Model Aquatic Health Code

Draft Facility Design and Construction Module CODE Section After the First 60-day Review that Closed on 10/14/2012

Informational Copy: NOT Currently Open for Public Comment

This version of the MAHC Facility Design and Construction Module has been modified based on the first round of public comments received. It is being re-posted so users can view how it was modified but is not currently open to public comment. 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 public comments and MAHC responses can be viewed on the web at http://www.cdc.gov/healthywater/swimming/pools/mahc/structurecontent/index.html 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.

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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 platforms, moveable floors, bulkheads, and diving boards.

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).

MAHC Strawman Table of Contents

Acronyms and Initialisms in this Module:

ADA	Americans with Disabilities Act
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
NEISS	National Electronic Injury Surveillance System
NRTL	Nationally Recognized Testing Laboratory
NSF	National Sanitation Foundation
PEL	Permissible Exposure Limit
PVC	Polyvinyl chloride
PVC-P	Plasticized polyvinyl chloride
SCBA	Self-contained breathing apparatus

Glossary Terms in this Module:

"Accessible Route" means access/egress standards as defined by the 2010 ADA Standards adopted by the Department of Justice.

"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 Facility or Venue Enclosure" means an uninterrupted barrier surrounding and securing an aquatic facility.

"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/interactive water venues.

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

"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.

"Barrier" means an obstacle preventing direct access from one point to another.

- **"Enclosure Barrier"** means a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to an aquatic facility or aquatic venue such as a swimming pool, wading pool, or spa. It is designed to resist climbing and to prevent passage through it and under it.
- **"Separation Barrier"** means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. It may be permanently installed or moveable.

"Bather" means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. The term Bather as defined, also includes staff members, and refers to those users who can be exposed to contaminated water as well as potentially contaminate the water.

"Body of Water" (per NEC, q.v.) means any aquatic venue holding standing water, whether permanent or storable.

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

"Catch Pool" means a pool or designated section of a pool located at the exit of one or more waterslide flumes. The body of water is provided for the purpose of terminating the slide action and providing a means of exit to a deck or walkway area.

"Circulation Path" means a continuous and unobstructed walkway.

"Chemical Storage Space" means an interior space of a building used for the storage of pool chemicals including, at a minimum, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.

"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 aquatic venues.

“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.

“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.

“Cracking” means any and all breaks in the structural shell of a pool vessel.

“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 aquatic facility/venue enclosure not subject to frequent splashing or constant wet foot traffic. Landscape areas are not included in this definition.

“Equipment Room” means a space intended for the operation of pool pumps, filters, heaters, and controllers. This space is not intended for the storage of hazardous pool chemicals.

“Expansion Joint” means a watertight joint provided in an aquatic venue used to relieve flexural stresses due to movement caused by thermal expansion/contraction.

“Flume” means the deep riding channels and vertical / lateral curves of a waterslide with high water flows that accommodates riders using or not using mats, tubes, rafts, and other transport vehicles.

“Flume Valleys or Dips” means a specific part of a waterslide that are designed to create an external force to propel the rider to a higher elevation prior to continuing down the flume.

“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 aquatic features and play devices.

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

“Natatorium” means a building which contains one of more aquatic venues.

“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.

“Perimeter Deck” means the hardscape surface area immediately adjacent to and within 4 feet (1.22 m) of the edge of the aquatic venue also known as the “wet deck” area.

“Plumbing Fixtures” means a receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Such receptacles or devices require a supply of water; or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a drainage system.

"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 aquatic facility 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, Title 16 Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool. They shall include children's (tot) slides, pool slides, and all other non- flume slides that are mounted on the pool deck or within the basin of a public swimming pool. Pool slides have a flow rate of less than 100 GPM, and do not exceed 10 feet in height.

"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.

"Recirculation System" means a system that contains a pump, filtration system, and chemical treatment system for the purpose of disinfecting and filtering pool water.

"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.

"Skimmer" means a device installed in the pool wall whose purpose is to remove floating debris and surface water to the filter. They shall include a weir to allow for the automatic adjustment to small changes in water level, maintaining skimming of the surface water.

"Spa" means a permanent structure intended for either warm or cold water where prolonged exposure is not intended. Spa structures are intended to be used for bathing or other recreational uses and are not usually drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation.

"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

there is no standing water on the surface. For the purposes of this standard, only those designed to recirculate water and intended for public use and recreation shall be regulated.

"Sprayground Collection Tank" means the vessel used to collect the water that has been sprayed on the spray pad and returned through the spray pad drains.

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

"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 Venue" 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" means a shallow area less than two feet in water depth that is primarily intended for lounging and sunbathing. May be referred to as a "wet deck," but should not be confused with a "Perimeter Deck" (see glossary).

"Wading Pools" means a special purpose pool intended for use by children and depth does not exceed 2 feet (0.6 m).

"Water slides" means an attraction having a configuration that enables users to slide from an elevated height to a pool. A water slide must consist of one or more FLUMES, landing areas, CATCH POOLS or slide run-outs, and facilities for the DISINFECTION and chemical treatment of the water.

"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 VENUES shall be constructed of reinforced concrete or impervious and structurally sound material(s), which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full and empty conditions.	
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 or lap POOLS may have lane markings and end wall targets installed in accordance with FINA, NCAA, USA Swimming, NFSHSA, or other recognized standard.	
Design Parameters	4.2.1.2.3	Any graphics, color, or finish incorporated into the construction of a POOL or painted on the floor or walls must not prevent the detection of a BATHER in distress, algae, sediment, or other objects in the AQUATIC VENUE.	
Permission in Writing	4.2.1.2.3.1	Permission in writing from the AHJ for the use of graphics shall be obtained before the graphics are used.	

Keyword	Section	Code	Grade
Watertight	4.2.1.3	POOLS shall be designed in such a way to maintain their ability to retain the designed amount of water.	
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 in accordance with the professional society or manufacturer's recommendations.	
Skimmer Pools	4.2.1.4.2	Skimmer POOLS shall have a 6 inch (150 mm) to 12 inch (300 mm) high waterline finish that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1.	
Gutter / Perimeter Overflow Systems	4.2.1.4.3	Gutter or perimeter overflow system shall have a minimum finish height of 2 inches (50 mm) that meets the requirements of MAHC Section 4.2.1.4 and 4.2.1.4.1.	
Dark Colors	4.2.1.4.4	If dark colors are utilized for the POOL finish, these colors shall not exceed a maximum height of 12 inches (300 mm) below the waterline.	
Slip Resistant	4.2.1.5	POOL floors in areas less than 3 feet (0.9 m) deep shall have a slip resistant finish with an acceptable coefficient of friction.	
Vinyl or PVC pools	4.2.1.6	Vinyl, PVC-P, or PVC panel and liner POOL finish systems shall be acceptable provided that the system is installed on top of approved materials and design requirements as listed within this section or approved by the AHJ.	
Damaged	4.2.1.6.1	If at any time the liner system is damaged or cut in such a way that its integrity is compromised, the POOL shall be shut down until the system is fully repaired.	
Not permitted	4.2.1.7	Wood, sand, or earth shall not be permitted as an	

Keyword	Section	Code	Grade
		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%.	
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 preventing the condensation of water on inside building surfaces under the coldest outdoor conditions based on the ASHRAE climate data for the project locale or nearest reporting city and the highest design indoor relative humidity.	
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 (11.4 $ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$) or less.	
Application	4.2.2.2.2.1	The paint or coating shall be applied according to the manufacturer's recommendations for use as a vapor retarder.	
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 0.2 U.S. perm (11.4 $ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$).	
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.	

Keyword	Section	Code	Grade
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 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 or Uniform Mechanical Code, and either the International Fire Code or the Uniform 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

Keyword	Section	Code	Grade
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
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
Natatorium Electrical Systems	***4.2.2.6***	***Natatorium Electrical Systems***	
		Refer to MAHC Section 4.6.2	
Equipment Standards	**4.3**	**Equipment Standards**	A
General	**4.3.1**	**General**	
Accredited Standards Facility	4.3.1.1	Where applicable, all equipment used or proposed for use in AQUATIC FACILITIES governed	

Keyword	Section	Code	Grade
		under the Model Aquatic Health Code shall be of a proven design and construction and shall be listed by NSF International, Underwriters Laboratories or another ANSI-accredited certification organization.	
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	Where applicable, all equipment used or proposed to use in AQUATIC FACILITIES shall be of proven design and construction and shall be listed by NSF International, Underwriters Laboratories, or another ANSI accredited certification organization, or EPA registration where applicable.	
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.	

Keyword	Section	Code	Grade
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.	
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 (0.3 m) 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 (0.3 m) vertical to 3 feet (0.9 m) horizontal, except that POOLS designed and used for competitive diving shall be designed to meet the standards of the sanctioning organization (such as NFSHSA, NCAA, USA Diving or FINA).	B
Drain	4.5.2.4	POOLS shall be designed so that they drain without leaving puddles or trapped standing water.	B
Structural Stability	**4.5.3**	**Structural Stability**	
Withstand Loads	4.5.3.1	POOLS shall be designed to withstand the reasonably anticipated 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 shall be designed with a winterizing strategy when in an area subject to freeze/thaw cycles.	A
Pool access / egress	**4.5.4**	**Pool Access / Egress**	
Accessibility	4.5.4.1	Each POOL shall have a minimum of two means of	

Keyword	Section	Code	Grade
		access and egress, located so as to serve both ends of the pool, and comply with the requirements of ADA.	
Shallow	4.5.4.1.1	At least one access/egress point shall be at the shallowest portion of the aquatic venue.	
Deep	4.5.4.1.2	At least one access / egress point shall be at the deepest portion of the aquatic venue.	
Acceptable means	4.5.4.2	Acceptable means of access / egress shall include stairs / hand rails, grab rails / RECESSED STEPS, ladders, ramps, swimouts, and zero-depth entries.	
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 leading horizontal and vertical edges of stair treads shall be outlined with slip-resistant contrasting tile or other permanent marking of not less than 1 inch (25 mm) and not greater than 2 inches (50 mm).	
Deep Water	4.5.5.3	Where stairs are provided in POOL water depths greater than 4.0 feet (1.2 m), the lowest tread shall be not less than 4.0 feet (1.2 m) below the deck elevation.	
Rectangular Stairs	4.5.5.4	Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (0.3 m), and a minimum unobstructed tread width of 24 (0.6 m) inches.	
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.	

