation system design shall provide effective filtration of fresh and recirculated air that addresses the specific indoor and outdoor environmental considerations for the facility.	Sentence is meaningless. Filters are addressed in 4.6.2.4.5 -- Delete entirely.	Agree. Code revised.	N/A	N/A
Recirculation and Filtration	4.7.1.10.6.1	A flow turndown system shall have an online turbidimeter capable of pulling water from the recirculation system ahead of the filter	This is not an industry practice and turbidity is not a measure of disinfectant. This should be a performance based requirement. Due to different chlorinating system (etc. salt generators) it would be difficult to set a standard requirement for turbidity.	Disagree. This is allowing/acknowledging a performance based approach to filtration. Turnover rates are to address particle/turbidity removal through filtration based on the consecutive dilution process . Disinfectant distribution is based on dispersion and influenced by circulation within the pool but wording has been revised to eliminate use of turbidimeters to monitor.	N/A	N/A
Recirculation and Filtration	4.7.1.10.6.2	A flow turndown system shall have a VFD(s) linked to an online turbidimeter and the main recirculation system flow meter(s).	This is not an industry practice and turbidity is not a measure of disinfectant. This should be a performance based requirement. Due to different chlorinating system (etc. salt generators) it would be difficult to set a standard requirement for turbidity.	Disagree. This is allowing/acknowledging a performance based approach to filtration. Turnover rates are to address particle/turbidity removal through filtration based on the consecutive dilution process. Disinfectant distribution is based on dispersion and influenced by circulation within the pool but wording has been revised to eliminate use of turbidimeters to monitor.	N/A	N/A
Recirculation and Filtration	4.7.1.10.6.3	A flow turndown system shall have a VFD(s) programmed to modify the system flowrate when the turbidity is less than the maximum allowable value.	This is not an industry practice and turbidity is not a measure of disinfectant. This should be a performance based requirement. Due to different chlorinating system (etc. salt generators) it would be difficult to set a standard requirement for turbidity.	Disagree. This is allowing/acknowledging a performance based approach to filtration. Turnover rates are to address particle/turbidity removal through filtration based on the consecutive dilution process. Disinfectant distribution is based on dispersion and influenced by circulation within the pool but wording has been revised to eliminate use of turbidimeters to monitor.	N/A	N/A
Recirculation and Filtration	4.7.1.10.7.1	The system flowrate shall be based on maintaining a turbidity goal of less than 0.5 NTU in the pool.	The system flowrate shall be based on maintaining a turbidity ~~goal~~ of less than 0.5 NTU in the POOL. -- Removed the word "goal". If it is a "goal", then mandatory language of "shall" is not necessary, and the entire section is not necessary, since it would then only be a recommendation	Agree. Code revised and wording has been revised to eliminate use of turbidimeters to monitor.	N/A	N/A
Recirculation and Filtration	4.7.1.10.7.1	The system flowrate shall be based on maintaining a turbidity goal of less than 0.5 NTU in the pool.	This is not an industry practice and turbidity is not a measure of disinfectant. This should be a performance based requirement. Due to different chlorinating system (etc. salt generators) it would be difficult to set a standard requirement for turbidity.	Disagree. This is allowing/acknowledging a performance based approach to filtration. Turnover rates are to address particle/turbidity removal through filtration based on the consecutive dilution process. Disinfectant distribution is based on dispersion and influenced by circulation within the pool but wording has been revised to eliminate use of turbidimeters to monitor.	N/A	N/A
Recirculatio n and Filtration	4.7.1.3.3.1	Additional low level recirculation shall be provided for areas deeper than 10 feet.	What does "low level recirculation" mean? I think it means you recommend deep water inlets in areas of a pool that has a water depth deeper than 10 feet. The 4.7.1.3 Annex sections for inlets do not make a case to support this as a requirement.	Agree. Section deleted.	N/A	N/A
Recirculation and Filtration	4.7.1.3.3.1	Additional low level recirculation shall be provided for areas deeper than 10 feet.	Water inlets (wall) shall be certified in accordance with NSF/ANSI Standard 50. Inlets shall be installed and used in accordance with manufacturer instructions and aquatic facility designer criteria for optimum circulation. Rationale: NSF has balloted and passed evaluation and testing criteria for water return inlets. This section of NSF 50 has not yet been published yet but will be issued in late 2013 or early 2014. The criteria includes inlet material safety, corrosion resistance, head loss (pressure or pumping resistance), pressure safety, horizontal and or vertical load testing, dimensional compliance for connections (ie threaded ends) and UV strength for plastic fitting materials for outdoor use. Manufacturers may also have their inlet or return fittings tested for distance of water projection into the pool at a range of pressures -- Health, safety and performance issue __ REFERENCE: NSF/ANSI Standard 50 is the criteria used to evaluate, test, and certify pool, spa, and recreational water equipment. It's scope includes all materials, products and equipment for use at pool spas and other aquatic facilities. NSF. Therefore this industry standard should be referenced	Agree. MAHC specifies that all equipment used or proposed for use shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	N/A	N/A
Recirculation and Filtration	4.7.1.3.3.2	Wall inlet velocity shall mix the water effectively.	This Annex section simply indicates that the vertical range of a wall inlet is limited. Although I agree, the Annex offers no citation of evidence to back up this claim. The Annex here only "recommends" deep water wall inlets while the Code requires them by using "shall." It is very inconsistent to require something in the Code only to waffle about it in the Annex. This happens in more than one location in the Code/Annex.	Agree. Section deleted.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.1.7.1.1	Recirculation system piping shall be designed according to accepted engineering practices.	RECIRCULATION SYSTEM piping shall be designed according to accepted engineering practices. GENERAL COMMENT: "Accepted engineering practice" for plastic piping, according to the trade organization, is 5 fps, based on testing and experience. That is lower than commonly used in pools.	Agree. Section deleted.	N/A	N/A
Recirculation and Filtration	4.7.1.7.3.4	Provisions shall be made for expansion and contraction of pipes due to temperature variations.	DELETE? Redundant to 4.7.1.7.3.1?	Agree. Code revised to eliminate duplication.	N/A	N/A
Recirculation and Filtration	4.7.1.7.3.4	Provisions shall be made for expansion and contraction of pipes due to temperature variations.	~~Provisions shall be made for expansion and contraction of pipes due to temperature variations. –~~ Text is a duplicate of 4.7.1.7.3.1	Agree. Code revised to eliminate duplication.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2 Table	See Annex for table	I don't understand the tables in this section of the Annex. Some units and explanation is necessary in each table to establish a chlorine feed rate table in addition to the sample calculation. There must be something else I don't understand because the Annex tables do not match the code requirements. Section 4.7.3.2.2.2 lists the chlorine doses (presumably for standard use) outdoor and indoor pools. Section 4.7.3.2.2.2.1 lists the chlorine doses for high use outdoor and indoor pools. The corresponding Annex tables 4.7.3.2.2.1 and 4.7.3.2.2.2 for standard use pools and tables 4.7.3.2.2.3 and 4.7.3.2.2.4 for high use pools do not match with each other or with the code. I would think that the code and each table should be consistent for the 10,000 gallon standard use pool and for the 10,000 gallon high use pool.	Agree. Code and Annex revised.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2.2.1	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	I do not agree with having a high use table because a designer cannot effectively predict what facilities will actually be high use. The list in this section only mentions water parks and health clubs. If a facility type is not mentioned here in the code, then an owner could argue that they are not high use. I would add hotels and motels to this list because they usually have high bather loads on weekends and often run cloudy at that time. I suggest that if this section is retained with higher feed rates, that the facilities mentioned in the section be moved to the Annex and a discussion be included in the Annex about what types of facilities are more likely to be high use.	Agree. Code revised, high-use requirements section deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2.2.1	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	This requirement should be rewritten to a performance based requirement considering peak bather loads, gallons and strength of the chlorine created.	Disagree. Commenter did not provide suggested code language.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2.2.1	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	1) Current dosing parameters are not enough to maintain MINIMUM SANITATION STANDARDS in SWIMMING POOLS. -- Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: i. 7.6 ppm per hour for a given pool ii. Calculate as follows: - For Sodium hypochlorite…GPD (Gallons Per day)(Sodium Hypochlorite) = ((10.7 x (Pool Gallons / 10,000) x 7.6) / 128) x 24 iii. For Cal Hypo – replace 10.7 with 2, and 128 with 16. iv. For Gas Chlorine/Salt Generation – Replace 10.7 with 1.3, and 128 with 16. REFERENCE: HCF SPECIFICATION (Attached) – by Link Automation.http://treatmentspecialties.net/uploads/3/0/2/7/3027453/hcf_spec.pdf	Agree. Code revised.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2.2.1	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	Don't know the effective percentage of chlorine that you would put in as it would be different for different chlorine system. Feed rate will not provide consistent disinfection. The system should be sized to meet the disinfection requirements of the venue.	Code revised, high-use requirements section deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.2.2.1	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water	Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following ~~minimum dosage~~ capacity: -- Same as above	Code revised, high-use requirements section deleted.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.2.2.1 CODE & ANNEX	Code: Feed equipment serving high use facilities such as water parks and high use health club facilities shall be sized to provide the following minimum dosage: 1) Outdoor (unstabilized): 2.7lbs/day/FAC/10,000 gals. POOL water; 2) Indoor: 1.25lbs/day/ FAC/10,000 gals. POOL water Annex: See Annex for Tables	The Tables and sample calculations should be changed according to comment regarding 4.7.3.2.2.2 above. -- 1) Outdoor (unstabilized): 2.7 lbs of FAC/day/FAC /10,000 gals. POOL water Indoor: 1.25 lbs of FAC/day/FAC/10,000 gals. POOL water. Outdoor POOLs (stabilized): 1.4 lbs of FAC/day/10,000 gals. of POOL water.	Agree. Code and annex revised.	N/A	N/A
Recirculation and Filtration	4.7.3.2.3.1	All chemical adjustment feeders shall be positive displacement type such as diaphragm or peristaltic.	I don't understand what is meant by this section. This seems to exclude erosion feeders and perhaps electrolytic chlorine generators. Without any Annex discussion or research that invalidates erosion feeders or EC generators, I do not agree with this section. This needs to be reconciled with sections 4.7.3.2.7.2 and following of the code which has basic requirements for dry chemical feeders.	Agree. Section 4.7.3.2.3 has been deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.3.1	All chemical adjustment feeders shall be positive displacement type such as diaphragm or peristaltic.	All chemical adjustment feeders shall be either positive displacement, erosion, or flow through venturi type -- NSF/ANSI Standard 50 – REFERENCE: http://info.nsf.org/Certified/Pools/Listings.asp?ProductType=50H&	Agree. Section 4.7.3.2.3 has been deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.3.1	All chemical adjustment feeders shall be positive displacement type such as diaphragm or peristaltic.	All chemical adjustment feeders shall be positive displacement type such as diaphragm or peristaltic, or based on vacuum suction type such as venturi. – There seems to be a discrepancy between 4.7.3.2.3.1 and 5.7.3.2.7.4 – the latter allows feeding chemicals via venturi (i.e. suction). To be consistent added wording to this section to reflect what is allowed in 5.7.3.2.7.4. Note that if the limitation in section 4.7.3.2.3.1 was intended to apply only to feeders of concentrated liquid chemicals (such as bleach or muriatic acid) and not all chemical adjustment feeders - the glossary does not include a specialized definition of "chemical adjustment feeder", so the reader is left to conclude that a "chemical adjustment feeder" is any chemical feeder of any type used to adjust chemical balance or concentrations in the treated water. The positive displacement requirement is addressed redundantly in section 4.7.3.2.7.1, except that there it is clarified that the reference is to "Liquid solution feeders".	Agree. Section 4.7.3.2.3 has been deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.3.1	All chemical adjustment feeders shall be positive displacement type such as diaphragm or peristaltic.	This requirement is not necessary and should be removed. The selection of chemical adjustment feeders will change as the technology changes and should be selected based on performance requirements.	Agree. Section 4.7.3.2.3 has been deleted.	N/A	N/A
Recirculation and Filtration	4.7.3.2.7.1 ANNEX	All UV units shall be installed into the system by means of a bypass pipe to allow maintenance on the UV unit while the pool is in operation.	All UV units ~~shall~~ should be installed into the system by means of a bypass pipe to allow maintenance on the UV unit while the pool is in operation. -- The word "shall" is not appropriate for the Annex. The text in the Annex is informational, not enforceable.	Disagree. The corresponding code section (annex mis-numbered, should be 4.7.3.2.7.7.1) states "shall" , by changing annex to "should" as suggested can create confusion.	N/A	N/A
Recirculation and Filtration	4.7.3.2.7.5.1	One-minute or faster air exchange shall be provided in chlorine gas storage rooms.	Eliminate item -- Although nice idea a bit excessive and not general current practice or any regulatory code requiring this and if it was a necessity it would be built into design from pump manufacturer -- REFERENCE: The Design, construction, operation and Maintenance of Public Swimming Pools-excerpts from CA Health and safety code, CA code of Regulations, CA Building Code, Ca Electrical Code	Partially agree. Section deleted. Not necessary as section 4 applies to new and/or substantially altered aquatic facilities and chlorine gas systems are prohibited in new/renovated settings. Note-the 1 minute air change requirement is in some current health department pool regulations and pool operation handbooks.	N/A	N/A
