

# The Model Aquatic Health Code

The Code

## OPERATION AND MAINTENANCE



## 5.0 Facility Operation and Maintenance

The provisions of Chapter 5 apply to all AQUATIC FACILITIES covered by this CODE regardless of when constructed, unless otherwise noted.

### 5.1 Operating Permits

#### 5.1.1 Owner Responsibilities

##### 5.1.1.1 Permit to Operate Required

Prior to opening to the public, the AQUATIC FACILITY owner shall apply to the AHJ for a permit to operate.

##### 5.1.1.2 Separate

A separate permit is required for each newly constructed or SUBSTANTIALLY ALTERED AQUATIC VENUE at an existing AQUATIC FACILITY.

##### 5.1.1.3 Prior to Issuance

Before a permit to operate is issued, the following procedures shall be completed:

- 1) The AQUATIC FACILITY owner has demonstrated the AQUATIC FACILITY, including all newly constructed or SUBSTANTIALLY ALTERED AQUATIC VENUES, is in compliance with the requirements of this CODE, and
- 2) The AHJ has approved the AQUATIC FACILITY to be open to the public.

##### 5.1.1.4 Permit Details

The permit to operate shall:

- 1) Be issued in the name of the owner,
- 2) List all AQUATIC VENUES included under the permit, and
- 3) Specify the period of time approved by the AHJ.

##### 5.1.1.5 Permit Expiration

Permits to operate shall terminate according to the AHJ schedule.

##### 5.1.1.6 Permit Renewal

The AQUATIC FACILITY owner shall renew the permit to operate prior to the scheduled expiration of an existing permit to operate an AQUATIC FACILITY.

##### 5.1.1.7 Permit Denial

The permit to operate may be withheld, revoked, or denied by the AHJ for noncompliance of the AQUATIC FACILITY with the requirements of this CODE.

### **5.1.1.8 Owner Responsibilities**

The owner of an AQUATIC FACILITY is responsible for the facility being operated, maintained, and managed in accordance with the requirements of this CODE.

## **5.1.2 Operating Permits**

### **5.1.2.1 Permit Location**

The permit to operate shall be posted at the AQUATIC FACILITY in a location conspicuous to the public.

### **5.1.2.2 Operating Without a Permit**

Operation of an AQUATIC FACILITY or newly constructed or SUBSTANTIALLY ALTERED AQUATIC VENUE without a permit to operate shall be prohibited.

### **5.1.2.3 Required Closure**

The AHJ may order a newly constructed or SUBSTANTIALLY ALTERED AQUATIC VENUE without a permit to operate to close until the AQUATIC FACILITY has obtained a permit to operate.

## **5.2 Inspections**

### **5.2.1 Preoperational Inspections**

#### **5.2.1.1 Terms of Operation**

The AQUATIC FACILITY may not be placed in operation until an inspection approved by the AHJ shows compliance with the requirements of this CODE or the AHJ approves opening for operation.

### **5.2.2 Exemptions**

#### **5.2.2.1 Applying for Exemption**

An AQUATIC FACILITY seeking an initial exemption or an existing AQUATIC FACILITY claiming to be exempt according to applicable regulations shall contact the AHJ for application details/forms.

#### **5.2.2.2 Change in Exemption Status**

An AQUATIC FACILITY that sought and received an exemption from a public regulation shall contact the AHJ if the conditions upon which the exemption was granted change so as to eliminate the exemption status.

### **5.2.3 Variances**

#### **5.2.3.1 Variance Authority**

The AHJ may grant a variance to the requirements of this CODE.

### **5.2.3.2 Applying for a Variance**

An AQUATIC FACILITY seeking a variance shall apply in writing with the appropriate forms to the AHJ.

#### **5.2.3.2.1 Application Components**

The application shall include, but not be limited to:

- 1) A citation of the CODE section to which the variance is requested;
- 2) A statement as to why the applicant is unable to comply with the CODE section to which the variance is requested;
- 3) The nature and duration of the variance requested;
- 4) A statement of how the intent of the CODE will be met and the reasons why the public health or SAFETY would not be jeopardized if the variance was granted, and
- 5) A full description of any policies, procedures, or equipment that the applicant proposes to use to rectify any potential increase in health or SAFETY risks created by granting the variance.

### **5.2.3.3 Revoked**

Each variance shall be revoked when the permit attached to it is revoked.

### **5.2.3.4 Not Transferable**

A variance shall not be transferable unless otherwise provided in writing at the time the variance is granted.

## **5.3 Equipment Standards [N/A]**

## **5.4 Aquatic Facility and Venue Operation and Maintenance**

### **5.4.1 Closure and Reopening**

#### **5.4.1.1 Closure**

If an AQUATIC VENUE is not open to the public the following conditions shall be met to protect health and safety:

##### **5.4.1.1.1 Aquatic Venues With a Barrier**

Where the AQUATIC VENUE has a barrier enclosing it per MAHC Section 4.8.6:

- 1) The water shall be recirculated and treated to meet the criteria of this CODE, or
- 2) The water shall be drained; or
- 3) An approved SAFETY cover that is listed and labeled to ASTM F1346-91 by an ANSI-accredited certification organization shall be installed.

#### **5.4.1.1.2 Aquatic Venues Without a Barrier but Open to the Public**

Where the AQUATIC VENUE does not have a barrier enclosing it per MAHC Section 4.8.6 and other parts of the AQUATIC FACILITY are open to the public:

- 1) The water shall be recirculated and treated to meet the criteria of this CODE and the AQUATIC VENUE shall be staffed to keep bathers out, or
- 2) An approved SAFETY cover that is listed and labeled to ASTM F1346-91 by an ANSI-accredited certification organization shall be installed.

#### **5.4.1.1.3 Aquatic Venues Without a Barrier and Closed to the Public**

Where the AQUATIC VENUE does not have a BARRIER enclosing it per MAHC 4.8.6, and the AQUATIC FACILITY is closed to the public:

- 1) The water shall be recirculated and treated to meet the criteria of this code, or
- 2) The water shall be drained; or
- 3) An approved SAFETY cover listed and labeled to ASTM F1346-91 by an ANSI-accredited certification organization shall be installed

#### **5.4.1.2 Reopening**

An owner or operator of a closed AQUATIC VENUE shall verify that the AQUATIC VENUE meets all applicable criteria of this CODE before reopening the AQUATIC VENUE.

### **5.4.2 Preventive Maintenance Plan**

#### **5.4.2.1 Written Plan**

##### **5.4.2.1.1 Preventive Maintenance Plan Available**

A written comprehensive preventive maintenance plan for each AQUATIC VENUE shall be available at the AQUATIC FACILITY.

##### **5.4.2.1.2 Contents**

The AQUATIC FACILITY preventive maintenance plan shall include details and frequency of owner/operator's planned routine facility inspection, maintenance, and replacement of recirculation and water treatment components.

#### **5.4.2.2 Facility Documentation**

##### **5.4.2.2.1 Original Plans and Specifications Available**

A copy of the approved plans and specifications for each AQUATIC VENUE constructed after the adoption of this CODE shall be available at the AQUATIC FACILITY

##### **5.4.2.2.2 Equipment Inventory**

A comprehensive inventory of all mechanical equipment associated with each AQUATIC VENUE shall be available at the AQUATIC FACILITY.

#### **5.4.2.2.3 Inventory Details**

This inventory shall include:

- 1) Equipment name and model number,
- 2) Manufacturer and contact information,
- 3) Local vendor/supplier and technical representative, if applicable, and
- 4) Replacement or service dates and details.

#### **5.4.2.2.4 Equipment Manuals**

Operation manuals for all mechanical equipment associated with each AQUATIC VENUE shall be available at the AQUATIC FACILITY.

##### **5.4.2.2.4.1 No Manual**

If no manufacturer's operation manual is available, then the AQUATIC FACILITY should create a written document that outlines standard operating procedures for maintaining and operating the piece of equipment.

#### **5.4.3 General Operations [N/A]**

### **5.5 Aquatic Venue Structure**

#### **5.5.1 Shape [N/A]**

#### **5.5.2 Access Ladders [N/A]**

#### **5.5.3 Color and Finish [N/A]**

#### **5.5.4 Walls [N/A]**

#### **5.5.5 Depth Markings**

##### **5.5.5.1 Depth Markers**

Depth markers shall be provided in locations in accordance with MAHC Section 4.5.19 and maintained.

##### **5.5.5.2 No Diving Markers**

No Diving markers shall be provided in accordance with MAHC Section 4.5.19 and maintained.

## 5.5.6 Pool Shell Maintenance

### 5.5.6.1 Cracking

#### 5.5.6.1.1 Repaired

CRACKS shall be repaired when they may increase the potential for:

- 1) Leakage,
- 2) Trips or falls,
- 3) Lacerations, or
- 4) Impact the ability to properly clean and maintain the AQUATIC VENUE area.

#### 5.5.6.1.2 Document Cracks

Surface CRACKS under 1/8 inch (3.2 mm) wide shall be documented and monitored for any movement or change including opening, closing, and/or lengthening.

#### 5.5.6.1.3 Sharp Edges

Any sharp edges shall be removed.

## 5.6 Indoor / Outdoor Environment

### 5.6.1 Lighting

#### 5.6.1.1 Lighting Maintained

##### 5.6.1.1.1 Light Levels

Lighting systems, including emergency lighting, shall be maintained in all PATRON areas and maintenance areas, to ensure the required lighting levels are met as specified in MAHC Section 4.6.1.

##### 5.6.1.1.2 Main Drain Visible

The AQUATIC FACILITY shall not be open if light levels are such that the main drain is not visible from poolside.

##### 5.6.1.1.3 Underwater Lighting

Underwater lights, where provided, shall be operational and maintained as designed.

##### 5.6.1.1.4 Cracked Lenses

Cracked lenses that are physically intact on lights shall be replaced before the AQUATIC VENUE reopens to BATHERS.

##### 5.6.1.1.5 Intact Lenses

The AQUATIC VENUE shall be immediately closed if cracked lenses are not intact and the lenses shall be replaced before re-opening.

### **5.6.1.2 Glare**

#### **5.6.1.2.1 Assessments**

The AQUATIC FACILITY owner shall ensure that glare conditions are assessed to determine if the AQUATIC VENUE bottom and objects in the POOL are clearly visible throughout operating hours.

##### **5.6.1.2.1.1 Lifeguard Stations**

If the AQUATIC VENUE requires lifeguards, the AQUATIC FACILITY owner shall ensure that glare conditions are assessed from each lifeguard station to determine if the AQUATIC VENUE bottom and objects in the POOL are clearly visible throughout operating hours.

#### **5.6.1.2.2 Reduction**

Windows and lighting equipment shall be adjusted, if possible, to minimize glare and excessive reflection on the water surface.

### **5.6.1.3 Night Swimming**

Night swimming shall be prohibited unless required light levels in accordance with MAHC Section 4.6.1 are provided.

#### **5.6.1.3.1 Hours**

Night swimming shall be considered one half hour before sunset to one half hour after sunrise.

### **5.6.1.4 Emergency Lighting**

Emergency lighting shall be tested and maintained according to manufacturer's recommendations.

## **5.6.2 Indoor Aquatic Facility Ventilation**

### **5.6.2.1 Purpose**

AIR HANDLING SYSTEMS shall be maintained and operated by the owner/operator to protect the health and SAFETY of the facility's PATRONS.

### **5.6.2.2 Original Characteristics**

AIR HANDLING SYSTEMS shall be maintained and operated to comply with all requirements of the original system design, construction, and installation.

