



2022

**USPSHTC[®] TECHNICAL
COMMITTEE MEETING
MONOGRAPH**

IAPMO WORLD HEADQUARTERS | ONTARIO, CA | **JUNE 20, 2022**

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AGENDA

2022 Uniform Swimming Pool, Spa & Hot Tub Code

Technical Committee Meeting

IAPMO World Headquarters, Ontario, CA

June 20, 2022

- I. Call to Order
- II. Chairman Comments
- III. Announcements
- IV. Self-Introductions
- V. Review and Approval of Agenda
- VI. Approval of Minutes from Previous Meeting (Via teleconference on September 13, 2021)
- VII. Report of the USPSHTC Aquatic Recreational Attractions Task Group (Chair)
- VIII. Report of the USPSHTC Water Chemistry and Disinfection Task Group (Chair)
- IX. Review of Code Change Proposals
- X. Other Business
- XI. Next scheduled meeting – USPSHTC TC Meeting (Ontario, CA) May 15, 2023
- XII. Adjournment

TENTATIVE ORDER OF DISCUSSION

2022 PROPOSED CODE CHANGES TO THE UNIFORM SWIMMING POOL, SPA, AND HOT TUB CODE

The following is the tentative order of discussion on which the proposed changes will be discussed at the Technical Committee Meeting. Proposed code changes that are grouped together are those that are both indented and separated by lines. Indented proposed code changes are those being discussed out of numerical order.

Item # 001	Item # 035	Item # 067
Item # 002	Item # 036	Item # 068
Item # 003	<u>Item # 037</u>	<u>Item # 069</u>
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Item # 022	Item # 054	Item # 088
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<u>Item # 082</u>	Item # 060	Item # 094
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<u>Item # 030</u>	<u>Item # 063</u>	Item # 097
<u>Item # 031</u>	Item # 064	<u>Item # 098</u>
Item # 032	Item # 065	
Item # 033	Item # 066	
Item # 034		

Uniform
Swimming
Pool, Spa, &
Hot Tub Code
Change
Proposals



CODES ADMINISTRATION

Proposals

Item #: 001

USPSHTC 2024 Section: 203.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

203.0 – A –

Air Blower. ~~A fitting that introduces air into a spa or hot tub through a series of injectors or openings located in the perimeter of the spa or hot tub. An air blower, otherwise~~ Also known as a bubbler, bubble jets, air jets, or an air pump ~~that introduces air into the spa through a series of injectors.~~

(below shown for reference only)

221.0 – S –

Spa. A unit primarily designed for therapeutic use that is not drained, cleaned, or refilled for each individual. It shall be permitted to include but is not limited to, hydrojet circulation, hot water, cold water, mineral baths, air induction bubbles, or a combination thereof. Industry terminology for a spa includes but is not limited to, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, etc.

SUBSTANTIATION:

The definition for "air blower" is being modified to include a more accurate depiction of this device. The current language is insufficient and inappropriately uses "air blower" within the terminology. The new language specifies that these devices are fittings, defines their purpose, and details the method of introducing air into the system. For these reasons, the modifications are necessary.



CODES ADMINISTRATION

Proposals

Item #: 002

USPSHTC 2024 Section: 203.0

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Add new text

203.0 – A –

Aquatic Recreational Attraction. A facility that is designed for water play and recreation. Some examples of such venues include, but are not limited to, wave pools, leisure rivers, sand bottom pools, activity pools, inner tube rides, body slides, and interactive play attractions.

SUBSTANTIATION:

An aquatic recreational attraction may be misinterpreted as a water feature rather than a facility or venue designated for aquatic recreation and water play activities. In order to provide clarity for users of the code, it would be best to provide the clear terminology along with the listed examples as shown. This definition also supports the other recommendations generated by this Task Group. For these reasons, the terminology should be included in Chapter 2 (Definitions).



CODES ADMINISTRATION

Proposals

Item #: 003

USPSHTC 2024 Section: 204.0, 221.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

204.0 – B –
Beach Entry. See Zero-Depth Entry.

221.0 – S –
Sloped Entry. See Zero-Depth Entry.

(below shown for reference only)

228.0 – Z –
Zero-Depth Entry. An entry that starts at deck level and ends at the bottom of the aquatic venue. Also known as a beach entry or sloped entry.

SUBSTANTIATION:
The definition for zero-depth entry states “Also known as a beach entry or sloped entry.” These other terms should be added so that the user can easily locate the appropriate definition within Chapter 2 (Definitions).



CODES ADMINISTRATION

Proposals

Item #: 004

USPSHTC 2024 Section: 205.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

205.0 – C –

Chemical Feed Equipment. Floating or mechanical devices which inject a chemical(s) into pool, spa, or hot tub water.

SUBSTANTIATION:

Chemical feed equipment allows for the quick and effective injection of chemicals into pool, spa, and hot tub water. Since introducing chemicals such as chlorine or bromine may be done using this type of equipment, it would be beneficial to users of the code to include such terminology. Additionally, Section 507.0 (Chemical Feed Equipment) includes provisions addressing equipment design, automatic power control, and gas chlorinators. In summary, the proposed definition supports these provisions and should be included in Chapter 2 (Definitions).



CODES ADMINISTRATION

Proposals

Item #: 005

USPSHTC 2024 Section: 206.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

206.0 – D –

Diving Stand. A supporting device for a springboard, jump board, or diving board.

SUBSTANTIATION:

Since jumpboards are also supported by diving stands, the modification to include “jumpboard” is appropriate and offers an improvement to the current definition.



CODES ADMINISTRATION

Proposals

Item #: 006

USPSHTC 2024 Section: 207.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

207.0 – E –

Equipment. A general term including materials, fittings, devices, appliances, and apparatus used as part of, or in connection with, installations regulated by this code.

SUBSTANTIATION:

Although this term may be considered general knowledge, it would be beneficial to provide appropriate terminology that is consistent with what is shown in the UMC. Such addition would ensure symmetry in terminology provided within the Uniform Codes and is therefore necessary.