Recirculation and Filtration	4.7.3.2.8.10	Bromine generators shall be NSF approved.	Bromine generators shall be certified to NSF/ANSI 50 ~~approved.~~ by an ANSI-Accredited certification organization. -- Revised wording provides conformity with other sections with respect to product certification.	Agree. However section deleted, as equipment certification already addressed in another previous section.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	4.7.3.2.8.10	Bromine generators shall be NSF approved.	~~Bromine generators shall be NSF approved.~~ The bromine generator unit, when used, shall be third party certified in accordance with UL1081 (for electrical/fire/shock safety) and to NSF/ANSI Standard 50 (for health safety, performance, output, and operational safety) by an independent 3rd party nationally recognized testing laboratory (NRTL). Rationale: This section was poorly written and inconsistent with other sections as it relates to the electrical safety let alone the actual performance quantification of chemical feeding and generation systems. UL1081 addresses electrical shock, fire risks. NSF/ANSI 50 addresses the material safety, operational life testing, chemical output accuracy, chemical output quantity, operator safety, as well as burst pressure safety. -- Health, safety and performance issue and code compliance – REFERENCE: NSF/ANSI Standard 50 is the industry standard for health and performance safety testing and certification of chemical generators for the recreational pool and spa industry. UL1081 is the industry standard for electrical safety of chemical generators. These two standards are also already referenced in various state codes. NSF/ANSI Standard 50 is referenced in CA, TX, FL, NY, NC, and many other state public health and safety codes for pool spa and waterpark applications.	Agree. However section deleted, as equipment certification already addressed in a previous section.	N/A	N/A
Recirculation and Filtration	4.7.3.2.9.5	The solution reservoir's supply shall be a minimum of one week's supply.	How does a designer know how to size a solution container to have a one week supply? This is highly dependent on the source water, the type of disinfectant used, bather load, etc. Put this in the Annex.	Agree. Code revised. Information moved to annex.	N/A	N/A
Recirculation and Filtration	4.7.3.2.9.5	The solution reservoir's supply shall be a minimum of one week's supply.	This requirement is not practical or a large venue (e.g. water park, large feature pool)	Agree. Code revised. Information moved to annex.	N/A	N/A
Recirculation and Filtration	4.7.3.3	N/A	The following regulations shall apply to all public and private swimming pools, spas and hot tubs: "Cleaning Swimming Pools A vacuum-cleaning system shall be provided. When an integral part of the recirculation system, sufficient connections shall be located in the walls of the swimming pool, at least eight inches below the water line. * The operator of every pool and spa shall have available and use on a regular basis an electric robotic vacuum cleaner with an onboard filter bag compliant with the standards and certified by the NSF with an effective pore size to filter 50% of all Crytosporidium occysts with every passing. The operator of every pool and spa shall have available and use on a regular a handheld, power-drive vacuum cleaner compliant with the standards and certified by the NSF. capable of attaching a standard pool pole with an onboard micro filter bag with an effective pore size to filter 50% of all Crytosporidium occysts with every passing. Visible dirt on the bottom of the swimming pool shall be removed every 24 hours or more frequently as required. Visible scum or floating matter on the swimming pool surface shall be removed within 24 hours by flushing or other effective means." * BASIS For CHANGE: 1.) Any Health Code Must Include Guidelines and Regulations For Cleanliness. The MAHC will include a segment on Disinfection and Water Quality along with Recirculation and	Partially agree. Note -pool cleaning systems are addressed in the MAHC Design and Construction module. Integral vacuum systems are prohibited in that module..	N/A	N/A
Disinfection and Water Quality (DWQ)	4.7.3.3	Secondary Disinfection Systems	*Editorial. I applaud the MAHC committee for recognizing that simply increasing active chlorine levels will not handle disinfection against all pathogens and that doing so would have created other problems including faster production of disinfection by-products, faster oxidation of swimsuits, skin and hair, and faster corrosion of equipment. The use of supplemental systems allows one to handle chlorine-resistant pathogens while maintaining a lower active chlorine level thereby reducing negative side-effects from chlorine. Unfortunately, this approach has not been taken with regard to the use of Cyanuric Acid (CYA) which should be seen as a chlorine moderator allowing one to create an ample reserve of chlorine while maintaining a relatively low active chlorine level that is still able to kill most pathogens quickly.*	General comment. No action necessary.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	4.7.3.3 **Annex Subsections	Secondary Disinfection Systems (See Annex for full text)	I think these code sections are items quite appropriately needing specific annex language.	The MAHC does not include sections under this number so we are not clear what the comment is referring too.	N/A	N/A
Disinfection and Water Quality (DWQ)	4.7.3.3.2.2	The Secondary disinfection system shall also be designed to reduce a theoretical total number of infective *Cryptosporidium* oocysts in the total volume of the aquatic venue from an assumed 100 million (10^8) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution.	*"Theoretical oocyst reduction???" Interesting that I am now going to regulate systems on theory. Most operators are interested in "concrete" code language. I suggest this be re-thought. I think a concept that is not so "theoretical" can be developed. I can see me now, telling a pool operator upgrading their system that I can't approve their plans, because in theory, the system doesn't work. This would sit quite well with the legislator they complained to: my public pool program's days would be limited. I don't mind performance design, I think the concept is good, but basing it on "theory" is unsupportable.*-- ~~The SECONDARY DISINFECTION SYSTEM shall also be designed to reduce a theoretical total number of infective Cryptosporidium oocysts in the total volume of the AQUATIC VENUE from an assumed 100 million (108) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution.~~ The SECONDARY DISINFECTION SYSTEM shall be sized to inactivate 100 million (108) pathogenic microorganisms, to a maximum level of 1 organism per 100 mls. of pool water, by consecutive dilution over time, as determined by 4.7.3.3.2.5. **3.2.2.1 The microorganism used for design shall have an inactivation resistance equivalent to Cryptosporidum oocysts, or as determined by the AHJ. I'm not sure how a safety factor applies here, as discussed by the annex. There is no mention that a safety factor is needed in the code language as it exists.	This language has been moved to the annex. This is explanatory text and the word theoretical has been changed to "assumed" meaning we cannot measure every fecal incident occurring so this contamination level has been assumed based on excretion levels from the literature. The MAHC still feels this is a reasonable way to explain to the intent to designers.	N/A	N/A
Disinfection and Water Quality (DWQ)	4.7.3.3.2.2	The Secondary disinfection system shall also be designed to reduce a theoretical total number of infective *Cryptosporidium* oocysts in the total volume of the aquatic venue from an assumed 100 million (10^8) oocysts to a maximum concentration of 1 infective oocyst/100 ml by means of consecutive dilution.	*Stipulate a maximum time for achieving compliance (e.g. 24-48 hrs). If using a 10% side stream, 80% of the water would theoretically come through the side stream in a 24 hr period.* -- There are no prescribed time periods for achieving the reduction to one oocyst -- REFERENCE: If I take 3 months is that okay? A reasonable period of time is needed for achieving this for the secondary disinfection to have usefulness. The next section of the rule allows any percentage of the water to be treated. If this is only taking a 10% side stream, the 3 log reduction will take quite a while (4 days?) to theoretically remove the oocysts to 1.	Disagree. The formula is based on achieving reduction to one oocyst in "the lesser of 9 hours or 75% of the uninterrupted time a venue is closed in a 24 hour period." Please see MAHC Annex 4.7.3.3.2.5 for further explanation about this equation.	N/A	N/A
Disinfection and Water Quality (DWQ)	4.7.3.3.5.2	N/A	*Protect downstream equipment (heat exchangers) from premature failure and prevent production of chlorine gas at disinfection injection site* -- Add new: Where maintenance of UV units entails placement of cleaning chemicals (typically muriatic acid) being periodically cycled through the UV unit in place with isolation valves, means to flush the concentrated solution from the unit during bypass cleaning is needed to prevent introducing concentrated cleaning chemical into the recirculation treatment line.	An operational issue which does not belong in this code, and belongs in the operational instructions from the manufacturer.	N/A	N/A
Recirculation and Filtration	4.7.3.5.7	Spa floor and wall drain and recirculation fittings shall comply with the Federal VGB Act requirements.	Eliminate item or put in multiple locations-Verbiage is fine -- Should be put under not just spa area but all pool areas – REFERENCE: VGB act; Editorial Comment: As it is current law do you need redundancy to put in MAHC in this section? Also applies to all drains not just spas.	Agree. Note -the code section corresponding to this comment is 4.7.5.3.7. This item deleted as it is already covered in section 4.7.1.6 Submerged Suction Outlet.	N/A	N/A
Monitoring and Testing (M&T)	4.7.3.9.2	N/A	Testing Frequency: Microbiological tests are to be performed at least weekly	Disagree. While agencies in other countries have established maximum contaminant levels for microbial water quality monitoring of pools and spas, such standards have not been shown in scientific studies to have a significant impact on protecting human health. Until such data are reported in scientifically peer-reviewed communications, there are insufficient data to establish evidence-based microbial water quality standards for pools and spas, or to warrant the recommendation that pool and spas be regularly monitored to meet microbial water quality standards. As such, the MAHC code on microbiological water quality testing can be considered a minimum guidance standard. Aquatic venue operators wishing to achieve additional microbial water quality characterization are encouraged to use the references in the MAHC Annex regarding water quality monitoring techniques and standards in other countries. We appreciate the detailed information that the commenter provided on this subject and have added some of this information to the Annex.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Monitoring and Testing (M&T)	4.7.3.9.3	N/A	Microbiological parameters with associated Maximum Contamination Levels are listed in the chart below : (See comments for full text)	Disagree. See response to Comment on 4.7.3.9.2.	N/A	N/A
Recirculation and Filtration	4.7.5.3.1	The return lines of spa type therapy or jet systems shall be independent of the recirculation-filtration and heating systems.	Why is it required to have the filtration return lines independent of the therapy return lines? Although it is not very common to have them combined, the ones we have do not seem to have any problem maintaining water chemistry or clarity.	Agree. Code revised to delete this section.	N/A	N/A
Recirculation and Filtration	4.7.5.3.1	The return lines of spa type therapy or jet systems shall be independent of the recirculation-filtration and heating systems.	This makes no sense as pertains to the way pools with spas are built today. Also how is the jet to be separate from the heater system.	Agree. Code revised to delete this section.	N/A	N/A
Recirculation and Filtration	4.7.5.3.2	The suction lines for the jet or therapy inlets shall be separate from the system of inlets for the filtration/recirculation system to prevent the filtration system flow rates from being reduced by the higher flows of the jet system.	Does this section mean that two sets of suction fittings are required to separate filtration suction from therapy suction? I certainly understand that the two suction lines should not connect in the equipment room. However, if VGB requirements are followed for sizing the line between two properly sized main drains, then the filtration suction line and therapy suction line can be connected in the middle of the line between the two drains.	Agree. Code revised to delete this section.	N/A	N/A
Recirculation and Filtration	4.7.5.3.5	Inlet velocities shall be adjustable.	Does this mean the filtration inlets? Doe adjustable mean directional or flow rate adjustable or both?	Code revised. This section deleted, recirculation inlets already addressed.	N/A	N/A
Recirculation and Filtration	4.7.5.3.5	Inlet velocities shall be adjustable.	~~INLET velocities shall be adjustable.~~ Most just utilize wall inlets which are not adjustable.	Code revised. This section deleted, recirculation inlets already addressed	N/A	N/A
Recirculation and Filtration	4.7.5.3.5.1	The velocities through the return jets shall not be restricted to swimming pool inlet levels.	Does this mean that higher flow velocities are allowed for the spa filtration inlets or the therapy jets?	Code revised. This section deleted.	N/A	N/A
Lifeguard & Bather Supervision (LG)	4.8.5.1	Chairs and Stands	*Delete this section. This is an attempt to insert code into the annex and does not reflect current practice on how stands are located.* -- Delete: The location of the chairs must give the lifeguards complete visibility to all parts of the pool area. The number of chairs is determined by the water surface size, the anticipated bather load, and the ability to provide complete surveillance of the zone.	Agree. The annex has been edited to reflect the changes in the code. This section is related only to the design location of elevated chairs, when utilized.	N/A	N/A
Design & Construction (D&C)	4.9.1.6.1	All below-grade equipment rooms shall be designed to ensure that the space is not a permit-required confined space as defined by 29CFR1910.	Why? If it is, it is, and must be dealt with appropriately -not a Code issue.	Recommendation implemented. Section deleted.	N/A	N/A
Design & Construction (D&C)	4.9.1.6.2	Below-grade equipment rooms containing chemical equipment may be subject to other requirements.	This entry says nothing of value; delete it. This is a code, not a warning document.	Recommendation implemented. Section deleted.	N/A	N/A
Hygiene (HYG)	5.10.1.1	Hygiene facility fixtures and dressing area fixtures, floors, and furniture shall be cleaned and sanitized daily with an EPA-approved product and as needed to provide a clean and sanitary environment.	Same exact statement	*Agreed, same statement as 5.10.4.1.1. Only need once. Deleted as suggested.*	N/A	N/A
Lifeguard & Bather Supervision (LG)	5.10.5.2.3	N/A	*Making Facilities purchase multiple bins for multiple items could create a huge burden on facilities for storage purposes and financial purposes* -- Delete 5.10.5.2.3.	Comment not relevant to Lifeguard/Bather supervision module	N/A	N/A
Regulatory (REG)	5.2.2.3	An exemption from the AHJ does not exempt the aquatic facility from applicable building codes,	*Delete this section. Building codes have their own rules for different conditions.* -- An exemption from the AHJ does not exempt the AQUATIC FACILITY from applicable building CODES,	This section was unnecessary and therefore deleted.	N/A	N/A