### 5.6.2.3 Indoor Facility Areas

The AIR HANDLING SYSTEM operation and maintenance requirements shall apply to an INDOOR AQUATIC FACILITY including:

- 1) The AQUATIC VENUES, and
- 2) The surrounding BATHER and spectator/stadium seating area;

But does not include:

- 1) Mechanical rooms,
- 2) Bath and locker rooms, and
- 3) Any associated rooms which have a direct opening to the AQUATIC FACILITY.

### 5.6.2.4 Ventilation Procedures

THE INDOOR AQUATIC FACILITY owner/operator shall develop and implement a program of standard AIR HANDLING SYSTEM operation, maintenance, cleaning, testing, and inspection procedures with detailed instructions, necessary equipment and supplies, and oversight for those carrying out these duties, in accordance with the AIR HANDLING SYSTEM design engineer and/or manufacturer's recommendations.

#### 5.6.2.4.1 System Operation

The AIR HANDLING SYSTEM shall operate continuously, including providing the required amount of outdoor air.

##### 5.6.2.4.1.1 Operation Outside of Operating Hours

Exception: During non-use periods, the amount of outdoor air may be reduced by no more than 50% as long as acceptable air quality is maintained.

### 5.6.2.5 Manuals/Commissioning Reports

The QUALIFIED OPERATOR shall maintain a copy of the AIR HANDLING SYSTEM design engineer and/or manufacturer original operating manuals, commissioning reports, updates, and specifications for any modifications at the facility.

### 5.6.2.6 Ventilation Monitoring

The QUALIFIED OPERATOR shall monitor, log and maintain AIR HANDLING SYSTEM set-points and other operational parameters as specified by the AIR HANDLING SYSTEM design engineer and/or manufacturer.

### 5.6.2.7 Air Filter Changing

The QUALIFIED OPERATOR(s) shall replace or clean, as appropriate, AIR HANDLING SYSTEM air filters in accordance with the AIR HANDLING SYSTEM design engineer and/or manufacturer's recommendations, whichever is most frequent.

### **5.6.2.8 Combined Chlorine Reduction**

The QUALIFIED OPERATOR shall develop and implement a plan to minimize combined CHLORINE compounds in the INDOOR AQUATIC FACILITY from the operation of AQUATIC VENUES.

### **5.6.2.9 Building Purge Plan**

The QUALIFIED OPERATOR shall develop and implement an air quality action plan with procedures for PURGING the INDOOR AQUATIC FACILITY for chemical emergencies or other indicators of poor air quality.

### **5.6.2.10 Records**

The owner shall ensure documents are maintained at the INDOOR AQUATIC FACILITY to be available for inspection, recording the following:

- 1) A log recording the set points of operational parameters set during the commissioning of the AIR HANDLING SYSTEM and the actual readings taken at least once daily;
- 2) Maintenance conducted to the system including the dates of filter changes, cleaning, and repairs;
- 3) Dates and details of modifications to the AIR HANDLING SYSTEM; and
- 4) Dates and details of modifications to the operating scheme.

## **5.6.3 Electrical**

### **5.6.3.1 Electrical Repairs**

#### **5.6.3.1.1 Local Codes**

Repairs or alterations to electrical equipment and associated equipment shall preserve compliance with the NEC, or with applicable local CODES prevailing at the time of construction, or with subsequent versions of those CODES.

#### **5.6.3.1.2 Immediately Repaired**

All defects in the electrical system shall be immediately repaired.

#### **5.6.3.1.3 Wiring**

Electrical wiring, whether permanent or temporary, shall comply with the NEC or with applicable local CODE.

### **5.6.3.2 Electrical Receptacles**

#### **5.6.3.2.1 New Receptacles**

The installation of new electrical receptacles shall be subject to electrical-construction requirements of this CODE and applicable local CODE.

**5.6.3.2.2 Repairs**

Repairs or maintenance to existing receptacles shall maintain compliance with the NEC and with CFR 1910.304(b) (3) (ii).

**5.6.3.2.3 Replacement**

Replacement receptacles shall be of the same type as the previous ones, e.g. grounding-type receptacles shall be replaced only by grounding-type receptacles, with all grounding conductors connected and proper wiring polarity preserved.

**5.6.3.2.4 Substitutions**

Where the original-type of receptacle is no longer available, a replacement and installation shall be in accordance with applicable local CODE.

**5.6.3.3 Ground-Fault Circuit Interrupter****5.6.3.3.1 Manufacturer's Recommendations**

Where receptacles are required to be protected by GFCI devices, the GFCI devices shall be tested following the manufacturer's recommendations.

**5.6.3.3.2 Permanent Facilities**

For permanent AQUATIC FACILITIES, required GFCI devices shall be tested monthly as part of scheduled maintenance.

**5.6.3.3.3 Testing**

Required GFCI devices shall be tested as part of scheduled maintenance on the first day of operation, and monthly thereafter, until the BODY OF WATER is drained and the equipment is prepared for STORAGE.

**5.6.3.4 Grounding****5.6.3.4.1 Maintenance and Repair**

Maintenance or repair of electrical circuits or devices shall preserve grounding compliance with the NEC or with applicable local CODES.

**5.6.3.4.2 Grounding Conductors**

Grounding conductors that have been disconnected shall be re-inspected as required by the local building CODE authority prior to AQUATIC VENUE being used by BATHERS.

**5.6.3.4.3 Damaged Conductors**

Damaged grounding conductors and grounding electrodes shall be repaired immediately.

**5.6.3.4.4 Damaged Conductor Repair**

Damaged grounding conductors or grounding electrodes associated with recirculation or DISINFECTION equipment or with underwater lighting systems shall be repaired by a qualified person who has the proper and/or necessary skills, training, or credentials to carry out the this task.

**5.6.3.4.5 Public Access**

The public shall not have access to the AQUATIC VENUE until such grounding conductors or grounding electrodes are repaired.

**5.6.3.4.6 Venue Closure**

The AQUATIC VENUE with damaged grounding conductors or grounding electrodes, that are associated with recirculation or DISINFECTION equipment or with underwater lighting systems, shall be closed until repairs are completed and inspected by the AHJ.

**5.6.3.5 Bonding****5.6.3.5.1 Local Codes**

Maintenance or repair of all metallic equipment, electrical circuits or devices, or reinforced concrete structures shall preserve bonding compliance with the NEC, or with applicable local CODES.

**5.6.3.5.2 Bonding Conductors**

Bonding conductors shall not be disconnected except where they will be immediately reconnected.

**5.6.3.5.3 Disconnected Conductors**

The AQUATIC VENUE shall not be used by BATHERS while bonding conductors are disconnected.

**5.6.3.5.4 Removable Covers**

Removable covers protecting bonding conductors, e.g. at ladders, shall be kept in place except during bonding conductor inspections, repair, or replacement.

**5.6.3.5.5 Scheduled Maintenance**

Bonding conductors, where accessible, shall be inspected semi-annually as part of scheduled maintenance.

**5.6.3.5.6 Corrosion**

Bonding conductors and any associated clamps shall not be extensively corroded.

**5.6.3.5.7 Continuity**

Continuity of the bonding system associated with RECIRCULATION SYSTEM OR DISINFECTION equipment or with underwater lighting systems shall be inspected by the AHJ following installation and any major construction around the AQUATIC FACILITY.

**5.6.3.6 Extension Cords****5.6.3.6.1 Temporary Cords and Connectors**

Temporary extension cords and power connectors shall not be used as a substitute for permanent wiring.

**5.6.3.6.2 Minimum Distance from Water**

All parts of an extension cord shall be restrained at a minimum of six feet (*1.8 m*) away when measured along the shortest possible path from a BODY OF WATER during times when the AQUATIC FACILITY is open.

**5.6.3.6.3 Exception**

An extension cord may be used within six feet (*1.8 m*) of the nearest edge of a BODY OF WATER if a permanent wall exists between the BODY OF WATER and the extension cord.

**5.6.3.6.4 GFCI Protection**

The circuit supplying an extension cord shall be protected by a GFCI device when the extension cord is to be used within six feet (*1.8 m*) of a BODY OF WATER.

**5.6.3.6.5 Local Code**

An extension cord incorporating a GFCI device may be used if that is acceptable under applicable local CODE.

**5.6.3.6.6 Compliance**

The use of extension cords shall comply with CFR 1910.304.

**5.6.3.7 Portable Electric Devices**

Portable line-powered electrical devices, such as radios or drills, shall not be used within six feet (*1.8 m*) horizontally of the nearest inner edge of a BODY OF WATER, unless connected to a GFCI-protected circuit.

**5.6.3.8 Communication Devices and Dispatch Systems**

The maintenance and repair of Communication Devices and Dispatch Systems shall preserve compliance with the NEC.

## 5.6.4 Facility Heating

### 5.6.4.1 Facility Heating

#### 5.6.4.1.1 Maintenance and Repair

Maintenance, repairs, and alterations to facility-heating equipment shall preserve compliance with applicable CODES.

#### 5.6.4.1.2 Defects

Defects in the AQUATIC FACILITY heating equipment shall be immediately repaired.

#### 5.6.4.1.3 Temperature

Air temperature of an INDOOR AQUATIC FACILITY shall be controlled to the original specifications or in the absence of such, maintain the dew point of the INTERIOR SPACE less than the dew point of the interior walls at all times so as to prevent damage to structural members and to prevent biological growth on walls.

#### 5.6.4.1.4 Combustion Device

Items shall not be stored within the COMBUSTION DEVICE manufacturer's specified minimum clearance distance.

### 5.6.4.2 Water Heating

Maintenance, repairs, and alterations to POOL-water heating equipment shall preserve compliance with applicable CODES.

## 5.6.5 First Aid Room [N/A]

## 5.6.6 Emergency Exit

### 5.6.6.1 Exit Routes

Emergency exit routes shall be established for both INDOOR FACILITIES and OUTDOOR FACILITIES and be maintained so that they are well lit, unobstructed, and accessible at all times.

## 5.6.7 Plumbing

### 5.6.7.1 Water Supply

#### 5.6.7.1.1 Water Pressure

All plumbing shall be maintained in good repair with no leaks or discharge.

#### 5.6.7.1.2 Availability

Potable water shall be available at all times to PATRONS.

**5.6.7.1.3 Cross-Connection Control**

Water introduced into the pool, either directly or to the recirculation system, shall be supplied through an air gap or by another method which will prevent backflow and back-siphonage.

**5.6.7.2 Drinking Fountains****5.6.7.2.1 Good Repair**

Drinking fountains shall be in good repair.

**5.6.7.2.2 Clean**

Drinking fountains shall be clean.

**5.6.7.2.3 Catch Basin**

Drinking fountains shall be adjusted so that water does not go outside the catch basin.

**5.6.7.2.4 Contamination**

Drinking fountains shall provide an angled jet of water and be adjusted so that the water does not fall back into the drinking water stream.

**5.6.7.2.5 Water Pressure**

Drinking fountains shall have sufficient water pressure to allow correct adjustment.

**5.6.7.3 Waste Water****5.6.7.3.1 Waste Water Disposal**

AQUATIC VENUE waste water, including backwash water and cartridge cleaning water, shall be disposed of in accordance with local CODES.

**5.6.7.3.2 Drainage**

Waste water and backwash water shall not be returned to an AQUATIC VENUE or the AQUATIC FACILITY'S water treatment system.