Keyword	Section	Code	Grade

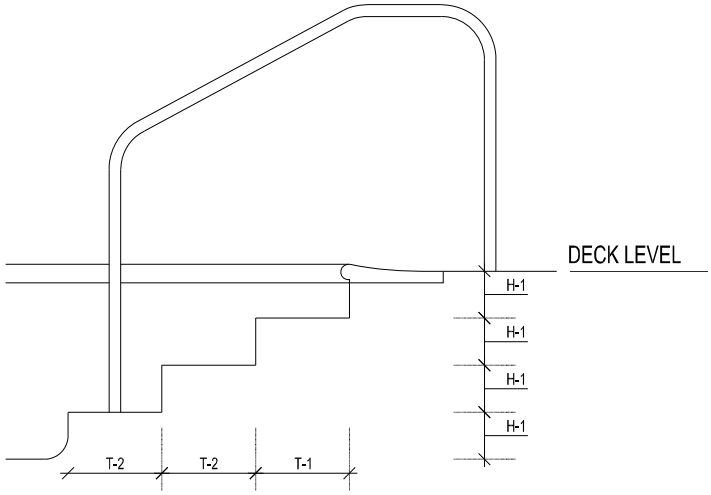
Stair Tread Table 4.5.5.6

Table 4.5.5.6: Required Dimensions for Stair Treads and Risers

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”

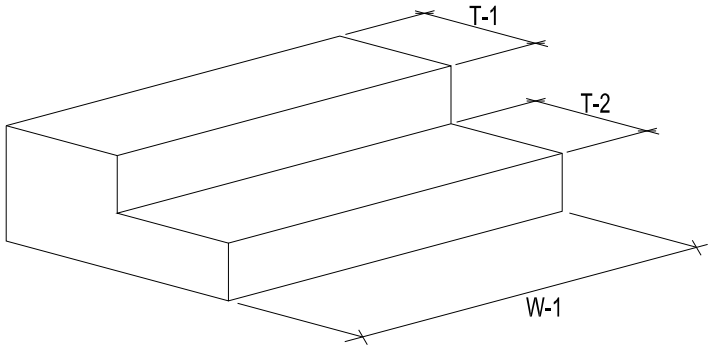
Stair Tread and Risers Figure 4.5.5.6.1

Figure 4.5.5.6.1: Stair Treads and Risers



Stair Treads Figure 4.5.5.6.2

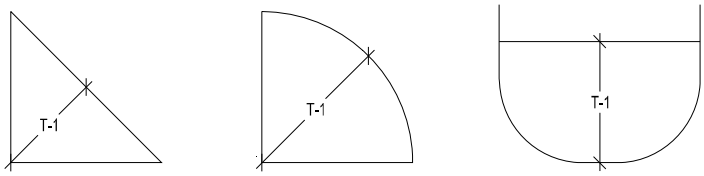
Figure 4.5.5.6.2: Stair Treads



Unique Stair Treads 4.5.5.6.3

Figure 4.5.5.6.3: Unique Stair Treads

Keyword	Section	Code	Grade

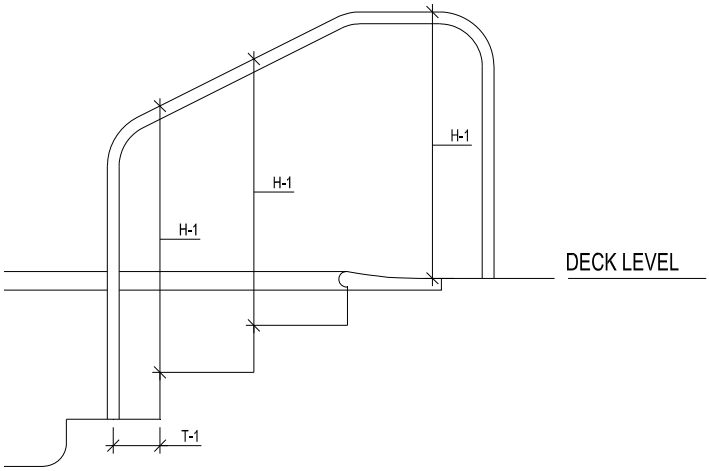


Stair Risers	4.5.5.7	Stair risers shall have a minimum uniform height of 6 inches (0.15 m) and a maximum height of 12 inches (0.3 m), with a tolerance of 1/2 inches (13 mm) between adjacent risers. *The bottom riser may vary due to potential cross slopes with the pool floor; however, the bottom step riser may not exceed the maximum allowable height required by this section.*
Top Surface	4.5.5.8	The top surface of the uppermost stair tread shall be located not more than 12 inches (0.3 mm) 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.
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 12 feet (3.65 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

Keyword	Section	Code	Grade
		requirements of MAHC 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.	
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 MAHC Table 4.5.6.7 and MAHC 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**

Keyword	Section	Code	Grade
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.	
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 (0.45 m) and not more than 24 inches (0.6 m).	
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 (0.7 m).	
50 pounds	4.5.7.6	Grab rails shall be designed to resist a load of 50 pounds (22.7 kg) per linear foot applied in any direction at the top.	
Transfer load	4.5.7.7	Grab rails shall be designed to transfer this load through the supports to the POOL or deck structure.	
200 pounds	4.5.7.8	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	4.5.7.9	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,	

Keyword	Section	Code	Grade

and Figure 4.5.8.5.2.

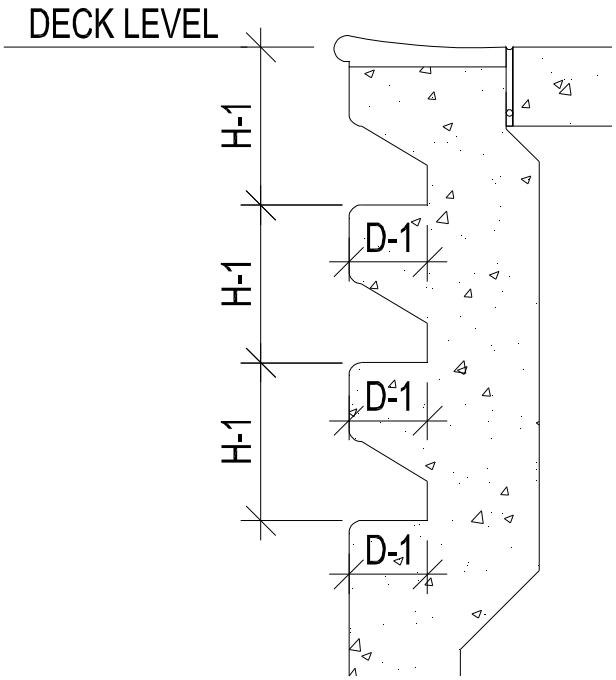
Recessed Step Table 4.5.8.5

Table 4.5.8.5: Recessed Step Dimensions

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

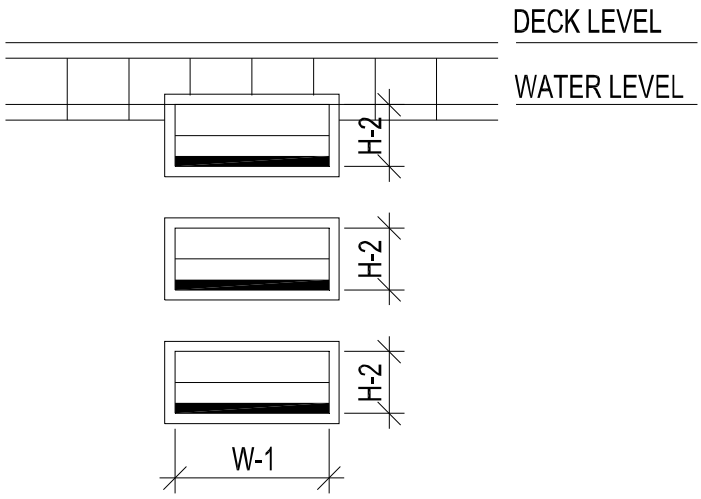
Figure 4.5.8.5.1: Recessed Step Dimensions



Recessed Step Figure 4.5.8.5.2

Figure 4.5.8.5.2: Recessed Step Dimensions

Keyword	Section	Code	Grade



Uniformly Spaced	4.5.8.6	RECESSED STEPS shall be uniformly spaced not less than 6 inches (0.15 m) and not more than 12 inches (0.3 m) vertically along the POOL wall.
Uppermost Step	4.5.8.7	The top surface of the uppermost recessed step shall be located not more than 12 inches (0.3 m) below the POOL coping or POOL DECK.
Perimeter Gutter Systems	4.5.8.8	For POOLS with perimeter gutter systems, the gutter may serve as a step, provided that the gutter is provided with a grating or cover and conforms to all construction and dimensional requirements herein specified.
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.

