Model Aquatic Health Code

Facility Design and Construction Module CODE Draft Sections for the First 60-day Review

Posted for Public Comment on 07/20/2012
Currently Open for Public Comment that Closes on 10/14/2012

In an attempt to speed the review process along, the MAHC steering committee has decided to release MAHC draft modules prior to their being fully complete and formatted. These drafts will continue to be edited and revised while being posted for public comment. The complete versions of the drafts will also be available for public comment again when all MAHC modules are posted for final public comment. The MAHC committees appreciate your patience with the review process and commitment to this endeavor as we all seek to produce the best aquatic health code possible.

This information is distributed solely for the purpose of pre dissemination public comment under applicable information quality guidelines. It has not been formally disseminated by the Centers for Disease Control and Prevention. It does not represent and should not be construed to represent any agency determination or policy.

MAHC Facility Design and Construction Module Abstract

The sound design and construction of swimming pools, spas, and aquatic venues are paramount to ensuring the health and safety of patrons who use these facilities. The Facility Design & Construction Module contains requirements for new pool construction that includes:

1) Design/construction aspects of the pool shell that include general shape, design, and slope requirements to prevent injury;

2) Design/construction aspects of the aquatic venue that include decks, lighting, electrical, wastewater, and fencing;

3) Design/construction aspects of specialty bodies of water and features that include spas, wave pools, slide pools, wading pools, and infinity edges; and

4) Design/construction parameters for pool equipment and under what conditions its use is acceptable including starting blocks, moveable floors, bulkheads, and diving boards.

MAHC Facility Design and Construction Module Review Guidance

The **Model Aquatic Health Code (MAHC) Steering** (http://www.cdc.gov/healthywater/swimming/pools/mahc/steering-committee/) **and Technical** (http://www.cdc.gov/healthywater/swimming/pools/mahc/technical-committee/) **Committees** appreciate your willingness to review this draft MAHC module. Your unique perspectives and science-based suggestions will help ensure that the best available standards and practices for protecting aquatic public health are available for adoption by state and local environmental health programs.

Review Reminders:

- Please download and use the **MAHC Comment Form** (http://www.cdc.gov/healthywater/swimming/pools/mahc/structure-content/) to submit your detailed, succinct comments and suggested edits. Return your review form by 10/14/2012, as an email attachment to **MAHC@cdc.gov**.

- If part of a larger group or organization, please consolidate comments to speed the MAHC response time to public comments.

- To provide context for this module review, please consult the **MAHC Strawman Outline** (http://www.cdc.gov/healthywater/pdf/swimming/pools/mahc/structure-content/mahc-strawman.pdf). Section headers of related content have been included in this draft module to assist reviewers to see where each section fits into the overall MAHC structure. Additional MAHC draft modules that contain this

content will be or already have been posted for your review.

- The complete draft MAHC, with all of the individual module review comments addressed will be posted again for a final review and comment before MAHC publication. This will enable reviewers to review modules in the context of other modules and sections that may not have been possible during the initial individual module review.

- The published MAHC will be regularly updated through a collaborative all-stakeholder process.

Please address any questions you may have about MAHC or the review process to **MAHC@cdc.gov**. You may also request to be on the direct email list for alerts ("Get Email Updates" is in a box on the right hand side of the Healthy Swimming website at www.cdc.gov/healthyswimming) on the other draft MAHC modules as they are released for public comment.

Thank you again, and we look forward to your help in this endeavor.
Sincerely,

Douglas C. Sackett, Director
MAHC Steering Committee

The Facility Design and Construction Code Module shows a Table of Contents giving the context of the Facility Design and Construction Design, Construction, Operation and Maintenance in the overall Model Aquatic Health Code's Strawman Outline (http://www.cdc.gov/healthywater/pdf/swimming/pools/mahc/structure-content/mahc-strawman.pdf).

Reviewer Note on Module Section Numbering:
Please use the specific section numbers to make your comments on this Draft Model Aquatic Health Code module. These numbers may eventually change during the editing of the compiled Draft that will be issued for a final round of comments.

MAHC Strawman Table of Contents

Acronyms in this Module:

AHJ	Authority Having Jurisdiction
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
CDC	Centers for Disease Control and Prevention
CPSC	Consumer Product Safety Commission
EPA	Environmental Protection Agency
FC	foot candles
FINA	Fédération Internationale de Natation Amateur
GFCI	ground-fault circuit interrupter
HSEESS	Hazardous Substance Emergency Events Surveillance System
IESNA	Illuminating Engineering Society of North America
MAHC	Model Aquatic Health Code
NCAA	National Collegiate Athletic Association
NEC	National Electrical Code
NRTL	Nationally Recognized Testing Laboratory
NEISS	National Electronic Injury Surveillance System
NSF	National Sanitation Foundation

Glossary Terms in this Module:

"Accessible Route" means access/egress standards as defined by current Americans with Disabilities Accessibility Guidelines (ADAAG), published by the U.S. Access Board.

"Aquatic Facility" means a physical place that contains one or more aquatic venues and support infrastructure under a single management structure.

"Aquatic Feature" means an individual component within an aquatic venue. Examples include mushrooms, slides, buckets, spray guns/nozzles, and other play features.

"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), therapeutic pools, spray pads.

"Authority Having Jurisdiction" (AHJ) means an organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

"Automatic or Robotic Cleaner" means a modular vacuum system consisting of a motor-driven in-pool suction device, either self powered or powered through a low voltage cable which is connected to a deck side power supply.

"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.

"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.

"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.

"Bulkheads" means a movable partition that physically separates a pool into multiple sections.

"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.

"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.

"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.

"Code" means a systematic statement of a body of law, especially one given statutory force.

"Combustion Device" means any appliance or equipment using fire. These include, but may not be limited to, gas or oil furnaces, boilers, pool heaters, domestic water heaters, etc.

"Construction Joint" means a watertight joint provided to facilitate stopping places in the construction process. Construction joints also serve as contraction joints which control cracking.

"Contaminant" means a substance that soils, stains, corrupts, or infects another substance by contact or association.

"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.

"Corrosive Materials" means pool chemicals, fertilizers, cleaning chemicals, oxidizing cleaning materials, salt, de-icing chemicals, other corrosive or oxidizing materials, pesticides, and such other materials which may cause injury to people or damage to the building, air-handling equipment, electrical equipment, safety equipment, or fire-suppression equipment, whether by direct contact or by contact via fumes or vapors, whether in original form or in a forseeably likely decomposition, pyrolysis, or polymerization form. Refer to labels and MSDS forms.

"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.

"Drop Slides" means slides of various configurations where the slide drops the rider into the water from some height above the water rather than delivering them to pool water level for entry.

"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.

"Enclosure" means an uninterrupted barrier surrounding and securing a pool facility.

"Expansion Joint" means a watertight joint provided in a pool vessel used to relieve flexural stresses due to movement caused by thermal expansion/contraction.

"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.

"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.

"Ground-Fault Circuit Interrupter" means a device for protection of personnel that de-energizes an electrical circuit or portion thereof in the event of excessive ground current.

"Infinity Edges" means a pool wall structure and adjacent perimeter deck that is designed in such a way where the top of the pool wall and adjacent deck are not visible from certain vantage points in the pool or from the opposite side of the pool. Water from the pool flows over the edge and is captured and treated for reuse through the normal pool filtration system. They are often also referred to as "vanishing edges," "negative edges," or "zero edges."

"Integral Vacuum System" means a vacuum system that utilized the main circulating pump or a dedicated vacuum pump connect to the pool with PVC piping and terminating at the pool with a flush-mounted vacuum port fitting.

"Interior Space" means any substantially enclosed space having a roof and having a wall or walls which might reduce the free flow of outdoor air. Ventilation openings, fans, blowers, windows, doors, etc., shall not be construed as allowing free flow of outdoor air.

"Island" means a structure inside a pool where the perimeter is completely surrounded by the pool water and the top is above the surface of the pool.

"Isolation" (as applied to storage spaces) means the limitation of air movement from a storage space to other spaces of a building or structure.

"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.

"Movable Floors" means a pool floor whose depth varies through the use of controls.

"No Diving Marker" means the universal international symbol for "No Diving" pictured as an image of a diver with a red circle with a slash through it.

"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.

"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.

"Plumbing Fixtures" means fixture or device for the distribution and use of water; for example, toilets, urinals, showers, and hose bibs.

"Pool" means a subset of aquatic venue designed to have impounded/standing water for total or partial bather immersion.

"Pool Deck" means the hardscape surface areas beyond the perimeter deck within the pool enclosure, which is regularly trafficked and made wet by bathers.

"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.

"Portable Vacuum System" means a modular vacuum system normally consisting of a dolly-mounted pump, filter, and power cord.

"Public Water Supply or System" means water systems including community water systems, non-transient/non-community water systems, or transient non-community water systems with exceptions as noted by AHJ.

"Recessed Steps" means a way of ingress/egress for a pool similar to a ladder but the individual treads are recessed into the pool wall.

"Runout" means that part of a waterslide where riders are intended to decelerate and/or come to a stop. The runout is a continuation of the waterslide flume surface.

"Safety" (as it relates to construction items) means a design standard intended to prevent inadvertent or hazardous operation or use (i.e., a passive engineering strategy).

"Secure Perimeter" means any combination of building envelopes, site walls, or fencing to prevent entry by unauthorized persons.

"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.

"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.

"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.

"Sprayground Features" means the devices and plumbing used to convey the treated water to the spray pad to spray the patrons.

"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.

"Storage" means the condition of remaining in one space for one hour or more. Materials in a closed pipe or tube awaiting transfer to another location shall not be considered to be stored.

"Structural Crack" means a break or split in the pool surface that weakens the structural integrity of the vessel.

"Therapy Pools" means a body of water that is solely dedicated to aquatic therapy, physical therapy, and/or rehabilitation.

"Underwater Bench" means a submerged seat with or without hydrotherapy jets.

"Underwater Ledge" or "toe ledge" means a continuous step in the pool wall that allows swimmers to rest by standing without treading water.

"Underwater Shelf" or "wet deck" means a shallow area less than two feet in water depth that is primarily intended for lounging and sunbathing.

"Wading Pools" means a special purpose pool intended for use by children and depth does not exceed 2 feet (61 cm).

"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.

"Wave Pools" means any pool designed to simulate breaking or cyclic waves for purposes of general play or surfing.

Preface: *This document does not address all health and safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to each use.*

Model Aquatic Health Code
Facility Design and Construction Module Code
4.0 Design and Construction

Keyword	Section	Code	Grade
	4.0	**Design Standards and Construction**	
	4.1	**Plan Submittal**	
	4.2	**Materials**	B
Pools	**4.2.1**	**Pools**	
Construction Material	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.	
Durability	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).	
Darker Colors	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.	
Competitive pools	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.	
Design Parameters	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.	
Permission in Writing	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.	
Watertight	4.2.1.3	POOL shall be designed in such a way to maintain their capability to retain water.	

Keyword	Section	Code	Grade
Smooth Finish	4.2.1.4	All vertical walls shall have a durable finish suitable for regular scrubbing and cleaning at the waterline.	
Daily cleaning	4.2.1.4.1	The finish shall be able to withstand daily brushing, scrubbing, and cleaning of the surface.	
Skimmer Pools	4.2.1.4.2	Skimmer POOLS shall have a 6 inch (15.2 cm) to 12 inch (30.5 cm) high finish.	
Gutter / Perimeter Overflow Systems	4.2.1.4.3	Gutter or perimeter overflow system shall have a minimum finish height of 2 inches (5.1 cm).	
Dark Colors	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).	
Slip Resistant	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.	
Discomfort	4.2.1.5.1	The roughness or irregularity of the finish shall not cause injury or discomfort to the feet during normal use.	
Vinyl or PVC pools	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.	
Damaged	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.	
Not permitted	4.2.1.7	Wood, sand, or earth shall not be permitted as an interior finish.	
Natatorium	**4.2.2**	**Natatorium**	A
Interior Finish	***4.2.2.1***	***Interior Finish***	
Relative Humidity	4.2.2.1.1	The interior finish of a natatorium shall be suitable for indoor relative humidity as high as 80%.	