**5.6.7.3.3 Drain Line**

Filter backwash lines, DECK drains, and other drain lines connected to the AQUATIC FACILITY or the AQUATIC FACILITY RECIRCULATION SYSTEM shall be discharged through an approved air gap.

**5.6.7.3.4 No Standing Water**

No standing water shall result from any discharge, nor shall they create a nuisance, offensive odors, stagnant wet areas, or create an environment for the breeding of insects.

#### 5.6.7.4 Water Replenishment

##### 5.6.7.4.1 Volume

Removal of water from the POOL and replacement with make-up water shall be performed as needed to maintain water quality.

##### 5.6.7.4.2 Discharged

A volume of water totaling at least four gallons (15 L) per BATHER per day per AQUATIC VENUE shall be either:

- 1) Discharged from the system, or
- 2) Treated with an alternate system meeting the requirements of MAHC Section 4.7.4 and reused.

##### 5.6.7.4.2.1 Backwash Water

The required volume of water to be discharged may include backwash water.

##### 5.6.7.4.3 Multi-System Facilities

In multi-RECIRCULATION SYSTEM facilities, WATER REPLENISHMENT shall be proportional to the number of BATHERS in each system.

#### 5.6.8 Solid Waste

##### 5.6.8.1 Storage Receptacles

##### 5.6.8.1.1 Good Repair and Clean

Outside waste and recycling containers shall be maintained in good repair and clean condition.

##### 5.6.8.1.2 Areas

Outside waste and recycling STORAGE areas shall be maintained in good repair and clean condition.

##### 5.6.8.2 Disposal

##### 5.6.8.2.1 Frequency

Solid waste and recycled materials shall be removed at a frequency to prevent attracting vectors or causing odor.

##### 5.6.8.2.2 Local Code Compliance

Solid waste and recycled materials shall be disposed of in compliance with local CODES.

## **5.6.9 Decks**

### **5.6.9.1 Food Preparation and Consumption**

#### **5.6.9.1.1 Preparation**

Food preparation and cooking shall only be permitted in designated areas as specified in this CODE.

#### **5.6.9.1.2 Eating and Drinking**

BATHERS shall not eat or drink while in or partially in the AQUATIC VENUE water except in designated areas.

##### **5.6.9.1.2.1 Swim-Up Bars**

Swim-up bars, when utilized, shall provide facilities for bathers to place food and drinks on a surface which can be SANITIZED.

### **5.6.9.2 Glass**

#### **5.6.9.2.1 Containers**

Glass food and beverage containers shall be prohibited in PATRON areas of AQUATIC FACILITIES.

#### **5.6.9.2.2 Furniture**

Glass furniture shall not be used in an AQUATIC FACILITY.

### **5.6.9.3 Deck Maintenance**

#### **5.6.9.3.1 Free From Obstructions**

The PERIMETER DECK shall be maintained free from obstructions, including PATRON seating, to preserve space required for lifesaving and rescue.

#### **5.6.9.3.2 Diaper Changing**

Diaper changing shall only be done at a designated DIAPER-CHANGING STATION.

##### **5.6.9.3.2.1 Prohibited**

Diaper changing shall be prohibited on the DECK.

#### **5.6.9.3.3 Vermin**

DECK areas shall be cleaned daily and kept free of debris, vermin, and vermin harborage.

#### **5.6.9.3.4 Original Design**

DECK surfaces shall be maintained to their original design slope and integrity.

**5.6.9.3.4.1 Crack Repair**

CRACKS shall be repaired when they may increase the potential for:

- 1) Trips or falls,
- 2) Lacerations, or
- 3) Impact the ability to properly clean and maintain the DECK area.

**5.6.9.3.5 Standing Water**

DECK areas shall be free from standing water.

**5.6.9.3.6 Drains**

DECK drains shall be cleaned and maintained to prevent blockage and pooling of water.

**5.6.9.3.7 Wet Areas**

Wet areas shall not have absorbent materials that cannot be removed for cleaning and DISINFECTION daily.

**5.6.9.3.8 Circulation Path**

Fixed equipment, loose equipment, and DECK furniture shall not intrude upon the AQUATIC VENUE CIRCULATION PATH.

**5.6.10 Aquatic Facility Maintenance**

All appurtenances, features, signage, safety and other equipment, and systems required by this CODE shall be provided and maintained.

**5.6.10.1 Diving Boards and Platforms****5.6.10.1.1 Slip-Resistant Finish**

The finish and profile of surfaces of diving boards and platforms shall be maintained to prevent slips, trips, and falls.

**5.6.10.1.2 Loose Bolts and Cracked Boards**

Diving boards shall be inspected daily for CRACKS and loose bolts with CRACKED boards removed and loose bolts tightened immediately.

**5.6.10.2 Steps and Guardrails****5.6.10.2.1 Immovable**

Steps and guardrails shall be secured so as not to move during use.

**5.6.10.2.2 Maintenance**

The profile and surface of steps shall be maintained to prevent slips and falls.

### **5.6.10.3 Starting Platforms**

The profile and surface of starting platform steps shall be in good repair to prevent slips, trips, falls, and pinch hazards.

### **5.6.10.4 Waterslides**

#### **5.6.10.4.1 Maintenance**

WATERSLIDES shall be maintained and operated to manufacturer's/designer's specifications.

#### **5.6.10.4.2 Slime and Biofilm**

Slime and biofilm layers shall be removed on all accessible WATERSLIDE surfaces.

#### **5.6.10.4.3 Flow Rates**

WATERSLIDE water flow rates shall be checked to be within designer or manufacturer's specifications prior to opening to the public.

#### **5.6.10.4.4 Disinfectant**

Where WATERSLIDE plumbing lines are susceptible to holding stagnant water, WATERSLIDE pumps shall be started with sufficient time prior to opening to flush such plumbing lines with treated water.

##### **5.6.10.4.4.1 Water Testing**

The water shall be tested to verify the disinfectant in the water is within the parameters specified in MAHC Section 5.7.3.1.1.2.

### **5.6.10.5 Fencing and Barriers**

#### **5.6.10.5.1 Maintenance**

Required fencing, BARRIERS, and gates shall be maintained at all times.

#### **5.6.10.5.2 Tested Daily**

Gates, locks, and associated alarms, if required, shall be tested daily prior to opening.

### **5.6.10.6 Aquatic Facility Cleaning**

#### **5.6.10.6.1 Cleaning**

The AQUATIC VENUE shall be kept clean of debris, organic materials, and slime/biofilm in accessible areas in the water and on surfaces.

#### **5.6.10.6.2 Vacuuming**

Vacuuming shall only be done when the AQUATIC VENUE is closed.

### **5.6.10.6.3 Port Openings**

Vacuum port openings shall be covered with an approved device cover when not in use.

#### **5.6.10.6.3.1 Damaged**

POOLS with missing or damaged vacuum port openings shall be closed and repairs made before re-opening.

## **5.7 Recirculation and Water Treatment**

### **5.7.1 Recirculation Systems and Equipment**

#### **5.7.1.1 General**

##### **5.7.1.1.1 Continuous Operation**

All components of the filtration and RECIRCULATION SYSTEMS shall be kept in continuous operation 24 hours per day.

##### **5.7.1.1.1.1 Reduced Flowrates**

The system flowrate shall not be reduced more than 25% lower than the minimum design requirements and only reduced when the POOL is unoccupied.

##### **5.7.1.1.1.1.1 System Design**

The flow turndown system shall be designed as specified in MAHC Sections 4.7.1.10.6.1 to 4.7.1.10.6.2.

##### **5.7.1.1.1.1.2 Water Clarity**

The system flowrate shall be based on ensuring the minimum water clarity required under MAHC Section 5.7.6 is met before opening to the public.

##### **5.7.1.1.1.1.2 Disinfectant Levels**

The turndown system shall be required to maintain required DISINFECTANT and pH levels at all times.

##### **5.7.1.1.2 Flow**

Flow through the various components of a RECIRCULATION SYSTEM shall be balanced according to the provisions outlined in MAHC Section 5.7.1 to maximize the water clarity and SAFETY of a POOL.

##### **5.7.1.1.3 Gutter / Skimmer Pools**

For gutter or SKIMMER POOLS with main drains, the required recirculation flow shall be as follows during normal operation:

- 1) At least 80% of the flow through the perimeter overflow system, and
- 2) No greater than 20% through the main drain.

### **5.7.1.2 Combined Venue Treatment**

Each individual AQUATIC VENUE in a combined treatment system shall meet required TURNOVER times specified in MAHC Section 5.7.1.9 and achieve all water quality criteria (*including, but not limited to, pH, disinfectant concentration, and water clarity/turbidity*).

### **5.7.1.3 Inlets**

Inlets shall be checked at least weekly for rate and direction of flow and adjusted as necessary to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the pool.

### **5.7.1.4 Surface Skimming Devices**

#### **5.7.1.4.1 Perimeter Overflow**

The PERIMETER OVERFLOW SYSTEMS shall be kept clean and free of debris that may restrict flow.

#### **5.7.1.4.2 Automatic Fill System**

The automatic fill system, when installed, shall maintain the water level at an elevation such that the gutters must overflow continuously around the perimeter of the POOL.

#### **5.7.1.4.3 Skimmer Water Levels**

The water levels shall be maintained near the middle of the SKIMMER openings.

#### **5.7.1.4.4 Flow**

The flow through each SKIMMER shall be adjusted to maintain skimming action that will remove all floating matter from the surface of the water.

#### **5.7.1.4.5 Strainer Baskets**

The strainer baskets for SKIMMERS shall be cleaned as necessary to maintain proper skimming.

#### **5.7.1.4.6 Weirs**

Weirs shall remain in place and in working condition at all times.

##### **5.7.1.4.6.1 Broken or Missing Weirs**

Broken or missing SKIMMER weirs shall be replaced immediately.

#### **5.7.1.4.7 Flotation Test**

A flotation test may be required by the AHJ to evaluate the effectiveness of surface skimming.

### 5.7.1.5 Submerged Drains/Suction Outlet Covers or Gratings

#### 5.7.1.5.1 Replaced

Loose, broken, or missing suction outlet covers and sumps shall be secured or replaced immediately and installed in accordance with the manufacturer's requirements.

#### 5.7.1.5.1.1 Closed

POOLS shall be closed until the required repairs can be completed.

#### 5.7.1.5.1.2 Close/Open Procedures

AQUATIC FACILITIES shall follow procedures for closing and re-opening whenever required as outlined in MAHC Section 5.4.1.

#### 5.7.1.5.2 Documentation

The manufacturer's documentation on all outlet covers and sumps shall be made part of the permanent records of the AQUATIC FACILITY.

### 5.7.1.6 Piping [N/A]

*See Annex discussion.*

### 5.7.1.7 Strainers & Pumps

Strainers shall be in place and cleaned as required to maintain pump performance.

### 5.7.1.8 Flow Meters

Flow meters in accordance with MAHC Section 4.7.1.9.1 shall be provided and maintained in proper working order.

### 5.7.1.9 Flow Rates / Turnovers

#### 5.7.1.9.1 New Construction or Substantially Altered Venues

AQUATIC VENUES constructed or substantially altered after the adoption of this code shall be operated at the designed flow rate to provide the required TURNOVER RATE 24-hours per day except as allowed in MAHC Section 4.7.1.10.

#### 5.7.1.9.2 Construction Before Adoption of this Code

AQUATIC VENUES constructed before the adoption of this code shall be operated 24 hours per day at their designed flow rate.