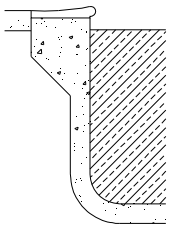
Keyword	Section	Code	Grade
Clear Space	4.5.9.2.2	The horizontal clear space between hand rails shall be not less than 17 inches (0.43 m) and not more than 24 inches (0.6 m).	
Upper Railing	4.5.9.2.3	The upper railing surface of hand rails shall extend above the POOL coping or POOL DECK a minimum of 28 inches (0.7 m).	
Pool Wall	4.5.9.2.4	The clear space between hand rails and the POOL wall shall be not less than 3 inches (76 mm) and not more than 6 inches (152 mm).	
Resist Load	4.5.9.2.5	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	4.5.9.2.6	Ladders shall be designed to transfer this load through the supports to the POOL or deck structure.	
Concentrated Load	4.5.9.2.7	Ladders shall also be designed to resist a single concentrated load of 200 pounds (90.7 kg) applied in any direction along the top.	
Support	4.5.9.2.8	Ladders shall have attachment devices and supporting structure to transfer this load to the POOL or deck structure.	
Ladder Treads	***4.5.9.3***	***Ladder Treads***	
Slip Resistant	4.5.9.3.1	Ladder treads shall be slip-resistant.	
Tread Depth	4.5.9.3.2	Ladder treads shall have a minimum horizontal tread depth of 1.5 inches (38 mm) and the distance between the horizontal tread and the pool wall shall not be greater than 4 inches (100 mm).	
Uniformly Spaced	4.5.9.3.3	Ladder treads shall be uniformly spaced not less than 7 inches (0.18 m) and not more than 12 inches (0.3 m) 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 (0.3 m) below	

Keyword	Section	Code	Grade
		the POOL coping, gutter, or POOL DECK.	
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, consistent with the requirements of 4.5.2.2.	
Slope Changes	4.5.10.2.1	Changes in floor slope shall be permitted.	
Trench Drains	4.5.10.3	Trench drains shall be used along zero depth entries at the waterline to facilitate surface skimming. The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.	
Disabled Access	**4.5.11**	**Disabled Access**	
Conform to ADA Standards	4.5.11.1	Access for disabled persons shall conform to ADA Standards as approved by the Department of Justice.	
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 6.5 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, 4) Pools shallower than 24 inches, or 5) Other approved designs.	

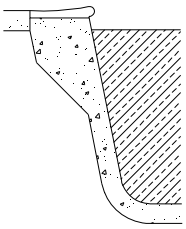
Keyword	Section	Code	Grade
Darker colors	4.5.12.1.3	*Darker colors or designs such as rock formations may be permitted by the AHJ as long as the above criteria are met.*	
Pool Walls	**4.5.13**	**Pool Walls**	A
Plumb	4.5.13.1	POOL walls shall be plumb within a +/- 3 degree tolerance to a water depth of 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 and slopes	4.5.13.2	All structural support ledges and slopes of the wall shall fall entirely within a plane slope from the water line at not greater than a +/- 3 degree tolerance. A contrasting color shall be provided on the edges of any support ledge to draw attention to the ledge for bather safety.	
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, peninsulas, wing walls, underwater lights, safety ropes, waterslides, play features, other approved pool amenities, UNDERWATER BENCHES, and UNDERWATER LEDGES as described in this section. Refer to Figure 4.5.13.5 below.	
Pool Walls Figure	4.5.13.5	***Figure 4.5.13.5: Pool Walls***	

Keyword	Section	Code	Grade

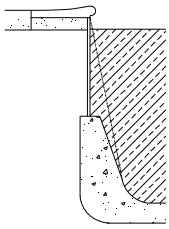
(A) Plumb within a +/- 3 degree tolerance.



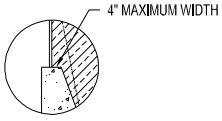
(B) Uniform slope not greater than 11 degrees or 1 in 5 from plumb.



(C) Structural support ledge all within 1 in 5 slope.



(D) Underwater Ledge for support of upper wall.



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, horizontal bars, recessed handholds, cantilevered decking) around the perimeter of the pool where the water depth at the wall exceeds 24 inches (0.6 m) installed not greater than 12 inches (305 mm) above, or 3 inches (75 mm) below static water level.	
Horizontal Recesses	4.5.14.2	Horizontal recesses may be used for hand holds provided they are a minimum of 24 inches (0.6 m) long, a minimum of 4 inches (100 mm) high and between 2 inches (50 mm) and 3 inches (75 mm) deep.	
Drain	4.5.14.2.1	Horizontal recesses shall drain into the pool.	
Consecutive Recesses	4.5.14.2.2	Horizontal recesses need not be continuous but consecutive recesses shall be separated by no more than 12 inches (0.3 m) of wall.	
Decking	4.5.14.3	Where perimeter gutter systems are not	

Keyword	Section	Code	Grade
		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	4.5.14.4	The overhang for coping or cantilevered decking shall not be greater than 2 inches (50 mm) from the vertical plane of the pool wall, nor less than 1 inch (25 mm).	
Coping Thickness	4.5.14.5	The overhang for coping or cantilevered decking shall not exceed 2.5 inches (64 mm) in thickness for the last 2 inches (50 mm) 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.	
Length	4.5.15.2	The length of an infinity edge shall be no more than 30 feet long when in water depths greater than 5 feet.	
Shallow Water	4.5.15.2.1	No maximum distance is enforced for the length of infinity edges in shallow water 5 feet and less.	
Handholds	4.5.15.3	Handholds conforming to the requirements of Section 4.5.14 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 reinforced concrete or other impervious and structurally rigid material(s), and designed to withstand the loads imposed by POOL water, POOL patrons, and adjacent soils or structures.	
Overflow Basins	4.5.15.5	Troughs, basins, or capture drains designed to receive the overflow from INFINITY EDGES shall be watertight, free from STRUCTURAL CRACKS.	

Keyword	Section	Code	Grade
Finish	4.5.15.5.1	Troughs, basins, or capture drains designed to receive the overflow from INFINITY EDGES shall have a non-toxic smooth and slip resistant finish.	
Maximum Height	4.5.15.6	The maximum height of the wall outside of the infinity edge shall not exceed 30 inches to the adjacent grade and capture drain.	
Underwater Benches	**4.5.16**	**Underwater Benches**	B
Slip Resistant	4.5.16.1	Where UNDERWATER BENCHES are provided, they shall be constructed with slip-resistant materials.	
Outlined Edges	4.5.16.2	The leading horizontal and vertical edges of UNDERWATER BENCHES shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than 3/4 inch (19.05 mm) and not greater than 2 inches (50 mm).	
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 (1.5 m).	
Maximum seat depth	4.5.16.4	The maximum submerged depth of any seat or sitting bench shall be 20 inches (0.5 m) 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.	

Keyword	Section	Code	Grade
Toe Ledge	4.5.17.3.1	Toe ledges must start no earlier than 4 lineal feet to the deep side of the 5 foot (1.52 m) slope break.	
Below Water Level	4.5.17.3.2	Underwater toe ledges must be at least 4 feet below static water level.	
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 (25 mm) and not greater than 2 inches (50 mm).	
Visible	4.5.17.5.1	If they project past the plane of the pool wall, 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 uniform horizontal tread depth of 4 inches (100 mm). 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 water shallower than 5 feet (1.5 m).	
Nosing	4.5.18.2	UNDERWATER SHELVES shall have a slip-resistant, color contrasting nosing at the leading horizontal and vertical edges on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater.	
Maximum depth	4.5.18.3	UNDERWATER SHELVES shall have a maximum depth of 24 inches (0.6 m).	
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	

Keyword	Section	Code	Grade
		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 18 inches (0.45 m) 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.	
25' Intervals	4.5.19.1.6	Depth markers shall be installed at not more than 25 foot (7.6 m) intervals around the POOL perimeter edge and according to the requirements of this section.	
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. Any depth markings that are illegible are required to be replaced.	
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 (100 mm) of a color contrasting with background.	

Keyword	Section	Code	Grade
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 3 inches (75 mm), as measured from the POOL floor 3 feet (0.9 m) out from the POOL wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).	
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 “NO DIVING” warning signs along with the universal international symbol for “NO DIVING” spaced at not more than 25 foot (7.62 m) intervals around the pool perimeter edge. Reference: *NEMA Z535*	
Durable	4.5.19.4.2	“NO DIVING” MARKERS shall be constructed of a durable material resistant to local weather 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 (100 mm) in height.	
Slope break	***4.5.19.5***	***Depth Marking At Break in Floor Slope***	
Over 5 Feet	4.5.19.5.1	For POOLS deeper than 5 feet (1.5 m), a line of contrasting color, not less than 2 inches (50 mm) and not more than 6 inches (150 mm) in width, shall be clearly and permanently installed on the POOL floor at the shallow side of the break in the	

Keyword	Section	Code	Grade
		floor slope, and extend up the POOL walls to the waterline.	
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.	
Safety Rope	4.5.19.5.3	One foot to the shallow water side of the break in floor slope and contrasting band, a safety float rope shall extend across the pool surface.	
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 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	

Keyword	Section	Code	Grade
		shall meet the following minimum maintained light levels*: 1) Indoor Water Surface - 30 horizontal footcandles (320 lux) 2) Outdoor Water Surface - 10 horizontal footcandles (100 lux) 3) POOL DECK - 10 horizontal footcandles (100 lux) *(*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 underwater lights, in conjunction with overhead or equivalent deck lighting, 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 maintained POOL surface lighting levels are a minimum of 15 horizontal footcandles (160 lux) 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	