Keyword	Section	Code	Grade
Biological Contaminants	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.	
Condensation Prevention	***4.2.2.2***	***Condensation Prevention***	
Cold Weather	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.	
Paint or Coating	4.2.2.2.2	Where a paint or coating serves as the vapor retarder of a natatorium, the paint or coating shall be applied so as to produce a permeability rating of 0.2 U.S. perm or less.	
Application	4.2.2.2.2.1	The paint or coating shall be applied according the manufacturers recommendations for use as a vapor retarder.	
Two or more coats	4.2.2.2.2.2	Unless specifically forbidden by the manufacturer, the paint or coating shall be applied in two or more coats.	
Perforated interior-finish material	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.	
Mechanical Systems	***4.2.2.3***	***Mechanical Systems***	A
Equipment Rooms	4.2.2.3.1	For equipment rooms, see section 4.9.1.	
Chemical Storage	4.2.2.3.2	For CHEMICAL STORAGE SPACEs, see section 4.9.2.	
Natatorium Air Pressure	4.2.2.3.3	*Per MAHC Ventilation Module Section 4.6.2.1.6:* AQUATIC FACILITY ventilation system design, construction, and installation shall comply with the ASHRAE standard 62, Ventilation for Acceptable	

Keyword	Section	Code	Grade
		Indoor Air Quality, and/or applicable local CODEs with additional requirements as stated in section MAHC 4.6.2.1.7.	
Chemical Storage Air Pressure	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.	
Air ducts	4.2.2.3.4	Where air ducts are required to be insulated on the inside, the insulation shall be rated moisture and mold resistant.	
Filters	4.2.2.3.5	Filters for outdoor-air intake shall be rated moisture-resistant.	
Natatorium Doors	***4.2.2.4***	***Natatorium Doors***	
Corrosion-Resistant	4.2.2.4.1	Natatorium doors shall either be constructed of corrosion-resistant materials or have a covering or coating to withstand humid and CORROSIVE environments which is acceptable to the AHJ.	A
Uncontrolled Condensation	4.2.2.4.2	Natatorium doors which may be exposed to temperatures below natatorium-air dew point shall have thermal breaks, insulation, and/or glazing as necessary to minimize the risk of uncontrolled condensation.	
Heating Systems	4.2.2.4.2.1	Exception 1: Other doors shall be acceptable, subject to approval by the AHJ, where heating systems are so arranged as to maintain such doors above the maximum design dew point of the natatorium air.	A
Biological Contaminants	4.2.2.4.3	Natatorium doors and door-frame construction shall not contribute to the growth of biological CONTAMINANTS.	A
Air Leakage	4.2.2.4.4	Natatorium doors and/or door frames shall be equipped with seals and/or gaskets to minimize air leakage when the door is closed.	A

Keyword	Section	Code	Grade
Automatic door closer	4.2.2.4.5	All pedestrian doors around the natatorium perimeter shall be equipped with an automatic door closer capable of closing the door completely without human assistance.	A
Difference in air pressure	4.2.2.4.5.1	*Note 1. Door closers must be able to close the door against the specified difference in air pressure between natatoriums and other* INTERIOR SPACES.	
Natatorium Windows	***4.2.2.5***	***Natatorium Windows***	
Frames	4.2.2.5.1	Natatorium window frames shall be constructed of suitable materials or shall have a suitable covering or coating to withstand the expected atmosphere.	A
Biological Contaminants	4.2.2.5.2	Natatorium window frames shall be constructed of materials that do not contribute to the growth of biological CONTAMINANTS.	A
Thermal Breaks	4.2.2.5.3	Natatorium window frames shall have thermal breaks or be otherwise constructed to minimize the risk of uncontrolled condensation.	A
Glazed	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.	B
Natatorium Electrical Systems	***4.2.2.6***	***Natatorium Electrical Systems***	
		Refer to section 4.6.2	
Equipment Standards	**4.3**	**Equipment Standards**	A
General	**4.3.1**	**General**	
Accredited Standards Facility	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.	

Keyword	Section	Code	Grade
No Standards	4.3.1.2	Where standards do not exist, the design professional shall establish that adequate testing has been performed to establish suitability for use in AQUATIC FACILITIES.	
Recirculation Systems and Equipment	**4.3.2**	**Recirculation Systems and Equipment**	
ANSI-accredited testing	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.	
Suitable for intent	4.3.2.2	Recirculation systems and all materials used therein shall be suitable for their intended use and be installed 1) in accordance with this CODE, 2) as certified by an ANSI-Accredited third-party testing and certification organization, and 3) as specified by the manufacturer.	
	4.4	**Pool Operation and Facility Maintenance [N/A]**	
Pool Structure	**4.5**	**Pool Structure (Shell)**	
Shape	**4.5.1**	**Shape**	
Basic Requirements	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.	
Bottom Slope	**4.5.2**	**Bottom Slope**	B
Parameters and Variance	4.5.2.1	The bottom slope of a POOL shall be governed by the following parameters, but variances may be granted for special uses and situations so long as public safety and health are not compromised.	

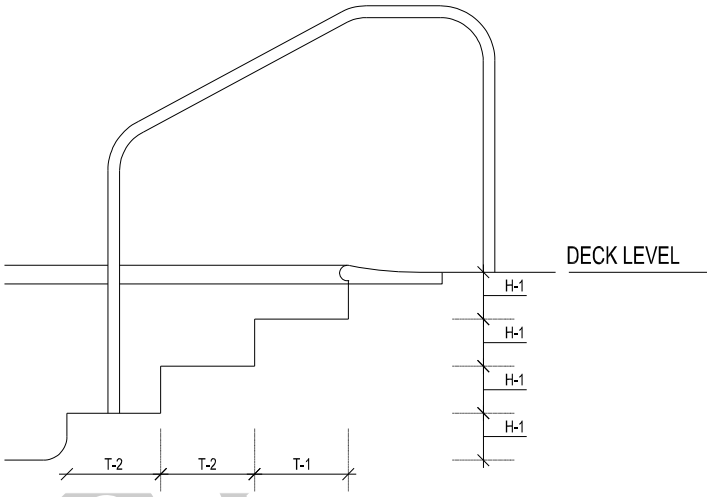
Keyword	Section	Code	Grade
Under 5 feet	4.5.2.2	In water depths under 5 feet (1.52 m), the slope of the floor of all POOLS shall not exceed 1 foot (30.5 cm) vertical drop for every 12 feet (3.66 m) horizontal.	B
Over 5 feet	4.5.2.3	In water depths 5 foot and greater, the slope of the floors of all POOLS 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).	B
Drain	4.5.2.4	POOLS shall be designed so that they drain to a common central location without leaving puddles or trapped standing water.	B
Level	4.5.2.4.1	If the central location includes main drains, the entire area of the main drains may be level.	
Structural Stability	**4.5.3**	**Structural Stability**	
Withstand loads	4.5.3.1	POOLS shall be designed to withstand the loads imposed by POOL water, POOL patrons, and adjacent soils or structures.	A
Hydrostatic Relief Valve	4.5.3.2	A hydrostatic relief valve and/or suitable under drain system shall be provided when site conditions warrant.	A
Freezing	4.5.3.3	POOLS and related circulation piping should be designed with a winterizing strategy when in an area subject to freeze/thaw cycles.	A
Expansion Joints	4.5.3.3.1	Expansion and/or CONSTRUCTION JOINTS should be utilized when prudent.	
Pool access / egress	**4.5.4**	**Pool Access / Egress**	
Two minimum	4.5.4.1	Each POOL shall have a minimum of two means of access and egress.	

Keyword	Section	Code	Grade
Shallow	4.5.4.1.1	At least one access/egress point shall be at the shallow end of the aquatic venue.	
Deep	4.5.4.1.2	At least one access / egress point shall be at the deep end of the aquatic venue.	
Acceptable means	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / RECESSED STEPS, and zero-depth entries.	
Large venues	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.	
Stairs	**4.5.5**	**Stairs**	
Slip resistant	4.5.5.1	Where stairs are provided, they shall be constructed with slip-resistant materials.	
Outlined Edges	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).	
Deep water	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.	
Rectangular Stairs	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.	
Dimensions	4.5.5.5	Dimensions of stair treads for other types of stairs shall conform to requirements of Table 4.5.5.6, Figure 4.5.5.6.1, Figure 4.5.5.6.2, and Figure 4.5.5.6.3.	
Stair Tread Table	4.5.5.6	***Table 4.5.5.6: Required Dimensions for Stair Treads and Risers***	

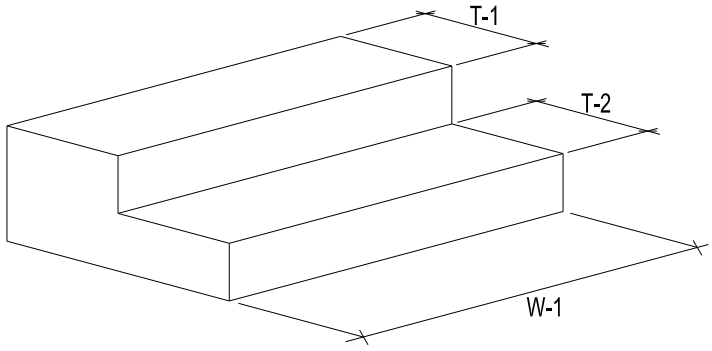
Keyword Section Code Grade

Dimensions	T-1 Standard	T-1 Convex, Concave, Triangular	T-2	W-1	H-1
Minimum	14"	21"	12"	24"	6"
Maximum	18"	24"	16"	N/A	12"

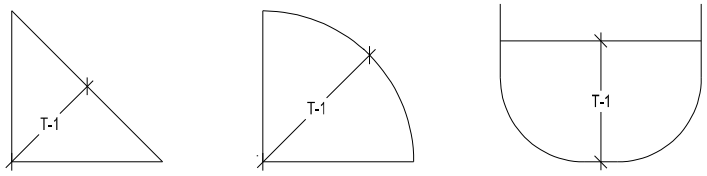
Stair Tread and Risers Figure 4.5.5.6.1 ***Figure 4.5.5.6.1: Stair Treads and Risers***



Stair Treads Figure 4.5.5.6.2 ***Figure 4.5.5.6.2: Stair Treads***



Unique Stair Treads 4.5.5.6.3 ***Figure 4.5.5.6.3: Unique Stair Treads***

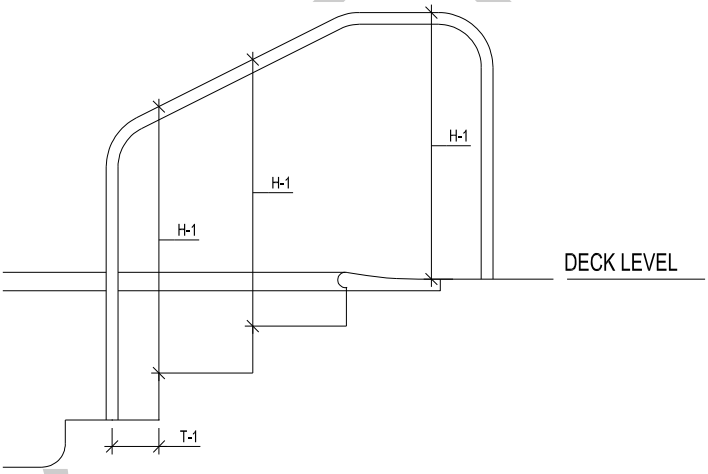


Keyword	Section	Code	Grade
Stair Risers	4.5.5.7	Stair risers shall have a minimum uniform height of 6 inches (15.2 cm) and a maximum height of 12 inches (30.5 cm), with a tolerance of 1/2 inches (1.27 cm) between adjacent risers.	
Top Surface	4.5.5.8	The top surface of the uppermost stair tread shall be located not more than 12 inches (30.5 cm) below the POOL coping or POOL DECK.	
Perimeter Gutter Systems	4.5.5.9	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.	
Hand Rails	**4.5.6**	**Handrails**	
Provided	4.5.6.1	Hand rail(s) shall be provided for each set of stairs.	
Corrosion-resistant	4.5.6.2	Hand rails shall be constructed of corrosion-resistant materials, and anchored securely into the POOL DECK and/or stairs.	
Upper Railing	4.5.6.3	The upper railing surface of hand rails shall extend above the POOL coping or POOL DECK a minimum of 28 inches.	
Wider than 5 feet	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.	
ADA Accessibility	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.	
Support	4.5.6.5.1	Hand rails shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top and to transfer this load through the supports to the POOL or deck structure.	
200 pound load	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.	

Keyword	Section	Code	Grade
Attachment Devices	4.5.6.5.3	Hand rails shall have attachment devices and supporting structure to transfer loads to the POOL or deck structure.	
Dimensions	4.5.6.6	Dimensions of hand rails shall conform to requirements of Table 4.5.6.7 and Figure 4.5.6.7.1.	
Stair Hand Rail Table	4.5.6.7	***Table 4.5.6.7: Stair Hand Rail Dimensions***	

Dimensions	T-1	H-1
Minimum	3”	27”
Maximum	N/A	36”

Stair Hand Rails Figure	4.5.6.7.1	***Figure 4.5.6.7.1: Stair Hand Rails***	



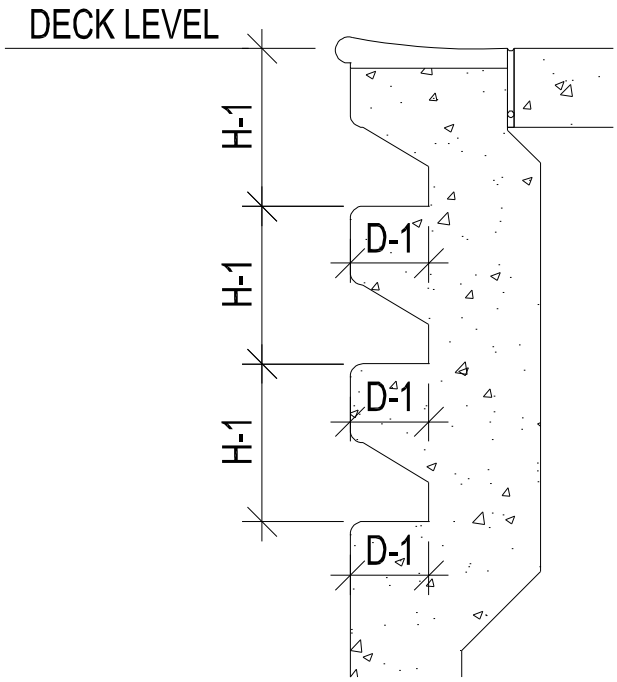
Grab rails	**4.5.7**	**Grab Rails**	
Corrosion-Resistant	4.5.7.1	Where grab rails are provided, they shall be constructed of corrosion-resistant materials.	
Anchored	4.5.7.2	Grab rails shall be anchored securely into the POOL DECK.	
Provided	4.5.7.3	Grab rails shall be provided at both sides of RECESSED STEPS.	
Clear Space	4.5.7.4	The horizontal clear space between grab rails shall be not less than 18 inches (45.7 cm) and not more than 24 inches (61 cm).	