Regulatory (REG)	5.2.3.3	The AHJ shall complete review of the variance application The AHJ shall consider the following factors: 1) Unusual circumstances unique to the applicant's facility; 2) The hardship to the applicant that would result if the variance were denied; 3) The effects that such a variance would have on the health and safety of the public at the AQUATIC FACILITY; 4) Any proposed policies, procedures or equipment that could rectify any potential increase in health or safety risks created by granting the variance and, 5) Other health or safety factors as determined by the AHJ.	*Health and safety need to be our primary focus when considering variances.* -- The AHJ shall complete review of the variance application The AHJ shall consider the following factors: 14) Unusual circumstances unique to the applicant's facility; and 25) The hardship to the applicant that would result if the variance were denied; 31) The effects that such a variance would have on the health and safety of the public at the AQUATIC FACILITY; 42) Any proposed mitigating policies, procedures, designs or equipment that the applicant provides that purport to could rectify any potential increase in health or safety risks created by granting the variance and, 53) Other health or safety factors as determined by the AHJ	Factor number 4 was renumbered number 1 to emphasize its primary importance in granting variances and this section was moved to the annex.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	5.2.3.3	The AHJ shall complete review of the variance application The AHJ shall consider the following factors: 1) Unusual circumstances unique to the applicant's facility; 2) The hardship to the applicant that would result if the variance were denied; 3) The effects that such a variance would have on the health and safety of the public at the AQUATIC FACILITY; 4) Any proposed policies, procedures or equipment that could rectify any potential increase in health or safety risks created by granting the variance and, 5) Other health or safety factors as determined by the AHJ.	*The AHJ cannot regulate itself.* -- Substitute: "The following factors will be considered for each variance application…."	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	5.2.4 ANNEX	Variance Requests	Inappropriate in a code for pool operation. This is a health dept. procedure, and cannot be mandated by the health dept. Place this and the other AHJ recommendations into a section of the annex for "Health Department Operational Recommendations"	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	5.2.4.1 & 5.2.4.1.2	5.2.4.1 If the AHJ approves a variance request, the applicant shall be notified in writing of the decision. 5.2.4.1.2 The notice shall specify the period of time for which the variance will be effective and any conditions attached to the variance.	I cannot require the AHJ to do something. I do not have statutory authority to tell myself what to do. Please reword.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	5.2.4.3 & 5.2.4.4	5.2.4.3 The AHJ may deny any application for a variance. 5.2.4.4 No permit holder or applicant may challenge the terms or conditions set forth in the variance after ten business days have elapsed from the date of issuance.	Most states have appeal processes. Seldom is the process this simple or straight forward. I would refer the issue to the procedures of the AHJ.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	5.2.4.3.1	The applicant may petition the AHJ for a hearing within ten business days, from receipt of the variance denial notice, to challenge the variance denial.	*I don't think 10 days is enough. Given the recent holidays and trying to get correspondence from multiple parties to the right people, I think this should be in the 30 day range.* -- The applicant may petition the AHJ for a hearing within ~~ten~~ 30 business days, from receipt of the variance denial notice, to challenge the variance denial.	Agree, section changed to allow 30 days and section moved to AHJ recommendations.	N/A	N/A
Regulatory (REG)	5.2.4.5	Each variance shall be posted in a conspicuous place for the public to view.	*If a variance is approved by the AHJ and the independent oversight committee, there does not appear to be much positive value for positing this in public. It will just lead to never-ending questions for the designers, contractors, and health department officials. I think this is a mistake.*-- ~~Each variance shall be posted in a conspicuous place for the public to view.~~	Section deleted.	N/A	N/A
Facility Maintenance and Operation (FMO)	5.6.3.3.3	For temporary aquatic facilities, required GFCI devices shall be tested on the first day of operation, and monthly thereafter until the body of water is drained and the equipment is prepared for storage.	Define Temporary.	Addressed. This section has been removed from the MAHC as all requirements are the same for permanent and temporary facilities.	N/A	N/A
Facility Maintenance and Operation (FMO)	5.6.3.5.8	Continuity of the bonding system associated with recirculation or disinfection equipment or with underwater lighting systems shall be verified by the local building code authority at least every five years since the last inspection.	*Since the majority of such bonding systems are underground, in concrete, or otherwise inaccessible, it is unreasonable and virtually impossible to verify continuity of the system. Also, who is going to be responsible to insure that the building inspector actually inspects these systems every 5 years? This is unenforceable and unrealistic.* -- Delete entire section.	Agreed. Addressed. Deleted this section.	N/A	N/A
Monitoring and Testing (M&T)	5.7.3.1	*NOTE: Dye testing shall be conducted in accordance with parameters outlined in MAHC Recirculation and Filtration Module. Language still under development.*	Dye Testing- language should be included in this module and not left for later review	Disagree. The MAHC Recirculation and Filtration Module is the appropriate module for description of dye testing practices. This module will be available for public comment soon.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.3.1.1.3	N/A	NEW SECTION: a special section for Chlorine and UV is appropriate to discuss decreased levels of primary when in presence of working secondary and supplemental disinfection. -- This is a new section: i. Minimum FAC when using UV secondary disinfection systems or UV supplemental needs to be addressed. ii. Define levels for stabilized chlorine at, for example: .5 to.8 ppm in swimming pools. iii. Minimum FAC when using UV secondary disinfection systems or UV supplemental should be for stabilized chlorine 1.0 ppm in spas.	Decision of TC was to stay with current wording. More science needed to justify this change so that we think reducing minimum levels is not justified.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.3.1.1.4	N/A	*NEW SECTION needed* -- Also, the combined chlorine or bromine levels needs to be addressed with and without secondary or supplemental sanitation	Combined chlorine in addressed in 5.7.4.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Disinfection and Water Quality (DWQ)	5.7.3.1.2.3	Bromine shall not be used with ozone or cyanuric acid.	*Cyanuric acid (CYA) does not stabilize bromine, but it also has not been reported to hinder the efficacy of bromine. If a chlorine pool using CYA is converted to bromine, it should not have to be drained to remove the CYA. Ozone should not be prohibited in bromine spas where ingestion of spa water is minimal.* -- Bromine shall not be used with ozone in swimming pools ~~or cyanuric acid~~	Agreed. Wording has been deleted	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.3.1.2.3	Bromine shall not be used with ozone or cyanuric acid.	*Cyanuric acid (CYA) does not stabilize bromine, but it also has not been reported to hinder the efficacy of bromine. If a chlorine pool using CYA is converted to bromine, it should not have to be drained to remove the CYA.* -- Bromine shall not be used with ozone ~~or cyanuric acid.~~	Wording has been deleted.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.3.1.2.3	Bromine shall not be used with ozone or cyanuric acid.	The Centennial Olympic games in Atlanta used BCDMH and ozone. I don't recall any issues. Why would we prohibit the use of ozone if there happened to by CyA in the water?	Agreed. Wording has been deleted.	N/A	N/A
Recirculation and Filtration	5.7.3.1.4	Pool disinfection and pH adjustment feed equipment shall be maintained in safe working condition at all times.	All pool disinfection and pH adjustment feed equipment shall be maintained per manufacturer's requirements or other federal or local chemical codes." -- Safe working condition is not defined and therefore is subjective	Partially agree. Code revised.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.1 thru 5.7.4.3.3.5	See Code for full text	*How do these fit under "Pool Water Chemical Balance?" This is not where I would think to look for them* -- Create logical groups for chloramines, PHMB, ClO2, H2O2 and algaecides I would also move the UV/ Hydrogen Peroxide prohibition in with the others on a section. These are not generally recognized as part of "Pool Water Chemical Balance. Combined chlorine doesn't fit with the others.	The MAHC has decided to speak to approved chemicals rather than create a long list of those not approved. Wording deleted.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.2	Polyhexamethylene biguanide (PHMB) shall be prohibited for use as a disinfectant.	*PHMB is an EPA registered sanitizer.* -- Only Polyhexamethylene biguanide (PHMB) ~~shall be prohibited for use as a disinfectant.~~ products that are EPA-registered for use as sanitizers in pools or spas in the United States are permitted. Add new Section: 5.7.4.3.3.2.1 Minimum PHMB concentrations shall be maintained at all times in all areas as follows: swimming pools, spas and all other aquatic venues: 30 ppm as product (mg/L). -- REFERENCE: Example EPA registration numbers: 1258-1263, 69461-1	The MAHC has decided to speak to approved chemicals rather than create a long list of those not approved. Wording deleted.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.2	Polyhexamethylene biguanide (PHMB) shall be prohibited for use as a disinfectant.	*PHMB is an EPA registered sanitizer.* -- Replace "Polyhexamethylene biguanide (PHMB) shall be prohibited for use as a disinfectant." With "Only Polyhexamethylene biguanide (PHMB) products that are EPA-registered for use as sanitizers in pools or spas in the United States are permitted. 5.7.4.3.3.2.1 Minimum PHMB concentrations shall be maintained at all times in all areas as follows: swimming pools, spas and all other aquatic venues: 30 ppm as product (mg/L)."	The MAHC has decided to focus on approved disinfectants and not on adding a long list of banned chemicals. Wording deleted.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.2	Polyhexamethylene biguanide (PHMB) shall be prohibited for use as a disinfectant.	This active ingredient is an EPA registered disinfectant when used with hydrogen peroxide and an algaecides. I don't understand what data would justify banning it. Since neither manufacturer is actively marketing this product to commercial markets, it may be wiser to just leave this out and wait for a manufacturer to request it be added.	Agreed. Wording altered. The MAHC has chosen to list only approved items rather than start a laundry list of those not approved.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.3	Chlorine dioxide shall be prohibited for use as a primary disinfectant while bathers are present in the water.	I have a similar thought here as to the PHMB. There is no EPA registered Chlorine dioxide product. Thus, maybe this section should say something similar to the Cu/Ag statement above that only an EPA registered product can be used consistent with label directions. One one is approved, then it can be used.	Agreed. Wording altered. The MAHC has chosen to list only approved items rather than start a laundry list of those not approved.	N/A	N/A
Disinfection and Water Quality (DWQ)	5.7.4.3.3.3.1	Chlorine dioxide may be used to disinfect aquatic venues while bathers are not in the water.	*I applaud the MAHC Committee for recognizing that chlorine dioxide can play a great role in helping to inactivate Cryptosporidium parvum overnight using 2 ppm over 12 hours for 3-log reduction (using worst-case data for 1000 mg/L 2-log reduction; implied 1500 mg/L for 3-log). This can be useful for those venues that do not have secondary disinfection systems.* _ NO CHANGE NEEDED – REFERENCE: Chauret CP, Radziminski CZ, Lepuil M, Creason R, Andrews RC. Chlorine Dioxide Inactivation of *Cryptosporidium parvum* Oocysts and Bacterial Spore Indicators. Applied and Environmental Microbiology. 2001 Jul;67(7):2993-3001	General comment. No action necessary.	N/A	N/A
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	The backwash rate of sand filters shall be adjusted to match the temperatures of the water used for backwashing -- suggest clarification – possible typographical error	Agree. Code revised, Section deleted.	N/A	N/A
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	Delete -- Temperature of water and backwash rate are not related	Agree. Code revised. Section deleted	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	Makes no sense. Backwash rate to match water temperature?	*Agree. Code revised, Section deleted.*	N/A	N/A
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	~~The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.~~ -- This does not make sense. How can the backwash rate match a temperature? The backwash rate should be dictated by the need to backwash well.	Agreed. Section deleted	N/A	N/A
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing. -- This needs clarification	Agreed. Section deleted.	N/A	N/A
Recirculation and Filtration	5.7.5.3	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing.	The backwash rate of sand filters shall be adjusted to match the temperature of the water used for backwashing. GENERAL COMMENT: This statement is unclear. How can a rate be adjusted to match a temperature?	Agreed. Section deleted.	N/A	N/A
Design & Construction (D&C)	5.9.2.9	N/A	*Local code & chemistry of shallow bodies of water* -- WADING POOLS and spas shall have a controller to automatically monitor and adjust sanitizer residual and pH levels. – REFERENCE: ST. LOUIS COUNTY POOL CODE	Not FD&C Module. Covered in Monitoring and Testing.	N/A	N/A
Operator Training (OT)	6.0.	Policies and Management	-- Where do we require the facility to have an operator? Each facility shall be under the supervision of a properly trained operator responsible for….	Section 6.1 has added wording to require A QUALIFIED OPERATOR for each AQUATIC VENUE. This requirement may ultimately be in another section (e.g. risk management) as all modules are posted.	N/A	N/A