Keyword	Section	Code	Grade
		with emergency egress lighting in compliance with the applicable Building Code,	
Footcandles	4.6.1.6.2	In no case shall the path of egress be illuminated to less than a maintained value of 0.6 footcandles (6 lux).	
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 or equivalent deck lighting shall be arranged to inhibit 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 National Electric Code (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, lighting and SAFETY devices.	A
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	A/B

Keyword	Section	Code	Grade
		function of the room, such as pumps, vessels, controls, lighting and SAFETY devices.	
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**	
High Temperature	4.6.3.1	When designing POOL heating equipment, measures shall be taken to prevent patron exposure to water temperatures in excess of 104°F (40°C).	A
Low Temperature	4.6.3.1.1	When designing POOL heating equipment, measures shall be taken to prevent patron exposure to water temperatures in excess of such lower maximum temperature as shall be recommended by the manufacturer for their equipment.	
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 MAHC Section 4.9.1 shall apply.	A
Exception	4.6.3.5	Heaters listed and labeled for the atmosphere	

Keyword	Section	Code	Grade
		shall 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.	
Alternative	4.6.4.1.1	Alternate locations or the use of bottled water shall be evaluated by the AHJ.	
Common Use Area	4.6.4.1.2	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.	
Not Located	4.6.4.2.1	The drinking fountain 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	

Keyword	Section	Code	Grade
		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 AQUATIC FACILITY manager.	
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 provide egress width for the spectators in addition to the width required by MAHC Section 4.8.1.5.	B
Additional Width	4.6.7.2.1	The additional width shall be based on the egress requirements in the applicable building code based on the maximum occupant load served with a minimum width of 4 feet (1.2 m) and have either of the following:	
Barrier	4.6.7.2.2	A BARRIER as defined in MAHC Section 4.8.6.1 located on the deck to separate the deck used by spectators from the PERIMETER DECK used by BATHERS.	
Openings	4.6.7.2.2.1	The BARRIER may have one or more openings directly into the BATHER areas.	
Demarcation Line	4.6.7.2.3	A demarcation line on the deck that shows the separation between the deck used by spectators and the PERIMETER DECK used by BATHERS.	

Keyword	Section	Code	Grade
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 the International Code Council's most recent version of the 300 Standard which has been approved for reference or another applicable CODE.	
	4.7	**Recirculation and Water Treatment**	
Decks and Equipment	**4.8**	**Decks and Equipment**	
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 (5 mm), nor a maximum difference in vertical elevation of ¼ inches (6.35 mm).	
Vertical Elevation	4.8.1.1.2.1	Any change in vertical elevation is considered an edge condition.	
Fillers	4.8.1.1.2.2	Open joints or gaps larger than 3/16" (5 mm) wide or with vertical elevations exceeding 1/4" (6.5 mm) shall be rectified using appropriate fillers.	
Sealants	4.8.1.1.2.3	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 MAHC Section 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.	

Keyword	Section	Code	Grade
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 and in accordance with local building codes.	
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.	
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 (5 mm) in continuous width.	
Vertical Differential	4.8.1.2.3.2	The maximum allowable vertical differential across a joint shall be 1/4 inches (6.5 mm).	
Drains	***4.8.1.3***	***Drains***	A
		Also refer to MAHC Section 4.11.3.	
Slope	4.8.1.3.1	Decks shall be sloped away from the pool and in accordance with Table 4.8.1.2 below:	

Keyword	Section	Code	Grade

Table 4.8.1.2: Minimum slopes for drainage

SURFACE	MINIMUM SLOPE*
Smooth finishes; such as tile, hand-finished concrete & lightly-broomed concrete	1/8 inch per foot
Moderately textured finishes; such as exposed aggregate or medium-broomed concrete	1/4 inch per foot
Heavily textured finishes, such as brick	3/8 inch per foot (where permitted)

**Note: Accessibility: Where deck areas serve as accessible routes or portions thereof, slopes in any direction shall not exceed ADA requirements.*

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.
Placement	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 except in conjunction with a backflow preventer or other approved device as allowed by the AHJ.
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 receptacles shall consist of non-CORROSIVE

Keyword	Section	Code	Grade
		or corrosion-resistant materials.	
Drain Covers	4.8.1.3.5	Drain covers shall be suitable for bare foot traffic with openings no greater than one-half inch and easily removable with a simple tool to facilitate regular cleaning.	
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, and easily cleaned, 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 shall be prohibited materials for PERIMETER DECK and POOL DECK.	
Wood	4.8.1.4.4	Wood shall be a prohibited material for use as PERIMETER DECK.	
Dry Deck	4.8.1.4.5	DRY DECK shall be easily maintained and not create a public health hazard.	
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 MAHC Section 4.8.1.5.	
Size/ Width	***4.8.1.5***	***Size / Width***	B
Perimeter Deck	*4.8.1.5.1*	*Perimeter Deck*	
Width	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	

Keyword	Section	Code	Grade
		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, such as elevated beam or parapet, raised transfer walls, or as permitted by other sections of this CODE.	
Perimeter Decking	4.8.1.5.1.2	PERIMETER DECKS shall be provided around 100% of the POOL perimeter except where special conditions exist as permitted by other sections of this CODE.	
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 1) diving equipment, 2) special feature stairways (such as a WATERSLIDE), 3) lifeguard stands, 4) diving boards, 5) similar deck equipment, and 6) structural columns.	
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	

Keyword	Section	Code	Grade
		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 ADA requirements for an ACCESSIBLE ROUTE.	
Equipment and Furniture	4.8.1.5.3.2	Deck furniture shall not intrude upon the circulation path.	
Connect	4.8.1.5.3.3	Circulation path(s) shall connect all site amenities, entrances and exits as required by ADA.	
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 (0.45 m) 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 (0.45 m) wide but less than 48 inches (1.2 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.	
Impractical	4.8.1.6.2.1	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.	

Keyword	Section	Code	Grade
Pool Perimeter	4.8.1.6.3	WING WALLS and PENINSULAS shall be considered part of the pool.	
Calculating	4.8.1.6.3.1	Since they don't contribute to the overall POOL area, they shall 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.	
Crowned	4.8.1.6.5.1	The tops shall 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 MAHC Section 4.5.19.	
Islands	***4.8.1.7***	***Islands***	B
Not more than 18 Inches	4.8.1.7.1	An ISLAND not more than 18 inches (0.45 m) in width shall be designed to discourage a person from walking on the ISLAND by not providing stairs, ladders, or bridges to the island.	
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 (0.45 m) to 48 inches (1.2 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 MAHC Section 4.5.19 and visible from all sides.	
Horizontal Depth Markers	4.8.1.7.5	Horizontal depth markings and warning signs shall also be required per MAHC Section 4.5.19 if the ISLAND is designed for bather use.	
Bridge or Stairway	4.8.1.7.6	An ISLAND designed for BATHER traffic shall be	

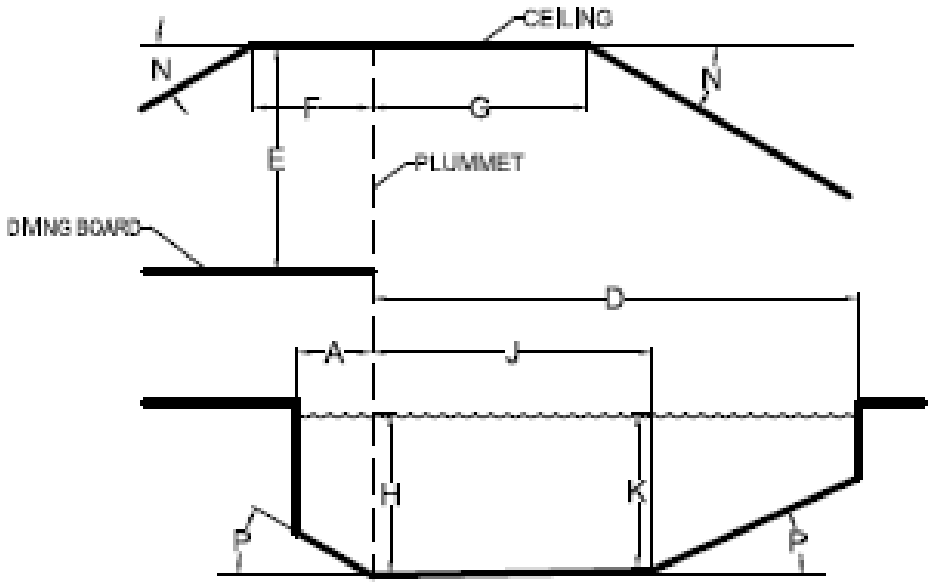
Keyword	Section	Code	Grade
		accessible by bridge, ramp, ladder, or stairway from the pool.	
Minimum Clearance	4.8.1.7.7	All bridges spanning a POOL or any other structures not intended for interactive play shall have a minimum clearance of 7 feet (2.13 m) from the bottom of the POOL to any structure overhead.	
No Guard Rails	4.8.1.7.8	Any bridge shall have a minimum 42” high barrier on both sides.	
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
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 hose of adequate length.	
Backflow Prevention	4.8.1.9.2	All hose bibbs 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	