Keyword	Section	Code	Grade
Upper Railing	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).	
ADA Accessibility	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.	
50 pounds	4.5.7.6.1	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.	
Transfer load	4.5.7.6.2	Grab rails shall be designed to transfer this load through the supports to the POOL or deck structure.	
200 pounds	4.5.7.6.3	Grab rails shall also be designed to resist a single concentrated load of 200 pounds (90.7 kg) applied in any direction along the top.	
Attachment devices	4.5.7.6.4	Grab rails shall have attachment devices and supporting structure to transfer this load to the POOL or deck structure.	
Recessed Steps	**4.5.8**	**Recessed Steps**	
Slip-Resistant	4.5.8.1	RECESSED STEPS shall be slip-resistant.	
Easily Cleaned	4.5.8.2	RECESSED STEPS shall be designed to be easily cleaned.	
Drain	4.5.8.3	RECESSED STEPS shall drain into the pool.	
Dimensions	4.5.8.4	Dimensions of RECESSED STEPS shall conform to requirements of Table 4.5.8.5, Figure 4.5.8.5.1, and Figure 4.5.8.5.2.	
Recessed Step Table	4.5.8.5	***Table 4.5.8.5: Recessed Step Dimensions***	

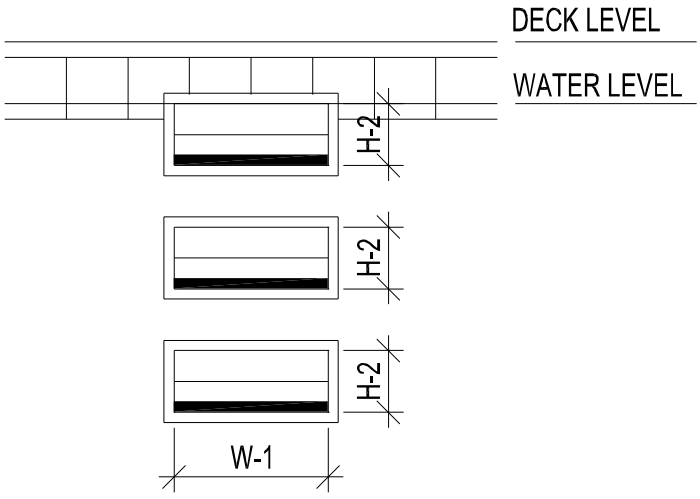
Keyword Section Code Grade

Dimensions	H-1	H-2	W-1	D-1
Minimum	6”	5”	12”	5”
Maximum	12”	N/A	N/A	N/A

Recessed Step Figure 4.5.8.5.1 ***Figure 4.5.8.5.1: Recessed Step Dimensions***



Recessed Step Figure 4.5.8.5.2 ***Figure 4.5.8.5.2: Recessed Step Dimensions***



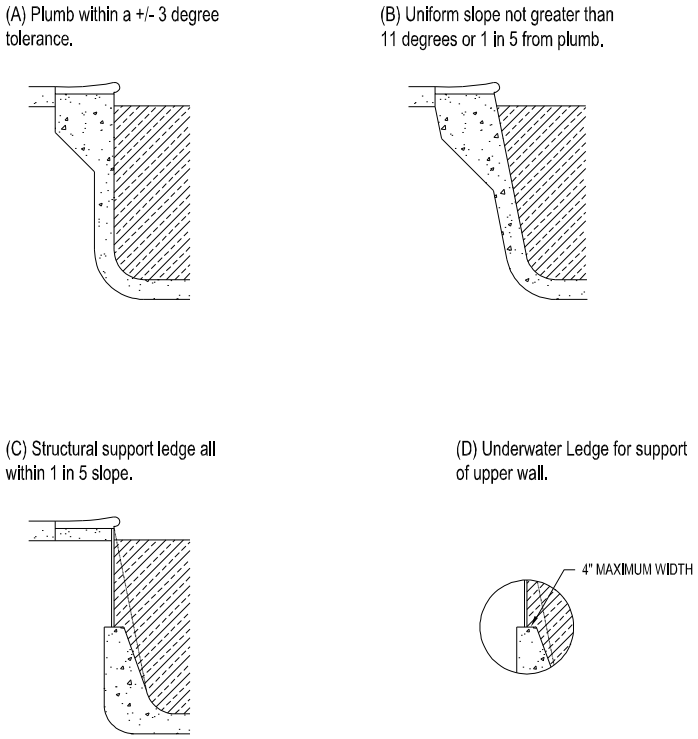
Uniformly Spaced 4.5.8.6 RECESSED STEPS shall be uniformly spaced not less

Keyword	Section	Code	Grade
		than 6 inches (15.2 cm) and not more than 12 inches (30.5 cm) vertically along the POOL wall.	
Uppermost Step	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.	
Gutter	4.5.8.7.1	A gutter shall be considered a step.	
Perimeter Gutter Systems	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.	
Ladders	**4.5.9**	**Ladders**	
General	***4.5.9.1***	***General Guidelines for Ladders***	
Corrosion-resistant	4.5.9.1.1	Where ladders are provided, they shall be constructed of corrosion-resistant materials.	
Anchored	4.5.9.1.2	Ladders shall be anchored securely to the POOL DECK.	
Hand rails	***4.5.9.2***	***Ladder Hand Rails***	
Two	4.5.9.2.1	Ladders shall have two hand rails.	
Clear Space	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).	
Upper Railing	4.5.9.2.3	The upper railing surface of hand rails shall extend above the POOL coping or POOL DECK a minimum of 28 inches (71.1 cm).	
Pool Wall	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).	
Ladder Treads	***4.5.9.3***	***Ladder Treads***	
Slip Resistant	4.5.9.3.1	Ladder treads shall be slip-resistant.	

Keyword	Section	Code	Grade
Tread Depth	4.5.9.3.2	Ladder treads shall have a minimum horizontal tread depth of 1.5 inches (3.81 cm) and the distance between the horizontal tread and the pool wall shall not be greater than 4 inches (10.2 cm).	
Uniformly Spaced	4.5.9.3.3	Ladder treads shall be uniformly spaced not less than 7 inches (17.8 cm) and not more than 12 inches (30.5 cm) vertically at the hand rails.	
Upmost ladder tread	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.	
Accessibility	***4.5.9.4***	***Accessibility***	
ADA Accessibility	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.	
50 pounds	4.5.9.4.2	Ladders shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top.	
Transfer load	4.5.9.4.3	Ladders shall be designed to transfer this load through the supports to the POOL or deck structure.	
200 pounds	4.5.9.4.4	Ladders shall also be designed to resist a single concentrated load of 200 pounds (90.7 kg) applied in any direction along the top.	
Attachment devices	4.5.9.4.5	Ladders shall have attachment devices and supporting structure to transfer this load to the POOL or deck structure.	
Zero Depth Entries	**4.5.10**	**Zero Depth (Sloped) Entries**	
Slip Resistant	4.5.10.1	Where zero depth entries are provided, they shall be constructed with slip-resistant materials.	
Maximum floor slope	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).	

Keyword	Section	Code	Grade
Slope Changes	4.5.10.2.1	Changes in floor slope are permitted.	
Trench Drains	4.5.10.3	Trench drains shall be extended throughout zero depth entries to facilitate surface skimming.	
Disabled Access	**4.5.11**	**Disabled Access**	
Conform to Guidelines	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.	
Color and Finish	**4.5.12**	**Color and Finish**	B
White or Light Pastel	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).	
Munsell Color Value	4.5.12.1.1	The finish shall be at least 9 on the Munsell color value scale.	
Exception	4.5.12.1.2	An exception shall be made for the following aquatic venue components: 1) competitive lane markings, 2) dedicated competitive diving well floors, 3) step or bench edge markings, or 4) other approved designs.	
Darker colors	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.*	
Pool Walls	**4.5.13**	**Pool Walls**	A
Plumb	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.	
Support Ledges	4.5.13.2	All structural support ledges and slopes of the wall	

Keyword	Section	Code	Grade
and slopes		shall fall entirely within a plane slope from the water line at not greater than 11º from plumb.	
Rounded corners	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.	
No Projections	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.	
Pool Walls Figure	4.5.13.5	***Figure 4.5.13.5: Pool Walls***	



Hand Holds	**4.5.14**	**Hand Holds**	A
Hand holds provided	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.	

Keyword	Section	Code	Grade
Decking	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.	
Coping dimensions	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.	
Infinity Edges	**4.5.15**	**Infinity Edges**	C
Perimeter Restrictions	4.5.15.1	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.	
Within 16' reach	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.	
Handholds	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.	
Construction guidelines	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.	
Overflow Basins	4.5.15.5	Troughs or basins designed to receive the overflow from INFINITY EDGES shall be watertight, free from STRUCTURAL CRACKS, and shall have a non-toxic smooth and slip resistant finish.	
Underwater Benches	**4.5.16**	**Underwater Benches**	B
Slip resistant	4.5.16.1	Where UNDERWATER BENCHES are provided, they	

Keyword	Section	Code	Grade
		shall be constructed with slip-resistant materials.	
Outlined Edges	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).	
Maximum water depth	4.5.16.3	UNDERWATER BENCHES may be installed in areas of varying depths, but the maximum POOL water depth in that area shall not exceed 5 feet (1.52 m).	
Maximum seat depth	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.	
Underwater Ledges	**4.5.17**	**Underwater Ledges**	B
Slip resistant	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.	
Protrude	4.5.17.2	UNDERWATER TOE LEDGES for resting may be recessed, or protrude beyond the vertical plane of the POOL wall, provided they meet the criteria for slip resistance and tread depth outlined in this section.	
5 feet or greater	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.	
Structural Support	4.5.17.4	UNDERWATER LEDGES for structural support of upper walls are allowed.	
Outlined	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).	
Visible	4.5.17.5.1	The edges of UNDERWATER TOE LEDGES shall be clearly visible from the POOL DECK.	
Tread Depths	4.5.17.6	UNDERWATER TOE LEDGES shall have a maximum	

Keyword	Section	Code	Grade
		uniform horizontal tread depth of 4 inches (10.2 cm). Figure 4.5.13.5.	
Underwater Shelves	**4.5.18**	**Underwater Shelves**	
Immediately Adjacent	4.5.18.1	UNDERWATER SHELVES may be constructed immediately adjacent to deeper water.	
Nosing	4.5.18.2	UNDERWATER SHELVES shall have a slip-resistant, color contrasting nosing at the leading edge.	
Maximum depth	4.5.18.3	UNDERWATER SHELVES shall have a maximum depth of 2 feet (61 cm).	
Depth Markings	**4.5.19**	**Depth Markings**	
Location	***4.5.19.1***	***Location***	
Markings	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.	
Pool Wall Markings	4.5.19.1.2	Depth markers shall be located on the vertical POOL wall and positioned to be read from within the pool.	
Below Handhold	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.	
Coping or Deck	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.	
Read on Deck	4.5.19.1.5	Depth markers shall be positioned to be read while standing on the POOL DECK facing the pool.	

Keyword	Section	Code	Grade
25' Intervals	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.	
Construction/ Size	***4.5.19.2***	***Construction / Size***	
Durable	4.5.19.2.1	Depth markers shall be constructed of a durable material resistant to local weather conditions.	
Slip-resistant	4.5.19.2.2	Depth markers shall be slip-resistant when they are located on horizontal surfaces.	
Letters and Numbers	4.5.19.2.3	Depth markers shall have letters and numbers with a minimum height of 4 inches (10.2 cm) of a color contrasting with background.	
Feet and Inches	4.5.19.2.4	Depth markers shall be marked in units of feet and inches.	
Abbreviations	4.5.19.2.4.1	Abbreviations of "FT" and "IN" may be used in lieu of "FEET" and "INCHES."	
Metric	4.5.19.2.4.2	Metric units may be provided in addition to—but not in lieu of—units of feet and inches.	
Tolerance	***4.5.19.3***	***Tolerance***	
Nearest 6 inches	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).	
No Diving Markers	***4.5.19.4***	***No Diving Markers***	
Depths	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.	
Durable	4.5.19.4.2	"NO DIVING" MARKERS shall be constructed of a durable material resistant to local weather	

Keyword	Section	Code	Grade
		conditions.	
Slip Resistant	4.5.19.4.3	"NO DIVING" MARKERS shall be slip-resistant when they are located on horizontal surfaces.	
At least 4 inches	4.5.19.4.4	All lettering and symbols shall be at least 4 inches (10.2 cm) in height.	
Slope break	***4.5.19.5***	***Depth Marking At Break in Floor Slope***	
Over 5'	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.	
Durable	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.	
Indoor/Outdoor Environment	**4.6**	**Indoor/Outdoor Environment**	
Lighting	**4.6.1**	**Lighting**	
General	***4.6.1.1***	***General Requirements***	
Outdoor Pools	4.6.1.1.1	Lighting as described in this subsection shall be provided for all outdoor POOLS open for use from thirty (30) minutes before sunset to thirty (30) minutes after sunrise, or during periods of natural illumination below the levels required in 4.6.1.3.1.	A
Accessible	4.6.1.1.2	No lighting controls shall be accessible to the public and BATHERS.	
Windows/ Natural Light	***4.6.1.2***	***Windows/Natural Light***	B
Natural Lighting Methods	4.6.1.2.1	Where natural lighting methods are used to meet the light level requirements of 4.6.1.3.1 during portions of the day when adequate natural lighting is available, one of the following methods shall be used to ensure that lights are turned on when	