CODES ADMINISTRATION

Proposals

Item #: 007

USPSHTC 2024 Section: 208.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

208.0 – F –

Filtration. The process of removing undissolved particles from water by recirculating the water through a porous substance such as a filter medium or element(s).

SUBSTANTIATION:

The term "filtration" has various meanings and definitions within different codes. However, the term has a very specific meaning when used in the USPSHTC. The proposed definition contains the process and purpose of filtration for all types of pools and spas covered by this code.



CODES ADMINISTRATION

Proposals

Item #: 008

USPSHTC 2024 Section: 210.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

210.0 – H –

Hydrojets. A fitting that blends air and water creating a high-velocity, turbulent stream of air-enriched water for the purposes of serving a spa, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, etc. Also known as hydrotherapy jets.

SUBSTANTIATION:

The definition for “hydrojet” is being improved to include the purpose of these jets as well as the types of pools and spas they serve. Additionally, an alternative name for hydrojet, “hydrotherapy,” has been provided for a more comprehensive definition.



CODES ADMINISTRATION

Proposals

Item #: 009

USPSHTC 2024 Section: 211.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

211.0 - I -

Indoor Aquatic Facility. See Natatorium.

(below shown for reference only)

216.0 - N -

Natorium. A building, or portion thereof, containing a swimming pool, spa, hot tub or combination thereof. Also known as an indoor aquatic facility.

SUBSTANTIATION:

The definition for "natatorium" states "Also known as an indoor aquatic facility." This term should be clarified so that the users of the code can locate the appropriate definition for indoor aquatic facility.



CODES ADMINISTRATION

Proposals

Item #: 010

USPSHTC 2024 Section: 211.0

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Revise text

211.0 - I -

Interactive Water Play Aquatic Venue. An indoor or outdoor installation that includes sprayed jetted or other water sources contacting bathers and not incorporating standing or captured water as part of the bather's activity area. These aquatic venues are also known as splash pads, spray pads, wet decks. For the purposes of this code, only those designed to recirculate water and intended for public use and recreation shall be regulated.

Interactive Water Play Features. A structure designed to be incorporated into a swimming pool or park, or to function as a stand-alone system. These structures include The devices and plumbing used to convey the treated water to the a play area(s) to spray the bathers allow for active public recreational activities. Designs include recirculated, filtered, or treated water which is sprayed, jetted, or poured, and comes into contact with bathers. Some examples include splash pads, spray pads, and wet decks.

SUBSTANTIATION:

The above definitions are being revised to provide additional clarity. Interactive water play aquatic venue is duplicative in describing the type of venue being defined. Additionally, Chapter 2 (Definitions) is the only location within the USPSHTC where "interactive water play aquatic venue" is used. All other sections of the code pertaining to these venues are referenced as "interactive water play venue." The proposed modification is therefore necessary for consistency and accuracy.

The terminology for "interactive water play feature" is also being updated to more appropriately describe what these structures are designed to be incorporated into, how they convey treated water, and what purpose they serve. Additional design details and examples of interactive water play features have been included to offer necessary guidance.



CODES ADMINISTRATION

Proposals

Item #: 011

USPSHTC 2024 Section: 218.0

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

218.0 - P -

pH. ~~The log of the reciprocal of the hydrogen ion concentration of a solution, and a Δ~~ measure of the acidity or alkalinity of the water. It is determined by the concentration of hydrogen ions in a specific volume of water.

SUBSTANTIATION:

The definition is being modified to remove the phrase “the log of the reciprocal of the hydrogen ion concentration of a solution.” The modification clears up the terminology since pH is simply a measure of acidity and alkalinity of water. For the purposes of the USPSHTC, the revised definition is sufficient and appropriate.



CODES ADMINISTRATION

Proposals

Item #: 012

USPSHTC 2024 Section: 218.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

218.0 – P –

Pool. See Swimming Pool. For the purposes of this code, pool types are defined as follows:

Landing Pool. A designated area of the pool located at the terminus point of an open or closed flume, vanishing edge pool, or similar structure.

Spa Pool. A Pool, not under medical supervision that incorporates water jets, aeration system, or both used for hydromassage.

Surf Pool. A pool in which ocean waves are simulated for the purpose of surfing or other similar activities. Also known as an action pool.

Swimming Pool. A constructed or prefabricated pool used for swimming or bathing, exceeding 18 inches (457 mm) in depth.

Swimming Pool (Private). A Constructed or prefabricated pool that is used as a swimming pool in connection with a single-family residence and available only to the family of the householder and their private guests.

Swimming Pool (Public). A constructed or prefabricated pool other than a private or residential swimming pool.

Therapy Pools. A pool of water that is specifically designed for physical therapy or rehabilitation purposes.

Wading Pool. A constructed or prefabricated pool used for wading that is 18 inches (457 mm) or less in depth.

Wave Pool. A Pool in which standing waves are generated in an assortment of patterns.

SUBSTANTIATION:

As there exists various types of pools within Chapter 2 (Definitions), relocating definitions for the varying types under the general term, "pool," is both appropriate and logical. Minor edits were also made for consistency within the listed definitions.

Additionally, terminology for public swimming pool has been updated since private swimming pools are synonymous with residential and including the phrase "other than a private or residential" offers further clarity.

Furthermore, the alternative name for surf pool, "action pool," has been added to align with other descriptions used by manufacturers. For these reasons, the modifications are beneficial to the code.



CODES ADMINISTRATION

Proposals

Item #: 013

USPSHTC 2024 Section: 220.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

220.0 – R –

Return Inlet. A fitting or fixture through which circulated or hydrojetted water under positive pressure enters returns to the pool, spa, or hot tub.

SUBSTANTIATION:

The definition for "return inlet" is being amended to specify that water "under positive pressure" is returned to the pool, spa or hot tub. This distinction is necessary since positive pressure is required to pump the recirculated water back through the inlet into the pool or spa. For technical accuracy, the modification is necessary.



CODES ADMINISTRATION

Proposals

Item #: 014

USPSHTC 2024 Section: 220.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

220.0 – R –

Runout. A continuation of the water slide, water chute, or flume surface where riders are intended to decelerate and come to a stop.