Keyword	Section	Code	Grade
		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 MAHC Table 4.8.2.2.4.1: Diving Platform Areas, MAHC Figure 4.8.2.2.4.2: Diving Platform Longitudinal Section, and MAHC Figure 4.8.2.2.4.3: Diving Platform Cross Section.	
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 (0.53 m) measured from the deck to the top of the butt end of the board or platform shall have steps or a ladder and handrails.	
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 (0.76 m) above the board, extending at least to the edge of the water along with intermediate rails.	
Tall Platforms	4.8.2.2.4	Diving stands or platforms that are 2 meters (6.56 ft) or higher must have guard rails with the top rail at least 36 inches (0.91 m) above the board and a second rail approximately half the distance from the platform to the upper rail.	
Table	4.8.2.2.4.1	***Table 4.8.2.2.4.1: Diving Platform Areas***	

Keyword Section Code Grade

PUBLIC SWIMMING POOLS Table 1 Diving Areas					
	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"
Letters below refer to Figure 1	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

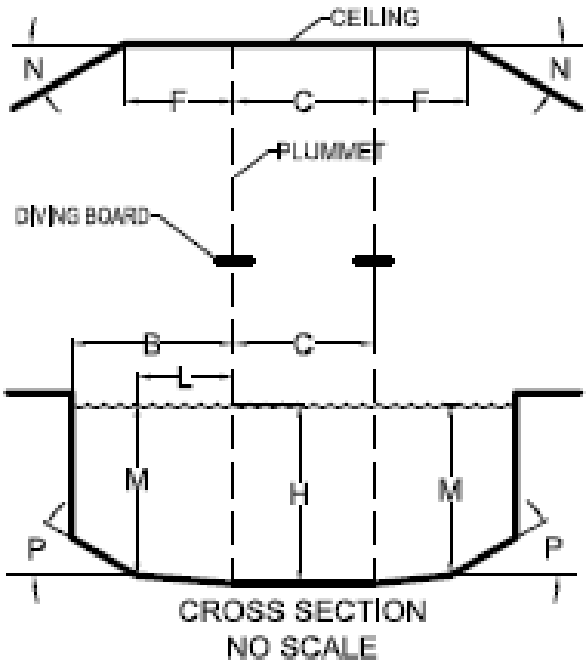
Figure 4.8.2.2.4.2 ***Figure 4.8.2.2.4.2: Diving Platform Longitudinal Section***



LONGITUDINAL SECTION
NO SCALE

Figure 4.8.2.2.4.3 ***Figure 4.8.2.2.4.3: Diving Platform Cross Section***

Keyword Section Code Grade



Starting Platforms **4.8.3** **Starting Platforms** A

Conform to Standard Codes 4.8.3.1 Starting platforms shall be installed and conform to applicable safety standards established by

1) Federation Internationale de Natation (FINA),
2) U.S.A. Swimming,
3) National Collegiate Athletic Association (NCAA),
4) National Federation of State High Schools Associations (NFSHSA),
5) YMCA, or
6) other sanctioning body.

Competitive Training and Competition 4.8.3.2 Starting platforms shall only be used for competitive swimming competition and training.

Supervision 4.8.3.2.1 Starting platforms shall only be used under the direct supervision of a coach or instructor.

Removed or Restricted 4.8.3.2.2 Starting platforms shall be removed if possible or prohibited from use during all recreational or non-

Keyword	Section	Code	Grade
		competitive swimming activity.	
Minimum Water Depth	4.8.3.3	Starting platforms shall be installed in a minimum water depth of 4 feet (1.22 m).	
Leading Edge	4.8.3.4	The leading edge of starting platforms shall have a maximum height of 30 inches (0.76 m) above the 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 installed and secured per manufacturer's recommendations at all times when in use.	
	4.8.4	**Lifeguard Related**	
Barriers and Enclosures	**4.8.5**	**Barriers and Enclosures**	
General	***4.8.5.1***	***General Requirements***	
Enclosures	4.8.5.1.1	All AQUATIC FACILITIES, CHEMICAL STORAGE SPACES, and POOL mechanical spaces shall have secure perimeter ENCLOSURES preventing unauthorized entry.	
Barriers	4.8.5.1.2	A secure perimeter may consist of any combination of building envelopes, site walls, or fencing as provided for in this section.	
Patron Accessibility	4.8.5.1.3	BARRIERS shall be provided between CHEMICAL STORAGE/ POOL mechanical spaces and areas accessible to the public, in accordance with local building CODEs.	
Construction Requirements	***4.8.5.2***	***Construction Requirements***	A
Local Code	4.8.5.2.1	BARRIERS shall be constructed in accordance with the CODE of the AHJ.	
No Enticements	4.8.5.2.2	ENCLOSURES shall discourage climbing by not allowing nearby structures to simplify climbing	

Keyword	Section	Code	Grade
		over it, such as: light poles, site furnishings, overhanging tree limbs or other obvious footholds or handholds.	
Discourage Climbing	4.8.5.2.3	ENCLOSURES shall be constructed in such a way as to discourage climbing.	
Horizontal Mid-Rails	4.8.5.2.3.1	Horizontal mid-rails shall not be permitted.	
Chain Link Fencing	4.8.5.2.3.2	Chain-link fencing constructed with standard 2 inch (50 mm) mesh is considered climbable and shall therefore not be permitted.	
Mesh Fencing	4.8.5.2.3.3	Chain-link fencing constructed of 1 3/4 inches (44 mm) mesh shall be permitted.	
Building Emergency Exit	4.8.5.2.4	AQUATIC VENUE ENCLOSURES shall not block or encumber a required emergency egress path from other structures.	
Pathways	4.8.5.2.4.1	Where a required emergency egress path enters an area occupied by an outdoor POOL, emergency exit pathways from the building(s) shall continue on deck of least equally unencumbered width, and continue to the enclosure and through gates.	
Exit Pathways	4.8.5.2.4.2	Exit pathways shall be separated from POOLS not in operation.	
Enclosure Requirements	4.8.5.2.4.3	Such separation shall meet the requirements of an ENCLOSURE.	
Seasonal Separation	4.8.5.2.4.4	Seasonal separation may be employed at seasonally operated pools, subject to the same physical requirements of permanent ENCLOSURES.	
Exception	4.8.5.2.4.4.1	**Exception:** Unguarded Pools are not required to provide separated paths of egress, but must maintain unencumbered exit paths to and through the enclosure.	
Upper Level Balconies	4.8.5.2.5	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	

Keyword	Section	Code	Grade
		in height to that of the required POOL ENCLOSURE.	
Exception	4.8.5.2.5.1	**Exception**: For Spectator areas, refer to MAHC Section 4.6.10 for further information.	
Windows	4.8.5.2.6	Windows on a building that forms part of a POOL ENCLOSURE shall have a maximum opening width not to exceed 4 inches.	
Opened	4.8.5.2.6.1	If they are designed to be opened, they shall also be provided with a non-removable screen.	
Height	4.8.5.2.7	For the purposes of this section, height is measured from finished grade to the top of the BARRIER on the side outside of the AQUATIC VENUE ENCLOSURE.	
Change in Grade	4.8.5.2.7.1	Where a change in grade occurs at a BARRIER, height is measured from the uppermost grade to the top of the BARRIER.	
Fencing Requirements	4.8.5.2.7.2	Enclosures shall not be less than 6 feet (1.83 m) in height.	
Other Barriers	4.8.5.2.7.3	All Other Barriers (Not Serving as Enclosures): Except where otherwise noted, all other barriers shall not be less than 42 inches in height.	
Gates / Doors	***4.8.5.3***	***Gates and Doors***	A
Self-Closing and Latching	4.8.5.3.1	All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position.	
Locked	4.8.5.3.1.1	All gates or doors shall be capable of being locked from the exterior.	
Emergency Egress	4.8.5.3.1.2	They shall be designed in such a way that they do not prevent egress in the event of an emergency.	
Exception	4.8.5.3.1.3	Gates or doors used solely for after-hours maintenance shall remain locked at all times not in use by staff.	

Keyword	Section	Code	Grade
Propping Open	4.8.5.3.1.4	Propping open perimeter enclosure gates or doors shall be prohibited.	
Gates	4.8.5.3.2	Gates shall be at least equal in height at top and bottom to the barrier of which they are a component.	
Turnstiles	4.8.5.3.3	Turnstiles shall not form a part of a pool enclosure.	
Exit Gates or Doors	4.8.5.3.4	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	4.8.5.3.5	Exit doors or gates shall swing away from the pool enclosure except where emergency egress codes require them to swing into the pool enclosure.	
Absence of Local Building Codes	4.8.5.3.6	Where local building codes do not otherwise govern, at least one exit gate or door shall be required for each logical pool area including individual pools or grade levels or both.	
Unguarded Pools	4.8.5.3.7	For Unguarded pools, self-latching mechanisms must be located not less than 3 ½ feet above finished grade.	
Operable by Children	4.8.5.3.7.1	For Unguarded pools, self-latching mechanisms shall not be operable by small children on the outside of the pool enclosure.	
Other Class Pools	4.8.5.3.8	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	***4.8.5.4***	***Indoor Pools***	A
Enclosure	4.8.5.4.1	Building walls enclosing an indoor POOL shall serve as the POOL ENCLOSURE.	
Local Building	4.8.5.4.1.1	Local building CODES for construction	

Keyword	Section	Code	Grade
Code		requirements in indoor applications shall have jurisdiction.	
Further Information	4.8.5.4.1.2	*For further information regarding indoor CHEMICAL STORAGE rooms and POOL mechanical rooms, refer to MAHC Section 4.9.*	
Securable	4.8.5.4.2	Indoor POOLS shall be securable from unauthorized entry from other building areas as well as the exterior.	
Indoor and Outdoor Pools	4.8.5.4.3	Where separate indoor and outdoor POOLS are located on the same site, a POOL ENCLOSURE shall be provided between them.	
Year-Round Operation	4.8.5.4.3.1	**Exception:** Where all POOLS are operated continuously 12 months a year on the same schedule.	
Wall Separating	4.8.5.4.4	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	***4.8.5.5***	***Multiple Pools***	B
One Enclosure	4.8.5.5.1	Except as otherwise required in this CODE, one ENCLOSURE may surround multiple POOLS at one facility.	
Wading Pools	4.8.5.5.2	WADING POOLS do not need to be separated from other wading pools by a BARRIER. Reference MAHC Section 4.12.9.	
Pool Cleaning Systems	**4.8.6**	**Pool Cleaning Systems**	A
No Hazard	4.8.6.1	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	4.8.6.2	If there are multiple POOLS at one AQUATIC FACILITY, that AQUATIC FACILITY may use common cleaning equipment.	