Keyword	Section	Code	Grade
		natural lighting no longer meets these requirements: 1) Automatic lighting controls based on light levels or time of day, or 2) Written operations procedures where manual controls are used.	
Light Levels	***4.6.1.3***	***Light Levels***	B
Minimum Levels	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.)*	
Underwater Lighting	***4.6.1.4***	***Underwater Lighting***	B
Minimum Requirements	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.	
Location	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.	
Dimmable Lighting	4.6.1.4.2	Dimmable lighting shall not be used for underwater lighting.	
No Underwater Lighting	***4.6.1.5***	***Night Swimming with No Underwater Lighting***	B
Minimum Requirements	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	

Keyword	Section	Code	Grade
		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.	
Emergency Lighting	*4.6.1.6*	***Emergency Lighting***	B
Emergency Egress Lighting	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.	
Glare	*4.6.1.7*	***Glare***	C
Windows	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.	
Electrical Systems	**4.6.2**	**Electrical Systems and Components**	
General	*4.6.2.1*	***General Guidelines***	
Providing Relief	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.	
Natatoriums	4.6.2.1.2	Natatoriums shall be considered wet and CORROSIVE environments.	A
Interior Chemical Storage	*4.6.2.2*	***Electrical Equipment in Interior Chemical-Storage Spaces***	
Wet and Corrosive	4.6.2.2.1	CHEMICAL STORAGE SPACES shall be considered wet and CORROSIVE environments.	A
Electrical Conduit	4.6.2.2.2	Electrical conduit shall not enter or pass through an interior CHEMICAL STORAGE SPACE, except as required to service devices integral to the function of the room, such as pumps, vessels, controls,	A

Keyword	Section	Code	Grade
		lighting and SAFETY devices.	
Electrical Devices	4.6.2.2.3	Electrical devices or equipment shall not occupy an interior CHEMICAL STORAGE SPACE, except as required to service devices integral to the function of the room, such as pumps, vessels, controls, lighting and SAFETY devices.	A/B
Protected Against Breakage	4.6.2.2.4	Lamps, including fluorescent tubes, installed in interior CHEMICAL STORAGE SPACEs shall be protected against breakage with a lens or other cover, or be otherwise protected against the accidental release of hot materials.	A
Heating	**4.6.3**	**Pool Water Heating**	
Temperature	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.	A
Pressure Relieve Device	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.	A
Code Compliance	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.	A
Equipment Room Requirements	4.6.3.4	Where pool-water heaters use COMBUSTION and are located inside a building, the space in which the heater is located shall be considered to be an equipment room. The requirements of section 4.9.1 shall apply.	A
Exception	4.6.3.5	Heaters listed and labeled for the atmosphere shall	

Keyword	Section	Code	Grade
		be acceptable without ISOLATION from chemical fumes and vapors.	
Drinking Fountains	**4.6.4**	**Drinking Fountains**	B
Provided	4.6.4.1	A drinking fountain shall be provided inside a swimming POOL ENCLOSURE if practical.	
Common Use Area	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.	
Readily Accessible	4.6.4.2	The drinking fountain shall be located where it is readily accessible and not a hazard to BATHERS and shall not be located in a shower area or toilet area.	
Single Fountain	4.6.4.3	A single drinking fountain shall be allowed for one or more swimming POOLS within a POOL ENCLOSURE.	
Angle Jet Type	4.6.4.4	The drinking fountain shall be an angle jet type installed according to applicable plumbing CODEs.	
Potable Water Supply	4.6.4.5	The drinking fountain shall be supplied with water from an approved potable water supply.	
Wastewater	4.6.4.6	The wastewater discharged from a drinking fountain shall be routed to an approved sanitary sewer system or other approved disposal area according to applicable plumbing CODEs.	
Garbage Receptacles	**4.6.5**	**Garbage Receptacles**	B
Sufficient Number	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.	
Number and Location	4.6.5.2	The number and location of receptacles shall be at the discretion of the POOL facility manager.	

Keyword	Section	Code	Grade
Tightly Closable	4.6.5.3	Receptacles shall be designed to be tightly closed with a lid or other cover.	
Food and Drink Concessions	**4.6.6**	**Food and Drink Concessions**	C
Meet AHJ Requirements	4.6.6.1	Concessions for food and drink in a swimming POOL ENCLOSURE shall meet all AHJ requirements.	
Spectator Areas	**4.6.7**	**Spectator Areas**	B
Within Pool Enclosure	4.6.7.1	An area designed for use by spectators may be located within a POOL ENCLOSURE.	B
Pool Deck	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:	B
Barrier	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.	
Demarcation Line	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.	
Balcony	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.	A
Bleachers	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.	
	4.7	**Recirculation and Water Treatment**	
Decks and Equipment	**4.8**	**Decks and Equipment**	

Keyword	Section	Code	Grade
Decks	**4.8.1**	**Decks**	
General Standards	***4.8.1.1***	***General Standards for All Decks***	A
Constructed	4.8.1.1.1	Decks shall be constructed in conformance with all applicable provisions of this chapter.	
Joints or Gaps	4.8.1.1.2	Conditions between adjacent deck materials, components, and concrete pours shall not have open joints or gaps larger than 3/16 inches wide (0.48 cm), nor a maximum difference in vertical elevation of 1/2 inches (1.27 cm). Any change in vertical elevation is considered an edge condition.	
Fillers	4.8.1.1.2.1	Open joints or gaps larger than 3/16" (4.8 mm) wide or with vertical elevations exceeding ½" (1.3 cm) shall be rectified using appropriate fillers.	
Sealants	4.8.1.1.2.2	The use of fillers such as caulk or sealant in joints or gaps shall be permitted for expansion and contraction and shall not be in violation of 4.8.1.1.2.	
Rounded edges	4.8.1.1.3	All deck edges shall be beveled, rounded, or otherwise relieved to eliminate sharp corners.	
Minimize Cracks	4.8.1.1.4	Joints in decking shall be provided to minimize the potential for CRACKS due to a change in elevation, for movement of the slab and for shrinkage control.	
Concrete Decking	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.	
Perimeter Decks	***4.8.1.2***	***Standards for Perimeter Decks***	
Impervious	4.8.1.2.1	Finish materials for the PERIMETER DECK shall be suitable for the POOL environment, non-toxic, and substantially impervious.	
Watertight Expansion	4.8.1.2.2	Continuous watertight EXPANSION JOINT material shall be provided between PERIMETER DECKS and POOL coping.	

Keyword	Section	Code	Grade
Expansion joint	4.8.1.2.2.1	Where applicable, the EXPANSION JOINT shall be designed and constructed so as to protect the coping and its mortar bed from damage as a result of movement of adjoining deck.	
Watertight Expansion	4.8.1.2.3	All conditions between adjacent concrete PERIMETER DECK pours shall be constructed with watertight EXPANSION JOINTS.	
Joint measurements	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).	
Drains	***4.8.1.3***	***Drains***	A
Slope	4.8.1.3.1	Decks shall be sloped away from the pool.	
All Water	4.8.1.3.1.1	All water, including water originating in the pool, that touches areas defined as deck shall drain effectively to either perimeter areas or to deck drains.	
Remove Wastewater	4.8.1.3.1.2	Drainage shall remove POOL water that splashes outside of the POOL and beyond a POOL gutter system, deck cleaning water, and rain water without leaving standing water.	
General	4.8.1.3.2	The placement of deck drains, where provided, shall effectively carry water away from the POOL and off of the deck without ponding.	
Cross Connection Control	4.8.1.3.3	Direct connection between the POOL DECK drains and the sewer or plumbing drainage systems shall be prohibited.	
No Drain	4.8.1.3.3.1	Deck drains shall not drain to the pool, POOL gutter, or recirculation systems.	
Drain Bodies	4.8.1.3.4	Drain receptacle shall consist of non-CORROSIVE or corrosion-resistant materials.	
Drain Covers	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.	

Keyword	Section	Code	Grade
Materials/ Slip Resistance	*4.8.1.4*	***Materials / Slip Resistance***	B
General	4.8.1.4.1	PERIMETER DECK and POOL DECK shall be constructed with a uniform, easily cleaned, and impervious material, such as concrete.	
Slip Resistance	4.8.1.4.2	All decks shall have slip-resistant finishes.	A
Carpet	4.8.1.4.3	Carpet and artificial turf are prohibited materials for PERIMETER DECK and POOL DECK.	
Wood	4.8.1.4.4	Wood is a prohibited material for use as PERIMETER DECK.	
Dry deck	4.8.1.4.5	DRY DECK shall not create a public health hazard and be easily maintained.	
Not required	4.8.1.4.5.1	DRY DECK is not required to be hard-paved or impervious	
Wood Decking	4.8.1.4.5.2	Wood decking is a permitted material for dry deck.	
Landscaping	4.8.1.4.6	Loose plant material or bedding is not permitted within PERIMETER DECKS. Stable materials are permitted as allowed by 4.8.1.5.	
Size/ Width	*4.8.1.5*	***Size / Width***	B
Perimeter Deck	*4.8.1.5.1*	*Perimeter Deck*	
General	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.	
Circulation Path	4.8.1.5.1.1.1	PERIMETER DECK may serve as part of the circulation path.	
Flush with Pool Wall	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.	
Perimeter	4.8.1.5.1.2	PERIMETER DECKS shall be provided around 100%	

Keyword	Section	Code	Grade
Decking		of the POOL perimeter except where special conditions exist as permitted by other sections of this CODE.	
Unguarded 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.	
Spectator Seating	4.8.1.5.1.4	*For Spectator Seating, refer to MAHC Section 4.6.7 for additional requirements.*	
Fixed Equipment	*4.8.1.5.2*	*Fixed Equipment*	A
Unobstructed Deck	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.	
Circulation Path	4.8.1.5.2.2	This area may overlap the circulation path.	
Queuing Space	4.8.1.5.2.3	Where reasonably anticipated, queuing space shall be provided at applicable equipment to minimize encroachment into the circulation path.	
Free Space	4.8.1.5.2.4	Free area around equipment may consist of PERIMETER DECK and/or POOL DECK, as applicable.	
Circulation Path	*4.8.1.5.3*	*Circulation Path*	A
Conformance	4.8.1.5.3.1	A continuous and unobstructed circulation path shall be provided in conformance with ADAAG requirements for an ACCESSIBLE ROUTE.	
Equipment and Furniture	4.8.1.5.3.2	Fixed equipment, loose equipment, and deck furniture shall not intrude upon the circulation path.	
Connect	4.8.1.5.3.3	Circulation path(s) shall connect all site amenities,	

Keyword	Section	Code	Grade
		entrances and exits as required by ADAAG.	
Deck Types	4.8.1.5.3.4	Circulation paths may consist of any combination of permitted deck types.	
Wing Walls or Peninsulas	**4.8.1.6**	**Wing Walls or Peninsulas**	B
No Perimeter Deck	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.	
Use by Lifeguards	4.8.1.6.1.1	A WING WALL greater than 18 inches (45.7 cm) wide but less than 48 inches (1.22 m) wide may be used by lifeguard personnel but shall not be considered as part of the PERIMETER DECK.	
Slip Resistant	4.8.1.6.1.2	Any WING WALL or PENINSULA intended to be accessed by lifeguards shall be constructed of slip-resistant materials.	
Perimeter Overflow System	4.8.1.6.2	WING WALLS or PENINSULAS project into the POOL area and inside the perimeter overflow system. If it is impractical to design a perimeter overflow into the WING WALL or PENINSULA due to width or height, then the overflow system may bypass the WING WALL or PENINSULA.	
Pool Perimeter	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.	
Normal Operating Water Level	4.8.1.6.4	WING WALLS and PENINSULAS shall be at or above the normal operating water level of the pool.	
Deck Drainage	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.	
Vertical Depth Markers	4.8.1.6.6	Vertical depth markers shall be provided around WING WALLS and PENINSULAS in accordance with section 4.5.19.	

Keyword	Section	Code	Grade
Islands	***4.8.1.7***	***Islands***	B
Not more than 18 Inches	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.	
Slip Resistant	4.8.1.7.2	The surface of ISLANDS intended for foot traffic shall be slip resistant.	
Lifeguards	4.8.1.7.3	An ISLAND 18 inches (45.7 cm) to 48 inches (1.22 m) wide may be allowed for use only by lifeguards.	
Vertical Depth Markers	4.8.1.7.4	Vertical depth markers shall be provided around ISLANDS in accordance with section 4.5.19.	
Horizontal Depth Markers	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.	
Bridge or Stairway	4.8.1.7.6	An ISLAND designed for BATHER traffic shall be accessible by bridge or stairway from the pool.	
Minimum Clearance	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.	
No Guard Rails	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.	
Heated Decks	***4.8.1.8***	***Heated Decks***	A
Freeze Protection	4.8.1.8.1	Where heated decks are provided for the purpose of freeze protection, the extent of heated area shall minimally include the entire required PERIMETER DECK and required circulation path(s).	
Clearly Delineated	4.8.1.8.2	Heated deck paths must be clearly delineated with respect to un-heated decks.	
Hose Bibbs	***4.8.1.9***	***Hose Bibbs***	A

Keyword	Section	Code	Grade
General	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.	
Backflow Prevention	4.8.1.9.2	All water source points shall be equipped with backflow prevention devices.	
Diving Boards and Platforms	**4.8.2**	**Diving Boards and Platforms**	
Diving Envelope	***4.8.2.1***	***Diving Envelope***	B
Conforms	4.8.2.1.1	Diving boards are permitted only when the diving envelope conforms to the standards of the certifying agency that regulates diving at the facility. Such certifying agencies include: 1) National Collegiate Athletic Association (NCAA), 2) the National Federation of State High School Associations (NFSHSA), 3) the Federation Internationale de Natation Amateur (FINA), or 4) U.S.A. Diving, Inc.	
Non-Competitive Diving	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.	
Steps and Guardrails	***4.8.2.2***	***Steps and Guardrails***	B
Higher than 21 Inches	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.	
Self-Draining Treads	4.8.2.2.2	Steps or ladder treads shall be self-draining, corrosion resistant, non-slip, and designed to support the maximum expected load.	
Short Platforms	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	

Keyword	Section	Code	Grade

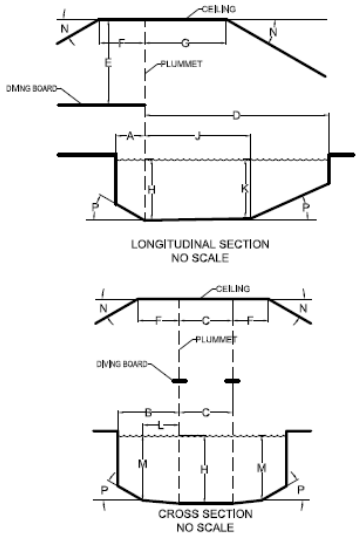
with intermediate rails.