## 5.7.2 Filtration

Filters and filter media shall be listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization. Filters shall be backwashed, cleaned and maintained according to the manufacturer's instructions.

### 5.7.2.1 Granular Media Filters

#### 5.7.2.1.1 Filtration Rates

High-rate granular media filters shall be operated at no more than 15 gallons per minute per square foot (36.7 m/h) when a minimum bed depth of 15 inches (38.1 cm) is provided per manufacturer's instructions.

##### 5.7.2.1.1.1 Less than Fifteen Inch Bed Depth

When a bed depth is less than 15 inches (38.1 cm), filters shall operate at no more than 12 gallons per minute per square foot (29.3 m/h).

#### 5.7.2.1.2 Backwashing Rates

The granular media filter system shall be backwashed at a rate of at least 15 gallons per minute per square foot (36.7 m/h) of filter bed surface area as per MAHC Section 4.7.2.2.3.2, unless explicitly prohibited by the filter manufacturer and/or approved at an alternate rate as specified in the NSF/ANSI 50 listing.

#### 5.7.2.1.3 Clear Water

Backwashing should be continued until the water leaving the filter is clear.

#### 5.7.2.1.4 Backwashing Frequency

Backwashing of each filter shall be performed at a differential pressure increase over the initial clean filter pressure, as recommended by the filter manufacturer, unless the system can no longer achieve the design flow rate.

##### 5.7.2.1.4.1 Backwash Scheduling

Backwashes shall be scheduled to take place when the AQUATIC VENUE is closed for BATHER USE.

##### 5.7.2.1.4.1.1 Backwashing with Bathers Present

A filter may be backwashed while BATHERS are in the AQUATIC VENUE if all of the following criteria are met:

- 1) Multiple filters are used, and
- 2) The filter to be backwashed can be isolated from the remaining RECIRCULATION SYSTEM and filters, and
- 3) The recirculation and filtration system still continues to run as per this CODE, and
- 4) The chemical feed lines inject at a point where chemicals enter the RECIRCULATION SYSTEM after the isolated filter and where they can mix as needed.

#### 5.7.2.1.5 Filter Media Inspections

Sand or other granular media shall be inspected for proper depth and cleanliness at least one time per year, replacing the media when necessary to restore depth or cleanliness.

#### **5.7.2.1.6 Vacuum Sand Filters**

The manual air release valve of the filter shall be opened as necessary to remove any air that collects inside of the filter as well as following each backwash.

#### **5.7.2.1.7 Filtration Enhancing Products**

Products used to enhance filter performance shall be used according to manufacturers' recommendations.

### **5.7.2.2 Precoat Filters**

#### **5.7.2.2.1 Appropriate**

The appropriate media type and quantity as recommended by the filter manufacturer shall be used.

##### **5.7.2.2.1.1 Approved**

The media shall be listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization for use in the filter.

#### **5.7.2.2.2 Return to the Pool**

Precoating of the filters shall be required in closed loop (*precoat*) mode to minimize the potential for media or debris to be returned to the POOL unless filters are listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the POOL during the precoat process.

#### **5.7.2.2.3 Operation**

Filter operation shall be per manufacturer's instructions.

##### **5.7.2.2.3.1 Uninterrupted Flow**

Flow through the filter shall not be interrupted when switching from precoat mode to filtration mode unless the filters are listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization to return water to the POOL during the precoat process.

##### **5.7.2.2.3.1.1 Flow Interruption**

When a flow interruption occurs on precoat filters not designed to bump, the media must be backwashed out of the filter and a new precoat established according to the manufacturer's recommendations.

##### **5.7.2.2.3.2 Maximum Precoat Media Load**

Systems designed to flow to waste while precoating shall use the maximum recommended precoat media load permitted by the filter manufacturer to account for media lost to the waste stream during precoating.

#### **5.7.2.2.4 Cleaning**

Backwashing or cleaning of filters shall be performed at a differential pressure increase over the initial clean filter pressure as recommended by the filter manufacturer unless the system can no longer achieve the design flow rate.

#### **5.7.2.2.5 Continuous Feed Equipment**

Continuous filter media feed equipment tank agitators shall run continuously.

##### **5.7.2.2.5.1 Batch Application**

Filter media feed may also be performed via batch application.

#### **5.7.2.2.6 Bumping**

Bumping a precoat filter shall be performed in accordance with the manufacturer's recommendations.

#### **5.7.2.2.7 Filter Media**

##### **5.7.2.2.7.1 Diatomaceous Earth**

Diatomaceous earth (*DE*), when used, shall be added to precoat filters in the amount recommended by the filter manufacturer and in accordance with the specifications for the filter listing and labeling to NSF/ANSI 50 by an ANSI-accredited certification organization.

##### **5.7.2.2.7.2 Perlite**

Perlite, when used, shall be added to precoat filters in the amount recommended by the filter manufacturer and in accordance with the specifications for the filter listing and labeling to NSF/ANSI 50 by an ANSI-accredited certification organization.

### **5.7.2.3 Cartridge Filters**

#### **5.7.2.3.1 NSF Standards**

Cartridge filters shall be operated in accordance with the filter manufacturer's recommendation and be listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization.

#### **5.7.2.3.2 Filtration Rates**

The maximum operating filtration rate for any surface-type cartridge filter shall not:

- 1) Exceed the lesser of either the manufacturer's recommended filtration rate or 0.375 gallons per minute per square foot ( $0.26 L/s/m^2$ ) or
- 2) Drop below the design flow rate required to achieve the turnover rate for the aquatic venue.

### 5.7.2.3.3 Filter Elements

Active filter cartridges shall be exchanged with clean filter cartridges at a differential pressure increase over the initial clean filter pressure as recommended by the filter manufacturer unless the system can no longer achieve the design flow rate.

#### 5.7.2.3.3.1 Cleaning Procedure

The filter housing and filter cartridge shall be cleaned per manufacturer's recommendation.

##### 5.7.2.3.3.1.1 No Manufacturer Procedure

If there is no established manufacturer cleaning procedure, clean per MAHC Section 5.7.2.3.3.2 and 5.7.2.3.3.3 shall be used.

#### 5.7.2.3.3.2 Filter Housing Cleaning

The following procedures shall be implemented to clean the filter housing when no manufacturer instructions are established:

- 1) Drain filter housing to waste;
- 2) Remove the filter cartridges from the housing;
- 3) Clean the inside of the filter housing with a brush and mild detergent to remove biofilms and algae;
- 4) Rinse thoroughly; and
- 5) Mist the filter housing walls with CHLORINE bleach at a 1:10 dilution.

#### 5.7.2.3.3.3 Filter Cartridge Cleaning

The following procedures shall be implemented to clean the filter cartridge when no manufacturer instructions are established.

##### 5.7.2.3.3.3.1 Rinse Thoroughly

The cartridge shall be rinsed thoroughly with a spray nozzle.

##### 5.7.2.3.3.3.2 Pressure Washer

A pressure washer shall not be used to clean cartridge filters.

##### 5.7.2.3.3.3.3 Degrease

Cartridge filters shall be degreased each time they are cleaned per the procedures outlined in this section.

##### 5.7.2.3.3.3.4 Soak

The cartridge shall be soaked overnight in one of the following solutions:

- 1) A cartridge filter cleaner/degreaser per instructions on product label, or
- 2) A solution of water with one cup of tri-sodium phosphate (*TSP*) per five gallons of water, or
- 3) One Cup of automatic dishwashing detergent per five gallons of water.

**5.7.2.3.3.3.5 Acid**

Muriatic acid or products with acid in them shall never be used prior to degreasing.

**5.7.2.3.3.3.6 Rinse**

The filter cartridge shall be removed from the degreaser solution and rinsed thoroughly.

**5.7.2.3.3.3.7 Sanitize**

The filter cartridge shall be SANITIZED by soaking for one hour in a bleach solution made by mixing one quart of household bleach per five gallons (18.9 L) of water.

**5.7.2.3.3.3.8 Rinse**

After soaking for one hour, the sanitized filter cartridge shall be removed and rinsed thoroughly.

**5.7.2.3.4 Spare Cartridge**

One full set of spare cartridges shall be maintained on site in a clean and dry condition.

**5.7.3 Disinfection and pH Control****5.7.3.1 Primary Disinfectants**

Only the primary disinfectants outlined in MAHC Section 5.7.3 shall be acceptable for use in AQUATIC VENUES.

**5.7.3.1.1 Chlorine (Hypochlorites)****5.7.3.1.1.1 EPA Registered**

Only CHLORINE products that are EPA-REGISTERED for use as sanitizers or disinfectants in AQUATIC VENUES or SPAS in the United States are permitted.

**5.7.3.1.1.2 Minimum FAC Concentrations**

Minimum FAC concentrations shall be maintained at all times in all areas as follows in MAHC Sections 5.7.3.1.1.2.1 to 5.7.3.1.1.2.3.

**5.7.3.1.1.2.1 Not Using Cyanuric Acid**

AQUATIC VENUES **not** using cyanuric acid shall maintain a minimum FAC concentration of 1.0 PPM (MG/L).

**5.7.3.1.1.2.2 Using Cyanuric Acid**

AQUATIC VENUES using cyanuric acid shall maintain a minimum FAC concentration of 2.0 PPM (MG/L).

**5.7.3.1.1.2.3 Spas**

SPAS shall maintain a minimum FAC concentration of 3.0 PPM (MG/L).

#### 5.7.3.1.1.3 Stagnant Water Lines

Recirculated AQUATIC FEATURE water lines susceptible to holding stagnant water shall maintain disinfectant throughout the lines as per MAHC Section 5.7.3.1.1.2.

#### 5.7.3.1.1.4 Consistent with Label Instructions

FAC concentrations shall be consistent with label instructions.

#### 5.7.3.1.1.5 Maximum FAC Concentrations

Maximum FAC concentrations shall not exceed 10.0 PPM (MG/L) at any time the AQUATIC VENUE is open to bathers.

### 5.7.3.1.2 Bromine

#### 5.7.3.1.2.1 EPA Registered

Only bromine products that are EPA-REGISTERED for use as sanitizers or DISINFECTANTS in AQUATIC VENUES or SPAS in the United States shall be permitted.

*Note: Bromine-based disinfectants may be applied to AQUATIC VENUES and SPAS through the addition of an organic bromine compound (1,3-Dibromo-5,5-dimethylhydantoin (DBDMH) or 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH)).*

#### 5.7.3.1.2.2 Minimum Bromine Concentrations

Minimum bromine concentrations shall be maintained at all times in all areas as follows:

- 1) All AQUATIC VENUES: 3.0 PPM (MG/L), and
- 2) SPAS: 4.00 PPM (MG/L).

### 5.7.3.1.3 Stabilizers

#### 5.7.3.1.3.1 Cyanuric Acid (CYA)

Cyanuric acid or stabilized CHLORINE products shall ***not*** be used at the following for all new construction, SUBSTANTIAL ALTERATION, or DISINFECTION equipment replacements after the effective date of this CODE:

- 1) SPAS; and
- 2) THERAPY POOLS.

#### 5.7.3.1.3.1.1 Replacement Times

These AQUATIC VENUES shall no longer use cyanuric acid or stabilized CHLORINE products no later than four years after adoption of this CODE.

#### 5.7.3.1.3.2 Aquatic Venues

The cyanuric acid level at all AQUATIC VENUES shall remain at or below 100 PPM (MG/L).