Operator Training (OT)	6.1.1	Operator Qualifications and Certification	Operator Qualifications and Certification - Need to stipulate acceptable training courses/programs	None. The Operator Training Module is a set of recommended requirements for the safe operation of aquatic venues that can be used as guidance by the authority having jurisdiction in adopting their own regulations. The MAHC sets forth elements and requirements that should be included in training courses. It is not within the scope of the MAHC to maintain a list of acceptable training programs. It is the responsibility of the local authority to determine whether a particular trainer or training company meets the criteria based on the Operator Training Module outline.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.2.3.7	Continuing Education	Change this to *"Additional Education and Training"* as Continuing Education is used elsewhere in this code to delineate CEU's used to maintain/renew a certification. This could be confusing and is inconsistent.	Partially agree. The code has been revised and restructured and "Continuing Education" has been removed.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.2.3.7	Continuing Education	Continuing Education is used elsewhere in this code to delineate CEU's used to maintain/renew a certification so using here is inconsistent. Suggest changing this to: *"Additional Education and Training"*	Partially agree. The code has been revised and restructured and "Continuing Education" has been removed.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.2.4.4	N/A	Add new subsection: Aquatic managers shall document in service training and ensure all guards are evaluated and either demonstrate compliance or when compliance is deficient, working with guards on improving their deficiencies.	Disagree. Section 6.2.4 addresses course/training requirements for Supervisor training. The code and annex have been revised and restructured , in-service training, with documentation, is included in the Aquatic Facility Management Section.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.1	Aquatic facilities that are required to have lifeguards shall have at least one employee designated as the aquatic supervisor who meets the requirement of this Code to be an Aquatic Supervisor.	*Change that supervision and regular encouragement during each 30 minutes of watch. Does an EMT or traffic controller get regular encouragement during each 30 minutes even thought they have lives at stake during each of their shifts.*	Annex comment. Deleted from Annex.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*Age alone does not determine supervisory ability. Supervisory responsibilities vary from aquatic facility/venue to aquatic facility/venue. An across the board requirement for a minimum age in order to perform any type of supervisory responsibility is not reasonable.* -- Suggest Change: *"Persons with lifeguard supervisory responsibilities shall have sufficient maturity and training to perform all duties assigned."*	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*Age alone does not determine supervisory ability. Supervisory responsibilities vary from aquatic facility/venue to aquatic facility/venue. An across the board requirement for a minimum age in order to perform any type of supervisory responsibility is not reasonable.* -- Persons with lifeguard supervisory responsibilities shall have sufficient maturity and training to perform all duties assigned.	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	Concerned about having to have an Aquatic Supervisor present every hour a facility is open to manage other lifeguards	Supervisors are intended to supervise/manage the lifeguards to ensure the lifeguard staff is performing as trained and expected. Supervision has been proven to directly impact performance and safety, and as such must be a part of best practices for aquatic facility operations. Note, requirements for Supervisor training and staffing have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	Does not provide information regarding the "Headguard" position or other guidelines for supervisors. ……. Does not specify whether or not younger individuals can handle these roles with supervision of an individual of 18 or older.	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*Eligibility for aquatic supervision should be competency based not age based.* – Remove	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	Maturity is not necessarily related to age. It should be up to the facility to determine who has the appropriate skills and competence to be having supervisory responsibilities. There are many instances where a 16 year old is just as mature as a 22 years old and vice versa. It is irresponsible to generalize that those under 18 are not mature enough for a particular job. That is for the facility to decide.	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*Not code language. Reasons go in the annex.* -- Delete: Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*The focus should be on the supervisor's experience and abilities, not age.* -- Delete minimum age requirement.	Agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.3	Persons with supervisory responsibility shall be of at least 18 years of age to manage lifeguards, emergencies, and guest issues.	*The Technical Committee agreed that 18 and above was an adequate age level to consider a person as being mature enough for this position. This was a starting point but many other factors with regard to experience, training, management skills and others were equally or more important. 18 should be a preferred with 15 being adequate. The United States Lifeguard Standards did not reference any challenges for 15-17 year old lifeguards under normal surveillance. This could cause numerous pools across the country to close due to lack of staff.* -- Persons with supervisory responsibility shall be of at least ~~18~~ 15 years of age to manage lifeguards, emergencies, and guest issues.	Partially agree. Requirements for Supervisor training and responsibilities have been revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	"The person in charge of the lifeguards," is that the aquatic supervisor? If so, use the same terminology.	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	*Here, an operator is required to demonstrate proficiency to a health authority when the operator is the person who has true knowledge of proficiency. Most health authorities do not have the ability to make this evaluation.* -- Delete: Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the health authority knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	Agree. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	How does someone demonstrate these requirements?	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	If 6.3.1.6 is eliminated as a duplicate section, then this section needs to include 6.2.4.2 here.	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	*Not sure who the "person in charge of the lifeguards" is. However, that person should hot have to demonstrate knowledge of the entire MAHC.* -- Based on the risks inherent in the particular aquatic facility, the AHJ may ask the Aquatic Supervisor to demonstrate knowledge of the items listed in 6.3.1.3 to 6.3.1.6.	Agree. The Code has been revised and re-structured, this "Demonstrate Knowledge" item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	The Oregon Code reference is a good reference. However, the actual Module Draft places the duty on the AHJ were the Oregon Code properly places it on the Facility/Facility Supervisor	The Code has been revised and re-structured, this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	*Vague and unclear on the relation of inherent risks and what is required of this section.*— Remove	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.7	Based on the risks inherent to an aquatic facility, during inspections and upon request the person in charge of the lifeguards shall demonstrate to the AHJ knowledge of the items listed in 6.3.1.3 to 6.3.1.6 and the requirements of this Code.	Who determines what risks are inherent?	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	*This is entirely too proscriptive. Should read "has attempted in good faith to comply with this code. Almost every facility will have some minor violation at least.* -- Delete: 1) Complying with this Code by having no violations of priority items during the current inspection.	Agree. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	*Has aquatic safety plan ever been defined before this point?* -- Delete: "Aquatic Safety" in 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. ******** To read: 3) Produce the aquatic venue's Emergency Action Plan that contains the items required by this Code.	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated. A definition has been added	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	*Has aquatic safety plan ever been defined before this point?* -- Delete: "Aquatic Safety" in 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. To read 3) Produce the aquatic venue's Emergency Action Plan that contains the items required by this Code.	Plan is defined. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	Remove "Produce" and replace with "Ability to present"	The Code has been revised and re-structured, this "Demonstrate Knowledge" item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	*Repetitive and contradictory to 6.3.1.7* -- Remove	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	Suggests that the poor code language in 6.3.1.8 would now be passed as an exposure to the Owner/Operator. Poor language and not congruent with Code entry	The Code has been revised and re-structured, this "Demonstrate Knowledge " item has been eliminated	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	*This is entirely too proscriptive. Should read "has attempted in good faith to comply with this code. Almost every facility will have some minor violation at least.* -- Delete:1) Complying with this Code by having no violations of priority items during the current inspection. And replace with 1) attempting in good faith to comply with this code	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8	The aquatic supervisor shall demonstrate this knowledge by: 1) Complying with this Code by having no violations of priority items during the current inspection. 2) Produce the required documentation required by this Code. 3) Produce the aquatic venue's Aquatic Safety and Emergency Action Plan that contains the items required by this Code. 4) Produce the zone(s) of patron surveillance diagrams for each aquatic venue within the aquatic facility.	What are priority items?	The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8 #1	The aquatic supervisor shall demonstrate this knowledge by... 1) Complying with this Code by having no violations of priority items during the current inspection…	*Knowledge of the Code is not always aligned with having no "priority violations". What is a "priority violation"? This term should be deleted or be defined.* -- 1) Demonstrating knowledge of Sections 6.3.1.3 through 6.3.1.6	Agree. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8 #2	The aquatic supervisor shall demonstrate this knowledge by... 2) Produce the required documentation required by this Code....	*Need to limit the information required to that required under the Lifeguarding provisions – not the entire code.* -- 2)Produce the documentation required under Section 6 of this Code	Agree. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.1.8 #2	The aquatic supervisor shall demonstrate this knowledge by... 2) Produce the required documentation required by this Code....	*Need to limit the information required under the Lifeguarding provisions – not the entire code.* -- 2)Produce the documentation required under Section 6 of this Code	Agree. The Code has been revised and re-structured , this "Demonstrate Knowledge " item has been eliminated	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	"Aquatic venue" should say "aquatic facility." If there is a multiple lifeguard facility, but only one lifeguard at a venue, then an additional person is not required because there are other lifeguards in the facility who can respond to the venue to assist the lifeguard. This should be specific to single lifeguard facilities, not single lifeguard venues.	Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	*Add 6.3.3.3 to 6.3.3.2: This should be a subsection of the statement before. Otherwise, it gets mixed up with multiple guard pools.* -- Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication. The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute	Agree. Section Revised	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	Is this possible?	Yes - it is possible	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	Suggest changing to: *"Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall at a minimum, have an additional staff person, on-site and available, that has current CPR/AED certification (same level as Lifeguards), training in water extrication of an unconscious guest, and spinal management techniques/extrication from an on-deck perspective."*	Agree Section revised	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	Suggest changing to: *"Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall at a minimum, have an additional staff person, on-site and available, that has current CPR/AED certification (same level as Lifeguards), training in water extrication of an unconscious guest, and spinal management techniques/extrication from an on-deck perspective."*	Agree to change to - Any aquatic venue that requires a lifeguard, and is part of a single lifeguarded aquatic facility, shall have an additional staff person on-site and available with current CPR/AED and first aid certifications, and training in water extrication of a victim.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	This may have a significant impact on pool management companies (or similar entities) who may not have any other personnel at the facility they guard (i.e. apartment complexes and home owners association pools.)	Agreed. The code and annex have been extensively revised	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	This need for additional staff basically eliminates one lifeguard pools. Is there any documented evidence of this need based on drowning statistics? It would be better to determine the lifeguard to patron swimmer load maximums than to make all pools provide two employees. There are many of these one-guard pools that the risk of needing two guards is too costly for the pool patron count.	Agree. Wording on single lifeguard pools has been clarified.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	*What does available mean?* -- Available in the following statement needs to be defined. Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	Agree to change to - Any aquatic venue that requires a lifeguard, and is part of a single lifeguarded aquatic facility, shall have an additional staff person on-site and available with current CPR/AED and first aid certifications, and training in water extrication of a victim.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2	Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication.	Where can a person be trained in water extrication without taking the lifeguard class?	Agencies presently teach that a single person may have to recruit and instruct a patron on how to help.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2 & 6.3.3.3	6.3.3.2--- Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication. 6.3.3.3--- The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*Requiring a second responder for one guard pools, might cause an aquatic venue to opt to operate without a guard as the cost to a one guard aquatic venue doubles by adding a second staff member. I believe this will cause numerous aquatic venues to close, limiting access to pools for lower income areas.* -- Remove these two sections.	Partially agree. Section revised	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2 & 6.3.3.3	6.3.3.2--- Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication. 6.3.3.3--- The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	For both 6.3.3.2 and 6.3.3.3, this may have a significant impact on pool management companies who may not have any other personnel at the facility they guard (i.e. apartment complexes and home owners association pools.)	Agree. Code revised	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.2 & 6.3.3.3	6.3.3.2--- Any aquatic venue that requires a lifeguard, and is a single lifeguarded aquatic venue, shall have an additional staff person available that has current CPR/AED certification, and training in water extrication. 6.3.3.3--- The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Minute response time sets a double standard, major exposure and liability. No standard exists here and the Code is now creating one out of the blue with no support/practices. Code also falsely represents the committee…there was NOT an agreement on this 1 minute response standard	Changed to 3 minutes to be in concert with physical time of CPR for 3 minutes from a single guard.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*Assurance that person is included in EAP and properly responds.* -- Possibly add a sub point with this, but have the additional person that has the training, also participate in in-service training to ensure their readiness to respond to their duties.	Agree. Changes made. The code has been revised and restructured, this section has been modified and clarified.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Has the response time proven to be too slow at one lifeguard pools where patrons needed care? In theory, I agree it is better to have two rescuers trained to respond to a victim needing assistance but practically applying this to all one-lifeguard pools will result in the closure of many of these small facilities.	