Tall Platforms 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.

Figure 4.8.2.2.4.1 ***Figure 4.8.2.2.4.1: Diving Platforms***

PUBLIC SWIMMING POOLS
Table 1
Diving Areas

Letters below refer to Figure 1		Board height-meters	0.5 Meter	0.75 Meter	1.0 Meter	3.0 Meters
		Board height (feet)	1'8"	2'6"	3'4"	9'11"
		Board length (feet)	10'0"	12'0"	16'0"	16'0"
		Board width (feet)	1'8"	1'8"	1'8"	1'8"
			Minimum dimensions in feet			
A	Distance from plummet back to pool wall		3'0"	4'6"	6'0"	6'0"
B	Distance from plummet to pool wall at side		10'0"	10'0"	10'0"	11'6"
C	Distance from plummet to adjacent plummet		8'10"	8'10"	8'10"	8'6.5"
D	Distance from plummet to pool wall ahead		26'0"	27'10"	29'7"	33'8"
E	Height, board to ceiling at plummet & distances F and G		16'0"	16'0"	16'0"	16'0"
F	Clear overhead distance behind and each side of plummet		8'0"	8'0"	8'0"	8'0"
G	Clear overhead distance ahead of plummet		16'0"	16'0"	16'0"	16'0"
H	Depth of water at plummet		9'6"	10'9"	12'0"	12'6"
J	Distance ahead of plummet to depth K		12'0"	14'3"	16'6"	19'9"
K	Depth at distance J ahead of plummet		8'9"	10'0"	11'3.375"	12'2"
L	Distance at each side of plummet to depth M		8'0"	8'1.5"	8'3"	9'11"
M	Depth at distance L on each side of plummet		9'1	10'4"	11'7.5"	12'2"
N	Maximum slope to reduce height E		30°	30°	30°	30°
P	Maximum floor slope to reduce depth ahead of K, to the sides of M, or back to pool wall behind H		3:1	3:1	3:1	3:1



Starting Platforms **4.8.3 Starting Platforms** A

Conform to Standard Codes 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.

Keyword	Section	Code	Grade
Competitive Training and Competition	4.8.3.2	Starting platforms shall be used for competitive swimming competition and training only.	
Removed or Restricted	4.8.3.2.1	Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.	
Minimum Water Depth	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m).	
Leading Edge	4.8.3.4	The leading edge of starting platforms shall have a maximum height of 30 inches (76.2 cm) above water surface.	
Slip Resistant	4.8.3.5	Starting platforms shall have slip resistant tread surfaces	
Secure and Stable	4.8.3.6	Starting platforms shall be firmly secure and stable when in use.	
Pool Slides	**4.8.4**	**Pool Slides**	
Flume Slides		*For flume slides, please refer to 4.12.2 "Waterslides and Catch Pools."*	
Designed for Safety	4.8.4.1	All slides installed as an appurtenance to a public swimming POOL or water attraction shall be designed, constructed and installed to provide a safe environment for all patrons utilizing the facility.	
Standards	4.8.4.1.1	POOL SLIDES shall be designed and constructed in accordance with applicable ASTM and CSPC standards.	
Flow Rate	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.	B
Injury	4.8.4.3	POOL SLIDES are to be assembled, arranged, and finished in a smooth and consistent manner to	B

Keyword	Section	Code	Grade
		eliminate the possibility of injury.	
Non-Toxic	4.8.4.4	Components used to construct a POOL SLIDE shall be non-toxic and compatible with the environment contacted under normal use.	A
Access	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.	B
Handrails	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.	B
Water Depth	4.8.4.7	Water depth at the slide terminus shall be determined by the slide manufacturer.	B
Pool Edge	4.8.4.8	Sufficient clear space shall be maintained to the POOL edge and other features.	A
Terminus End	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.	
	4.8.5	**Lifeguard Related**	
Barriers and Enclosures	**4.8.6**	**Barriers and Enclosures**	
General	***4.8.6.1***	***General Requirements***	
Enclosures	4.8.6.1.1	All POOLS, CHEMICAL STORAGE SPACES, and POOL mechanical spaces shall have secure perimeter BARRIERS preventing unauthorized entry.	
Barriers	4.8.6.1.2	A secure perimeter may consist of any combination of building envelopes, site walls, or fencing as provided for in this section.	
Patron Accessibility	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	

Keyword	Section	Code	Grade
		building CODEs.	
Construction Requirements	***4.8.6.2***	***Construction Requirements***	A
Local Code	4.8.6.2.1	BARRIERS shall be constructed in accordance with the state or local Building CODE.	
No Enticements	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.	
Discourage Climbing	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.	
Building Emergency Exit	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.	
Upper Level Balconies	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.	
Windows	4.8.6.2.6	Windows on a building that forms part of a POOL ENCLOSURE shall not be operable by patrons.	
Height	4.8.6.2.7	For the purposes of this section, height is	

Keyword	Section	Code	Grade
		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.	
Fencing Requirements	4.8.6.2.7.1	Enclosures shall not be less than 6 feet (1.83 m) in height.	
Other Barriers	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.	
Gates / Doors	***4.8.6.3***	***Gates and Doors***	A
Self-Closing and Latching	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.	
Exception	4.8.6.3.1.1	Gates or doors used solely for after-hours maintenance must remain locked at all times not in use by staff.	
Propping Open	4.8.6.3.1.2	Propping open gates or doors is prohibited.	
Gates	4.8.6.3.2	Gates shall be at least equal in height at top and bottom to the barrier of which they are a component.	
Turnstiles	4.8.6.3.3	Turnstiles may not form a part of a pool enclosure.	
Exit Gates or Doors	4.8.6.3.4	Quantity, location, and width(s) for exit gates or doors shall be provided consistent with local building and fire codes and applicable accessibility guidelines.	
Swing Outward	4.8.6.3.5	Exit gates or doors shall be allowed to swing outward.	
Absence of Local Building Codes	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.	
Unguarded Pools	4.8.6.3.7	For Unguarded pools, self-latching mechanisms	

Keyword	Section	Code	Grade
		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.	
Other Class Pools	4.8.6.3.8	For all other class pools, exit gates or doors shall be constructed so as to prevent unauthorized entry from outside of the pool enclosure.	
Indoor Pools	***4.8.6.4***	***Indoor Pools***	A
Enclosure	4.8.6.4.1	Building walls enclosing an indoor POOL shall serve as the POOL ENCLOSURE.	
Local Building Code	4.8.6.4.1.1	Local building CODES for construction requirements in indoor applications shall have jurisdiction.	
Further Information		*For further information regarding indoor CHEMICAL STORAGE rooms and POOL mechanical rooms, refer to MAHC section 4.9.*	
Securable	4.8.6.4.2	Indoor POOLS shall be securable from unauthorized entry from other building areas as well as the exterior.	
Indoor and Outdoor Pools	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.	
Wall Separating	4.8.6.4.4	For a passage through a wall separating the indoor portion of a POOL from an outdoor portion of the same pool, the overhead clearance of the passage to the POOL floor shall be at least 6 feet 8 inches (2.03 m) to any solid structure overhead.	
Multiple Pools	***4.8.6.5***	***Multiple Pools***	B
One Enclosure	4.8.6.5.1	Except as otherwise required in this CODE, one ENCLOSURE may surround multiple POOLS at one facility.	
Wading Pools	4.8.6.5.2	WADING POOLS do not need to be separated from	

Keyword	Section	Code	Grade
		other wading pools by a BARRIER.	
Pool Cleaning Systems	**4.8.7**	**Pool Cleaning Systems**	A
No Hazard	4.8.7.1	The cleaning system provided shall not create an entanglement or suction entrapment hazard or interfere with the operation or use of the pool.	
Common Cleaning Equipment	4.8.7.2	If there are multiple POOLS at one facility, that facility may use common cleaning equipment.	
Integral Vacuum Systems	4.8.7.3	Use of INTEGRAL VACUUM SYSTEMS is prohibited.	
GFCI Power	4.8.7.4	Where PORTABLE VACUUM cleaning equipment is used, they shall be powered by circuits having GROUND-FAULT CIRCUIT INTERRUPTERS.	
Separation of Receptacles	4.8.7.5	Separation between receptacles shall be a maximum of 100 feet (30.5 m).	
Low Voltage	4.8.7.6	Any ROBOTIC CLEANERS shall utilize low voltage for all components that are immersed in the POOL water.	
GFCI Connection	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.	
Power Cord	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.	
Filter/ Equipment Room	**4.9**	**Filter/Equipment Room**	
Equipment Room	**4.9.1**	**Equipment Room**	
General Requirements	***4.9.1.1***	***General Requirements***	
Nonabsorbent Material	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	A

Keyword	Section	Code	Grade
		necessary.	
Floor Slope	4.9.1.1.2	Floors shall have a slope toward the floor drain adequate to prevent standing water at all times.	A
Opening	4.9.1.1.3	The opening to the equipment room or area shall be designed to provide access for all anticipated equipment.	A
Hose Bibb	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room or area.	A
Construction	***4.9.1.2***	***Construction***	
Size	4.9.1.2.1	The size of the equipment ENCLOSURE, room or area shall provide working space to perform routine operations and equipment service.	A
Adequate Storage Space	4.9.1.2.1.1	Equipment rooms also intended for STORAGE use shall have adequate space provided for such STORAGE, without reducing the working spaces.	A
Lighting	4.9.1.2.2	Equipment ENCLOSURES, rooms or areas shall be lighted to provide 30 foot candles of illumination at floor level in accordance with IES guidelines.	A
Electrical	***4.9.1.3***	***Electrical***	
Conform to NEC	4.9.1.3.1	All electrical wiring shall conform to the edition of NEC adopted by the local jurisdiction.	A
Conform to NRTL	4.9.1.3.2	Equipment, components, and their application and installation shall conform to the NRTL listing.	A
Ventilation	***4.9.1.4***	***Ventilation***	
AHJ Code Conformance	4.9.1.4.1	Equipment room ventilation shall address COMBUSTION requirements, heat dissipation from equipment, humidity from surge or balance tanks, and air quality.	A
Markings	***4.9.1.5***	***Markings***	

Keyword	Section	Code	Grade
Piping Identified	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 9) POOL heating lines.	A
Piping Marked	4.9.1.5.2	All piping shall be marked with directional arrows as necessary to determine flow direction.	A
Valves Identified	4.9.1.5.3	All valves shall be clearly identified with a brass tag, plastic laminate tags or permanently affixed alternate.	A
Valves Described	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.	A
Below Grade Rooms	***4.9.1.6***	***Below-Grade Rooms***	
Stairway Access	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.	
Chemical Equipment	4.9.1.6.2	Below-grade equipment rooms containing chemical equipment may be subject to other requirements.	A
Combustion Equipment	***4.9.1.7***	***Equipment Rooms Containing Combustion Equipment***	
Separation	***4.9.1.8***	***Separation from Chemical-Storage Spaces***	
Equipment	*4.9.1.8.1*	*Equipment*	

Keyword	Section	Code	Grade
Contaminated Air	4.9.1.8.1.1	Combustion equipment, air-handling equipment, and electrical equipment shall not be exposed to air contaminated with corrosive chemical fumes or vapors.	A
Equipment Restrictions	4.9.1.8.1.2	Spaces containing combustion equipment, air handling equipment, and/or electrical equipment and spaces sharing air distribution with spaces containing such equipment shall not at the same time be used as chemical-storage spaces.	A
Listed and Labeled	4.9.1.8.1.2.1	Exception 1: Equipment listed and labeled for use in that atmosphere shall be acceptable, where approved by the AHJ.	
Isolated	4.9.1.8.1.3	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 chemical-storage-space air.	A
Doors and Openings	*4.9.1.8.2*	*Doors and Openings*	
Between	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.	B
No Openings	4.9.1.8.2.2	There shall be no ducts, grilles, pass-throughs, or other openings connecting such equipment rooms to chemical-storage spaces.	A
Natatorium Air	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.	A
Listed Equipment	4.9.1.8.2.3.1	Exception 1: Equipment listed for the atmosphere shall be acceptable.	
No Openings	4.9.1.8.2.4	There shall be no ducts, grilles, pass-throughs, or other openings connecting such spaces to a natatorium.	A

Keyword	Section	Code	Grade
Air Handlers	4.9.1.8.2.4.1	Note 1: Ducts which connect the natatorium to the duct connections of air handlers shall not be construed as connecting the air-handler space to the natatorium.	
HVAC Equipment	4.9.1.8.2.4.2	Exception 1: HVAC equipment which is rated for natatorium atmosphere and which serves only that natatorium shall be acceptable.	
Openings / Gaps	4.9.1.8.2.5	Where building construction leaves any openings or gaps between floors and walls, or between walls and other walls, or between walls and ceilings, such gaps shall be permanently sealed against air leakage.	A/B
Natatorium Access	*4.9.1.8.3*	*Natatorium Access*	B
Floor Slope	4.9.1.8.3.1	Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room shall 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.	
Four Inches	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.	
Dyke	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	
Floor Drains	4.9.1.8.3.1.3	Note*: Equipment-room floor drains may be required.*	
Automatic Closer	4.9.1.8.3.2	Such door or doors shall be equipped with an automatic closer.	
Maintained to Close Reliably	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.	