**5.7.3.1.4 Compressed Chlorine Gas**

As per MAHC Section 4.7.3.2.4.1, use of compressed CHLORINE gas shall be prohibited for new construction and after SUBSTANTIAL ALTERATION to existing AQUATIC FACILITIES.

**5.7.3.1.4.1 Safety Requirements**

Facilities using compressed CHLORINE gas shall provide SAFETY precautions per the following MAHC sub-sections.

**5.7.3.1.4.1.1 Separate Enclosure**

The chlorinators and any cylinders containing CHLORINE gas used therewith shall be housed in an ENCLOSURE separated from other EQUIPMENT ROOMS, including the swimming POOL, corridors, dressing rooms and other space with a door so installed as to prevent gas leakage and equipped with an inspection window.

**5.7.3.1.4.1.2 Secured**

CHLORINE cylinders shall be secured from falling.

**5.7.3.1.4.1.3 Cylinders in Use**

Cylinders in use shall be secured on a suitable platform scale.

**5.7.3.1.4.1.4 Vent to Exterior**

A separate vent opening to the exterior shall be provided.

**5.7.3.1.4.1.5 Fan**

An electric motor-driven fan shall take suction from near the floor level of the ENCLOSURE and discharge at a suitable point to the exterior above the ground level.

**5.7.3.1.4.1.5.1 Fan Switch**

The fan switch shall be able to be operated from outside of the ENCLOSURE.

**5.7.3.1.4.1.6 Trained Operator**

Any person who operates such chlorinating equipment shall be trained in its use.

**5.7.3.1.4.1.7 Stop Use**

Facilities shall stop the use of CHLORINE gas if specific SAFETY equipment and training requirements, along with local CODE considerations, cannot be met.

**5.7.3.1.5 Salt Electrolytic Chlorine Generators, Brine Electrolytic Chlorine or Bromine Generators****5.7.3.1.5.1 Pool Grade Salt**

Only POOL grade salt shall be used.

**5.7.3.1.5.2 Maintained**

The saline content of the POOL water shall be maintained in the required range specified by the manufacturer.

**5.7.3.1.5.3 Cleaning**

Cleaning of electrolytic plates shall be performed as recommended by the manufacturer.

**5.7.3.1.5.4 Corrosion Protection**

Corrosion protection systems shall be maintained in the POOL basin.

**5.7.3.2 Secondary or Supplemental Treatment Systems****5.7.3.2.1 Ultraviolet Light****5.7.3.2.1.1 Operate with Recirculation System**

UV systems shall only operate while the RECIRCULATION SYSTEM is operating.

**5.7.3.2.1.2 3-Log Inactivation**

Secondary UV systems shall be operated and maintained not to exceed the maximum validated flow rate and meet or exceed the minimum validated output intensity needed to achieve the required dose for a 3-log inactivation.

**5.7.3.2.1.3 Free Available Chlorine and Bromine Levels**

Use of UV does not modify any other water quality requirements.

**5.7.3.2.1.4 Calibrated Sensors**

UV sensors shall be calibrated at a frequency in accordance with manufacturer recommendations.

**5.7.3.2.1.5 Records**

Records of calibration shall be maintained by the facility.

**5.7.3.2.2 Ozone****5.7.3.2.2.1 3-Log Inactivation**

Ozone systems shall be operated and maintained according to the manufacturer's instructions to maintain the required design performance.

**5.7.3.2.2.2 Residual Ozone Concentration**

Residual ozone concentration in the AQUATIC VENUE water shall remain below 0.1 PPM (MG/L).

**5.7.3.2.2.3 Free Available Chlorine and Bromine Levels**

Use of ozone does not modify any other water quality requirements.

#### 5.7.3.2.2.4 Standard Operating Manual

A printed STANDARD operating manual shall be provided containing information on the operation and maintenance of the ozone generating equipment, including the responsibilities of workers in an emergency.

#### 5.7.3.2.2.5 Employees Trained

All employees shall be properly trained in the operation and maintenance of the equipment.

### 5.7.3.2.3 Copper / Silver Ions

#### 5.7.3.2.3.1 EPA Registered

Only those systems that are EPA-REGISTERED for use as sanitizers or disinfectants in AQUATIC VENUES or SPAS in the United States are permitted.

#### 5.7.3.2.3.2 Concentrations

Copper and silver concentrations shall not exceed 1.3 PPM (MG/L) for copper and 0.10 PPM (MG/L) for silver for use as disinfectants in AQUATIC VENUES and SPAS in the United States.

#### 5.7.3.2.3.3 Free Available Chlorine and Bromine Levels

FREE AVAILABLE CHLORINE or bromine levels shall be maintained in accordance with MAHC Section 5.7.3.1.1 or 5.7.3.1.2, respectively.

### 5.7.3.3 Other Sanitizers, Disinfectants, or Chemicals

Other sanitizers, disinfectants, or chemicals used must:

- 1) Be U.S. EPA-REGISTERED under the Federal Insecticide, Fungicide, and Rodenticide Act (*FIFRA*) and,
- 2) Not create a hazardous condition or compromise disinfectant efficacy when used with required bromine or CHLORINE concentrations, and
- 3) Not interfere with water quality measures meeting all criteria set forth in this CODE.

#### 5.7.3.3.1 Chlorine Dioxide

CHLORINE dioxide shall only be used for remediation for water quality issues when the AQUATIC VENUE is closed and BATHERS are not present.

#### 5.7.3.3.1.1 Safety Considerations

SAFETY training and SAFETY precautions related to use of CHLORINE dioxide shall be in place.

#### 5.7.3.3.2 Clarifiers, Flocculants, Defoamers

Clarifiers, flocculants, and defoamers shall be used per manufacturer's instructions.

**5.7.3.4 pH****5.7.3.4.1 pH levels**

The pH of the water shall be maintained between 7.2 and 7.8.

**5.7.3.4.2 Approved Substances**

Approved substances for pH adjustment shall include but not be limited to muriatic (*hydrochloric*) acid, sodium bisulfate, carbon dioxide, sulfuric acid, sodium bicarbonate, and soda ash.

**5.7.3.5 Feed Equipment****5.7.3.5.1 Acceptable Chemical Delivery**

Acceptable disinfectant and pH control chemicals shall be delivered through an automatic chemical feed system upon adoption of this code.

**5.7.3.5.1.1 Dedicated and Labeled Components**

All chemical feed system components must be dedicated to a single chemical and clearly labeled to prevent the introduction of incompatible chemicals.

**5.7.3.5.1.2 Installed and Interlocked**

Chemical feed system components shall be installed and interlocked so it cannot operate when the RECIRCULATION SYSTEM is in low or no flow circumstances as per MAHC Section 4.7.3.2.1.3.

**5.7.3.5.1.3 Fail Proof Safety Features**

Chemical feed system components shall incorporate failure-proof features so the chemicals cannot feed directly into the AQUATIC VENUE, the venue piping system not associated with the RECIRCULATION SYSTEM, source water supply system, or area within proximity of the AQUATIC VENUE DECK under any type of failure, low flow, or interruption of operation of the equipment to prevent BATHER exposure to high concentrations of AQUATIC VENUE treatment chemicals.

**5.7.3.5.1.4 Maintained**

All chemical feed equipment shall be maintained in good working condition.

**5.7.3.5.2 Chemical Feeders**

Chemical feeders shall be installed such that they are not over chemical STORAGE containers, other feeders, or electrical equipment.

**5.7.3.5.3 Dry Chemical Feeders**

Chemicals shall be kept dry to avoid clumping and potential feeder plugging for mechanical gate or rotating screw feeders.

**5.7.3.5.3.1 Cleaned and Lubricated**

The feeder mechanism shall be cleaned and lubricated to maintain a reliable feed system.

**5.7.3.5.4 Venturi Inlet**

Adequate pressure shall be maintained at the venturi INLET to create the vacuum needed to draw the chemical into the RECIRCULATION SYSTEM.

**5.7.3.5.5 Erosion Feeders**

Erosion feeders shall only have chemicals added that are approved by the manufacturer.

**5.7.3.5.5.1 Opened**

A feeder shall only be opened after the internal pressure is relieved by a bleed valve.

**5.7.3.5.5.2 Maintained**

Erosion feeders shall be maintained according the manufacturer's instructions.

**5.7.3.5.6 Liquid Solution Feeders**

For liquid solution feeders, spare feeder tubes (*or tubing*) shall be maintained onsite for peristaltic pumps.

**5.7.3.5.7 Checked Daily**

Tubing and connections shall be checked on a daily basis for leaks.

**5.7.3.5.7.1 Routed**

All chemical tubing that runs through areas where staff walk shall be routed in PVC piping to support the tubing and to prevent leaks.

**5.7.3.5.7.1.1 Size**

The double containment PVC pipe shall be of sufficient size to allow for easy replacement of tubing.

**5.7.3.5.7.1.2 Turns**

Any necessary turns in the piping shall be designed so as to prevent kinking of the tubing.

**5.7.3.5.8 Gas Feed Systems**

The Chlorine Institute requirements for safe STORAGE and use of CHLORINE gas shall be followed.

**5.7.3.5.9 Carbon Dioxide**

Carbon dioxide feed shall be permitted to reduce pH.

**5.7.3.5.9.1 Controlled**

Carbon dioxide feed shall be controlled using a gas regulator.

**5.7.3.5.9.2 Alarm Monitor**

CO<sub>2</sub>/O<sub>2</sub> monitor and alarm shall be maintained in working condition.

**5.7.3.5.9.3 Forced Ventilation**

Carbon dioxide is heavier than air, so forced ventilation shall be maintained in the STORAGE room.

**5.7.3.6 Testing for Water Circulation and Quality****5.7.3.6.1 Available**

WATER QUALITY TESTING DEVICES (*WQTDs*) for the measurement of disinfectant residual, pH, alkalinity, CYA (*if used*), and temperature, at a minimum, shall be available on site.

**5.7.3.6.1.1 Expiration Dates**

WQTDs utilizing reagents shall be checked for expiration at every use and the date recorded.

**5.7.3.6.2 Store**

WQTDs shall be stored in accordance with manufacturer's instructions.

**5.7.3.6.3 Temperature**

Chemical testing reagents shall be maintained at proper manufacturer specified temperatures.

**5.7.3.6.4 Calibration**

WQTDs that require calibration shall be calibrated in accordance with manufacturer's instructions and the date of calibration recorded.

**5.7.3.7 Automated Controllers and Equipment Monitoring****5.7.3.7.1 Use of Controller**

A automated controller capable of measuring the disinfectant residual (*FREE AVAILABLE chlorine or bromine*) or surrogate such as ORP shall be used to maintain the disinfectant residual in AQUATIC VENUES as outlined in MAHC Section 4.7.3.2.8.

**5.7.3.7.1.1 Installed**

AN AUTOMATED CONTROLLER shall be required within one year from time of adoption of this CODE.

**5.7.3.7.1.2 Interlocked**

AUTOMATED CONTROLLERS shall be interlocked per MAHC Section 4.7.3.2.1.3 upon adoption of this code if existing or upon installation if not existing.

**5.7.3.7.2 Sampling**

The sample line for all probes shall be upstream from all primary, secondary, and supplemental DISINFECTION injection ports or devices.

**5.7.3.7.3 Monitor**

AUTOMATED CONTROLLERS shall be monitored at the start of the operating day to ensure proper functioning.

**5.7.3.7.3.1 In Person**

AUTOMATED CONTROLLERS shall be monitored in person by visual observation.