(below shown for reference only)

208.0 – F –

Flume. An open and/or closed inclined channel, ravine or tubular structure typically flowing with water and may incorporate twists and turns to direct the path of travel and influence the rate of descent of the rider. Also known as a water slide or water chute.

906.5 Flume Exits. Flume exits shall be designed to ensure that the bathers enter the landing pool or slide runout at a safe speed and angle of entry.

SUBSTANTIATION:

Runouts are commonly used in aquatic attractions and serve as the method of deceleration for bathers exiting flumes. The provided terminology is both clear and accurate for the purposes of this code. For these reasons, the new terminology should be included in the next edition of the USPSHTC.



CODES ADMINISTRATION

Proposals

Item #: 015

USPSHTC 2024 Section: 221.0

SUBMITTER: Jazmin Curiel
Self

RECOMMENDATION:
Revise text

221.0 – S –

Safety Cover. A barrier or assembly covering the entire water surface of a swimming pool, spa or hot tub which includes anchoring mechanisms and serves as a means of preventing unauthorized access to the body of water. Such covers are intended to be completely removed or recessed before entry into the pool, spa or hot tub.

There are two general types:

- (1) The manual type where hand-operation is required for application.
- (2) The powered type utilizing a motorized mechanism.

SUBSTANTIATION:

The proposed modification more closely reflects the definition of “safety cover” as provided in ASTM F1346. Since this standard is referenced throughout the code for safety covers, it is pertinent that the intent of the barrier or covering is included in the definition. For these reasons, the terminology is being revised.



CODES ADMINISTRATION

Proposals

Item #: 016

USPSHTC 2024 Section: 221.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

221.0 – S –

Spa. A unit primarily designed for therapeutic use that is not drained, cleaned, or refilled for each individual. It shall be permitted to include but is not limited to, hydrojet circulation, hot water, cold water, mineral baths, air induction bubbles, or a combination thereof. Industry terminology for a spa includes but is not limited to, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, etc.

Self-Contained Spa. A spa in which the design and construction includes all circulating equipment, components, and controls required for operation as a stand-alone system.

Swim Spa. A spa in which the design and construction includes specific features and equipment to produce a water current intended to create resistance and allow for recreational physical activity such as swimming or exercising in place. Also known as an exercise spa.

SUBSTANTIATION:

"Self-contained spas" are equipped to operate independently and separately from a pool. These stand-alone vessels are designed and constructed with controls, water heating equipment, and water-circulating equipment as integral parts. The provided definition is clear and sufficiently describes these types of spas.

Additionally, the terms "self-contained spa" and "swim spa" are being located under the general term, "spa," to assist with association of relative terms within Chapter 2 (Definitions). In order to provide further clarification and align with common terminology used by manufacturers, the alternative name for swim spa, "exercise spa," has been added to the listed definition.



CODES ADMINISTRATION

Proposals

Item #: 017

USPSHTC 2024 Section: 221.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

221.0 – S –

Slip-Resistant Surface. *A surface that has been treated or constructed to reduce the risk of a user slipping.*

SUBSTANTIATION:

During the previous code cycle, provisions were developed by the Slip-Resistance Task Group pertaining to minimum values for dynamic coefficient of friction (DCOF). These provisions, along with the numerous requirements throughout the code for surfaces and finishes to be slip-resistant, require an appropriate description for "slip-resistant surface." The provided definition is clear and consistent with the intent of provisions throughout the USPSHTC and should therefore be included.



CODES ADMINISTRATION

Proposals

Item #: 018

USPSHTC 2024 Section: 223.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

223.0 – U –

Underwater Bench (Seat). An underwater seat that is placed completely inside the perimeter of the pool.

(below shown for reference only)

402.12 Underwater Benches or Seats. For public swimming pools, underwater benches or seats, where installed, shall be constructed of slip-resistant materials and shall be outlined with a color contrasting stripe or other permanent marking of not less than 3/4 of an inch (19.1 mm) or more than 2 inches (51 mm) in width. Underwater benches and seats shall not be located in water depths that exceed 5 feet (1524 mm). The submerged depth of a bench or seat shall not exceed 20 inches (508 mm) measured from the waterline.

SUBSTANTIATION:

A new definition is recommended to describe underwater benches and seats which are covered in Section 402.12 of the code. The provided definition is accurate and would assist users in applying provisions for underwater benches and seats. For these reasons, the definition is beneficial for inclusion.



CODES ADMINISTRATION

Proposals

Item #: 019

USPSHTC 2024 Section: 225.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

225.0 – W –

Water Chute. See Flume and Water Slide.

Water Slide. A public attraction that enables users to slide from an elevated height to a slide run-out or landing pool that may include the use of flumes. Also known as flume or water chute.

(below shown for reference only)

208.0 – F –

Flume. An open and/or closed inclined channel, ravine or tubular structure typically flowing with water and may incorporate twists and turns to direct the path of travel and influence the rate of descent of the rider. Also known as a water slide or water chute.

SUBSTANTIATION:

The definition for flume states “Also known as a water slide or water chute.” These terms should be clarified so that the user can locate the proper definition for flume, water slide, and water chute.



CODES ADMINISTRATION

Proposals

Item #: 020

USPSHTC 2024 Section: 225.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Add new text

225.0 – W –

Waterline. The centerline of the surface skimmer or other point as defined by the designer of the pool, spa, or hot tub.

SUBSTANTIATION:

This definition is concise and sufficiently describes the design waterline as essentially the midpoint of the operating range of a skimmer when there are no bathers. Such terminology assists with interpreting provisions within Chapter 4 pertaining to maximum pool wall height as well as maximum submerged depths of underwater benches or seats. Since these design requirements are for bather safety, the proposed definition is beneficial and assists with interpreting provisions.



CODES ADMINISTRATION

Proposals

Item #: 021

USPSHTC 2024 Section: 228.0

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

228.0 – Z –

Zero-Depth Entry. An entry that starts at deck level and ends at the bottom of the aquatic venue. Also known as a zero entry, beach entry, or sloped entry.