Agreed. Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*Inadequate quality of product pushed by a "proposed CDC Timeline" ********** Liability exposure for Owner/Operator, and Code Administrator*	Agreed Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*No basis for specific time frame, does not address variability of venue or facility size, layout, etc.* -- Remove "within one minute" – REFERENCE: Not an industry standard or best practice.	Partially agree. Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Not only is this a double standard, it is also not practically supported by the code. The code, as stated in earlier comments, does NOT require presence of any persons at a pool…so how, based on the code, would there be any ability to meet this standard?	Agreed. Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Once again the Lifeguards are required to have more and more advanced training than the Supervisor who is required to provide oversight and direction	Wording edited to clarify.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Putting a time requirement on response creates a significant liability for facilities. The time requirement should be stricken.	Agreed. Section revised.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	Suggest removing this entry all together or support it with properly written and inclusive code language.	Agreed Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	There is no current standard for any guarded pool for response time within an EAP…and specifically not a requirement for anyone to be present on-site to meet this requirement. Suggest removing this entry all together or support it with properly written and inclusive code language.	Agreed. Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	There should not be a posted timeframe	Disagree. No data to support proposed deletion. The code has been revised and restructured , this section has been modified and clarified. The code now states "The Aquatic Facility Safety Plan shall specify that a person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within at least 3 minutes. " The revised annex addresses rationale for a time element.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	This is a perfect example of the lack of due diligence and time afforded to the sub committee to produce a quality product. This is a Double Standard and will pose incredible liability on owner/operators and Code Administrator. There is no current standard for any guarded pool for response time within an EAP…and specifically not a requirement for anyone to be present on-site to meet this requirement. Why would a single guard pool be required to have a timed response standard when a Multi-Guarded pool does not have a requirement for timed response?	Agreed. Section revised	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	This section requires the person to be trained in First Aid, but 6.3.3.2 does not require First Aid training.	CPR/AED and water extrication training is what is needed to help the rescuer remove the victim from the pool and also help in the case the primary rescuer tires during CPR.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*This should be a subsection of the statement before. Otherwise, it gets mixed up with multiple guard pools* -- Delete: The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute ***** Suggest "1 minute" be replaced with "in a timely manner	Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.3.3	The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute.	*This should be a subsection of the statement before. Otherwise, it gets mixed up with multiple guard pools…. This is also seriously litigation prone.* – Delete: The staff person trained and certified in CPR/AED and first aid must be able to respond to the lifeguard's EAP activation within 1 minute…. Suggest "1 minute" be replaced with "in a timely manner.	Section revised.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.4.1.1	Prior to active duty, aquatic supervisors shall ensure that lifeguards can proficiently perform the skills required for a rescue, as outlined in the Safety Plan specific to that aquatic facility or aquatic venue.	*Too general. Each day? Before each season? How is this evaluated?* -- ~~Prior to active duty, aquatic supervisors shall ensure that lifeguards can proficiently perform the skills required for a rescue, as outlined in the Safety Plan specific to that aquatic facility or aquatic venue.~~	Unclear comment. Wording of code and annex has been extensively re-written.	N/A	N/A
Lifeguard & Bather Supervision (LG)	6.3.4.2.8.5	N/A	*This implies that AED's have a place in the treatment of drowning. I am not aware of any documented case where AED's have been useful to treat drowning.* -- Delete the AED reference: Lifeguards shall be trained in emergency response, cardio-pulmonary resuscitation (CPR) and first aid scenarios that are specific to the aquatic facility which they are employed.	Disagree with comment. Any incident (drowning induced or not) that progresses to loss of pulse requires immediate analysis by an AED to allow for maximum available standard of care delivery. This also applies to more incident types than just drowning.	N/A	N/A
Fecal, Vomit, Blood (FVB)	6.5.3.1.1	N/A	*A new section should be added "Pools containing chlorine stabilizers 6.5.3.1.1" and also 6.5.3.3.1. Also, section 6.5.3.2.1 is too generic and will significantly overdose with chlorine if the CYA level is not 50 ppm. There is already a section 6.5.3.2.1 that gives a procedure for decontamination for a diarrheal-stool when CYA is used, but there is no such counterpart for a formed-stool and it makes no sense to contaminate as strongly for the formed-stool. One can calculate the equivalent FC required for a given CYA level. I suggest a protocol using the FC as a percentage of CYA level (or, for more accuracy, a chart of FC vs. CYA levels).* -- Suggested wording change: 6.5.3.1 delete the sentence "However, at this time there is no standardized protocol to compensate for chlorine stabilizers" though you can keep the subsequent portion "[At this time,] there is no data determining how the inactivation of Giardia is affected by chlorine stabilizers under pool conditions."	Agree that there is no standardized protocol, but disagree on the proposed language change. Moved discussion to annex.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.1.3 / 6.6.1.4 / 6.6.1.6 / 6.6.1.7	6.6.1.3 Inspections shall be risk-based, focusing on behaviors, practices, and procedures that are likely to lead to out-of-control recreational water injury and illness risk factors and asking management and employees questions to supplement actual observations. 6.6.1.4 Inspection staff shall be adequately trained to conduct risk based aquatic inspections. 6.6.1.6 The AQUATIC FACILITY shall be inspected quarterly for AQUATIC FACILITIES open year round and a minimum of two times per operating permit for seasonal facilities. 6.6.1.7 It is acceptable for the inspection frequency to be amended based on risk of recreational water injury and illness.	Once again. The CODE is not the place to tell the health department how to do their job. This could easily jeopardize the whole adoption process. A section in the annex might be appropriate, but it cannot be codified. Some of the 6.6 language on access rights, etc. may be appropriate, but we do not have the authority to regulate ourselves. The legislature has reserved that right	Agree. Sections moved to separate document except 6.6.1.7	N/A	N/A
Regulatory (REG)	6.6.1.3 ANNEX	Risk-Based Inspections (see Annex for full text)	Once again, this belongs someplace other than the MAHC code commentary. Create an annex area for AHJ program administration. The FDA Food Code Annex 5 is such a separate section. In many states, the legal opinion is that the agency adopting a rule or code cannot regulate itself in that rule or code. To adopt the MAHC, we would have literally pages of rule language deleting out language directing us as an agency, and rewording other language to change the directives around to reference the operator. With some thought, much of the language can be rewritten to do the same action, without "self-directing" the health agency. Other language really needs to go into a document or annex section that discusses the best practices and desires of the MAHC development. There is much merit to the explanation of the processes the AHJ should use, but this document is a non-mandatory model code. It is our desire to make it easy and quick for states to adopt. As a state, I should want to adopt it. It cannot be a federal directive code telling the states what they have to do and how to do it. That did not work well with the VGBPSSA and it won't work here. The FDA spent decades trying to get states to recognize the Uniform Food Code and later the FDA Food Code. It certainly is not uniform across the country, although it has made great strides towards a uniform set of requirements. The FDA Food Code is an excellent example of the problems trying to get 50 states and who now how many local jurisdictions to agree on uniform regulations. I think there are lessons learned from their successes and mistakes. I hope we learn.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.6.1.4	Inspection staff shall be adequately trained to conduct risk based aquatic inspections.	*Scientific studies have demonstrated that trained operators have fewer violations, which is the reason behind requiring training. The same should apply to inspectors; they should have the same knowledge base as those they are inspecting.* – "Training, either by classroom, or computer module should cover the topics of swimming pool circulation, filtration, water chemistry, water testing, disinfection, spa and warm water facilities, hazard identification, safe handling of pool chemicals and facility maintenance. After the text training is completed, the candidate should accompany a trainer or person with known competency in pool inspections until it is believed he/she has acquired the necessary knowledge and skills to inspect a pool without assistance." – REFERENCE: Annex language is unverifiable, unenforceable, vague, and un-measureable. We recommend stronger language under inspector requirements to ensure inspector competency.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.6.1.5	Advance notice of inspections or investigations by the AHJ is not required.	Same as above	No Change. The word investigate was used because of its use in "waterborne illness investigations", which are conducted routinely by public health personnel.	N/A	N/A
Regulatory (REG)	6.6.1.6	The aquatic facility shall be inspected quarterly for aquatic facilities open year round and a minimum of two times per operating permit for seasonal facilities.	*I am not aware that this is an industry standard. This could be a huge burden for most health departments particularly for sessional facilities. This could result in pool closures because the HD is understaffed and because of the financial implications for such frequent permitting renewals.* -- ~~The AQUATIC FACILITY shall be inspected quarterly for AQUATIC FACILITIES open year round and a minimum of two times per operating permit for seasonal facilities.~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.6.1.6	The aquatic facility shall be inspected quarterly for aquatic facilities open year round and a minimum of two times per operating permit for seasonal facilities.	*While I prefer the inspection frequency discussed, it is suggested to move this section to the annex. In our state to mandate this frequency might be more than the industry can bear in the current economic conditions.* -- The AQUATIC FACILITY shall be inspected quarterly for AQUATIC FACILITIES open year round and a minimum of two times per operating permit for seasonal facilities.	Agreed, section moved to HD recommendations	N/A	N/A
Regulatory (REG)	6.6.5	Enforcement	Some of this section deals with actions by people other than the health department. This is OK. That which is the health department's responsibility should be removed; since we cannot regulate ourselves.	All sections relating to the AHJ were removed from the Code and placed in a separate document. However the MAHC committees felt the sections relating to enforcement should remain in the code. Enforcement is a common section found in other pool codes.	N/A	N/A
Regulatory (REG)	6.6.6.4.1	The notice shall, with respect to each violation, contain the following information: 1) A description of the violation, with a citation to the regulation that has been violated; 2) A statement of the amount of the civil penalty to be assessed; 3) A statement that the person in violation may elect to make an appearance in person, or in writing or by mail, to the appropriate local authority, and admit liability for or plead no contest to the violation, abate the violation, and pay the civil penalty established for the violation, and a statement of the date by which such penalty shall be paid; and 4) A statement that, in the alternative, the person in violation may elect to contest the violation by filing with the AHJ, within ten days of receipt of the notice of violation, a written notice of the person's election to contest the violation.	Once again, much of this cannot be specified in a document adopted by the AHJ. Most AHJ's already have statutory language regarding this subject. Place this in the suggested health department administrative section to be created in the annex. States that need to can add this language back in.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.6.6.4.2, 6.6.6.5, 6.6.6.6, 6.6.6.7	6.6.6.4.2 In the event the person elects to contest the violation, the person shall be entitled to an administrative hearing on the violation before the AHJ, or a designee of the AHJ. 6.6.6.5 If, after a hearing held pursuant to rules established in the AHJ, the AHJ or the designee of the AHJ finds that a violation of this CODE has occurred, the person found to be in violation shall, within ten days of the finding, pay the civil penalty originally assessed. 6.6.6.6 If a person charged with a violation of this CODE does not elect to admit liability or plead no contest and to pay the assessed penalty, or, following a hearing under the rules of the AHJ which results in a finding that the person has violated the CODE, does not pay the assessed penalty, the violation shall be tried in the court under the rules of the AHJ upon a warrant in debt, with the same right of appeal as provided in civil actions at law. 6.6.6.7 The remedies provided in this section are cumulative and not exclusive. The designation of a violation of this CODE as a civil violation shall not be construed as prohibiting the AHJ from initiating appropriate administrative, criminal civil procedures to prevent, correct, restrain or abate violations of the CODE.	These are not Health Code issues but state statue issues and should not be in the MAHC.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.6.8.1	The following fees and corresponding amounts shall be assessed by the AHJ. Some typical fees include: 1) Owner's permit application fee, 2) Plan review and construction inspection fee, 3) Pre-operational re-inspection fee, 4) Variance and/or exemption application fee, and 5) Late fees.	*Bring the construction permit fees clearly into focus for the AHJ and the Operating permit fees for the AHJ.* -- The following fees and corresponding amounts shall be assessed by the AHJ. Some typical fees include: 1) Owner's construction permit application fee, which include times for plan review and construction inspection. ~~2) Plan review and construction inspection fee~~, 3) Pre-operational re-inspection fee and Operating permit fees, 4) Variance and/or exemption application fee, and 5) Late fees.	All sections relating to the AHJ were removed from the Code and placed in a separate document. Wording clarified	N/A	N/A