**5.7.3.7.4 Activities**

MONITORING shall include activities recommended by manufacturers, including but not limited to alerts and leaks.

**5.7.3.7.5 Replacement Parts**

Only manufacturer-approved OEM replacement parts shall be used.

**5.7.3.7.6 Calibration**

AUTOMATED CONTROLLERS shall be calibrated per manufacturer directions.

**5.7.3.7.7 Ozone System**

When an ozone system is utilized as a SECONDARY DISINFECTION SYSTEM, the system shall be monitored and data recorded at a frequency consistent with MAHC Table 5.7.3.7.7.

**Table 5.7.3.7.7: Ozone System Monitoring Frequency**

<i>Parameter</i>	<i>Monitoring Frequency</i>	<i>Recording Frequency</i>
<b>ORP</b>	Continuous	Every 4 hours
<b>Control System Indicating O<sub>3</sub> Being Created</b>	Continuous	Every 4 Hours
<b>Operational Indicators in Range</b>	Continuous	Every 4 hours
<b>O<sub>3</sub> Within 6 inches of Aquatic Venue Water Surface</b>	Annual	Annual

### 5.7.3.7.7.1 Other Testing

At the time the ozone generating equipment is installed, again after 24 hours of operation, and annually thereafter, the air space within six inches of the AQUATIC VENUE water shall be tested to determine compliance of less than 0.1 PPM (*mg/L*) gaseous ozone.

#### 5.7.3.7.7.1.1 Results

Results of the test shall be maintained on site for review by the AHJ.

### 5.7.3.7.8 UV Systems

When a UV system is utilized for secondary disinfection, the system shall be monitored and data recorded at a frequency consistent with MAHC Table 5.7.3.7.8.

**Table 5.7.3.7.8: UV System Monitoring and Calibration Frequency**

<i>Parameter</i>	<i>Monitoring Frequency</i>	<i>Recording Frequency</i>
<b>Flow Rate</b>	Continuous	Every 4 Hours
<b>Intensity</b>	Continuous	Every 4 Hours
<b>Water Temperature</b> <i>(MP Medium Pressure)</i>	Continuous	Daily
<b>Set Point for Intensity</b>	Continuous	Daily
<b>UV Lamp On/Off Cycles</b>	Continuous	Weekly <i>(Total Cycles/Week)</i>
<b>Iron, Calcium Hardness</b>	Weekly <i>(If Fouling is Prevalent)</i>	Weekly
<b>UVT</b> <i>(UV Transmittance)</i> <b>Analyzer Calibration</b>	Weekly	Weekly
<b>Calibration of Intensity</b>	Annual	At Time of Calibration
<b>Calibration of Flow Meter</b>	Per Manufacturer's Requirements	At Time of Calibration

#### **5.7.3.7.9 UV Alarm Testing and Maintenance**

The automated UV shut-down alarm required in MAHC Section 4.7.3.3.3.7 shall be tested weekly and maintained as needed.

### **5.7.4 Water Sample Collection and Testing**

#### **5.7.4.1 Sample Collection**

The QUALIFIED OPERATOR shall ensure a water sample is acquired for testing from the in-line sample port when available as per MAHC Section 5.7.5.

##### **5.7.4.1.1 Same Volume**

If an AQUATIC VENUE has more than one RECIRCULATION SYSTEM, the same sample volume shall be collected from each in-line sample port and tested separately.

##### **5.7.4.1.2 No Port**

If no in-line sample port is available, the QUALIFIED OPERATOR shall ensure water samples from the AQUATIC VENUE are acquired according to MAHC Section 5.7.4.3.

#### **5.7.4.2 Routine Samples**

If routine samples are collected from in-line sample ports, the QUALIFIED OPERATOR shall also ensure water samples are acquired from the bulk water of the AQUATIC VENUE at least once per day.

##### **5.7.4.2.1 Midday Collection**

Daily bulk water samples shall be collected in the middle of the AQUATIC VENUE operational day, according to the procedures in MAHC Section 5.7.4.3.

##### **5.7.4.2.2 Compared**

Water quality data from these AQUATIC VENUE samples shall be compared to data obtained from in-line port samples to assess potential water quality variability in the AQUATIC VENUE.

#### **5.7.4.3 Bulk Water Sample**

The QUALIFIED OPERATOR shall ensure the following procedure is used for acquiring a water sample from bulk water of the POOL.

##### **5.7.4.3.1 Obtain Sample**

All samples shall be obtained from a location with the following qualities:

- 1) At least 18 inches (45.7 cm) below the surface of the water, and
- 2) A water depth of between three to four feet (91.4 cm to 1.2 m) when available, and
- 3) A location between water inlets.

**5.7.4.3.2 Rotate**

Sampling locations shall rotate around the shallow end of the POOL.

**5.7.4.3.3 Deepest Area**

The QUALIFIED OPERATOR shall ensure a sample includes a deep end sample from the AQUATIC VENUE in the water sampling rotation once per week.

**5.7.4.4 Aquatic Venue Water Chemical Balance****5.7.4.4.1 Total Alkalinity Levels**

Total alkalinity shall be maintained in the range of 60 to 180 PPM (mg/L).

**5.7.4.4.2 Combined Chlorine (Chloramines)**

The owner shall ensure the AQUATIC facility takes action to reduce the level of combined chlorine (chloramines) in the water when the level exceeds 0.4 PPM(mg/L). Such actions may include but are not limited to:

- 1) Superchlorination;
- 2) Water exchange; or
- 3) Patron adherence to appropriate BATHER hygiene practices.

**5.7.4.4.3 Calcium Hardness**

Calcium hardness shall not exceed 1000 PPM (MG/L).

**5.7.4.4.4 Algaecides**

Algaecides may be used in an AQUATIC VENUE provided:

- 1) The product is labeled as an algaecide for AQUATIC VENUE or SPA use;
- 2) The product is used in strict compliance with label instructions; and,
- 3) The product is registered with the US EPA and applicable state agency.

**5.7.4.5 Source (Fill) Water**

The owner of a public AQUATIC VENUE, public SPA, or special use AQUATIC VENUE shall ensure that the water supply for the facility meets one of the following requirements:

- 1) The water comes from a public water system as defined by the applicable rules of the AHJ in which the facility is located; or
- 2) The water meets the requirements of the local AHJ for public water systems; or
- 3) The AHJ has approved an alternative water source for use in the AQUATIC FACILITY.

**5.7.4.6 Water Balance for Aquatic Venues**

AQUATIC VENUE water shall be chemically balanced.

### 5.7.4.7 Water Temperature

#### 5.7.4.7.1 Minimize Risk and Protect Safety

Water temperatures shall be considered and planned for based on risk, SAFETY, priority facility usage, and age of participants, while managing water quality concerns.

#### 5.7.4.7.2 Maximum Temperature

The maximum temperature for an AQUATIC VENUE is 104° F (40°C).

### 5.7.5 Water Quality Chemical Testing Frequency

#### 5.7.5.1 Chemical Levels

FREE AVAILABLE CHLORINE (*FAC*), combined available CHLORINE (*CAC*), or total bromine (*TB*), and pH shall be tested at all AQUATIC VENUES prior to opening each day.

#### 5.7.5.2 Manual Disinfectant Feed System

For all AQUATIC VENUES using a manual DISINFECTANT feed system that delivers DISINFECTANT via a flow through erosion feeder or metering pump without an automated controller, FREE AVAILABLE CHLORINE or bromine and pH shall be tested prior to opening to the public and every two hours while open to the public.

#### 5.7.5.3 Automatic Disinfectant Feed System

For all AQUATIC VENUES using an automated disinfectant feed system, *FAC* (*or TB*) and pH shall be tested prior to opening and every four hours while open to the public.

#### 5.7.5.4 In-Line ORP Readings

In-line ORP readings, if such systems are installed, shall be recorded at the same time the *FAC* (*or TB*) and pH tests are performed.

#### 5.7.5.5 Total Alkalinity

Total Alkalinity (*TA*) shall be tested weekly at all AQUATIC VENUES.

#### 5.7.5.6 Calcium Hardness

Calcium hardness shall be tested monthly at all AQUATIC VENUES.

#### 5.7.5.7 Cyanuric Acid

Cyanuric acid shall be tested monthly at all AQUATIC VENUES utilizing cyanuric acid.

#### 5.7.5.8 Saturation Index

The SATURATION INDEX shall be checked monthly.

##### 5.7.5.8.1 Tested

Cyanuric acid shall be tested 24 hours after the addition of cyanuric acid to the AQUATIC VENUE.

**5.7.5.8.2 Stabilized Chlorine**

If AQUATIC VENUES utilize stabilized CHLORINE as its primary disinfectant, the operator shall test cyanuric acid every two weeks.

**5.7.5.9 Total Dissolved Solids**

Total dissolved solids (*TDS*) shall be tested quarterly at all AQUATIC VENUES.

**5.7.5.10 Water Temperature**

For heated AQUATIC VENUES, water temperature shall be recorded at the same time the FAC (*or TB*) and pH tests are performed.

**5.7.5.11 Salt**

If in-line electrolytic chlorinators are used, salt levels shall be tested at least weekly or per manufacturer's instructions.

**5.7.5.12 Copper/Silver Systems**

Copper and silver shall be tested daily at all AQUATIC VENUES utilizing copper/silver systems as a supplemental treatment system.

**5.7.6 Water Clarity****5.7.6.1 Water Clarity**

The water in an AQUATIC VENUE shall be sufficiently clear such that the bottom is visible while the water is static at all times the AQUATIC VENUE is open or available for use .

**5.7.6.1.1 Observation**

To make this observation, a four inch by four inch square (*10.2 cm X 10.2 cm*) marker tile in a contrasting color to the POOL floor or main suction outlet shall be located at the deepest part of the POOL.

**5.7.6.1.2 Pools Over Ten Feet Deep**

For POOLS over ten feet (*3.0 m*) deep, an eight inch by eight inch square (*20.3 X 20.3 cm*) marker tile in a contrasting color to the POOL floor or main suction outlet shall be located at the deepest part of the POOL.

**5.7.6.1.3 No Marker Tile**

In the absence of a marker tile or suction outlet, an alternate means of achieving the goal of observing the bottom of the POOL may be permitted.

**5.7.6.2 Visible**

This reference point shall be visible at all times at any point on the DECK up to 30 feet (*9.1 m*) away in a direct line of sight from the tile or main drain.

### **5.7.6.2.1 Spas**

For SPAS, this test shall be performed when the water is in a non-turbulent state and bubbles have been allowed to dissipate.

## **5.8 Decks and Equipment**

### **5.8.1 Spectator Areas**

#### **5.8.1.1 Cross-Connection Control**

##### **5.8.1.1.1 Deck Drains**

Cross connection devices shall be in good working order, and shall be tested as required by the AHJ.

#### **5.8.1.2 Materials / Slip Resistance**

##### **5.8.1.2.1 Clean and Good Repair**

Surfaces shall be clean and in good repair.

##### **5.8.1.2.2 Risk Management**

The finish and profile of DECK surfaces shall be maintained to prevent slips and falls.

##### **5.8.1.2.3 Tripping Hazards**

Tripping hazards shall be avoided.

###### **5.8.1.2.3.1 Protect**

If tripping hazards are present, they shall be repaired or promptly barricaded to protect PATRONS/employees.

#### **5.8.1.3 Deck Size/Width**

The perimeter deck shall be maintained clear of obstructions for at least a four foot (1.2 m) width around the entire pool unless otherwise allowed by this code.