SUBSTANTIATION:
Some installers and manufacturers in the industry use the term “zero entry;” therefore, this additional description should be added for completeness.



CODES ADMINISTRATION

Proposals

Item #: 022

USPSHTC 2024 Section: 301.4 - 301.4.4

SUBMITTER: Jazmin Curiel
Self

RECOMMENDATION:
Revise text

301.4.302.0 Swimming Pools in Flood Hazard Areas. Where located in flood hazard areas, aboveground swimming pools, inground swimming pools that involve the placement of earthen fill, and onground swimming pools shall comply with ~~this section~~ Section 302.1 through Section 302.4. Aboveground and inground swimming pools shall be designed and installed to withstand flood associated loads. Where swimming pool liners and membranes are installed, such liners and membranes shall be anchored to either the structural frame or the ground.

301.4.1302.1 Controls, Equipment, Appurtenances, and Associated Components. Where swimming pools are located in flood hazard areas:

(1) – (3) (remaining text unchanged)

(4) Electrical equipment and components shall be in accordance with Section 603.0.

301.4.2302.2 Swimming Pools Located in Floodways. (remaining text unchanged)

301.4.3302.3 Swimming Pools Located Where Floodways Have Not Been Designated. (remaining text unchanged)

301.4.4302.4 Swimming Pools Located in Coastal High Hazard Areas. (remaining text unchanged)

(renumber remaining sections)

(Section 603.0 is being shown for information purposes only)

603.0 Electrical Systems.

603.1 General. The design, installation, alteration, modification, construction, maintenance, and testing of electrical systems and equipment associated with a swimming pool, spa, or hot tub shall comply with NFPA 70.

SUBSTANTIATION:

The above sections are being moved as these provisions seem misplaced in their current location. The additional language in Section 302.2 is being included to ensure that both aboveground and inground pools are designed and installed to resist anticipated flood associated loads.

Furthermore, the language covering membranes and liners has been added to address such materials and their installation as seen in industry standards and various local codes. By anchoring the membranes and liners, it ensures that such materials do not pose as any hazards and are prevented from being carried away in the event of flooding.

Additionally, compliance with Section 603.0 ensures that all electrical equipment and components are installed in accordance with NFPA 70 (National Electric Code).



CODES ADMINISTRATION

Proposals

Item #: 023

USPSHTC 2024 Section: 302.8

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Add new text

302.0 Workmanship and Installation Practices.

302.8 Construction Site Fencing. Where excavation occurs for in-ground swimming pools and spas, construction site fencing shall be installed from the start of excavation to the time the permanent barrier is completed. The construction site fencing shall not be less than 4 feet (1219 mm) in height.

SUBSTANTIATION:

The code is currently silent regarding construction fencing for excavations which may pose as safety hazards. The new section is beneficial as it will ensure the safety of all persons in the vicinity of such construction sites.



CODES ADMINISTRATION

Proposals

Item #: 024

USPSHTC 2024 Section: 306.1

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Revise text

306.0 Energy Consumption for Pools, Spas, and Hot Tubs.

306.1 General. Energy consumption for pools, spas and hot tubs shall be in accordance with Section 306.1.1 through Section 306.1.3 or as require by the energy codes.

SUBSTANTIATION:

The proposed new text will broaden the intent of the section as there may be other entities that mandate energy efficiency and consumption provisions. Such language is necessary as it will align the code with the most up to date energy conservation requirements.



CODES ADMINISTRATION

Proposals

Item #: 025

USPSHTC 2024 Section: 314.1

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

314.0 Slip-Resistant Walkway Surfaces.

314.1 General. Where walkway surfaces are in locations subject to being wet with water, such surfaces shall be in accordance with Section 314.1.1 through Section 314.1.3. Surfaces intended to be slip-resistant shall not create an abrasion hazard. See Appendix C for informative notes and an example calculation.

SUBSTANTIATION:

The intent of provisions in Section 314.0 (Slip-Resistant Walkway Surfaces) is to reduce the likelihood of a fall or slip by increasing the dynamic coefficient of friction (DCOF) of walkway surfaces. These surfaces commonly include finishing or coating to increase this DCOF value, and since a maximum DCOF value is not listed, this new language is appropriate and offers additional safety for bathers.



CODES ADMINISTRATION

Proposals

Item #: 026

USPSHTC 2024 Section: 314.1.3

SUBMITTER: Bill Griese
Tile Council of North America

RECOMMENDATION:
Revise text

314.0 Slip-Resistant Walkway Surfaces.
314.1 General. (remaining text unchanged)

314.1.3 Three-dimensionally Patterned or Profiled Walkways. Walkway DCOF data shall not be based on testing conducted across grout joints or across protruding features of three-dimensionally patterned or profiled hard surface walkways. DCOF data (obtained through complying with Sections 314.1.1 and [Section 314.1.2](#)) shall be based on testing conducted over a nominally flat section of such walkways. If a design professional specifies a walkway surface for which DCOF data from nominally flat sections is not obtainable, the design professional shall [specify a walkway surface with a manufacturer-declared product use classification of "Interior, Wet," "Interior, Wet Plus," or "Exterior, Wet" per TCNA A326.3 and further](#) document their foundations for concluding the specified walkway surface is at least as slip-resistant as walkway surfaces meeting Sections 314.1.1 or [Section 314.1.2](#). This documentation shall be included with the construction documents.

Note: TCNA A326.3 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Currently, Section 314.0 (Slip-Resistant Walkway Surfaces) in the 2021 version of IAPMO's USPSHTC references TCNA A326.3-2017. Since incorporation of TCNA A326.3-2017 into the code, this standard has been superseded by TCNA A326.3-2021. The new, 2021 version of TCNA A326.3 includes a product use classification system, where products are classified into one of more of five categories based on their slip-resistance properties.

Product use classification is immediately relevant to the USPSHTC, as it would provide design professionals and code officials with direct information from manufacturers on where hard surface flooring products can be used. This could ultimately lead to better specification of products when combined with the current code requirements and potentially lessen the number of slip events experienced by pedestrians, consumers, and end-users of flooring.