Keyword	Section	Code	Grade
Automatic Lock	4.9.1.8.3.3	Such door or doors shall be equipped with an automatic lock.	
Restrict Access	4.9.1.8.3.3.1	Such lock shall require a key or combination to open from the natatorium side.	
One Hand	4.9.1.8.3.3.2	Such lock shall be so designed and installed as to be opened by one hand from the inside of the room under all circumstances, without the use of a key or tool.	
Warning Sign	4.9.1.8.3.4	Such doors shall be equipped with permanent signage warning against unauthorized entry.	
Gasket	4.9.1.8.3.5	All sides of such doors shall be equipped with a gasket. The gasket shall be so installed as to prevent the passage of air, fumes, or vapors when the door is closed.	
Not Relief	4.9.1.8.3.6	This section shall not be construed as granting relie from section 4.9.1.8.2.1.	
Other Equipment Room	***4.9.1.9***	***Other Equipment Room Guidance***	
Access Space	4.9.1.9.1	Where ventilation, air filtration, or space dehumidification, heating, or cooling for a natatorium is by mechanical equipment located in an equipment room, adequate access space shall be provided to allow for inspection and service.	A
Size Requirements	4.9.1.9.1.1	The access spaces shall be the greater of: 1) those required by OSHA, NEC, National Fue Gas Code, or other official requirements; or 2) the equipment-manufacturers' recommendations.	
Adequate Space	4.9.1.9.2	Where ventilation, air filtration, or space heating or cooling for a natatorium is beside mechanical equipment located in an equipment room, adequate space for required straight lengths of duct shall be provided as the greater of those described in AMCA 201, SMACNA Duct Manual, ACCA Manual SPS Sec. 13, or the equipment	A

Keyword	Section	Code	Grade
		manufacturer's recommendations.	
Minimize Hazards	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.	B
Ladder Installed	4.9.1.9.3.1	Where a ladder will be required for service or maintenance of equipment, other permanently installed equipment shall not be so located as to interfere with the use of the ladder.	B
Alternative Access	4.9.1.9.3.2	Where a ladder cannot be safely or practically used to service equipment where any serviceable component is more than 6.5 feet (1.98 m) above the floor, a mezzanine floor, platform, or other arrangement for safe access shall be provided.	B
Exception	4.9.1.9.3.2.1	Exception 1: Where otherwise specifically allowed by OSHA.	
Stricter Requirements	4.9.1.9.3.2.2	Exception 2: Where OSHA or other applicable codes or standards have stricter requirements, those stricter requirements shall prevail.	
Refrigeration Equipment	4.9.1.9.4	Where refrigeration equipment such as an air-conditioner or dehumidifier is located indoors in a building intended for occupation, arrangements for refrigerant relief (if any) shall be according to the International Mechanical Code or other applicable code.	A
Chemical Storage	**4.9.2**	**Chemical Storage Spaces**	
Note		*Note: Nothing in this section shall be construed as providing relief from applicable requirements of fire codes, mechanical codes, electrical codes, etc.*	
Outdoor/ Indoor Storage	***4.9.2.1***	***Outdoor / Indoor Storage***	
Stored Outdoors	4.9.2.1.1	Pool chemicals, acids, fertilizers, salt, de-icing chemicals, oxidizing cleaning materials, other corrosive or oxidizing chemicals, and pesticides	A

Keyword	Section	Code	Grade
		should be stored outdoors or in a well-ventilated structure not intended for occupation.	
Minimize Vapors	4.9.2.1.2	Where such materials must be stored in a building intended for occupation, the transfer of chemical fumes and vapors from the chemical-storage space to other parts of the building shall be minimized.	
Dedicated Space	4.9.2.1.3	At least one space dedicated to chemical storage shall be provided. This space need not be an interior space.	A
Safe Spaces	4.9.2.1.4	The number of required chemical-storage spaces shall be as necessary to allow safe storage of the chemicals present.	A
Additional Space	4.9.2.1.5	Where the listing, labeling, or MSDS of chemicals indicates incompatibility of storage with other chemicals present, other chemical storage space(s) shall be provided.	
Eyewash	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.	
Construction	***4.9.2.2***	***Construction***	
Foreseeable Hazards	4.9.2.2.1	The construction of the chemical storage space shall take into account the foreseeable hazards.	
Protected	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.	B
Floor	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.	B
Minimize Fumes	4.9.2.2.4	The construction and operation of a chemical	A

Keyword	Section	Code	Grade
		storage space shall minimize the transfer of chemical fumes into any interior space of a building intended for occupation.	
Surfaces	4.9.2.2.5	Any walls, floors, doors, ceilings, and other building surfaces of an interior chemical-storage space shall join each other tightly.	A
No Openings	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.	A
Exterior Storage	***4.9.2.3***	***Exterior Chemical Storage Spaces***	
Outdoor Equipment	4.9.2.3.1	Equipment listed for outdoor use may be located in an outdoor equipment area.	A
Fencing	4.9.2.3.2	Outdoor equipment areas not joined to a wall of a building shall be completely enclosed by fencing that is at least 6 feet (1.83 m) high.	A
Gate	4.9.2.3.3	Fencing shall be equipped with a self-closing and self-latching gate having a permanent locking device.	A
Doors	***4.9.2.4***	***Chemical Storage Space Doors***	
Signage	4.9.2.4.1	All doors opening into chemical-storage spaces shall be equipped with permanent signage: 1) warning against unauthorized entry, and 2) specifying the expected hazards, and 3) specifying the location of the associated MSDS forms.	A
Emergency Egress	4.9.2.4.2	Where a single door is the only means of egress from a chemical-storage space, the door shall be equipped with an emergency-egress device.	A
Interior Door	4.9.2.4.3	Where a chemical-storage space door must open tc an interior space, spill containment shall be provided to prevent spilled chemicals from leaving the chemical-storage space.	A

Keyword	Section	Code	Grade
Equipment Space	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.	
Corrosive	4.9.2.4.4.1	Such door shall be acceptable where all equipment thus exposed is listed for the corrosive atmosphere.	
Interior Opening	4.9.2.4.5	Where a chemical-storage space door must open tc an interior space, such door shall have all of the following requirements outlined from MAHC Section 4.9.2.4.5.1 to 4.9.2.4.5.7.2	
Corrosion-Resistant	4.9.2.4.5.1	Such doors shall be constructed of corrosion-resistant materials.	
Automatic Lock	4.9.2.4.5.2	Such doors shall be equipped with a corrosion-resistant, automatic lock to prevent unauthorized entry.	
Key or Combination	4.9.2.4.5.2.1	Such lock shall require a key or combination to open from the outside.	
Opened	4.9.2.4.5.2.1	Such lock shall be so designed and installed as to be capable of being opened by one hand from the inside of the chemical-storage space without the use of a key or tool.	
Supported	4.9.2.4.5.3	Such doors shall be supported on corrosion-resistant hinges, tracks, or other supports.	
Air Leakage	4.9.2.4.5.4	Such doors shall be equipped with suitable gaskets or seals on the top and all sides to minimize air leakage between the door and the door frame.	
Floor	4.9.2.4.5.5	Such doors shall be equipped with a floor or threshold seal to minimize air leakage between the door and the floor or threshold.	
Automatic Closer	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.	

Keyword	Section	Code	Grade
Air Pressure	4.9.2.4.5.6.1	The door closer shall be able to close the door completely against the specified difference in air pressure.	
Limit Switch	4.9.2.4.5.7	Such doors shall be equipped with a limit switch and an alarm that will sound if the door remains open for more than thirty (30) minutes.	
Alarm	4.9.2.4.5.7.1	This alarm shall have a minimum output level of 85 dbA at 10 feet.	
Loss of Air Pressure	4.9.2.4.5.7.2	Where an open door will result in loss of air-pressure difference, this requirement can be met by the audible alarm required under 4.9.2.11.5.1.	
Interior Storage	***4.9.2.5***	***Interior Chemical Storage Spaces***	
No Air Movement	4.9.2.5.1	There shall be no transfer grille, pass-through grille, louver, or other device or opening that will allow air movement from the chemical-storage into any other interior space of a building intended for occupation or into another chemical-storage space.	A
Electrical Conduit System	4.9.2.5.2	An interior chemical-storage space that shares any building surface (wall, floor, ceiling, door, etc.) with any other interior space or that shares an electrical-conduit system with any other space shall be equipped with a ventilation system that maintains the air pressure in the chemical-storage space below that of any other interior space by 0.05 to 0.15 inches of water pressure, or by such greater pressure difference as shall be necessary to ensure that all air movement through building surfaces or conduits shall be toward the chemical-storage space.	A
Pressure Difference	4.9.2.5.2.1	This pressure difference shall be maintained by a continuously operated exhaust system used for no other purpose than to remove air from that one chemical-storage space.	A
Separate Exhaust System	4.9.2.5.2.2	Where more than one chemical-storage space is present, a separate exhaust system shall be provided for each chemical-storage space.	A

Keyword	Section	Code	Grade
Airflow Rate	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 4) the amount needed to maintain the specified pressure difference.	A
Alarm	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.	A
Minimum Output	4.9.2.5.2.3.1	This alarm shall have a minimum output level of 85 dbA at 10 feet.	
Manual Reset	4.9.2.5.2.3.2	The specified alarm shall require manual reset to silence it.	B
Air Ducts	***4.9.2.6***	***Air Ducts in Interior Chemical Storage Spaces***	
No Air Movement	4.9.2.6.1	No duct shall allow air movement from the chemical-storage space into any other interior space of a building intended for occupation or into any other chemical storage space.	A
Chemical Storage	4.9.2.6.2	Air ducts shall not enter or pass through an interior chemical-storage space.	B
Corrosion-Resistant	4.9.2.6.2.1	Exception 1: A corrosion-resistant duct used for no other purpose than to exhaust air from the chemical-storage space shall be acceptable.	
Building Exterior	4.9.2.6.2.1.1	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.	

Keyword	Section	Code	Grade
Makeup Air	4.9.2.6.2.2	Exception 2: A duct used for no other purpose than to supply makeup air to the chemical-storage space shall be acceptable.	
Building Exterior	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.	
Other Ducts	4.9.2.6.2.3	Exception 3: Any other ducts specifically allowable by applicable building and mechanical codes where such ducts are corrosion-resistant and joint-free to the extent feasible shall be acceptable.	
Pipes and Tubes	***4.9.2.7***	***Pipes and Tubes in Interior Chemical Storage Spaces***	
Not Enter	4.9.2.7.1	Pipes and tubes shall not enter or pass through an interior chemical-storage space.	B
Service	4.9.2.7.1.1	Exception 1: As required to service devices integral to the function of the room, such as pumps, vessels, controls, freeze protection, and safety devices.	
Automatic Fire Suppression	4.9.2.7.1.2	Exception 2: As required to allow for automatic fire suppression where required.	
Drainage	4.9.2.7.1.3	Exception 3: As required for drainage.	
Devices	4.9.2.7.2	Piping, tubes, drain bodies, grates, and attachment and restraint devices shall be corrosion-resistant and rated for the chemical environment(s) present including floor drain bodies and grates.	B
Wall Penetrations	4.9.2.7.3	All wall penetrations shall be sealed air-tight and shall be commensurate with the rating of the wall assembly.	A
Sealing Materials	4.9.2.7.3.1	Sealing material(s) shall be compatible with the wall assembly and the chemical environment(s) present.	

Keyword	Section	Code	Grade
Combustion Equipment	***4.9.2.8***	***Combustion Equipment in Interior Chemical Storage Spaces***	
Installed	4.9.2.8.1	No combustion device or appliance shall be installed in a chemical-storage space, or in any other place where it will be exposed to the air from a chemical-storage space.	A
Exception	4.9.2.8.1.1	Exception 1. A combustion device or appliance which meets all of the following requirements shall be acceptable: 1) The device or appliance is required for one or more processes integral to the function of the room, such as space heat. 2) The device is listed for such use. 3) The device as installed is acceptable to the AHJ.	
Electrical Equipment	***4.9.2.9***	***Electrical Equipment in Chemical-Storage Spaces***	
Comply	4.9.2.9.1	Electrical equipment and wiring methods used for or in chemical-storage spaces shall comply with MAHC section 4.6.2	A
Ozone Rooms	***4.9.2.10***	***Ozone Rooms***	
Only Ozone Equipment	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.	A
Emergency Ventilation	4.9.2.10.2	Ozone equipment rooms shall be equipped with an emergency ventilation system capable of 60 air changes per hour.	
Exhaust Intake	4.9.2.10.2.1	The exhaust intake shall be located approximately six inches from the floor, on the opposite side of the room from the make-up air intake.	
On Command	4.9.2.10.2.2	The emergency ventilation system shall be so arranged as to run on command of an ozone-leak alarm or on command of a manual switch.	