### **5.8.2 Diving Boards and Platforms [N/A]**

### **5.8.3 Starting Blocks**

#### **5.8.3.1 Competitive Training and Competition**

Starting platforms shall only be used for competitive swimming and training.

##### **5.8.3.1.1 Supervision**

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

**5.8.3.1.2 Removed or Restricted**

Starting platforms shall be removed, if possible, or prohibited from use during all recreational or non-competitive swimming activity by covering platforms with a manufacturer-supplied platform cover or with another means or device that is readily visible and clearly prohibits use.

**5.8.4 Pool Slides [N/A]****5.8.5 Lifeguard-and Safety Related Equipment****5.8.5.1 Equipment Inspection and Maintenance**

AQUATIC FACILITIES shall not be open to users unless the equipment listed under MAHC Section 5.8.5 is present and in a safe and working condition.

**5.8.5.2 Safety Equipment Required at All Aquatic Facilities****5.8.5.2.1 Emergency Communication Equipment****5.8.5.2.1.1 Functioning Communication Equipment**

The AQUATIC FACILITY shall have equipment for staff to communicate in cases of emergency.

**5.8.5.2.1.2 Hard-Wired Telephone for 911 Call**

The AQUATIC FACILITY or each AQUATIC VENUE, as necessary, shall have a functional telephone or other communication system or device that is hard wired and capable of directly dialing 911 or function as the emergency notification system.

**5.8.5.2.1.3 Conspicuous and Easily Accessible**

The telephone or communication system or device shall be conspicuously provided and accessible to AQUATIC VENUE users such that it can be reached immediately.

**5.8.5.2.1.4 Alternate Communication Systems**

Alternate functional systems, devices, or communication processes are allowed with AHJ approval in situations when a hardwired telephone is not logistically sound, and an alternate means of communication is available.

**5.8.5.2.2 First Aid Equipment****5.8.5.2.2.1 Location for First Aid**

The AQUATIC FACILITY shall have designated locations for emergency and first aid equipment.

**5.8.5.2.2.2 First Aid Supplies**

An adequate supply of first aid supplies shall be continuously stocked and include, at a minimum, as follows:

- 1) A First Aid Guide,
- 2) Absorbent compress,
- 3) Adhesive bandages,
- 4) Adhesive tape,
- 5) Sterile pads,
- 6) Disposable gloves,
- 7) Scissors,
- 8) Elastic wrap,
- 9) Emergency blanket,
- 10) Resuscitation mask with one-way valve, and
- 11) Blood borne pathogen spill kit.

**5.8.5.2.3 Signage****5.8.5.2.3.1 Sign Indicating First Aid Location**

Signage shall be provided at the AQUATIC FACILITY or each AQUATIC VENUE, as necessary, which clearly identifies the following:

- 1) First aid location(s), and
- 2) Emergency telephone(s) or approved communication system or device.

**5.8.5.2.3.2 Emergency Dialing Instructions**

A permanent sign providing emergency dialing directions and the AQUATIC FACILITY address shall be posted and maintained at the emergency telephone, system or device.

**5.8.5.2.3.3 Management Contact Info**

A permanent sign shall be conspicuously posted and maintained displaying contact information for emergency personnel and AQUATIC FACILITY management.

**5.8.5.2.3.4 Hours of Operation**

A sign shall be posted stating the following:

- 1) The operating hours of the AQUATIC FACILITY, and
- 2) Unauthorized use of the AQUATIC FACILITY outside of these hours is prohibited.

**5.8.5.3 Safety Equipment Required at Facilities with Lifeguards****5.8.5.3.1 UV Protection for Chairs and Stands**

When a chair or stand is provided and QUALIFIED LIFEGUARDS can be exposed to ultraviolet radiation, the chair or stand shall be equipped with or in a location with protection from such ultraviolet radiation exposure.

### **5.8.5.3.2 Spinal Injury Board**

At least one spinal injury board constructed of material easily SANITIZED/disinfected shall be provided.

#### **5.8.5.3.2.1 Spinal Injury Board Components**

The board shall be equipped with a head immobilizer and sufficient straps to immobilize a person to the spinal injury board.

### **5.8.5.3.3 Rescue Tube Immediately Available**

Each QUALIFIED LIFEGUARD conducting PATRON surveillance with the responsibility of in-water rescue in less than three feet (0.9 m) of water shall have a rescue tube immediately available for use.

### **5.8.5.3.4 Rescue Tube on Person**

Each QUALIFIED LIFEGUARD conducting PATRON surveillance in a water depth of three feet (0.9 m) or greater shall have a rescue tube on his/her person in a rescue ready position.

### **5.8.5.3.5 Identifying Uniform**

QUALIFIED LIFEGUARDS shall wear attire that readily identifies them as members of the AQUATIC FACILITY'S lifeguard staff.

### **5.8.5.3.6 Signal Device**

A whistle or other signaling device shall be worn by each QUALIFIED LIFEGUARD conducting PATRON surveillance for communicating to users and/or staff.

### **5.8.5.3.7 Sun Blocking Methods**

All AQUATIC FACILITIES where QUALIFIED LIFEGUARDS can be exposed to ultraviolet (UV) radiation shall train lifeguards about the use of protective clothing, hats, sun-blocking umbrellas, and sunscreen application and re-application using or exceeding SPF Level 15 to protect exposed skin areas.

#### **5.8.5.3.7.1 Lifeguards Responsible**

QUALIFIED LIFEGUARDS are responsible for protecting themselves from UV radiation exposure and wearing appropriate sunglasses and sunscreen.

### **5.8.5.3.8 Polarized Sunglasses**

When glare impacts the ability to see below the water's surface, QUALIFIED LIFEGUARDS shall wear polarized sunglasses while conducting BATHER surveillance.

### **5.8.5.3.9 Personal Protective Equipment**

Personal protective devices including a resuscitation mask with one-way valve and non-latex one-use disposable gloves shall be immediately available to all QUALIFIED LIFEGUARDS.

**5.8.5.3.10 Rescue Throwing Device**

AQUATIC FACILITIES with one QUALIFIED LIFEGUARD shall provide and maintain a U.S. Coast Guard-approved aquatic rescue throwing device as per the specifications of MAHC Section 5.8.5.4.1.

**5.8.5.3.11 Reaching Pole**

AQUATIC FACILITIES with one QUALIFIED LIFEGUARD shall provide and maintain a reaching pole as per the specifications of MAHC Section 5.8.5.4.2.

**5.8.5.4 Safety Equipment and Signage Required at Facilities without Lifeguards****5.8.5.4.1 Throwing Device**

AQUATIC VENUES whose depth exceeds two feet (61.0 cm) of standing water shall provide and maintain a U.S. Coast Guard-approved aquatic rescue throwing device, with at least a quarter-inch (6.3 mm) thick rope whose length is 50 feet (15.2 m) or 1.5 times the width of the POOL, whichever is less.

**5.8.5.4.1.1 Throwing Device Location**

The rescue throwing device shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS.

**5.8.5.4.2 Reaching Pole**

AQUATIC VENUES whose depth exceeds two feet (61 cm) of standing water shall provide and maintain a reaching pole of 12 foot (3.7 m) to 16 foot (4.9 m) in length, non-telescopic, light in weight, and with a securely attached Shepherd's Crook with an aperture of at least 18 inches (45.7 cm).

**5.8.5.4.2.1 Reaching Pole Location**

The reaching pole shall be located in the immediate vicinity to the AQUATIC VENUE and be accessible to BATHERS and PATRONS.

**5.8.5.4.2.2 Non-Conductive Material**

Reaching poles provided by the AQUATIC FACILITY after the adoption date of this code shall be of non-conductive material.

**5.8.5.4.3 CPR Posters**

Cardiopulmonary Resuscitation (CPR) posters that are up to date with latest CPR programs and protocols shall be posted conspicuously at all times.

**5.8.5.4.4 Imminent Hazard Sign**

A sign shall be posted outlining the IMMINENT HEALTH HAZARDS, which require AQUATIC VENUE or AQUATIC FACILITY closure as defined in this CODE per MAHC 6.6.3.1 and a telephone number to report problems to the owner/operator.

#### **5.8.5.4.5 Additional Signage**

For any AQUATIC VENUE with standing water, a sign shall be posted signifying a QUALIFIED LIFEGUARD is not on duty and that the following rules apply:

- 1) Persons under the age of 14 cannot be in the AQUATIC VENUE without direct adult supervision meaning children shall be in adult view at all times, and
- 2) Youth and childcare groups, training, lifeguard courses, and swim lessons are not allowed without a QUALIFIED LIFEGUARD providing PATRON surveillance.

### **5.8.6 Barriers and Enclosures**

#### **5.8.6.1 General Requirements**

All required BARRIERS and ENCLOSURES shall be maintained to prevent unauthorized entry to the protected space.

#### **5.8.6.2 Construction Requirements (N/A)**

#### **5.8.6.3 Gates and Doors**

##### **5.8.6.3.1 Self-Closing and Latching**

All primary public access gates or doors serving as part of an ENCLOSURE shall have functional self-closing and self-latching closures.

##### **5.8.6.3.1.1 Exception**

Gates or doors used solely for after-hours maintenance shall remain locked at all times when not in use by staff.

##### **5.8.6.3.1.2 Propping Open**

Required self-closing and self-latching gates or doors serving as part of a guarded ENCLOSURE may be maintained in the open position when the AQUATIC VENUE is open and staffed as required.

## **5.9 Filter/Equipment Room**

### **5.9.1 Chemical Storage**

#### **5.9.1.1 Local Codes**

Chemical STORAGE shall be in compliance with local building and fire CODES.

#### **5.9.1.2 OSHA and EPA**

Chemical handling shall be in compliance with OSHA and EPA regulations.

#### **5.9.1.3 Safety Data Sheets**

For each chemical, STORAGE, handling and use of the chemical shall be in compliance with the manufacturer's Safety Data Sheets (SDS) and labels.

**5.9.1.4 Access Prevention**

AQUATIC VENUE chemicals shall be stored to prevent access by unauthorized individuals.

**5.9.1.5 Protected**

AQUATIC VENUE chemicals shall be stored so that they are protected from getting wet.

**5.9.1.6 No Mixing**

AQUATIC VENUE chemicals shall be stored so that if the packages were to leak, no mixing of incompatible materials would occur.

**5.9.1.6.1 SDS Consulted**

Safety Data Sheets (SDS) shall be consulted for incompatibilities.

**5.9.1.7 Ignition Sources**

Possible ignition sources , including but not limited to gasoline, diesel, natural gas, or gas-powered equipment such as lawn mowers, motors, grills, POOL heaters, or portable stoves shall not be stored or installed in the CHEMICAL STORAGE SPACE.

**5.9.1.8 Smoking**

Smoking shall be prohibited in the CHEMICAL STORAGE SPACE.

**5.9.1.9 Lighting**

Lighting shall be at minimum 30 footcandles (*323 lux*) to allow operators to read labels on containers throughout the CHEMICAL STORAGE SPACE and pump room.

**5.9.1.10 PPE**

Personal Protective Equipment (*PPE*) shall be available as indicated on the chemical SDSs.

**5.9.1.11 Storage**

Chemicals shall be stored away from direct sunlight, temperature extremes, and high humidity.

**5.9.1.12 Single Container**

A single container of a particular chemical that has been opened and that is currently in use in the pump room may be kept in a staging area of the pump room only if the chemical(s) will be protected from exposure to heat and moisture.