CODES ADMINISTRATION

Proposals

Item #: 027

USPSHTC 2024 Section: 207.0, 315.0, 315.1, Table 1001.1

SUBMITTER: Nicholas Capezza
PHTA

RECOMMENDATION:
Add new text

315.0 Design of Elevated Pools.

315.1 General. Elevated pools shall be designed and constructed in accordance with ANSI/PHTA/ICC 10.

207.0 – E –

Elevated Pool. Any permanently installed pool, spa, cold plunge, catch basin, overflow trough, including any connected water feature, that is over a habitable, occupiable or unoccupied space that is 1) inside a thermal envelope or 2) outside a thermal envelope, or 3) a combination of inside and outside the thermal envelope.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ANSI/PHTA/ICC 10-2021</u>	<u>Elevated Pools, Spas and Other Aquatic Venues Integrated into a Building or Structure</u>	<u>Elevated Aquatic Venues</u>	<u>315.1</u>

(portions of table not shown remain unchanged)

Note: ANSI/PHTA/ICC 10 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

This proposal seeks to recognize elevated pools and spas with a reference to the recently-approved ANSI/PHTA-10 standard. There is currently no code guidance on this type of structure. The reasoning for the creation of an ANSI/PHTA Standard on elevated pools and spas stems from multiple sources. Jurisdictions and regulators seek guidance on this issue as the number of elevated pools and spas constructed and installed has increased greatly in recent years. Various issues including leaking and other consumer issues has led to litigation. The specialized construction of an elevated pool or spa including materials, piping, valves, waterproof systems, and leak detection equipment should be addressed. Design and construction guidelines in this Standard seeks to diminish these issues.



CODES ADMINISTRATION

Proposals

Item #: 028

USPSHTC 2024 Section: 401.3.1, 401.3.2

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

401.0 General.

401.3 Lighting. (remaining text unchanged)

401.3.1 Lighting Levels. Lighting levels for the water surface and deck of an aquatic venue shall be not less than the following:

- (1) Indoor water surface - ~~60~~ 30 horizontal footcandles (~~646~~ 323 lx)
- (2) Outdoor water surface - 10 horizontal footcandles (108 lx)
- (3) Deck - 10 horizontal footcandles (108 lx)

401.3.2 Underwater Lighting. Underwater lighting shall be provided for an aquatic venue at not less than 8 initial rated lamp lumens per square foot (86 lx) of water surface area except where surface lighting levels are not less than 15 horizontal footcandles (161 lx) for all portions of the aquatic venue. Underwater lighting shall be grounded in accordance with Section 804.2.

SUBSTANTIATION:

The current illumination requirement for indoor aquatic venues is overly stringent. This proposal updates the indoor illumination intensity requirement for indoor areas to 30 footcandles rather than 60. The owner may have higher lighting levels if they wish. Section 401.3.2 has also been updated for clarity on the units being utilized to measure underwater lighting.



Proposals

Item #: 029

USPSHTC 2024 Section: 402.5.1, 402.5.2, 403.4

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

402.0 Swimming Pools.

402.5 Floor Slopes. (remaining text unchanged)

402.5.1 Public Swimming Pools. Where the water depth is less than 5 feet (1524 mm), the floor slope shall not exceed 1 foot (305 mm) in 12 feet (3658 mm) to the point of the first slope change. Where the water depth exceeds 5 feet (1524 mm), the floor slope shall not exceed 1 foot (305 mm) in 3 feet (914 mm).

Exceptions:

- (1) Pools designed for competitive diving and swimming in accordance with FINA Part X.
- (2) Pools designed for therapy, military, or other special use.

(3) Pools with zero-depth entries or beach entries in accordance with Section 802.6.

402.5.2 Private Swimming Pools. Where the water depth is less than 2 feet (610 mm), the floor slope shall not exceed 1 foot (305 mm) in 7 feet (2134 mm). The floor slope shall not exceed 1 foot (305 mm) in 3 feet (914 mm) from the first slope change to the deepest point of the swimming pool.

Exception: Pools with zero-depth entries or beach entries in accordance with Section 802.6.

403.0 Wading Pools.

403.4 Walls Slopes. Walls of the pool shall be vertical or not exceed 11 degrees (0.19 rad) from vertical, and such walls shall slope to the floor. Walls shall not exceed 6 inches (152 mm) above the waterline at any point.

Exception: This section shall not apply to a zero-depth entry entries or beach entries.

(below shown for reference only)

402.15 Beach Entry Pools. Where sand is installed in an entry/exit of a pool, the entry/exit way shall have a zero-depth entry in accordance with Section 802.6 and shall be designed and controlled such that the circulation system, maintenance, safety, sanitation, and operation of the pool are not adversely affected.

802.6 Zero-Depth Entry. Where zero-depth entries are provided for public aquatic venues, they shall be slip-resistant. The slope of a zero-depth entry shall be continuous and shall not exceed 1 foot (305 mm) in 20 feet (6096 mm) to a water depth of 30 inches (762 mm).

Exceptions:

- (1) Where a zero-depth entry is provided with handrails, the slope of the zero-depth entry shall not exceed 1 foot (305 mm) in 12 feet (3658 mm).
- (2) Where a zero-depth entry is provided in a wading pool, the slope of the zero-depth entry shall be continuous and extend to the deepest part of the pool.

SUBSTANTIATION:

The sections pertaining to floor slopes are being revised to ensure that special pool entry designs are excluded from the standard floor slope requirements for private and public pools. The design of zero-depth and beach entry pools is unique in that these slopes are intended to mimic gradual and lengthy entries with minimal water depths.

Additional exceptions are provided for zero-depth entries with handrails and for wading pools with continuous slopes to the deepest portion of the pool.

As Section 402.5.1 already lists other specialty pool types, the inclusion of beach entry and zero-depth entry offers a more comprehensive list of exceptions. Since Section 402.5.2 is specific to private pools, the exception for this special design is applicable and should be added.