Regulatory (REG)	6.6.8.2	The AHJ processes all applicable fees. A complete list of all fees shall be made available to the public.	What is the purpose of the first sentence? Who else has authority? It is unnecessary. Again; no "shall"! The AHJ "publishes," or "a list of fees is available." I cannot regulate myself.	Agree, first statement eliminated. The second statement was removed from the Code and placed in a separate document.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.7.0	Aquatic Health Advisory Committee (AHAC)	Section 6.7 for an Aquatic Advisory Committee is something I do not remember any discussions or find anything in any of the drafts I reviewed. The focus of the aquatic advisory committee for providing a group that people can appeal to when the department (AHJ) has aggrieved them is not a process that our department supports. If actions are denied, our state provides a clear process for aggrieved persons to take their concerns through our hearings process. I believe it circumvents the legal process for proper redress when persons are aggrieved. Persons aggrieved by department actions have administrative hearing rights through impartial administrative law judges that can review the merits of cases based on law. The proposed section 6.7 moves the decision making process to a committee that may not review the merits of cases impartially.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regul atory (REG)	6.7.1	Structure	Great idea, wrong place! Cannot regulate myself. Move to annex	Agreed. All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1	Structure	*The majority of AHJs in WV are small and rural and would not have access to persons designated to serve on this committee* -- Revise to not be required by all AHJ – "There should be …" – REFERENCE: Each local health department in WV would be an AHJ see WV State Code CHAPTER 16. PUBLIC HEALTH. ARTICLE 2. LOCAL BOARDS OF HEALTH. §16-2-1. Purpose. Local boards of health, created, established and operated pursuant to the provisions of this article, are responsible for directing, supervising and carrying out matters relating to the public health of their respective counties or municipalities.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.1	There shall be created, an Aquatic Health Advisory Committee, hereinafter called "Committee", consisting of but not limited to seven members, composed of and consisting of a representative of the industries, trades, and professions, as follows: 1) AQUATIC FACILITY Building Contractor 2) AQUATIC FACILITY Service & Repair Contractor or 3) AQUATIC FACILITY Industry Member 4) Certified Safety Professional 5) Professional Engineer 6) Health Professional 7) Building Code Official	Remove the word "OR"	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.1	There shall be created, an Aquatic Health Advisory Committee, hereinafter called "Committee", consisting of but not limited to seven members, composed of and consisting of a representative of the industries, trades, and professions, as follows: 1) AQUATIC FACILITY Building Contractor 2) AQUATIC FACILITY Service & Repair Contractor or 3) AQUATIC FACILITY Industry Member 4) Certified Safety Professional 5) Professional Engineer 6) Health Professional 7) Building Code Official	Should also be an Aquatic professional as well on the list	All sections relating to the AHJ were removed from the Code and placed in a separate document. Currently have" certified safety professional" and three aquatic facility professionals. No change.	N/A	N/A
Regulatory (REG)	6.7.1.1	There shall be created, an Aquatic Health Advisory Committee, hereinafter called "Committee", consisting of but not limited to seven members, composed of and consisting of a representative of the industries, trades, and professions, as follows: 1) AQUATIC FACILITY Building Contractor 2) AQUATIC FACILITY Service & Repair Contractor or 3) AQUATIC FACILITY Industry Member 4) Certified Safety Professional 5) Professional Engineer 6) Health Professional 7) Building Code Official	There shall be created, an Aquatic Health Advisory Committee, hereinafter called "Committee", consisting of members from the following: ~~but not limited to seven members, composed of and consisting of a representative of the industries, trades, and professions, as follows: 1) AQUATIC FACILITY Building Contractor~~ Public Pool (municipal, park department, school, health club); 2) ~~AQUATIC FACILITY Service & Repair Contractor or~~ Semi public or limited use type pool (apartment, condo, homeowners association, hotel, motel); 3) ~~AQUATIC FACILITY Industry Member~~ APSP representative; 4) ~~Certified Safety Professional~~ Local health jurisdiction members; 5) Licensed Design Professional (Engineer or Architect); 6) State Health Department Official; 7) Building Code Official – REFERENCE: The proposed intent of this committee is not something we support. We support a committee that can serve on an advisory basis for development of rules, guidance documents, use of new products, etc. The weighting of the proposed committee is not evenly balanced. Please see Washington state rule WAC 246-260-191	All sections relating to the AHJ were removed from the Code and placed in a separate document. The current categories are vague to include commenters suggestions. No change in language.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.7.1.1	There shall be created, an Aquatic Health Advisory Committee, hereinafter called "Committee", consisting of but not limited to seven members, composed of and consisting of a representative of the industries, trades, and professions, as follows: 1) AQUATIC FACILITY Building Contractor 2) AQUATIC FACILITY Service & Repair Contractor or 3) AQUATIC FACILITY Industry Member 4) Certified Safety Professional 5) Professional Engineer 6) Health Professional 7) Building Code Official	Too few people to guarantee integrity and absence of individual or political agendas	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.2	The members of the Committee shall be appointed by the AHJ for a recommended term of three years.	*Request this be deleted. This is getting too detailed for how a state runs its administration* . -- ~~The initial recommended terms of office shall be as follows: 1) Three members shall be appointed for a term of three years; 2) Two members for a term of two years; 3) Two members for a term of one year.~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.2.1, 6.7.1.3, 6.7.1.4, 6.7.2, 6.7.2.1, 6.7.2.2, 6.7.3, 6.7.3.1, 6.7.3.2, 6.7.3.2.1, 6.7.3.3, 6.7.3.4, 6.7.4, 6.7.4.1, 6.7.4.1.1, 6.7.4.1.2, 6.7.4.2, 6.7.4.2.1, 6.7.4.2.2, 6.7.4.3, 6.7.4.3.1, 6.7.4.4, 6.6.4.5 & 6.7.4.5.1	See Code for full text	Any recommendations should not be in a code. Recommendations are not enforceable. Many states have statues the require Public Hearings to be performed in specific procedural order. The MAHC is not the proper venue to dictate how hearings are setup and performed.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.3	Upon expiration of the initial term of office of a member of the Committee, their successors shall then be appointed for a recommended term of three years.	*Request this be deleted* . -- ~~Upon expiration of the initial term of office of a member of the Committee, their successors shall then be appointed for a recommended term of three years.~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.1.4	Vacancies for an unexpired term shall be filled by the AHJ.	*Request this be deleted* -- ~~Vacancies for an unexpired term shall be filled by the AHJ.~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.2	Duties and Responsibilities	*Modify the intent of this committee* . -- ~~It shall be the duty of the Committee to hear appeals from the decision of the AHJ and to submit findings to the AHJ.~~ The Committee shall assist in the development of: review of drafting of rules and developing guidelines for use of new products, equipment, procedures and periodic program review. -- REFERENCE: See WAC 246-260-191 (Technical Advisory Committee),	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.2.1	It shall be the duty of the Committee to hear appeals from the decision of the AHJ and to submit findings to the AHJ.	*Conflicts with WV Code of State Rules, this section may conflict with other jurisdiction codes as well.* -- Revise duties and responsibilities not to hear appeals – REFERENCE: Conflicts with WV State Code 64CSR1 RULES OF PROCEDURE FOR CONTESTED CASE HEARINGS AND DECLARATORY RULINGS	All sections relating to the AHJC were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.2.2	The duties and powers of this Committee shall be in an advisory capacity only.	*If the committee is advisory, is it worth having? I think they need to have some teeth or it is not worth the effort and they will become a rubber stamp.* -- ~~The duties and powers of this Committee shall be in an advisory capacity only.~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.3	Procedures	*Eliminate this section and all subsections. This committee could create a means to usurp AHJ authority* . -- ~~Procedures~~	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.4	Public Hearings	*Conflicts with WV Code of State Rules, this section may conflict with other jurisdiction codes as well.* -- Remove due to conflicts – REFERENCE: Conflicts with WV State Code 64CSR1 RULES OF PROCEDURE FOR CONTESTED CASE HEARINGS AND DECLARATORY RULINGS	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Regulatory (REG)	6.7.4	Public Hearings	*Eliminate this section and all subsections. Our public hearings are already covered by state statute and the administrative procedures act* -- ~~Public Hearings~~ – REFERENCE: See WAC 246-260-221.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Regulatory (REG)	6.7.4.4	Any person aggrieved by a decision of the AHJ may at any time, within 30 days after the filing of the AHJ's decision, file an appeal following the various methods of appeal or review procedures in the AHJ.	*No change proposed, but should consider what is in many state codes (ICC codes) re appealing an AHJ action and how these will work together. See reference citation* -- Any person aggrieved by a decision of the AHJ may at any time, within 30 days after the filing of the AHJ's decision, file an appeal following the various methods of appeal or review procedures in the AHJ. – REFERENCE: 108.1 Application for appeal. Any person shall have the right to appeal a decision of the *code official* to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted there under have been incorrectly interpreted, the provisions of this code do not fully apply, or an equally good or better form of construction is proposed. The application shall be filed on a form obtained from the *code official* within 20 days after the notice was served.	All sections relating to the AHJ were removed from the Code and placed in a separate document.	N/A	N/A
Disinfection and Water Quality (DWQ)	Abstract	Disinfection and water quality are critical components in maintaining bather health and comfort. Health issues related to inadequate disinfection and poor water quality are increasingly being documented. Outbreak investigations have often determined that disinfectant levels and other water quality parameters were not maintained appropriately thereby allowing disinfectant-sensitive pathogens to be associated with pool use. The emergence of chlorine-tolerant microbes also necessitates changing accepted standards for pool treatment to protect the health of bathers in the future. The Disinfection and Water Quality Module takes the first steps in addressing these recurring and emerging aquatic health issues. The Disinfection and Water Quality Module contains requirements for new or modified construction that include: 1) Primary disinfectant levels set. 2) Secondary disinfection required for "increased risk" aquatic venues such as Interactive features, spray pads, wading pools, and other venues designed primarily for diaper-aged children as well as therapy pools 3) Combined chlorine maximum levels set 4) Prohibition of cyanuric acid in Indoor facilities and "increased risk" aquatic venues	*Published scientific studies: There are pathogens that are highly chlorine-resistant (e.g. Cryptosporidium parvum) but these have not necessarily newly "emerged" implying mutation to create them where they did not exist before. The pathogens we see in pools today have had their general environmental resistance (i.e. protozoan oocyst thick-walled encapsulation) develop long before Homo sapiens existed, let alone pools being chlorinated. As for chlorine-resistant bacteria, such strains may very well have existed before chlorine introduction in pools, but it is true that low chlorine levels could select for them. Hypochlorous acid has multiple modes of action that make it harder for single-point mutations to have pathogens develop specific resistance in the same way they do against antibiotics, for example. The point is that any implication of the microbes now seen in chlorine pools being newly created is questionable. If one properly chlorinates a pool, then what "emerges" in the statistics of the pathogens that are left are those that are more chlorine-resistant, but such resistance may not be new.* -- ~~The emergence of chlorine-tolerant microbes also necessitates changing accepted standards for pool treatment to protect the health of bathers in the future.~~ Chlorine-tolerant microbes also necessitate changing accepted standards for pool treatment to protect the health of bathers in the future. The Disinfection and Water Quality Module takes the first steps in addressing these ~~recurring and emerging~~ aquatic health issues. -- REFERENCE: 1) Ridgway HF, Olson BH. Chlorine resistance patterns of bacteria from two drinking water distribution systems. Applied and Environmental Microbiology. 1982 Oct;44(4):972-987. 2) Winter J, Ilbert M, Graf PCF, Özcelik D, Jakob U. Bleach Activates a Redox-Regulated Chaperone	Comment noted, No change deemed necessary. The annex does not argue that the chlorine-tolerance of parasites has been a recent occurrence. However, emergence of the parasite as a major cause of human illness has been well documented to have occurred starting in the late 1970's with the HIV epidemic. This was followed by *Cryptosporidium* taking a major role first in causing drinking water-associated outbreaks and then recreational water –associated outbreaks.	N/A	N/A
Lifeguard & Bather Supervision (LG)	ABSTRACT	N/A	*It is not code. If included at all, its place would be in the annex* -- This entire abstract should be deleted.	Each module contains an abstract. The abstract has been edited and additional wording below edited and moved to section 6	N/A	N/A
Disinfection and Water Quality (DWQ)	Abstract	Disinfection and water quality are critical components in maintaining bather health and comfort. Health issues related to inadequate disinfection and poor water quality are increasingly being documented. Outbreak investigations have often determined that disinfectant levels and other water quality parameters were not maintained appropriately thereby allowing disinfectant-sensitive pathogens to be associated with pool use. The emergence of chlorine-tolerant microbes also necessitates changing accepted standards for pool treatment to protect the health of bathers in the future. The Disinfection and Water Quality Module takes the first steps in addressing these recurring and emerging aquatic health issues. The Disinfection and Water Quality Module contains requirements for new or modified construction that include: 1) Primary disinfectant levels set. 2) Secondary disinfection required for "increased risk" aquatic venues such as Interactive features, spray pads, wading pools, and other venues designed primarily for diaper-aged children as well as therapy pools 3) Combined chlorine maximum levels set 4) Prohibition of cyanuric acid in Indoor facilities and "increased risk" aquatic venues	*Published scientific studies… See detailed comments for the ANNEX section 5.7.3.2.1.* -- 4) ~~Prohibition~~ Greater restrictions of cyanuric acid in Indoor facilities and "increased risk" aquatic venues –REFERENCE: See detailed references for the ANNEX section 5.7.3.2.1.	Partial agreement. The MAHC has decided that the addition of a safety factor for stabilized pools (2ppm vs. 1ppm requirement) and the addition of secondary disinfection to increased risk venues does not warrant further prohibition of cyanuric acid or stabilized chlorine products from indoor settings or most increased risk settings. The exception to this is spas because of the high temperature and biofilm issues (e.g., *Legionella* , non-tuberculous mycobacteria) and therapy pools where the users are more likely to include high risk groups for infections and severe illness (e.g., immunocompromised, elderly)	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	Abstract: ¶ #1, point #4)	N/A	*Incomplete entry - ability to scan each individual zone must be a consideration in determining proper staffing* -- 4) Determination of what constitutes proper staffing by the ability of the lifeguard to reach all areas of their zone of patron surveillance within a certain time frame, add: "…*the lifeguard's ability to provide proper Patron surveillance and scanning, and direct line of site requirements.*"	Disagree. It is clear as written.	N/A	N/A