**5.9.1.13 Separate**

The CHEMICAL STORAGE SPACE shall be separate from the EQUIPMENT ROOM.

#### **5.9.1.13.1 Waiver**

For AQUATIC FACILITIES that do not currently have a CHEMICAL STORAGE SPACE separate from the EQUIPMENT ROOM, this requirement may be waived at the discretion of the local public health and/or fire officials if the chemicals are protected from exposure to heat and moisture and no imminent health or SAFETY threats are identified.

#### **5.9.1.14 Warning Signs**

Warning signs in compliance with NFPA or HMIS ratings shall be posted on CHEMICAL STORAGE SPACE doors.

### **5.9.2 Chemical Handling**

#### **5.9.2.1 Identity**

Containers of chemicals shall be labeled, tagged, or marked with the identity of the material and a statement of the hazardous effects of the chemical according to OSHA and/or EPA materials labeling requirements.

##### **5.9.2.1.1 Labeling**

All AQUATIC VENUE chemical containers shall be labeled according to OSHA and/or EPA materials labeling requirements.

#### **5.9.2.2 NSF Standard**

The chemical equipment used in controlling the quality of water shall be listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization and used only in accordance with the manufacturer's instructions.

#### **5.9.2.3 Measuring Devices**

Chemicals shall be measured using a dedicated measuring device where applicable.

##### **5.9.2.3.1 Clean and Dry**

These measuring devices shall be clean, dry, and constructed of material compatible with the chemical to be measured to prevent the introduction of incompatible chemicals.

#### **5.9.2.4 Chemical Addition Methods**

##### **5.9.2.4.1 Automatically Introduced**

DISINFECTION and pH control chemicals shall be automatically introduced through the RECIRCULATION SYSTEM.

##### **5.9.2.4.1.1 Manual Addition**

SUPERCHLORINATION or shock chemicals and other POOL chemicals other than DISINFECTION and pH control may be added manually to the POOL.

**5.9.2.4.1.2 Absence of Bathers**

Chemicals added manually directly into the AQUATIC VENUE shall only be introduced in the absence of BATHERS.

**5.9.2.4.2 Safety Requirements**

Whenever required by the manufacturer, chemicals shall be diluted (*or mixed with water*) prior to application and as per the manufacturer's directions.

**5.9.2.4.2.1 Added**

Chemicals shall be added to water when diluting as opposed to adding water to a concentrated chemical.

**5.9.2.4.2.2 Mixed**

Each chemical shall be mixed in a separate, labeled container.

**5.9.2.4.2.2.1 Never Mixed Together**

Two or more chemicals shall never be mixed in the same dilution water.

**5.10 Hygiene Facilities****5.10.1 General [N/A]****5.10.2 Location [N/A]****5.10.3 Bathhouse Design [N/A]****5.10.4 Plumbing Fixture Requirements****5.10.4.1 General Requirements****5.10.4.1.1 Cleaned and Sanitized**

HYGIENE FACILITY fixtures, dressing area fixtures, and furniture shall be cleaned and SANITIZED daily and more often if necessary with an EPA-REGISTERED product and more often if necessary to provide a clean and sanitary environment.

**5.10.4.1.2 Mold and Mildew**

HYGIENE FACILITY floors, walls, and ceilings shall be kept clean and free of visible mold and mildew.

**5.10.4.1.3 Hand Wash Station**

HAND WASH STATIONS shall include the following items:

- 1) Hand wash sink,
- 2) Adjacent soap with dispenser,
- 3) Hand drying device or paper towels and dispenser, and
- 4) Trash receptacle.

**5.10.4.2 Cleansing Showers****5.10.4.2.1 Cleaned and Sanitized**

CLEANSING SHOWERS shall be cleaned and SANITIZED daily and more often if necessary with an EPA-REGISTERED product and more often if necessary to provide a clean and sanitary environment.

**5.10.4.3 Rinse Showers****5.10.4.3.1 Cleaned**

RINSE SHOWERS shall be cleaned daily and more often if necessary with an EPA-REGISTERED product and more often if necessary to provide a clean and sanitary environment.

**5.10.4.3.2 Easy Access**

RINSE SHOWERS shall be easily accessible.

**5.10.4.3.3 Not Blocked**

Equipment and furniture on the DECK shall not block access to RINSE SHOWERS.

**5.10.4.3.4 No Soap**

Soap dispensers and soap shall be prohibited at RINSE SHOWERS.

**5.10.4.4 All Showers [N/A]****5.10.4.5 Diaper-Changing Stations**

Diaper-changing stations are required in all AQUATIC FACILITIES upon adoption of this code per MAHC 4.10.4.5.1.

**5.10.4.5.1 Hand Wash Sink Installed and Operational**

The adjacent hand wash sink shall be installed and operational within **one** year from the date of the AHJ's adoption of the MAHC.

**5.10.4.5.2 Cleaned**

DIAPER-CHANGING STATIONS shall be cleaned and disinfected daily and more often if necessary to provide a clean and sanitary environment.

**5.10.4.5.2.1 Maintained**

They shall be maintained in good condition and free of visible contamination.

**5.10.4.5.3 Disinfectant**

EPA-REGISTERED disinfectant shall be provided in the form of either of the following:

- 1) A solution in a spray dispenser with paper towels and dispenser, or
- 2) Wipes contained within a dispenser.

**5.10.4.5.3.1 Covers**

If disposable DIAPER-CHANGING UNIT covers are provided in addition to disinfectant, they shall cover the DIAPER-CHANGING UNIT surface during use and keep the unit in clean condition.

**5.10.4.5.4 Portable Hand Wash Station**

If a portable HAND WASH STATION is provided for use it shall be operational and maintained in good condition at all times.

**5.10.4.6 Non-Plumbing Fixture Requirements****5.10.4.6.1 Paper Towels**

If paper towels are used for hand drying, a dispenser and paper towels shall be provided for use at HAND WASH STATIONS.

**5.10.4.6.2 Soap**

Soap dispensers shall be provided at HAND WASH STATIONS and CLEANSING SHOWERS and shall be kept full of liquid or granular soap.

**5.10.4.6.2.1 Bar Soap**

Bar soap shall be prohibited.

**5.10.4.6.3 Trash**

A minimum of one hands-free trash receptacle shall be provided in areas adjacent to hand washing sinks.

**5.10.4.6.3.1 Trash Emptying**

Trash receptacles shall be emptied daily and more often if necessary to provide a clean and sanitary environment.

**5.10.4.6.4 Floor Coverings**

Non-permanent floor coverings (*including but not limited to mats and racks*) shall be removable and maintained in accordance with MAHC Section 5.10.4.1.1.

**5.10.4.6.4.1 Wood**

Wooden racks, duckboards, and wooden mats shall be prohibited on HYGIENE FACILITY and dressing area flooring.

**5.10.4.7 Sharps****5.10.4.7.1 Biohazard Action Plan**

A biohazard action plan shall also be on file as required by local, state or federal regulations and as part of the AQUATIC FACILITY SAFETY PLAN.

**5.10.4.7.2 Disposed**

Sharps within approved containers shall be disposed of as needed by the AQUATIC FACILITY in accordance with local, state, or federal regulations.

**5.10.5 Provision of Suits, Towels, and Shared Equipment****5.10.5.1 Towels**

All towels provided by the AQUATIC FACILITY shall be washed with detergent in warm water, rinsed, and thoroughly dried at the warmest temperature listed on the fabric label after each use.

**5.10.5.1.1 Suits**

Any attire provided by the AQUATIC FACILITY shall be washed in accordance with the fabric label or manufacturer's instructions.

**5.10.5.2 Receptacles**

Non-absorbent, easily cleanable receptacles shall be provided for collection of used suits and towels.

**5.10.5.3 Shared Equipment Cleaned and Sanitized**

Equipment provided by the AQUATIC FACILITY that comes into contact with BATHER's eyes, nose, ears, and mouth (*including but not limited to snorkels, nose clips, and goggles*) shall be cleaned, SANITIZED between uses, and stored in a manner to prevent biological growth.

**5.10.5.4 Other Equipment**

Other shared equipment provided by the AQUATIC FACILITY, including but not limited to fins, kickboards, tubes, lifejackets, and noodles, shall be kept clean and stored in a manner to prevent mold and other biological growth.

**5.10.5.5 Good Repair**

Shared equipment shall be maintained in good repair.

### **5.10.5.6 Used Equipment**

Used and un-SANITIZED shared equipment shall be kept separate from cleaned and SANITIZED shared equipment.

#### **5.10.5.6.1 Receptacles**

Non-absorbent, easily cleanable receptacles shall be provided for collection of used shared equipment.

## **5.11 Water Supply / Wastewater Disposal [N/A]**

## **5.12 Special Requirements for Specific Venues**

### **5.12.1 Waterslides**

#### **5.12.1.1 Signage**

Warning signs shall be posted in accordance with manufacturer's recommendations.

### **5.12.2 Wave Pools**

#### **5.12.2.1 Life Jackets**

U.S. Coast Guard-approved life jackets that are properly sized and fitted shall be provided free for use by BATHERS who request them.

### **5.12.3 Moveable Floors**

#### **5.12.3.1 Starting Platforms**

The use of starting platforms in the area of a MOVEABLE FLOOR shall be prohibited when the water depth is shallower than the minimum required water depth of four feet (1.2 m). Use may only occur as per MAHC Section 5.6.10.3.

#### **5.12.3.2 Diving Boards**

When a MOVEABLE FLOOR is installed into a DIVING POOL, diving shall be prohibited unless the DIVING POOL depth meets criteria set in MAHC Section 4.8.2.1.1.

### **5.12.4 Bulkheads**

#### **5.12.4.1 Open Area**

If a BULKHEAD is operated with an open area underneath, no one shall be allowed to swim beneath the BULKHEAD.

#### **5.12.4.2 Bulkhead Travel**

The BULKHEAD position shall be maintained such that it cannot encroach on any required clearances of other features such as diving boards.

## 5.12.5 Interactive Water Play Aquatic Venues

### 5.12.5.1 Cracks

CRACKS in the INTERACTIVE WATER PLAY AQUATIC VENUE shall be repaired when they may be a potential for leakage, present a tripping hazard, a potential cause of lacerations, or impact the ability to properly clean and maintain the INTERACTIVE WATER PLAY AQUATIC VENUE area.

### 5.12.5.2 Cleaning

When cleaning the INTERACTIVE WATER PLAY AQUATIC VENUE CONTAMINANTS shall be removed or washed to the sanitary sewer.

#### 5.12.5.2.1 No Sanitary Sewer Drain Available

If no sanitary sewer drain is available then debris shall be washed/rinsed to the nearest DECK drain or removed in a manner that prevents CONTAMINANTS from reentering the INTERACTIVE WATER PLAY AQUATIC VENUE.

## 5.12.6 Wading Pools

## 5.12.7 Spas

### 5.12.7.1 Required Operation Time

SPA filtration systems shall be operated 24 hours per day except for periods of draining, filling, and maintenance.

### 5.12.7.2 Drainage and Replacement

SPAS shall be drained, cleaned, scrubbed, and water replaced as calculated in MAHC section 5.12.7.2.1.

#### 5.12.7.2.1 Calculated

The water replacement interval (*in days*) shall be calculated by dividing the SPA volume (*in gallons*) by three and then dividing by the average number of users per day.

### 5.12.7.3 Scrubbed

SPA surfaces, including interior of SKIMMERS, shall be scrubbed or wiped down, and all water drained prior to refill.