Section 403.4 is being modified to clearly identify the current exception and to be inclusive of both beach and zero-depth entries. For reference and additional clarity in reviewing the proposed changes, Section 402.15 (Beach Entry Pools) and Section 802.6 (Zero-Depth Entry) have been shown.



CODES ADMINISTRATION

Proposals

Item #: 030

USPSHTC 2024 Section: 402.7, 417.2, Table 1001.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

402.0 Swimming Pools.

402.7 Finishes and Surfaces. The interior finish of a swimming pool shall be nonabrasive and slip-resistant. The interior floor of pools shall be such to facilitate the identification of objects and markers within such area. A non-slip white or light colored waterproof finish which withstands repeated brushing, scrubbing, and cleaning shall line the pool. Paint, fiberglass, or epoxy coated finishes shall be nontoxic, water resistant, of one single light color, and shall continually and permanently bond so as not to separate. Paint and coatings installed within an aquatic facility or natatorium shall meet the requirements of UL 2818. Corners and edges shall be rounded and smooth to prevent abrasions, and shall be rounded with a minimum 6 inch (152 mm) radius.

417.0 Natatoriums.

417.1 Building Envelope. (remaining text unchanged)

417.2 Interior Finish. The interior finish of a natatorium shall be designed for an indoor relative humidity of not less than 80 percent. Paint and coatings installed within an aquatic facility or natatorium shall meet the requirements of UL 2818.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>UL 2818-2013</u>	<u>Chemical Emissions for Building Materials, Finishes and Furnishings (with revisions through April 26, 2018)</u>	<u>Paint and Coatings</u>	<u>402.7, 417.2</u>

(portions of table not shown remain unchanged)

Note: UL 2818 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The addition of UL 2818 is necessary as it provides regulation on chemical emissions for building materials, finishes and furnishings. The MAHC 2018 code also uses this standard for interior finishes of aquatic indoor facilities. The permeability rating provided within this standard, 0.2 perm [11.5 E-11 kg/(Pa•s•m2)], is necessary since surfaces will be exposed to moisture and condensation. The low permeability rating prevents such moisture from negatively impacting the integrity of the structure. The risk of mold and mildew is higher in an aquatic indoor facility and therefore needs to be prevented.



CODES ADMINISTRATION

Proposals

Item #: 031

USPSHTC 2024 Section: 402.7

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Revise text

402.0 Swimming Pools.

402.7 Finishes and Surfaces. The interior finish ed surfaces of a swimming pool shall be in accordance with the following:

- (1) Be nonabrasive ~~and~~.
- (2) Be slip-resistant in accordance with Section 314.0. ~~The interior floor of pools shall be such~~
- (3) Have a high contrast and not obscure objects or surfaces within the pool or spa to facilitate the identification of objects and markers within such area. ~~A non-slip~~
- (4) Be white or light colored.
- (5) Be waterproof ~~finish which withstands~~.
- (6) Withstand repeated brushing, scrubbing, and cleaning ~~shall line the pool~~.
- (7) Paint, fiberglass, or epoxy coated finishes shall be nontoxic, water resistant, of one single light color, and shall continually and permanently bond so as not to separate.
- (8) Corners and edges shall be rounded and smooth to prevent abrasions, and shall be rounded with a minimum 6 inch (152 mm) radius.

SUBSTANTIATION:

The proposed change separates the existing Section 402.7 (Finishes and Surfaces) into a list for ease of use. The original section is complicated and full of information. The list will simplify the readability and enforceability of the section by easily identifying the important content the end user is searching for.



CODES ADMINISTRATION

Proposals

Item #: 032

USPSHTC 2024 Section: 402.10

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

402.0 Swimming Pools.

402.10 Handholds. Handholds shall be provided along the perimeter for of swimming pools where the water depth exceeds ~~24 inches (610 mm)~~ 42 inches (1067 mm). Handholds shall be located not more than 6 inches (152 mm) above the water surface and spaced not more than 4 feet (1219 mm) apart. Handholds shall consist of ladders, steps, gutters, railing, coping, or combination thereof of not more than 2 inches (51 mm) in size.

Exceptions:

- (1) Where an underwater seat or bench is installed
- (2) Wading pools
- (3) Wave pools

SUBSTANTIATION:

Section 402.10 is being modified to require handholds around the perimeter of a swimming pool in areas where the depth exceeds 42 inches. Handholds should be provided around the perimeter of the pool to assist bathers and provide safer conditions when swimming. The increased depth is also more practical and correlates with the value listed within the MAHC. The depth of 24 inches is overly restrictive and unnecessary.



CODES ADMINISTRATION

Proposals

Item #: 033

USPSHTC 2024 Section: 403.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

403.0 Wading Pools.

403.1 General. Wading pools shall be physically separated from the swimming pool area by not less than 7 feet (2134 mm), and a barrier shall be installed to separate the two areas with a height of not less than 4 feet (1219 mm) measured from the pool water surface to the top of the barrier. Walkways not less than 4 feet (1219 mm) wide shall be installed along the perimeter of wading pools. Walkways shall be continuous, unobstructed, slip-resistant, and sloped away from the pool not less than 1/8 inch per foot (in/ft) (10.4 mm/m). Decks shall be in accordance with Section 416.0.

SUBSTANTIATION:

Similarly to decking requirements, a 4 foot walkway around the perimeter of a wading pool should also be provided. This allows for safe entry and exit and promotes safer conditions for walkway surfaces. Additionally, the sloped surfaces allow for draining of excess water which would have otherwise been collected on the walkway surfaces. The slope is directed away from the pool to prevent draining into the pool water.



CODES ADMINISTRATION

Proposals

Item #: 034

USPSHTC 2024 Section: 403.2, 803.4

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Revise text

403.0 Wading Pools.

403.2 Gates. Gates used for ingress or egress of the wading pool shall be self-closing, self-latching, lockable, open outward away from the pool, and not less than the height of the surrounding fence. Gates and doors shall not swing over stairs.