Lifeguard & Bather Supervision (LG)	Abstract: ¶ #2	N/A	*Irrelevant Unnecessary* -- Most of paragraph 2 should be eliminated, as it serves no purpose.	The abstract has been edited.	N/A	N/A
Lifeguard & Bather Supervision (LG)	Abstract: ¶ #2	N/A	*Misleading – makes it seem as though all decisions were made for this reason* -- "It is developed in the interest of protecting the health and safety of patrons and employees of recreational aquatic venues." Not 100% true. If this were the only driving force, we would not allow for any un-guarded recreational aquatic venues with standing water. Financial/Lobbyist considerations are also driving this code…	The abstract has been edited.	N/A	N/A
Lifeguard & Bather Supervision (LG)	Abstract: ¶ #3	N/A	"Clearly, these are all correctable issues that would prevent avoidable drowning deaths with little additional effort." Completely inaccurate - being a good lifeguard or a good Operator does require significant and continuous effort and diligence.	The abstract has been edited.	N/A	N/A
Fecal, Vomit, Blood (FVB)	General	N/A	Add/change the following two sections: (1) Formed-stool (pools containing chlorine stabilizers) 6.5.3.1.1 In pool water that contains chlorine stabilizer (i.e. cyanuric acid), lower the pH to 7.0 if the stabilizer is 30 ppm or to 6.5 if the stabilizer is higher than 30 ppm and then raise the FC level to be 70% of the CYA level and maintained for at least 25 minutes. (2) Diarrheal-stool (pools containing chlorine stabilizers) 6.5.3.2.1 In pool water that contains chlorine stabilizer (i.e. cyanuric acid), lower the pH to 6.5 and then raise the FC level to be 95% of the CYA level and maintained for at least 30 hours. (3) (as noted in the Basis for Comments section, I believe Crypto should be handled by means other than high chlorine doses; I believe chlorine dioxide from sodium chlorite overnight would be the most practical and effective; long-term, microfiltration would limit the number of days the parasite could spread).	This protocol needs to be further evaluated and data collected before implementing wording. Regarding Point #3: Agreed, but no language change. Chlorine dioxide has the potential to be an alternative but has not yet been approved by EPA for this use and can be hazardous unless appropriate safety protocols are included. CDC will evaluate further recommendations once more data are available. At this point, requiring micro- or ultra-filtration could be cost prohibitive and it is unclear how this would be required and implemented.	N/A	N/A
Lifeguard & Bather Supervision (LG)	General	N/A	In general, this module attempts to over-manage and specifically dictate lifeguard training for every possible aquatic facility – with little acknowledgment of the very real differences between private pools that may be unguarded, traditional small public pools often staffed by one or two lifeguards, and public facilities with many lifeguards, supervisors and management staff on-site. It does not properly take into account the differing duties of lifeguards in various aquatic facilities – especially larger facilities and the differing types of categories of lifeguards and resultant differences in required training. In addition, most public facilities have on-duty supervisors and management team members that are responsible for water quality, admissions, concessions, guest services, emergency situations, etc. Thus, lifeguards at these type of facilities concentrate solely on lifeguarding their particular assigned venues – not the case at many traditional pools where this is little additional staff support. The training program – as long as provided by a reputable training agency – should be tailored to the specific aquatic facility and aquatic venues therein. A one-size-fits-all approach is neither necessary nor productive. The unnecessary amount of detail and specification in this module will only serve plaintiff's attorneys in finding some violation – no matter how lacking in relevance – and significantly drive up operating costs. This module also appears to have been drafted "in-a-hurry" and in sections, by different people, without overall review and coordination (the confusion with the terms "aquatic venue" and "aquatic facility" is just one example).	The code and annex have been extensively revised and restructured.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	General	N/A	In general, this module attempts to over-manage and specifically dictate lifeguard training for every possible aquatic facility – with little acknowledgment of the very real differences between private pools that may be unguarded, traditional small public pools often staffed by one or two lifeguards, and public waterparks with many lifeguards, supervisors and management staff on-site. It does not properly take into account the differing duties of lifeguards in various aquatic facilities – especially larger waterparks and the differing types of categories of lifeguards and resultant differences in required training. For example, waterpark shallow water guards most often work with water slides that have no pools at the bottom of the slide or pools only a few feet deep. Training for this position is not nearly as extensive as for a regular deep water guard and physical requirements are also much different. There is essentially no scanning and no in-water requirement for these guards. In addition, most, if not all, waterparks have on-duty supervisors and management team members that are responsible for water quality, admissions, concessions, guest services, emergency situations, etc. Thus, lifeguards at these type of facilities concentrate solely on lifeguarding their particular assigned venues – not the case at many traditional pools where this is little additional staff support. The training program – as long as provided by a reputable training agency – should be tailored to the specific aquatic facility and aquatic venues therein. A one-size-fits-all approach is neither necessary nor productive. The unnecessary amount of detail and specification in this module will only serve plaintiff's attorneys in finding some violation – no matter how lacking in relevance – and significantly drive up operating costs. This module also appears to have been drafted "in-a-hurry" and in sections, by different people, without	The code and annex have been extensively revised and restructured.	N/A	N/A
Lifeguard & Bather Supervision (LG)	General	N/A	The City of La Mirada owns and operates the Splash! La Mirada Regional Aquatics Center. This Aquatics Center has over 300,000 visitors per year; Splash! includes many types of aquatics programs from swim lessons, lap swim, competitive aquatic programs and a family waterpark. Safety is a top priority of our aquatics programs and the Aquatics Center has an outstanding safety record. As the Director of Community Services for the City of La Mirada I have very serious concerns about the Model Aquatic Health Code as drafted. I would like to see additional time and study put into the code. Some of the major concerns with the code in general relate to clarification and consistency within the code. The City of La Mirada has worked with the American Red Cross since the facility opened to strive to provide a safe and outstanding facility. It is my feeling that the code as written would not improve safety. Thank you for your consideration. Lori Thompson Community Services Director City of La Mirada	The code and annex have been extensively revised and restructured.	N/A	N/A
Disinfection and Water Quality (DWQ)	General	N/A	The National Association of Local Boards of Health (NALBOH), through its Environmental Health Subcommittee, has learned of instances of dog swims in public pools. Several states, including Florida, Ohio, and Indiana, have developed guidance regarding dog swims in public pools. We recommend that the MAHC mention the existence of dog swims in public pools and refer to the existing guidance as recommended practice.	While the TC sees the merit in this comment, it is believed that such activities are the exception rather than the rule, and can be handled on a case by case basis within the appropriate jurisdiction.	N/A	N/A
Fecal, Vomit, Blood (FVB)	General	N/A	There is a need to address procedures for water through water features during disinfection. Concern about contaminated water in piping and water features such as dump buckets if water recirculation is not maintained, but also concerned about recirculating 20mg/l water through slides and other water-aerosolizing features for 13 hours. Add wording to the appendix which clarifies what can/should be done to ensure the required chlorine residual is maintained in all water during the specified time frame. Also probably should add a clarification to the appendix that the slide and other water feature surfaces are to be disinfected per 6.5.4.4, though this may not be practical. Probably needs some discussion.	Agreed, discussion is warranted. Currently there are no standardized protocols on cleaning these aquatic features. Added annex language stating water features shall be well drained and disinfected per manufactures instructions'.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Operator Training (OT)	General	N/A	Will all lifeguards have to take the Operator training, no matter what state it is?	The MAHC is intended to be a national model code that can be adopted by any state or local jurisdiction. While we hope that operator training will become a requirement in all codes, the MAHC is not a mandatory code and it is up to each jurisdiction to adopt their own code requirements. However, this will also depend on the duties of the Lifeguard, which requires specific training already. If the Lifeguard is also functioning as a Pool Operator then they will be required to also be trained as a pool operator.	N/A	N/A
Operator Training (OT)	General	N/A	The draft does not address chemical controllers, and particularly ORP, in any significant degree. See following comments. Automatic control of disinfectant levels using ORP sensors has been a significant advance and benefit in the operation of swimming pools over the past 20 years, but operators for the most part still do not have a basic understanding and trust in the ORP measurement. None of the nationally available operator training courses spend significant time on controllers and ORP, largely because we regulators have not chosen to endorse ORP as a standard, but also partly, I believe, because the trainers don't have a much better understanding of the subject than the operators. The MAHC module does not mention ORP and has one sentence about controllers. Granted, there is far too little academic work on the meaning of ORP in pool operation, but we have years of practical experience indicating the benefits of automation. Operators need to be exposed to ORP as a primary operating parameter and need to be encouraged to trust the machine readings more. They need to be taught basic maintenance and that sensors don't last forever. My view is that a minimum of 45 minutes and probably more should be provided to discuss ORP and controllers; the MAHC needs to include a discussion of ORP under "Disinfection" in addition to the discussion under "Water Treatment Systems" (6.1.2.1.2.10) in "Water Chemistry."	None. Chemical controllers and ORP are both discussed further in the Disinfection and Water Quality Module. We do agree that more scientific information is needed on the use of ORP in pools. The lack of scientific data comparing it with traditional operation has limited how ORP has been discussed and incorporated into the MAHC. As additional scientific information is collected this will be reconsidered.	N/A	N/A
Recirculation and Filtration	General	N/A	MAHC does not take into consideration the filters capabilities when specifying turnover rates and run times. A filter which filters at 1 micron with a fast turnover is substantially superior to a filter at 20 microns at suggested code rate.	The annex information on filtration is intended to start the industry thinking in this direction. It is challenging because no pool filters have been shown to be effective at removing 1-micron particles yet and even at the 5-micron size range it is not currently known which filters achieve what level of removal in all conditions or what % of the time they do perform well. There are some important pieces of the puzzle missing that prevents rating filters and size systems based on filter performance. For example, regenerative media filters have not yet been tested for Crypto-sized particle removal.	N/A	N/A
Recirculation and Filtration	General	N/A	This module includes design and construction requirements that in many cases are currently inconsistent and contrary to the requirements found in the International Swimming Pool & Spa Code (ISPSC). These inconsistences should either be deleted altogether or at a minimum changed to be consistent with the provisions found in the ISPSC (which are based on nationally approved standards and in some cases federal law). Specifically, in this module are many provisions addressing suction outlets and suction entrapment avoidance - if these provisions remain in the MAHC, then all of the sections dealing with suction outlets (drains) should be replaced with a reference to ANSI/APSP-7 or ANSI/APSP-16, accordingly. Doing so will provide consistency between the MAHC and the ISPSC. -- REFERENCE: See the 2012 International Swimming Pool & Spa Code (ISPSC).	Partially agree. Any inconsistencies in the MAHC with the requirements of the VGB will be revised so as to be consistent.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Recirculation and Filtration	General	N/A	Multiple filter sections and annex as well as other product sections of the MAHC -- Future research and development needs could be met via further performance quantification and speciation. As an example, the filter sections within NSF 50 for assessing the filtration performance (via actual laboratory challenge testing) could be modified to provide greater differentiation in product and system performance. Filters with customized media beds, coagulation etc. could be tested and quantified for their performance benefits in a way that would help buyers and facility operators make informed decisions to improve their facility health and safety. -- NSF/ANSI Standard 50 – REFERENCE: NSF 50 may be modified to create "levels" of performance for filters and other products. For example, filters must pass the 70% turbidity reduction test but could additionally be quantitatively graded on whether the filters achieve this value after 1, 2, 3, 4, or 5 volumetric turnovers. Further alternate challenge media could be utilized during filter testing and filters could likewise be quantitatively graded for how much of which micron size range of particulates were removed at each volumetric turn-over thereby creating a more data intensive solution.	Agree. Collaboration with NSF to address research needs and/or inconsistencies will be planned.	N/A	N/A