Keyword	Section	Code	Grade
Integral Vacuum Systems	4.8.6.3	Use of INTEGRAL VACUUM SYSTEMS shall be prohibited.	
GFCI Power	4.8.6.4	Where PORTABLE VACUUM cleaning equipment is used, they shall be powered by circuits having GROUND-FAULT CIRCUIT INTERRUPTERS.	
Separation of Receptacles	4.8.6.5	Separation between receptacles shall be spaced so that all areas of the pool can be cleaned using a portable vacuum without the use of extension cords.	
Low Voltage	4.8.6.6	Any ROBOTIC CLEANERS shall utilize low voltage for all components that are immersed in the POOL water.	
GFCI Connection	4.8.6.7	Any ROBOTIC CLEANER power supply shall be connected to a circuit equipped with a ground fault interrupter, and should not be operated using an extension cord.	
Power Cord	4.8.6.8	The power supply power cord length shall be shorter than the distance between the receptacle and the edge of the closest 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 suitable material having a smooth slip resistant finish and shall have positive drainage, including a sump pump if necessary.	A
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	A

Keyword	Section	Code	Grade
		equipment.	
Hose Bibb	4.9.1.1.4	At least one (1) hose bibb with backflow preventer shall be located in the equipment room.	A
Installed	4.9.1.1.4.1	Hose bibbs shall be installed in accordance with the International Plumbing Code or accessible within an adequate distance of the equipment room so that a hose can service the entire equipment room.	
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 (320 lux) 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 AHJ.	A
Conform to NRTL	4.9.1.3.2	Equipment, components, and their application and installation shall conform to the National Recognized Testing Laboratories (NRTL) listing.	A
Ventilation	***4.9.1.4***	***Ventilation***	
Code Conformance	4.9.1.4.1	Equipment room ventilation shall address 1) COMBUSTION requirements, 2) heat dissipation from equipment, 3) humidity from surge or balance tanks, and 4) air quality.	A

Keyword	Section	Code	Grade
Markings	***4.9.1.5***	***Markings***	
Piping Identified	4.9.1.5.1	All piping in the equipment room shall be permanently identified by AQUATIC FEATURE/VENUE and use.	A
Provided	4.9.1.5.1.1	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.	
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 shall be provided.	A
Combustion Equipment	***4.9.1.6***	***Equipment Rooms Containing Combustion Equipment***	
Separation	***4.9.1.7***	***Separation from Chemical-Storage Spaces***	
Equipment	*4.9.1.7.1*	*Equipment*	
Contaminated Air	4.9.1.7.1.1	Combustion equipment, air-handling equipment, and electrical equipment shall not be exposed to air contaminated with corrosive chemical fumes or vapors.	A

Keyword	Section	Code	Grade
Equipment Restrictions	4.9.1.7.1.2	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	4.9.1.7.1.2.1	Exception 1: Equipment listed and labeled for use in that atmosphere shall be acceptable, where approved by the AHJ.	
Isolated	4.9.1.7.1.3	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	*4.9.1.7.2*	*Doors and Openings*	
Between	4.9.1.7.2.1	A door or doors shall not be installed in a wall between such equipment rooms and an interior chemical-storage space.	B
No Openings	4.9.1.7.2.2	There shall be no ducts, grilles, pass-throughs, or other openings connecting such equipment rooms to chemical-storage spaces, except as permitted by the International Fire Code. .	A
Natatorium Air	4.9.1.7.2.3	Spaces containing combustion equipment, air-handling equipment, and/or electrical equipment and spaces sharing air distribution with spaces containing such equipment shall be isolated from natatorium air.	A
Listed Equipment	4.9.1.7.2.3.1	Exception 1: Equipment listed for the atmosphere shall be acceptable.	
No Openings	4.9.1.7.2.4	There shall be no ducts, grilles, pass-throughs, or other openings connecting such spaces to a natatorium.	A
Air Handlers	4.9.1.7.2.4.1	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	

Keyword	Section	Code	Grade
		the natatorium.	
HVAC Equipment	4.9.1.7.2.4.2	Exception 1: HVAC equipment which is rated for natatorium atmosphere and which serves only that natatorium shall be acceptable.	
Openings / Gaps	4.9.1.7.2.5	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	*4.9.1.7.3*	*Natatorium Access*	B
Floor Slope	4.9.1.7.3.1	Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room 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	4.9.1.7.3.1.1	Exception 1. This requirement may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor.	
Dike	4.9.1.7.3.1.2	Exception 2. This requirement may be met by a continuous dike not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor.	
Floor Drains	4.9.1.7.3.1.3	Note*: Equipment-room floor drains may be required.*	
Automatic Closer	4.9.1.7.3.2	Such door or doors shall be equipped with an automatic closer.	
Maintained to Close Reliably	4.9.1.7.3.2.1	The door, frame, and automatic closer shall be installed and maintained so as to ensure that the door closes completely and latches without human assistance.	
Automatic Lock	4.9.1.7.3.3	Such door or doors shall be equipped with an automatic lock.	

Keyword	Section	Code	Grade
Restrict Access	4.9.1.7.3.3.1	Such lock shall require a key or combination to open from the natatorium side.	
One Hand	4.9.1.7.3.3.2	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	4.9.1.7.3.4	Such doors shall be equipped with permanent signage warning against unauthorized entry.	
Gasket	4.9.1.7.3.5	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	4.9.1.7.3.6	This section shall not be construed as granting relief from MAHC Section 4.9.1.8.2.1.	
Other Equipment Room	***4.9.1.8***	***Other Equipment Room Guidance***	
Access Space	4.9.1.8.1	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	4.9.1.8.1.1	The access spaces shall be the greater of: 1) Those required by OSHA, NEC, National Fuel Gas Code, or other official requirements; or 2) The equipment-manufacturers' recommendations.	
Adequate Space	4.9.1.8.2	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	4.9.1.8.3	Where an equipment room contains equipment requiring regular service or maintenance, the room shall be so designed and constructed as to minimize the hazards of such maintenance and service.	B
Ladder Installed	4.9.1.8.3.1	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	4.9.1.8.3.2	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	4.9.1.8.3.2.1	Exception 1: Where otherwise specifically allowed by OSHA.	
Stricter Requirements	4.9.1.8.3.2.2	Exception 2: Where OSHA or other applicable codes or standards have stricter requirements, those stricter requirements shall prevail.	
Refrigeration Equipment	4.9.1.8.4	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	A

Keyword	Section	Code	Grade
		corrosive or oxidizing chemicals, and pesticides should be stored outdoors in a protective enclosure 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.	
Outside	4.9.2.1.6.1	Eyewash stations may be provided outside of the chemical room as an alternative.	
AHJ Requirements	4.9.2.1.6.2	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, unintended exposure to water, etc.	B

Keyword	Section	Code	Grade
Floor	4.9.2.2.3	The floor or deck of the chemical-storage space shall be protected against substantial chemical damage.	B
Minimize Fumes	4.9.2.2.4	The construction and operation of a chemical storage space shall minimize the transfer of chemical fumes into any interior space of a building intended for occupation.	A
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	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 and meets the non-climbability requirements of MAHC Section 4.8.5.2.3.	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	4.9.2.4.2	Where a single door is the only means of egress	A

Keyword	Section	Code	Grade
Egress		from a chemical-storage space, the door shall be equipped with an emergency-egress device.	
Interior Door	4.9.2.4.3	Where a chemical-storage space door must open to an interior space, spill containment shall be provided to prevent spilled chemicals from leaving the chemical-storage space.	A
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 to an interior space, such door shall have all of the following requirements outlined from MAHC Sections 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.	

Keyword	Section	Code	Grade
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 and latch without human assistance.	
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 MAHC Section 4.9.2.5.2.4.	
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	Interior chemical-storage spaces that share any building surface (wall, floor, ceiling, door, etc.) with any other interior space shall be equipped with a ventilation system that operates continuously and insures that all air movement is from all other interior spaces and toward the chemical-storage space.	
Additional Interior Space	4.9.2.5.2.1	Interior chemical-storage spaces that share an electrical conduit system with any other interior	A

Keyword	Section	Code	Grade
		space shall be equipped with a ventilation system that operates continuously and insures that all air movement is from all other interior spaces and toward the chemical-storage space.	
Pressure Difference	4.9.2.5.2.2	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	4.9.2.5.2.3	Where more than one chemical-storage space is present, a separate exhaust system shall be provided for each chemical-storage space.	A
Airflow Rate	4.9.2.5.2.3.1	The exhaust airflow rate shall be the greater of: 1) the OSHA requirements for working in such enclosed spaces, or 2) the amount needed to maintain the concentration of vapors or fumes below the PEL for the expected exposure time (defined by 29 CFR 1910.1000 (OSHA)) for each stored chemical, or 3) the amount specified by International Mechanical Code Sec. 502, or 4) the amount specified by the Uniform Mechanical Code Sec. 403.7, or 5) the amount needed to maintain the specified pressure difference.	A
Alarm	4.9.2.5.2.4	Function of this exhaust system shall be monitored continuously by an audible differential-pressure alarm system which shall sound if the specified differential air pressure is not maintained for a period of thirty minutes.	A
Minimum Output	4.9.2.5.2.4.1	This alarm shall have a minimum output level of 85 dbA at 10 feet.	
Manual Reset	4.9.2.5.2.4.2	The specified alarm shall require manual reset to silence it.	B
Air Ducts	***4.9.2.6***	***Air Ducts in Interior Chemical Storage Spaces***	

Keyword	Section	Code	Grade
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.	
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	4.9.2.6.2.2.1	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.	
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.	