803.0 Barrier Requirements.

803.4 Access Gates or Doors. Pedestrian access gates or doors shall comply with Section 803.1 through Section 803.3.5 and shall be equipped with a self-closing and self-latching device. Gates or doors shall open outward or away from the pool, spa, or hot tub area. Gates and doors shall not swing over stairs. Gates or doors other than pedestrian access gates or doors shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate or door, the release mechanism shall be located on the pool, spa, or hot tub side of the gate at not less than 3 inches (76 mm) below the top of the gate and the gate/door, and the barrier shall have no opening greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

SUBSTANTIATION:

Section 403.2 and Section 803.4 are being updated to include additional language pertaining to the location of installed doors and gates. It is necessary to specify that doors and gates must be located where they do not open/close over stairs as this poses a potential safety hazard.



CODES ADMINISTRATION

Proposals

Item #: 035

USPSHTC 2024 Section: 406.3

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

406.0 Public Aquatic Facilities.

406.3 Toilet Facilities. Public aquatic facilities shall be provided with sanitary facilities in accordance with the plumbing code. ~~, including provisions~~ Sanitary facilities for persons with disabilities, ~~as prescribed by~~ shall be in accordance with ICC A117.1 and the Authority Having Jurisdiction.

Note: ICC A117.1 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 406.3 is being revised to require compliance with the plumbing code and ICC A117.1 for sanitary facilities located within public aquatic venues. The plumbing code also references this standard for ADA compliance, and therefore does not conflict with the language as proposed. Also referencing ICC A117.1 in this location ensures that the appropriate accessibility requirements are specified and that these venues are equipped with ADA compliant plumbing facilities.



CODES ADMINISTRATION

Proposals

Item #: 036

USPSHTC 2024 Section: 416.1 - 416.1.3

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

416.0 Decks.

416.1 General. Decks shall be constructed of corrosion-resistant material and designed for the anticipated loads. Surfaces shall be non-abrasive, slip-resistant, and not subject to microbial growth or deterioration. The elevation difference between decks and other walkway surfaces shall not exceed 1/4 of an inch (6.4 mm). Change in vertical elevation shall be considered an edge condition. Deck edges shall be beveled, rounded, or otherwise relieved to eliminate sharp corners.

416.1.1 Concrete. Decks constructed of concrete shall be designed in accordance with ACI 318.

416.1.2 Wood Boards. Gaps between wood boards shall be present and shall not exceed 1/8 of an inch (3.2 mm).

416.1.3 Composite Boards. ~~Where deck boards are used, a g~~Gaps between composite boards shall be present and shall not exceed 1/4 of an inch (6.4 mm). ~~for non-wood products and 1/8 of an inch (3.2 mm) for wood. The elevation difference between decks and other walking surfaces shall not exceed 1/4 of an inch (6.4 mm). Change in vertical elevation shall be considered an edge condition. Deck edges shall be beveled, rounded, or otherwise relieved to eliminate sharp corners.~~

Note: ACI 318 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 416.0 does not currently address the varying decking requirements dependent on construction materials including concrete, wood, and composite boards. These materials have different expansion and contraction properties which must be accounted for during design and construction.

The specified gaps for wood and composite boards are needed to allow for proper drainage and to ensure expansion of the boards caused by heat does not consequently place more stress on fasteners. For concrete decks, reference has been made to ACI 318 as this standard includes provisions for the design of concrete used for structural purposes.

For safety reasons, language has also been added to eliminate sharp corners and to limit the elevation difference between decks and connecting walkway surfaces.



CODES ADMINISTRATION

Proposals

Item #: 037

USPSHTC 2024 Section: 416.4

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

416.0 Decks.

416.4 Deck Drainage. Pool, spa, and hot tub decks shall be constructed to provide drainage from the deck and to prevent standing water. The deck surface shall be sloped ~~not less than 1/8 of an inch per foot (10.4 mm/m) to towards~~ deck drains or other approved surface disposal areas. The deck surface shall not be drained into the pool, spa, or hot tub, including the perimeter overflow channel or ~~any portion of connected to~~ the recirculation system. Slopes for wood and composite decks shall not exceed 1/4 inch per foot (in/ft) (20.8 mm/m). The slope for decks other than wood decks, including but not limited to, concrete, pavers, and aggregates, shall not exceed 1/2 inch per foot (in/ft) (41.7 mm/m).

SUBSTANTIATION:

Slope requirements for deck drainage can vary depending on the deck surface. The code currently contains minimum slope requirements, but does not contain maximum slope requirements for the safety of users. This addition to Section 416.4 provides these needed maximum slopes for wood, composite, and nonwood decks.



CODES ADMINISTRATION

Proposals

Item #: 038

USPSHTC 2024 Section: 416.4

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Revise text

416.0 Decks.

416.4 Deck Drainage. Pool, spa, and hot tub decks shall be constructed to provide drainage from the deck and to prevent standing water. The deck surface shall be sloped not less than 1/8 ~~of an~~ inch per foot (in/ft)(10.4 mm/m) to deck drains or other approved surface disposal areas. The deck surface shall not be drained into the pool, spa, or hot tub, including the perimeter overflow channel or connected to the recirculation system. Roof drainage and general site drainage shall slope away from the pool and spa area.

SUBSTANTIATION:

The new text will clarify the direction of slope required for surrounding areas of pools, spas, and hot tubs. The intent is to maintain water quality by preventing debris from flowing into the pool, spa, or hot tub water.



CODES ADMINISTRATION

Proposals

Item #: 039

USPSHTC 2024 Section: 503.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

503.0 Turnover Time.

503.1 General. The entire design of matched components shall have a capacity to provide a complete turnover of water in accordance with local and state codes or regulations, and the manufacturer's instructions. Maximum turnover time shall be required as follows:

- (1) Private pools – 8 hours
- (2) Public pools – 6 hours
- (3) Wading pools – 1 hour
- (4) Private spas and hot tubs – 1 hour
- (5) Public spas and hot tubs – ½ hour
- (6) Therapy pool – ½ hour
- (6) Water slides and landing pools – 2 hours
- (7) Wave pools – 3 hours
- (8) Leisure rivers – 3 hours
- (9) Spray grounds – ½ hour
- (10) Activity pools – 2 hours
- (11) Diving pools – 8 hours
- (12) Surf pools – as required by the manufacturer

SUBSTANTIATION:

Therapy pools are similar to public spas and their temperatures. Currently, the code is silent regarding the turnover time for such pools, and this change will add the needed guidance for the required turnover time for the health and safety of the public.