Recirculation and Filtration	General	N/A	Multiple filter, skimmer, and chemical feeder sections -- Although filter, skimmer, and chemical feeder sizing in some of this module is consistent with NSF/ANSI Standard 50 recommendations and guidelines. In some areas it is less stringent (in chemical feeder sizing) and in other areas it is more stringent (cartridge filter flow rates per surface area of filter). The CDC has had staff have a voting position on the NSF/ANSI Standard 50 Joint Committee and could suggest changes to NSF/ANSI Standard 50. -- NSF/ANSI Standard 50 – REFERENCE: NSF 50 may be modified to modify sizing recommendations if it will help with MAHC adoption and use.	Agree. Collaboration with NSF to address inconsistencies will be planned.	N/A	N/A
Ventilation (VEN)	General	Section 5	Delete "INDOOR" when referring to the "AQUATIC FACILTIY"	Disagree. Code revised to include definition for Indoor Aquatic Facility.	N/A	N/A
Design & Construction (D&C)	General	N/A	"Aquatic Facility/Venue" should be used (as opposed to specific types) where appropriate, in order to broaden the scope of the intention. These are terms clearly established by the Code and the Code should address facility construction, not just "pool" construction. Not enough effort was put forth to consider all types of venues, and this is necessary throughout for the Code to be complete.	Agreed. Edited accordingly.	N/A	N/A
Design & Construction (D&C)	General	N/A	· Many of the Design Sections listed are not permit for construction in CT per our current Design Standards, such as underwater benches, infinity edge pools, etc.. It is CT understanding that States can use the MAHC Code, but be more stringent.	Yes, this is accurate.	N/A	N/A
Ventilation (VEN)	General	N/A	As a member of the ASHRAE Standards Committee I am not aware that anyone associated with this effort has made any real attempt to work with the members of ASHRAE Standard 62.1 project committee to try and improve the standard. Conversations with ASHRAE Staff and the Chairman of the standard concur with my comment. -- ASHRAE Standard 62.1 is widely recognized in the industry and among code bodies and as such should be the first step.	Agree. ASHRAE was contacted several times to provide a member to participate on the committee, however no response from them was received.	N/A	N/A
Design & Construction (D&C)	General	N/A	*I believe the Federal government encourages or requires SI equivalents. -Measurement units in SI are not provided or are not in the correct units. E.g. "cm" is not an SI unit; it should be "mm" or "m." "U.S. perm" is not given in SI units, which I believe could be "ng•s−1•m−2•Pa−1 ."*	Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Ventilation (VEN)	General	N/A	In the accompanying annex the following appears. "The committee had to use the experience of its members on what was working in the real world and what was not working to modify the formula used in ASHRAE 62. In other words, the committee had the final answer and developed a modified formula that yielded the desired results." -- I find this extremely unprofessional as well as misleading. It is obvious from this that the committee has already decided that the answer is "more outside air" and set about making a set of questions that provides this answer. The next column outlines what I believe to be the "real" problems and they do not involve more outside air. Rather they involve getting the air where it needs to be. – REFERENCE: My experience of nearly 25 years in this field as a manufacturer of mechanical dehumidification systems and many visits to "real" facilities have shown me that there are two main problems in most natatoriums. The first problem is that everyone is expecting the 'minimum wage' pool life guard or building janitor to maintain the pool chemistry. The problem is compounded by cheap (deliberate word here) testing equipment, misinformation about how to interpret the test results and the lack of knowledge about how to actually get the pool chemistry correct. The result is very inconsistent results. Pool "shocking" is poorly understood and often improperly executed, compounding the above problem. The second problem is that most natatorium "air distribution" systems are not only poorly designed but often are made to make the architect happy and not to solve the problem of getting air to the proper places. A facility with 20 or 40 ft ceiling heights and an air distribution system in the ceiling area does NOT work like a normal air distribution system in a room with 8 to 10 ft ceiling heights. This means that air is not getting to the water surface in most cases, making the problem	*Partially Agree. Code revised to delete additional outdoor air requirements and now specifies using ASHRAE standards for design of outdoor air requirements.*	N/A	N/A
Lifeguard & Bather Supervision (LG)	General	N/A	Palace Entertainment is one of the leading leisure park operators in the United States with parks located in 11 states. Palace Entertainment owns and operates 40 parks nationwide, including water parks, family entertainment centers, theme parks and animal parks. Palace entertains millions of guests annually and is the single largest operator of water parks in the nation including many of the largest water parks in the country. As the largest operator of waterparks in the U.S., We have serious concerns about the development and content of the new proposed code. It is obvious to us that the proposed code was developed without sufficient input and consideration for the unique aspects of the waterpark community. We would like to echo the sentiments and objections of the World Waterpark Association, IAAPA and Ellis and Associates. We fear that the new proposed code as currently written will become unnecessarily burdensome and is out of touch with current standard operating practices within our industry without numerous modifications.	The code and annex have been extensively revised and restructured.	N/A	N/A
Design & Construction (D&C)	General	N/A	*The Model Aquatic Health Code (MAHC) should be confined to the operation and hygiene of public pools and spas and surrounding facilities, areas which are properly in the domain of the state or local departments of health or comparable agencies. On issue of design and construction of pools and spas, whether public or residential, the MAHC should defer to or reference the 2012 International Swimming Pool and Spa Code (ISPSC). This Code was developed jointly by the APSP, which is recognized by the American National Standards Institute (ANSI) as the developer and secretariat of national consensus standards with regard to pool and spa design, construction and safety, and the International Code Council (ICC), which is a member based organization comprised primarily of building officials and inspectors and the developer of the universally recognized International Residential Code (IRC), International Building Code (IBC) and International Plumbing Code (IPC). (**SEE PUBLIC COMMENT FOR FULL TEXT)*	Disagree. The MAHC has included mostly items that are not currently included in building code or areas the MAHC felt were not adequately covered. Public health officials must have input into design and construction since they are the regulatory officials required to oversee the long-term operation of the aquatic facility so need to ensure that the initial design and finished facility allow healthy and safe operation. The MAHC has signed Memoranda of Intent with several building code organizations and has found minimal overlap and is working to reduce that overlap and any inconsistencies. The long term intent of the MAHC is to see most design and construction elements moved into building code but these will remain in the MAHC until they are adequately covered in existing building code. We look forward to seeing the majority of this section incorporated into building code.	N/A	N/A
Design & Construction (D&C)	General	N/A	Use SI. "mm" and "m"; not "cm"	Recommendations implemented.	N/A	N/A

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Lifeguard & Bather Supervision (LG)	General Comment ANNEX	N/A	*Unacceptable Literature ********** Unpracticed items listed as "A" Grade ******** Due Process* -- The entire ANNEX did not follow the MAHC process for generation, discussion, and transparency with the entire Lifeguard/Bather Supervision Technical Committee. Only the Chairs of the committee wrote the Annex (which only represented the ARC and YMCA and no other agencies). The Annex was never discussed in an open forum in the sub groups or with the full group. The comments provided were never vetted, discussed, or responded to, prior to completion of the Annex. The CDC/SC requested that the Annex be submitted with full knowledge that the product was not discussed in any forum of the committee. The Annex is a perfect example of a "Proposed and directed timeline" to coincide with the start of the 2013 swim season and at no time has there been quality control for the actual product. As a result the Annex as a whole, is objectionable and must be properly vetted and discussed prior to public comment.	The code and annex have been revised and restructured.	N/A	N/A
Lifeguard & Bather Supervision (LG)	General Comment ANNEX	N/A	*Unacceptable Literature ********* Unpracticed items listed as "A" Grade* -- Multiple entries in the Annex are direct content and quotes from the USLSC (US Lifeguard Standard Coalition), which was an exclusive group of Lifeguard Agencies (USLA, ARC and YMCA) that produced an internal (non-peer-reviewed) collection of relatable studies/articles. The document produced also called upon individuals with long standing relationships (committee members, board members, advisory board members) of the aforementioned agencies as authors. This document and its contents have no place in this ANNEX and clearly represent the philosophy and content of the participating agencies. Ellis & Associates submitted comments during the posted USLSC comment period. The comment process stated that all comments would be addressed… To this day, and since their submission, E&A has not received any response or dialogue from the USLSC, with respect to our comments.	The code and annex have been revised and restructured. However, regarding the USLSC, it was evidence review process that followed a structured, validated and scientifically valid process which included both participant review and open comment period. As such these guidelines represent the first comprehensive evidence based review of the subject and are not only compliant with accepted evidence based processes but actuality exceed these for Evidence-Based Practice and scientific reviews. The review was published in the peer review journal International Journal of Aquatic Research and Education.	N/A	N/A
Disinfection and Water Quality (DWQ)	NO SECTION REFERENCE – JUST COMMENT	N/A	Discuss ability to test for ozone levels in the water and the atmosphere directly above the pool water level on at least a monthly/quarterly basis and accuracy of determination in atmosphere of less than 0.05 ppm, preferably in 0.01 ppm increments.	This should be in the monitoring and testing section of the code.	N/A	N/A
Regulatory (REG)	Preamble comments related to Regulatory module	N/A	I was on the committee that worked on this particular module. There are parts of the document that I reviewed that I do not remember any discussion during our committee meetings. In reviewing my past records, I don't find some topics even broached by the committee. The two major sections that seem to have been developed beyond the committee process are sections 4.1.5 dealing with permits and subsection 6.7 establishing an Aquatic Advisory Committee. My comments on these sections are in the chart and below. My concern with section 4.1.5 is the intent appears to direct the authority for permits to building authority permits. I don't remember this language in any of the drafts that our committee worked on development. The majority of these permits for construction of facilities are handled through health authorities. Our health rules in our state are based on concerns to public health and safety. In our state, there are separate building department rules which are overseen through the state building code authorities and handled through 350 local building authorities, but these aren't health and safety rules. Our department is concerned with the written intent of this draft of the MAHC. We find it hard to support a code that would move health and safety issues away from our current authority and places it in building department as the permit for construction. When statutes were changed in our state in the 80's, the industry supported the change with the intent we would create consistency across the state. We have worked hard to provide that consistency. The responsibility is currently carried out with 6 different reviewing authorities in our state. These include our department and 5 large local health jurisdictions. We meet together routinely and strive for consistent reviews. Moving public health and safety issues to	The term building was changed to construction where appropriate. It is not the intent of the MAHC to move public health into building departments. All code pertaining to the AHJ has been moved to a separate document.	N/A	N/A
Contamination Burden (CB)	References	N/A	*The format for the references is inconsistent. References should be modified to provide a consistent format.*	Agree, need to make sure the format is consistent across all the modules	N/A	N/A
Contamination Burden (CB)	References	N/A	*The first name on this reference is written incorrectly.* -- ~~Kim, J.~~ Kim, H. Shim, J. Lee, S., Formation of disinfection by-products in chlorinated swimming pool water. Chemosphere, 46, 2002, 123-130.	Agree, changed as suggested.	References	Kim H, Shim J, Lee S. Formation of disinfection by-products in chlorinated swimming pool water. Chemosphere (2002); 46:123-130.

Original MAHC Module	Original Section Number	Original Language	Original Comment	Public Comment Response	Current Section Number	Current Language
Contamination Burden (CB)	References	N/A	The WHO Guidelines were revised and issued in 2006. The newer reference should be used. -- WHO (2000): Guidelines for safe recreational-water environments, Volume 2: Swimming pools, spas and similar recreational-water environments. Final draft for consultation, August 2000 2006. Available at http://www.who.int/water_sanitation_health/bathing/bathing2/en/.	Agree, changed as suggested.	References	WHO (2006). Guidelines for safe recreational-water environments, Volume 2: Swimming pools, spas and similar recreational-water environments. Accessed: 5/20/13. Available at: http://www.who.int/water_sanitation_health/bathing/bathing2/en
Contamination Burden (CB)	References	N/A	*The first name on this reference is written incorrectly.* -- ~~Clifford, P. W.,~~Weisel, C. P., Richardson, S. D., Nemery, B., Aggazzotti, G., Baraldi, E., Blatchley, E. R., Blount, B. C., Carlsen, K., Eggleston, P. A., Frimmel, F. H., Goodman, M., Gordon, G., Grinshpun, S. A., Heederik, D., Kogevinas, M., LaKind, J. S., Nieuwenhuijsen, M. J., Piper, F. C., & Sattar S. A. (2009). Childhood asthma and environmental exposures at swimming pools: State of the science and research recommendations. Environmental Health Perspectives, 117, 500-507.	Agree, changed as suggested.	References	Weisel CP, Richardson S D, Nemery B, Aggazzotti G, Baraldi E, Blatchley E R, Blount BC, Carlsen K, Eggleston PA, Frimmel FH, Goodman M, Gordon G, Grinshpun SA, Heederik D, Kogevinas M, LaKind JS, Nieuwenhuijsen MJ, Piper FC, Sattar SA. Childhood asthma and environmental exposures at swimming pools: State of the science and research recommendations. Environmental Health Perspectives (2009); 117: 500-507.
Contamination Burden (CB)	References for New Section 4.9	N/A	E. Blatchley III, M. Cheng, "Reaction mechanism for chlorination of urea", Environmental Science & Technology, 2010, 44 (22) 8529-8534. and MORE	Agree, Reviewed references and included as suggested	References	Blatchley E, Cheng M. Reaction mechanism for chlorination of urea. Environ Sci Technol. 2010;44(22):8529-8534.