Keyword	Section	Code	Grade
Manual Switch	4.9.2.10.2.3	The manual emergency ventilation switch shall be located outside the room and near the door to the ozone room.	
Below Grade	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.	
Exhaust Intake	4.9.2.10.3.1	The exhaust intake shall be located approximately six inches from the floor, on the opposite side of the room from the make-up air intake.	
Arranged	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.	
Manual Ventilation Switch	4.9.2.10.3.3	The manual ventilation switch shall be located outside the room and near the door to the ozone room.	A
Signage	4.9.2.10.4	A sign shall be posted on the exterior of the entry door, stating “DANGER - GASEOUS OXIDIZER – OZONE” in lettering not less than 4 inches high.	A
Alarm System	4.9.2.10.5	Rooms containing ozone generation equipment shall be equipped with an audible and visible ozone detection and alarm system.	A
Requirements	4.9.2.10.5.1	The alarm system shall consist of both 1) an audible alarm capable of producing at least 85 decibels, and 2) a visible alarm consisting of a flashing light mounted in plain view of the entrance to the ozone-equipment room.	
Sensor	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	

Keyword	Section	Code	Grade
		million.	
Ozone Concentration	4.9.2.10.5.3	The alarm system shall alarm when the ozone concentration equals or exceeds 0.1ppm in the room.	
Activation	4.9.2.10.5.4	Activation of the alarm system shall shut off the ozone generating equipment and turn on the emergency ventilation system.	A
Gaseous Chlorination	***4.9.2.11***	***Gaseous Chlorination Space***	
Adequate Size	4.9.2.11.1	A gaseous-chlorination space shall be large enough to house the chlorinator, chlorine storage tanks, and associated equipment as required.	A
Secure Tanks	4.9.2.11.2	A gaseous-chlorination space shall be equipped with facilities for securing tanks.	A
Not Below Grade	4.9.2.11.3	A gaseous-chlorination space shall not be located in a basement or otherwise be below grade.	
Compressed-Chlorine Gas	4.9.2.11.4	Where installed indoors, compressed-chlorine gas storage containers and associated chlorinating equipment shall be in a separate room constructed to have a fire rating of not less than 1-hour.	
Entry Door	4.9.2.11.5	The entry door to an indoor gaseous-chlorine space shall open to the exterior of the building or structure.	
Pool Deck	4.9.2.11.5.1	The entry door to an indoor gaseous-chlorine space shall not open directly towards a pool or pool deck.	
Inspection Window	4.9.2.11.6	An indoor gaseous-chlorine space shall be provided with a shatterproof gas-tight inspection window.	
Ventilation	4.9.2.11.7	Indoor gaseous-chlorination spaces shall be provided with a spark-proof ventilation system capable of 60 air changes per hour.	
Exhaust-air Intake	4.9.2.11.7.1	The exhaust-air intake of the ventilation system	

Keyword	Section	Code	Grade
		shall be taken at point within six inches of the floor, and on the opposite side of the room from the makeup-air intake.	
Discharge Point	4.9.2.11.7.2	The exhaust-air discharge point shall be 1) outdoors, and 2) above adjoining grade level, and 3) at least ten feet from any operable window, and 4) at least ten feet from any adjacent building.	
Make-up Intake	4.9.2.11.7.3	The make-up air intake shall be within six inches of the ceiling of the space and shall open directly to the outdoors.	
PPE Available	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.	
Windows	***4.9.2.12***	***Windows in Chemical Storage Spaces***	
Not Required	4.9.2.12.1	Windows in chemical-storage spaces are not required by this code.	
Requirements	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.	B
Exterior Window	4.9.2.12.3	Any chemical-storage-space window in an exterior wall or ceiling shall 1) be mounted in a corrosion-resistant frame, 2) be so protected by a roof, eave, or permanent awning as to minimize the entry of rain or snow in the event of window breakage.	B

Keyword	Section	Code	Grade
Sealing and Blocking	***4.9.2.13***	***Sealing and Blocking Materials***	
Minimize Leakage	4.9.2.13.1	Materials used for sealing and blocking openings in an interior chemical-storage space shall minimize the leakage of air, vapors, or fumes from the chemical-storage space.	A
Compatible	4.9.2.13.2	Materials used for sealing and blocking openings in an interior chemical-storage space shall be compatible for use in the environment.	
Fire Rating	4.9.2.13.3	Materials used for sealing and blocking openings in an interior chemical-storage space shall be commensurate with the fire rating of the assembly in which they are installed.	
	4.10	**Hygiene Facilities**	
Water Supply / Disposal	**4.11**	**Water Supply/ Wastewater Disposal**	
Water Supply	**4.11.1**	**Water Supply**	B
Public Water System	4.11.1.1	Water serving a swimming POOL shall be supplied from a public water system as defined by EPA.	
Other Sources	4.11.1.1.1	Other water sources such as lakes or springs may be approved to serve a swimming POOL by the AHJ.	
Condensate/ Reclaimed Water	4.11.1.1.2	Use of condensate water, collected rain water, or other reclaimed water for water serving a swimming POOL is prohibited.	
Exception	4.11.1.1.3	Exceptions to 4.11.1.1.2 may be made by the AHJ with evidence that such water has met all EPA potable water quality standards.	
Sufficient Capacity	4.11.1.2	The water supply shall have sufficient capacity to simultaneously serve all PLUMBING FIXTURES.	
Refill Pool	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	

Keyword	Section	Code	Grade
		after any splashing or evaporative losses within one hour if the AQUATIC VENUE is operational at the time of the backwash. *Per MAHC Recirculation and Filtration Module:* Automatic makeup water supply equipment shall be provided to maintain continuous skimming of all pools.	
Cross-Connection Control	**4.11.2**	**Cross-Connection Control**	A
Protected	4.11.2.1	The potable water supply serving a swimming POOL 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 up to a maximum of 6 inches (15.2 cm) 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 2) An approved reduced pressure zone (RPZ) backflow preventer installed according to the plumbing CODE.	
Backflow	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.	
Air Gap	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.	
Deck Drains	**4.11.3**	**Deck Drains and Rinse Showers**	B
Sloped	4.11.3.1	The walkway or deck around a swimming POOL	

Keyword	Section	Code	Grade
		shall be properly sloped to deck drains or to the edge of the deck to prevent the accumulation of standing water.	
Discharge	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.	
Area or Linear	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.	
Rinse Showers	4.11.3.4	Rinse shower drains shall discharge to the sanitary or storm sewer as allowed by the agency having jurisdiction and according to applicable plumbing codes.	
Fill Spout	**4.11.4**	**Fill Spout**	B
Hazard	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.	
Sanitary Waste	**4.11.5**	**Sanitary Wastes**	B
Discharged	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.	
On-Site Sewer System	4.11.5.2	If a municipal sanitary sewer system is not available, all wastewater shall be disposed to an on-site sewer system that is properly designed to receive the entire wastewater capacity.	
Wastewater	**4.11.6**	**Pool Wastewater**	B
Discharged	4.11.6.1	Wastewater from a swimming POOL, including filter backwash water, shall be discharged to a municipal sanitary sewer system if available.	
Ground Surface	4.11.6.2	If a municipal sanitary sewer system is not available, wastewater from a swimming POOL may be discharged to the ground surface at a suitable	

Keyword	Section	Code	Grade
		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.	
Permit	4.11.6.3	Wastewater discharged from a swimming POOL to surface waters may be required to obtain a permit for disposal.	
Capacity	4.11.6.4	The wastewater disposal system shall have sufficient capacity to receive wastewater without flooding when filters are cleaned or when the POOL is drained.	
Separation Tank for Regenerative Media	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.	
Specific Venues	**4.12**	**Specific Venues**	
Spas	**4.12.1**	**Spas**	
Additional Provisions	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.	
Maximum Water Depth	4.12.1.2	The maximum water depth in spas shall be 4 feet (1.22 m) measured from the water line.	
Seating	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.	
Handholds	4.12.1.3	A SPA shall have one (1) or more suitable, slip-resistant handhold(s) around the perimeter and not over 12 inches (30.5 cm) above the water line.	
Options	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.	

Keyword	Section	Code	Grade
Stairs	4.12.1.4	Stairs shall be provided where SPA depths are greater than 2 feet (61 cm).	
Handrail	4.12.1.4.1	Each set of steps shall be provided with at least one handrail to serve all treads and risers.	
Seating	4.12.1.4.2	Seats or benches may be provided as part of these steps.	
Perimeter Deck	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.	
Coping	4.12.1.5.1	The PERIMETER DECK may include the coping.	
Recessed	4.12.1.5.2	SPAS may be located adjacent to other POOLS as long as they are recessed in the deck.	
Elevated Spas	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.	
Minimum Distance	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.	
Depth Marking	4.12.1.6	A minimum of two depth markers shall be provided regardless of the shape or size of the spa.	
Temperature	4.12.1.7	Water temperatures shall not exceed 104°F (40°C).	
Drain	4.12.1.8	A means to drain the SPA shall be provided to allow frequent draining and cleaning.	
Turnover Requirements	4.12.1.9	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.1.10	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	

Keyword	Section	Code	Grade
Return Inlets	4.12.1.11	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.1.12	Bather Load (Contamination Burden TC)	
Air Induction System	4.12.1.13	An air induction system, when provided, shall prevent water back up that could cause electrical shock hazards.	
Intake	4.12.1.13.1	Air intake sources shall not permit the introduction of toxic fumes or other CONTAMINANTS.	
Timers	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.	
Emergency Shutoff	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.	
Caution Signs	4.12.1.16	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.1.17	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Waterslides and Catch Pools	**4.12.2**	**Waterslides and Catch Pools**	
Design and Construction	***4.12.2.1***	***Design and Construction***	
Additional Provisions	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.	
Facilities	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.	

Keyword	Section	Code	Grade
Structural Design	4.12.2.1.3	The structural design of a water slide and the materials used in its construction shall conform with appropriate structural engineering practices and shall provide a sound, durable structure that will safely sustain all the dead loads, live loads, liquid hydrostatic and earth pressures encountered.	
Flumes	***4.12.2.2***	***Flumes***	
Surfaces	4.12.2.2.1	Its surfaces shall be inert, nontoxic, smooth and easily cleaned.	
Curves and Turns	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.	
Curved Sections	4.12.2.2.3	In curved sections of a FLUME, the design of the wall of the FLUME shall cause the outward thrust of the body of the BATHER to be dissipated towards the centerline of the FLUME.	
Dips	4.12.2.2.4	All FLUME VALLEYS and DIPS shall have proper drainage, SAFETY measures that insure a rider cannot fall from the FLUME, and a means of egress in the event the ride malfunctions.	
Flume Walls	4.12.2.2.5	The walls of any FLUME shall be designed so that the continuous and combined action of hydrostatic, dynamic and static loads, as well as normal environmental deterioration do not damage the FLUME bed to the extent of creating a structural failure that presents a hazard of injury to users or that requires frequent patch repairs that may weaken the structural integrity of the FLUME.	
Flume Exits	***4.12.2.3***	***Flume Exits***	
Catch Pool	4.12.2.3.1	The exit of any FLUME must be designed to ensure	

Keyword	Section	Code	Grade
		that BATHERS enter the CATCH POOL or slide run-out at a safe speed and angle of entry.	
Intersection	4.12.2.3.2	If a slide has two or more FLUMES and there is a point of intersection between the centerlines of any two FLUMES, the distance between that point and the point of exit for each intersecting FLUME must not be less than the slide manufacturer's recommendations.	
Exit into Catch Pools	***4.12.2.4***	***Exit into Catch Pools***	
Water Level	4.12.2.4.1	Slides shall be designed to terminate at water level, except for drop slides.	
Perpendicular	4.12.2.4.2	Slides shall be perpendicular to the wall of the POOL at the point of exit.	
Exit System	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.	
Other Methods	4.12.2.4.3.1	Other methods are acceptable as long as safe exit velocities and proper body position are assured under normal use.	
Flume Exits	4.12.2.4.4	The FLUME exits must be in accordance with the slide manufacturer's recommendations.	
Point of Exit	4.12.2.4.5	The distance between the point of exit and the side of the POOL opposite the BATHERS as they exit, excluding any steps, shall not be less than the slide manufacturer's recommendations.	
Catch Pools	***4.12.2.5***	***Catch Pools***	
Turnover Requirements	4.12.2.5.1	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.2.5.2	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	

Keyword	Section	Code	Grade
Return Inlets	4.12.2.5.3	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.2.5.4	Bather Load (Contamination Burden TC)	
Steps	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.	
Landing Area	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.	
Decks	***4.12.2.6***	***Decks***	
Perimeter Deck	4.12.2.6.1	A PERIMETER DECK shall be provided along the exit side of the CATCH POOL.	
Means of Access	***4.12.2.7***	***Means of Access***	
Means of Access	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.	
Slide Run-outs	***4.12.2.8***	***Slide Run-outs and Drops***	
Egress	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.	
Designed	4.12.2.8.2	Slide run-outs shall be designed in accordance with the slide manufacturer's recommendations.	
Landing Area	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.	
Infringe	4.12.2.8.4	This area shall not infringe on the landing area for any other slides or diving equipment.	