Keyword	Section	Code	Grade
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.	
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	4.9.2.10.1	An ozone equipment room shall not be used for	A

Keyword	Section	Code	Grade
Equipment		storage of chemicals, solvents or any combustible materials, other than those required for the operation of the re-circulation and ozone generating equipment.	
Emergency Ventilation	4.9.2.10.2	Rooms which are designed to include ozone equipment shall be equipped with an emergency ventilation system capable of 6 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.	
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 6 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 upon activation of the ozone detection and alarm system, and 3) Run on command of a manual switch.	
Manual Ventilation Switch	4.9.2.10.3.3	The manual ventilation switch shall be located	A

Keyword	Section	Code	Grade
		outside the room and near the door to the ozone room.	
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 18-24 inches above floor level and shall be capable of measuring ozone in the range of 0-2 parts per million (ppm).	
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	

Keyword	Section	Code	Grade
		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 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	

Keyword	Section	Code	Grade
		with chlorine atmospheres, shall be stored directly outside one entrance to an indoor gaseous-chlorination space.	
SCBA Systems	4.9.2.11.7.5	A minimum of two (2) SCBA systems shall be on hand at all times and two (2) qualified operators are to be involved in the changing of the tanks.	
Stationed Outside	4.9.2.11.7.6	One of the operators should be stationed outside of the chemical room where the operator inside can be seen at all times.	
Emergency Telephone	4.9.2.11.7.7	An emergency direct line telephone shall be located by the door.	
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 tempered or plasticized glass, 2) shall have a corrosion-resistant frame, and 3) 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, and 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
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	A

Keyword	Section	Code	Grade
		from the chemical-storage space.	
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.	
Hygiene Facilities	**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 an aquatic venue shall be supplied from a potable water source.	
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 MAHC Section 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 after any splashing or evaporative losses within one hour if the AQUATIC VENUE is operational at the time of the backwash.	

Keyword	Section	Code	Grade
		Per MAHC Recirculation and Filtration Module: Automatic makeup water supply equipment shall be provided to maintain continuous skimming of all pools.	
Fill Spout	**4.11.2**	**Fill Spout**	B
Hazard	4.11.2.1	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.	
Shielded	4.11.2.2	Fill spouts should be shielded so the possibility of it becoming a trip hazard is minimized.	
Open End	4.11.2.3	The open end of fill spouts shall not have sharp edges or protrude more than 2 inches (50 mm) beyond the edge of the pool.	
Air Gap	4.11.2.4	The open end shall be separated from the water by an air gap of at least 1.5 pipe diameters measured from the pipe outlet to the pool.	
Cross-Connection Control	**4.11.3**	**Cross-Connection Control**	A
Protected	4.11.3.1	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 or 6 inches (150 mm), whichever is greater, over the lowest free-flowing discharge point of the receiving pipe, tank, or vessel. Splash guards that are open to the atmosphere may be used around the air gap, or 2) Where permitted, an approved reduced pressure zone (RPZ) backflow preventer installed according to the plumbing CODE and the AHJ.	
Deck Drains	**4.11.4**	**Deck Drains and Rinse Showers**	B

Keyword	Section	Code	Grade
Sloped	4.11.4.1	The walkway or deck around a swimming POOL shall be properly sloped to deck drains or to the edge of the deck to prevent the accumulation of standing water.	
Discharge	4.11.4.2	If deck drains are provided, the drains shall discharge to the sanitary or storm sewer or as otherwise allowed by the agency having jurisdiction and according to applicable plumbing CODEs.	
Area or Linear	4.11.4.3	Deck drains may be either area drains or linear drains. See MAHC Section 4.8.1.3 for deck drain area, and other requirements.	
Rinse Showers	4.11.4.4	Rinse shower drains shall discharge to the sanitary or storm sewer as allowed by the agency having jurisdiction and according to applicable plumbing codes.	
Sanitary Waste	**4.11.5**	**Sanitary Wastes**	B
Discharged	4.11.5.1	Wastewater from all PLUMBING FIXTURES in the entire aquatic facility shall be discharged to a municipal sanitary sewer system if available.	
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 an AQUATIC VENUE, including filter backwash water, shall be discharged to a sanitary sewer system having sufficient capacity to collect and treat wastewater or to an on-site sewage disposal system designed for this purpose.	
Storm Water Systems and Surface Waters	4.11.6.1.1	Wastewater shall not be directed to storm water systems or surface waters without appropriate permits from the AHJ or the U.S. EPA.	

Keyword	Section	Code	Grade
Recovery and Reuse	4.11.6.1.2	A water recovery and reuse system may be submitted to the AHJ for review and approval.	
Ground Surface	4.11.6.2	If a municipal sanitary sewer system is not available, wastewater from an AQUATIC VENUE may be discharged to the ground surface at a suitable location as approved by the AHJ, as long as the wastewater does not cause erosion, and does not create a threat to public health or SAFETY, a nuisance, or unlawful pollution of public waters.	
Capacity	4.11.6.3	The wastewater disposal system shall have sufficient capacity to receive wastewater without flooding when filters are cleaned or when the AQUATIC VENUE is drained.	
Separation Tank for Precoat Media Filters	4.11.6.4	A separation tank shall be provided prior to discharge for backwash water from precoat filters using diatomaceous earth (DE) as a filter medium.	
Discharged	4.11.6.4.1	For precoat filters using perlite or cellulose as a filter medium, the backwash may be discharged to the sanitary sewer unless directed otherwise by the local AHJ.	
Specific Venues	**4.12**	**Specific Venues**	
Spas	**4.12.1**	**Spas**	
Additional Provisions	4.12.1.1	In addition to the general AQUATIC VENUE requirements stated in this CODE, SPAS shall comply with the additional provisions or reliefs of this section.	
Maximum Water Depth	4.12.1.2	The maximum water depth in spas shall be 4 feet (1.22 m) measured from the designed static water line except for spas that are designed for special use and purposes and approved by the AHJ.	
Exercise Spas	4.12.1.2.1	The water depth for exercise spas shall not exceed 6 feet 6 inches (2.0 m) measured from the	

Keyword	Section	Code	Grade
		designed static water line.	
Seating	4.12.1.2.2	The maximum submerged depth of any seat or sitting bench shall be 28 inches (0.7 m) measured from the water line.	
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 (0.3 m) 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; or railings.	
Stairs	4.12.1.4	Interior steps or stairs shall be provided where SPA depths are greater than 24 inches (0.6 m).	
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.	
Approach Steps	4.12.1.4.3	Approach steps on the exterior of a spa wall extending above the deck shall also be required unless the raised spa wall is 19 inches or less in height above the deck and it is used as a transfer tier or pivot-seated entry.	
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.	
Lower Ratio	4.12.1.5.1	The AHJ could consider a lower ratio upon review of an appropriate safety plan that addresses adequate access.	
Coping	4.12.1.5.2	The PERIMETER DECK may include the coping.	
Recessed	4.12.1.5.3	SPAS may be located adjacent to other AQUATIC VENUE as long as they are recessed in the deck.	
Elevated Spas	4.12.1.5.4	Elevated SPAS may be located adjacent to another	

Keyword	Section	Code	Grade
		AQUATIC VENUE as long as there is an effective BARRIER between the SPA and the adjacent AQUATIC VENUE.	
Minimum Distance	4.12.1.5.5	If an effective BARRIER is not provided, a minimum distance of 4 feet (1.22 m) between the AQUATIC VENUE 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)	
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	

Keyword	Section	Code	Grade
		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 or reliefs of this section.	
Recognized Standards	4.12.2.1.2	The following recognized design and construction standards for waterslides shall be adhered to: • ASTM F2376-08 Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems: • ASTM F2469-09 Standard Practice for Manufacturer, Construction, Operation, and Maintenance of Aquatic Play Equipment; • World Water Park Considerations for Operating Safety. 2004. A handbook for Risk Management and Operating Safety at Waterparks. • EN 1069-1:2010 Water Slides – Part 1: Safety Requirements and test methods • EN 1069 -2: 1020 Water Slides – Part 2: Operation and Risk Management.	
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.	

Keyword	Section	Code	Grade
Durable Structure	4.12.2.1.4	The structural design of a water slide and the materials used in its construction 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	Flume 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; 2) Banked so that the forces on the BATHERS keep them safely inside the FLUME under all foreseeable circumstances of operation. Riders must not become airborne unless the waterslide manufacturer allows such activity; and 3) Designed so that user should not impact the slide itself in such a way that causes injury, such as from a rapid change in direction or becoming inverted in the waterslide.	
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	

Keyword	Section	Code	Grade
		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 that BATHERS enter the CATCH POOL or slide RUNOUT 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 or below water level, except for drop slides or unless otherwise permitted by the waterslide manufacturer.	
Perpendicular	4.12.2.4.2	Slides shall be perpendicular to the wall of the POOL at the point of exit unless otherwise permitted by the waterslide manufacturer.	
Exit System	4.12.2.4.3	Slides shall be designed with an exit system which shall be in accordance with the waterslide manufacturer's recommendations and provides for safe entry into the CATCH POOL or slide RUNOUT.	
Other Methods	4.12.2.4.3.1	Other methods shall be 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 shall 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.	