Keyword	Section	Code	Grade
Steps	4.12.2.8.5	Steps shall not infringe on this area.	
Water Depth	4.12.2.8.6	The minimum required water depth shall be a function of the slide drop height above the water surface.	
Manufacturer's Recommendation	4.12.2.8.7	The minimum required water depth shall be in accordance with the slide manufacturer's recommendations.	
Signage	***4.12.2.9***	***Signage***	
Warning Signs	4.12.2.9.1	Warning signs in accordance with manufacturer's recommendations shall be provided.	
Caution Signs	4.12.2.9.2	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.2.9.3	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Wave Pools	**4.12.3**	**Wave Pools**	
General	***4.12.3.1***	***General***	
Additional Provisions	4.12.3.1.1	In addition to the general swimming POOL requirements stated in this CODE, WAVE POOLS shall comply with the additional provisions of this section.	
Access	***4.12.3.2***	***Access***	
Access Point	4.12.3.2.1	BATHERS must gain access to the WAVE POOL at the shallow or beach end.	
Sides	4.12.3.2.1.1	The sides of the POOL shall be protected from unauthorized entry into the POOL by the use of a fence or other comparable BARRIER.	
Handholds	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.	

Keyword	Section	Code	Grade
Continuous	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.	
Self Draining	4.12.3.2.2.2	These handholds shall be self-draining.	
Flush	4.12.3.2.2.3	Handholds shall be installed so that their outer edge is flush with the POOL wall.	
Entangled	4.12.3.2.2.4	The design of the handholds shall ensure that body extremities will not become entangled during wave action.	
Steps and Handrails	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.	
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.	
Requirements	4.12.3.2.5	The egress requirements in section 4.5.4.3 do not apply to WAVE POOLS.	
Float Line	4.12.3.2.6	WAVE POOLS shall be fitted with a float line located to restrict access to the caisson wall.	
Hazard	4.12.3.2.6.1	Safety rope and float lines typically required at shallow to deep water transitions shall not apply to WAVE POOLS.	
Caisson Barriers	4.12.3.2.7	Caisson BARRIERS shall be provided for all WAVE POOLS that prevent the passage of a four (4) inch ball.	
Safety	***4.12.3.3***	***Safety***	
Life Jackets	4.12.3.3.1	Proper STORAGE shall be provided for life jackets and all other equipment used in the POOL that will allow for thorough drying to prevent the growth of mold.	
Shut-Off Switch	4.12.3.3.2	A minimum of two emergency shut-off switches to	

Keyword	Section	Code	Grade
		disable the wave action shall be provided, one on each side of the WAVE POOL.	
Labeled and Accessible	4.12.3.3.2.1	These switches shall be clearly labeled and readily accessible to lifeguards.	
Warning	4.12.3.3.3	An audible warning system shall be provided to alert BATHERS of the beginning of wave generation.	
No Diving Sign	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.	
Caution Signs	4.12.3.3.4	Caution Signs (Risk Management and Safety TC)	
Lifeguarding an Safety Equipment	4.12.3.3.5	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Water Quality	***4.12.3.4***	***Water Quality***	
Turnover Rates	4.12.3.4.1	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.3.4.2	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.3.4.3	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.3.4.4	Bather Load (Contamination Burden TC)	
Therapy Pools	**4.12.4**	**Therapy Pools**	
Additional Provisions	4.12.4.1	In addition to the general swimming POOL requirements stated in this CODE, THERAPY POOLS shall comply with the additional provisions of this section.	
Slope	4.12.4.2	Floor slope may exceed 1 foot (30.5 cm) in 12 feet	

Keyword	Section	Code	Grade
		(3.66 m) for water shallower than 5 feet (1.52 m).	
Break Points	4.12.4.2.1	Break points in floor slope shall be identified with a contrasting band consistent with MAHC section 4.5.5.2.	
Hydrotherapy	4.12.4.3	Hydrotherapy or jet systems shall be independent of the recirculation, filtration, and heating systems.	
Special Equipment	4.12.4.4	Special equipment may be allowed by the AUTHORITY HAVING JURISDICTION with proper justification.	
Turnover Requirements	4.12.4.5	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.4.6	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.4.7	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.4.8	Bather Load (Contamination Burden TC)	
Caution Signs	4.12.4.9	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.4.10	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Leisure Rivers	**4.12.5**	**Leisure Rivers**	
General	***4.12.5.1***	***General***	
Additional Provisions	4.12.5.1.1	In addition to the general swimming POOL requirements stated in this CODE, LEISURE RIVERS shall comply with the additional provisions of this section.	
Protrusions	4.12.5.1.2	Handrails, steps, stairs and propulsion jets for LEISURE RIVERS shall not protrude into the river.	
Access and Egress	***4.12.5.2***	***Access and Egress***	

Keyword	Section	Code	Grade
Means	4.12.5.2.1	Means of access/egress shall be provided at 150 foot intervals around the LEISURE RIVER.	
Designated Locations	4.12.5.2.2	Access/egress prohibited except at designated locations established by the designer.	
Handhold	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.	
Deck	4.12.5.2.4	A deck shall be provided along the entire length of the LEISURE RIVER.	
Alternate Sides	4.12.5.2.4.1	The deck shall be allowed to alternate sides of the LEISURE RIVER.	
Obstructions	4.12.5.2.4.2	Obstructions around the perimeter of the river, such as bridges or landscaping, shall be allowed provided they do not impact lifeguarding, sight lines, or rescue operations.	
Bridges	4.12.5.2.5	All bridges spanning a POOL shall have a minimum clearance of both 7 feet (2.13 m) from the bottom of the POOL and 4 feet (1.22 m) above the water surface to any structure overhead.	
Water Quality	***4.12.5.3***	***Water Quality***	
Turnover Requirements	4.12.5.3.1	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.5.3.2	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.5.3.3	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.5.3.4	Bather Load (Contamination Burden TC)	
Safety	***4.12.5.4***	***Safety***	
Caution Signs	4.12.5.4.1	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.5.4.2	Lifeguarding and Safety Equipment (Risk	

Keyword	Section	Code	Grade
		Management TC and/or Lifeguarding and Bather Supervision TC)	
Movable Floors	**4.12.6**	**Moveable Floors**	
General	***4.12.6.1***	***General***	
Additional Provisions	4.12.6.1.1	In addition to the general swimming POOL requirements stated in this CODE, MOVEABLE FLOORS shall comply with the additional provisions of this section.	
Water Treatment	4.12.6.1.2	The MOVEABLE FLOOR design shall not impede the effectiveness of the water treatment system.	
Underneath	4.12.6.1.3	MOVEABLE FLOORS shall allow inspection, cleaning and maintenance of the area underneath.	
Return Inlets	***4.12.6.1.4***	Return Inlets (Recirculation Systems & Filtration TC)	
Slip Resistance	***4.12.6.2***	***Slip Resistance***	
Shallow Water	4.12.6.2.1	The surface of the moveable floor shall be slip resistant if it is intended for installation in water depths less than 5 feet (1.52 m).	
Safety	***4.12.6.3***	***Safety***	
Not Continuous	4.12.6.3.1	A strategy for preventing patrons from transitioning to deeper water when a moveable floor is not continuous over the entire surface area of the POOL shall be provided.	
Underside	4.12.6.3.2	The underside of the moveable floor shall not be accessible to BATHERS.	
Movement	***4.12.6.4***	***Movement***	
Speed	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).	
Use	4.12.6.4.2	Use of the moveable floor portion of the POOL shall	

Keyword	Section	Code	Grade
		not open to BATHERS when the floor is being raised or lowered.	
Exception	4.12.6.4.2.1	Exception 1. The moveable floor shall only be used for accessibility purposes under direct supervision.	
Water Depth and Markings	***4.12.6.5***	***Water Depth and Markings***	
Displayed	4.12.6.5.1	A floor depth indicator shall be provided that displays the current POOL water depth.	
Warning Markings	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.	
Bulkheads	**4.12.7**	**Bulkheads**	
Additional Provisions	4.12.7.1	In addition to the general swimming POOL requirements stated in this CODE, BULKHEADS shall comply with the additional provisions of this section.	
Lifeguarding and Safety Equipment	4.12.7.2	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Designed, Installed, Operated	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).	
Contrasting Color	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.	

Keyword	Section	Code	Grade
Entrapment	4.12.7.5	The bottom of the BULKHEAD shall be designed so that a POOL user cannot be entrapped underneath the BULKHEAD.	
Placement	4.12.7.6	The BULKHEAD placement shall not interfere with the required water circulation in the pool.	
Fixed	4.12.7.7	BULKHEADS shall be fixed to their operational position(s) by a tamper-proof system.	
Gap	4.12.7.8	The gap between the BULKHEAD and the POOL shall be 1.5 inches (3.81 cm).	
Handhold	4.12.7.9	The BULKHEAD shall be designed to afford an acceptable handhold as required in section 4.5.6.	
Entrances and Exits	4.12.7.10	The proper number of entrances/exits to the POOL as required by MAHC section 4.5.4 shall be provided when the BULKHEAD is in place.	
Guard Railings	4.12.7.11	Guard railings at least 34 inches (86.4 cm) tall shall be provided on both ends of the BULKHEAD.	
Width	4.12.7.12	The width of the walkable area of a BULKHEAD shall be greater than or equal to 3 feet and 3 inches (99.1 cm).	
Starting Platforms	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).	
Operation and Training	4.12.7.13	Operation and Training (Facility Maintenance and Operation TC / Operator Training TC)	
Caution Signs	4.12.7.14	Caution Signs (Risk Management and Safety TC)	
Spraygrounds	**4.12.8**	**Spraygrounds**	
Additional Provisions	4.12.8.1	In addition to the general swimming POOL requirements stated in this CODE, SPRAYGROUNDS shall comply with the additional provisions of this section.	

Keyword	Section	Code	Grade
Surface	4.12.8.2	SPRAYGROUNDS shall have a slip-resistant and easily cleanable surface.	
Sloped	4.12.8.3	The SPRAYGROUND shall be properly sloped so that only water from the features flows back to the reservoir.	
Adjacent Areas	4.12.8.3.1	Areas adjacent to the SPRAYGROUND shall be sloped away from the collection drains.	
Water Collection	4.12.8.3.2	The slope of the SPRAYGROUND shall be sufficient to prevent standing water from collecting on the pad.	
Drains	4.12.8.4	The size, number and locations of the SPRAYGROUND drains shall be determined and specified so as to assure water does not accumulate on the SPRAYGROUNDS.	
Gravity	4.12.8.4.1	Flow through the drains to the SPRAYGROUND TREATMENT TANK shall be under gravity.	
Direct Suction Outlets	4.12.8.4.2	Direct suction outlets from the SPRAYGROUND shall be prohibited.	
Grate Openings	4.12.8.5	Openings in the grates covering the drains shall not exceed ½ inches (1.27 cm) wide.	
Tools	4.12.8.5.1	Gratings shall not be removable without the use of tools.	
Treatment Tank	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.	
Access Hatch	4.12.8.6.1	The access hatch or lid shall be locked or require a tool to open.	
Deck Area	4.12.8.7	Eight feet (2.44 m) of deck area shall be provided between a SPRAYGROUND and any landscaped area.	

Keyword	Section	Code	Grade
Deck Surface	4.12.8.7.1	The deck shall be of a uniform, easily cleaned, impervious material and be protected from surface runoff.	
Barrier	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.	
Hazard	4.12.8.9	SPRAY FEATURES shall be designed and installed to be seen clearly, so as not to be a hazard to patrons due to water velocity from the SPRAY FEATURE discharge, or other safety hazards.	
Maximum Velocity	4.12.8.10	Maximum velocity at the orifice of the SPRAY FEATURE nozzle shall not exceed 20 feet (6.1 m) per second.	
Signage	4.12.8.11	Depth markings and warning signs are not required for SPRAYGROUNDS	
NEC Requirements	4.12.8.12	NEC swimming POOL requirements shall apply to SPRAYGROUNDS.	
Turnover Rates	4.12.8.13	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.8.14	Overflow Systems / Gutters (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.8.15	Return Inlets / Collection Vessel Agitation (Recirculation Systems & Filtration TC)	
Caution Signs	4.12.8.16	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.8.17	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Wading Pools	**4.12.9**	**Wading Pools**	
Additional Provisions	4.12.9.1	In addition to the general swimming POOL requirements stated in this CODE, WADING POOLS	

Keyword	Section	Code	Grade
		shall comply with the additional provisions of this section.	
Barrier	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.	
Shallow Water	4.12.9.2.1	WADING POOLS near other WADING POOLS are not required to be separated by a BARRIER.	
Turnover Requirements	4.12.9.3	Turnover Requirements (Recirculation Systems & Filtration TC)	
Overflow Systems	4.12.9.4	Overflow Systems / Gutters / Surface Skimmers (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.9.5	Return Inlets (Recirculation Systems & Filtration TC)	
Bather Load	4.12.9.6	Bather Load (Contamination Burden TC)	
Caution Signs	4.12.9.7	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.9.8	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	

Model Aquatic Health Code
Facility Design and Construction Module
5.0 Operation and Maintenance

Keyword	Section	Code	Grade
	5.0	**Operation and Maintenance**	
	5.1	**Plan Submittal**	
	5.2	**Materials**	
	5.3	**Equipment Standards**	
	5.4	**Pool Operation and Facility Maintenance**	
	5.5	**Pool Structure**	
	5.5.1	**Shape**	
	5.5.2	**Access Ladders**	
	5.5.3	**Color and Finish**	
	5.5.4	**Walls**	
	5.5.5	**Depth Markings**	
	5.5.6	**Pool Shell Maintenance**	
	5.5.6.1	***Cracking***	
Types of Cracks	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.	
Document Cracks	5.5.6.1.2	Surface cracks under 1/8 inch wide shall be documented and monitored for any movement or change including opening, closing, and/or lengthening.	
Sharp Edges	5.5.6.1.3	Any sharp edges shall be removed.	