Keyword	Section	Code	Grade
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)	
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 recessed steps with grab rails, 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 VENUE by a float line or as approved by the AHJ.	
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 MAHC Section 4.8.1.	
Slide Run-outs	***4.12.2.8***	***Slide Run-outs***	
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 (0.3 m) in height.	

Keyword	Section	Code	Grade
Designed	4.12.2.8.2	Slide run-outs shall be designed in accordance with the slide manufacturer's recommendations.	
Drop Slides	***4.12.2.9***	***Drop Slides***	
Landing Area	4.12.2.9.1	There shall be a slide landing area in accordance with the slide manufacturer's recommendations.	
Infringe	4.12.2.9.2	This area shall not infringe on the landing area for any other slides, diving equipment, or any other minimum pool clearance requirements.	
Steps	4.12.2.9.3	Steps shall not infringe on this area.	
Water Depth	4.12.2.9.4	The minimum required water depth shall be a function of the slide drop height above the water surface.	
Manufacturer's Recommendation	4.12.2.9.5	The minimum required water depth shall be in accordance with the slide manufacturer's recommendations.	
Pool Slides	***4.12.2.10***	***Pool Slides***	
Designed for Safety	4.12.2.10.1	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	4.12.2.10.1.1	POOL SLIDES shall be designed and constructed in accordance with applicable ASTM and CSPC standards.	
Injury	4.12.2.10.2	POOL SLIDES are to be assembled, arranged, and finished in a smooth and consistent manner to inhibit the possibility of injury.	B
Non-Toxic	4.12.2.10.3	Components used to construct a POOL SLIDE shall be non-toxic and compatible with the environment contacted under normal use.	A
Access	4.12.2.10.4	Access to the inclined sliding surface shall be	B

Keyword	Section	Code	Grade
		gained by use of steps, ladders, stairs, or ramps.	
Treads	4.12.2.10.4.1	Treads shall be slip resistant.	
Ladders	4.12.2.10.4.2	Ladders shall be constructed with full treads not rungs (similar to ladders acceptable for ingress/egress into pools).	
Handrails	4.12.2.10.5	Handrails for ladders shall be sturdy, 1-1.9 inch outside diameter, extend no more than 18 inches above the slide entrance platform, and designed to prevent entrapment.	B
Water Depth	4.12.2.10.6	Water depth at the slide terminus shall be determined by the slide manufacturer.	B
Pool Edge	4.12.2.10.7	Clear space shall be maintained to the POOL edge and other features per manufacturer requirements.	A
Terminus End	4.12.2.10.7.1	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 other BATHERS.	
Prevent Bather Access	4.12.2.10.7.2	Netting or other structures shall be provided to prevent BATHER access underneath pool slides where sufficient clearance is not provided.	
Signage	***4.12.2.11***	***Signage***	
Warning Signs	4.12.2.11.1	Warning signs in accordance with manufacturer's recommendations shall be provided.	
Caution Signs	4.12.2.11.2	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.2.11.3	Lifeguarding and Safety Equipment (Risk Management TC and/or Lifeguarding and Bather Supervision TC)	
Wave Pools	**4.12.3**	**Wave Pools**	

Keyword	Section	Code	Grade
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 or reliefs 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.	
Handrails	4.12.3.2.1.2	Handrails as required by ADA for accessible entries shall be designed in such a way that they do not present a potential for injury or entrapment with wave pool patrons.	
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.	
Continuous	4.12.3.2.2.1	These handholds shall be continuous around the pool's perimeter with the exception of at the zero beach entry, water depths less than 24 inches, if this area is roped off not allowed for bather access.	
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 shall not be allowed along the walls of the WAVE POOL due to the entrapment potential.	

Keyword	Section	Code	Grade
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 MAHC Sections 4.5.4.1, 4.5.4.1.2, and 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 if required by the wave equipment manufacturer	
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 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.	
No Diving Sign	4.12.3.3.3	Safety rope and float lines typically required at shallow to deep water transitions shall not apply to WAVE POOLS.	
Caution Signs	4.12.3.3.4	Caisson BARRIERS shall be provided for all WAVE POOLS that prevent the passage of a four (4) inch ball.	
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)	

Keyword	Section	Code	Grade
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 or reliefs of this section.	
Slope	4.12.4.2	Floor slope may exceed 1 foot (0.3 m) in 12 feet (3.66 m) for water shallower than 5 feet (1.5 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 AHJ 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	

Keyword	Section	Code	Grade
		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 or reliefs 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***	
Means	4.12.5.2.1	Means of access/egress shall be provided at 150 foot (45.7 m) intervals around the LEISURE RIVER.	
Handhold	4.12.5.2.2	A handhold in compliance with MAHC Section 4.5.6 shall be required on at least one side of the LEISURE RIVER.	
Deck	4.12.5.2.3	A deck shall be provided along the entire length of the LEISURE RIVER.	
Alternate Sides	4.12.5.2.3.1	The deck shall be allowed to alternate sides of the LEISURE RIVER.	
Obstructions	4.12.5.2.3.2	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	4.12.5.2.4	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 &	

Keyword	Section	Code	Grade
		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 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 or reliefs 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***	

Keyword	Section	Code	Grade
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.	
Entrapment	4.12.6.3.3	The design of a moveable floor shall protect against bather entrapment between the moveable floor and the pool walls and floor.	
Hydraulic Fluid	4.12.6.3.4	If the moveable floor is operated using hydraulics, the hydraulic compounds shall be listed as safe for use in pool water in case there is a hydraulic leak.	
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 (0.457 m/min).	
Use	4.12.6.4.2	Use of the moveable floor portion of the POOL shall 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	

Keyword	Section	Code	Grade
		requirements stated in this CODE, BULKHEADS shall comply with the additional provisions or reliefs 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)	
Entrapment	4.12.7.3	The bottom of the BULKHEAD shall be designed so that a POOL user cannot be entrapped underneath or inside of the BULKHEAD.	
Placement	4.12.7.4	The BULKHEAD placement shall not interfere with the required water circulation in the pool.	
Fixed	4.12.7.5	BULKHEADS shall be fixed to their operational position(s) by a tamper-proof system.	
Gap	4.12.7.6	The gap between the BULKHEAD and the POOL shall be 1.5 inches (38 mm).	
Handhold	4.12.7.7	The BULKHEAD shall be designed to afford an acceptable handhold as required in MAHC Section 4.5.6.	
Entrances and Exits	4.12.7.8	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	4.12.7.9	Guard railings at least 34 inches (860 mm) tall shall be provided on both ends of the BULKHEAD.	
Width	4.12.7.10	The width of the walkable area (total bulkhead width) of a BULKHEAD shall be greater than or equal to 3 feet and 3 inches (1.0 m).	
Starting Platforms	4.12.7.10.1	If starting platforms are installed, the width of the walkable area (total bulkhead width) of a BULKHEAD shall be greater than or equal to 3 feet and 9 inches (1140 mm).	
Operation and Training	4.12.7.11	Operation and Training (Facility Maintenance and Operation TC / Operator Training TC)	

Keyword	Section	Code	Grade
Caution Signs	4.12.7.12	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 or reliefs of this section.	
Surface	4.12.8.2	SPRAYGROUNDS shall have a slip-resistant and easily cleanable surface.	
Manufactured Surfacing	4.12.8.2.1	Any manufactured surfacing shall be deemed suitable by the manufacturer for aquatic and chlorinated environments.	
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 COLLECTION 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 (13 mm) wide.	
Tools	4.12.8.5.1	Gratings shall not be removable without the use of tools.	

Keyword	Section	Code	Grade
Treatment Tank	4.12.8.6	The SPRAYGROUND COLLECTION 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 unless the landscaping is either elevated above the deck in a planter.	
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.	
Enclosures	4.12.8.9	If a facility only consists of a sprayground, then the requirements for an enclosure shall not apply.	
Hazard	4.12.8.10	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	4.12.8.11	Maximum velocity at the orifice of the SPRAY FEATURE nozzle shall not exceed 20 feet (6.1 m) per second.	
Signage	4.12.8.12	Depth markings and warning signs are not required for SPRAYGROUNDS	
NEC Requirements	4.12.8.13	NEC swimming POOL requirements shall apply to SPRAYGROUNDS.	
Turnover Rates	4.12.8.14	Turnover Requirements (Recirculation Systems & Filtration TC)	

Keyword	Section	Code	Grade
Overflow Systems	4.12.8.15	Overflow Systems / Gutters (Recirculation Systems & Filtration TC)	
Return Inlets	4.12.8.16	Return Inlets / Collection Vessel Agitation (Recirculation Systems & Filtration TC)	
Caution Signs	4.12.8.17	Caution Signs (Risk Management and Safety TC)	
Lifeguarding and Safety Equipment	4.12.8.18	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 shall comply with the additional provisions or reliefs 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.	
Complete Enclosure	4.12.9.2.1	The barrier shall not be required to be a complete enclosure of the wading pool provided the shortest distance of travel between the WADING POOL around the barrier to the other pool is a minimum of 15 feet (4.57 m).	
Shallow Water	4.12.9.2.2	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)	

Keyword	Section	Code	Grade
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.	