CODES ADMINISTRATION

Proposals

Item #: 040

USPSHTC 2024 Section: 503.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

503.0 Turnover Time.

503.1 General. The entire design of matched components shall have a capacity to provide a complete turnover of water in accordance with local and state codes or regulations, and the manufacturer's instructions. Maximum turnover time shall be required as follows:

- (1) Private pools – 8 hours
- (2) Public pools – 6 hours
- (3) Wading pools – 1 hour
- (4) Private spas and hot tubs – 1 hour
- (5) Public spas and hot tubs – ½ hour
- (6) Water slides and landing pools – 2 hours
- (7) Wave pools – 3 hours
- (8) Leisure rivers – 3 hours
- (9) Spray grounds – ½ hour
- (10) Activity pools – 2 hours
- (11) Diving pools – 8 hours
- (12) Surf pools – as required by the manufacturer
- (13) Artificial lagoons - as required by the manufacturer

SUBSTANTIATION:

These artificial lagoon venues can vary in size and many times, only a portion of the venue is intended for swimming, splashing, or immersion. Such venues should contain a minimum turnover time; however, because of the complexity of the varying designs, the designer and/or manufacturer would be the best qualified for determining the appropriate flow rates to achieve the turnover time required. Currently, the code is silent regarding the turnover time for such venues and this change will add the needed guidance for the health and safety of the public.



CODES ADMINISTRATION

Proposals

Item #: 041

USPSHTC 2024 Section: 507.1.2

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

507.0 Chemical Feed Equipment.

507.1 General. (remaining text unchanged)

507.1.2 Interlocked. Chemical feed equipment shall be disabled when the pump is turned off, loses prime, when water is not flowing in the return lines, or filters are backwashed. ~~Where not specified elsewhere in this code, e~~Chemical feed equipment shall be interlocked electrically with the recirculation pump and shall include a flow sensor capable of determining whether water is flowing using not less than two one or more of the following devices:

~~(1) Recirculation pump~~

~~(2)~~ Flow meter and switch in the return line

~~(3)~~ Chemical controller and paddle wheel

~~(3)~~ Flow cell on the chemical controller

SUBSTANTIATION:

The addition of this language will prevent the injection of chemicals when the return lines do not have any flow. The proposed change is moving the “recirculating pump” to the body of Section 507.1.2 as it is always needed to be running simultaneously with either a flow meter and switch in the return line, chemical controller and paddle wheel, or the flow cell on the chemical controller.



CODES ADMINISTRATION

Proposals

Item #: 042

USPSHTC 2024 Section: 508.1, 807.2, 807.3

SUBMITTER: Dr. Alison Osinski
Chair, USPSHTC Water Chemistry and Disinfection Task Group

RECOMMENDATION:
Revise text

508.0 Primary Disinfection.

508.1 General. Chemicals for a swimming pool, spa, or hot tub shall be dispensed in accordance with the chemical manufacturer's instructions, ~~Material~~-Safety Data Sheets (~~M~~SDS), and applicable standards and regulations.

Parameters for chemicals used within a swimming pool, spa, and hot tub shall be in accordance with Table 508.1.

807.0 Chemicals.

807.2 Handling. Chemicals shall be handled in accordance with the following provisions:

- (1) Chemical containers shall be labeled.
- (2) Chemicals shall be handled in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (3) Protective gear shall be worn in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (4) A separate measuring device shall be used for each chemical.
- (5) The mixing of chemicals that will violate the manufacturer's instructions shall be prohibited.
- (6) Water shall not be added to a chemical located within its container.

807.3 Storage. Chemicals used in the treatment of a public swimming pool, spa, or hot tub shall be stored in accordance with NFPA 400. Chemicals used in the treatment of a private swimming pool, spa, or hot tub shall be stored in accordance with the following provisions:

- (1) Federal, state and local requirements shall be followed.
- (2) Chemicals shall be stored and stacked in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (3) Liquid chemicals shall be stored below solid, powdered, or granular products. Chemicals shall be stored on pallets or shelves, not on the floor. Secondary containment for all liquid chemicals shall be provided.
- (4) Chemicals shall be stored in a clean, cool, dry, uncluttered, well-lit, and well-ventilated area that is out of the reach of children and unauthorized personnel.
- (5) Chemical containers shall be sealed with the original label affixed.
- (6) Chemicals shall be stored away from flammable products. Smoking shall be prohibited in the presence of chemicals.
- (7) Chemicals shall not be stored in the same area as other chemicals or substances; this includes dissimilar or non-compatible chemicals, that are not used for the treatment of a pool, spa, or hot tub.
- (8) Chemical containers shall regularly be inspected for signs of moisture, corrosion, or damage.
- (9) Chemicals shall be used on a first in, first out basis.

SUBSTANTIATION:

The phrase "Material Safety Data Sheets" has been updated by removing the term "Material." OSHA requires that chemical manufacturers, distributors, or importers to now provide Safety Data Sheets (SDS) (formerly know as MSDS) with specific minimum sections to be included. The proposed change will correlate with the new identification of these documents.



CODES ADMINISTRATION

Proposals

Item #: 043

USPSHTC 2024 Section: 508.0 - 508.3

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

508.0 ~~Primary Disinfection Chemicals.~~

508.1 ~~General Primary Disinfection.~~ Primary disinfection C chemicals for ~~a swimming pool, spa or hot tub use in recreational water facilities~~ shall be dispensed in accordance with the chemical manufacturer's instructions, ~~Material~~ Safety Data Sheets (~~M~~SDS), and applicable standards and regulations.

508.2 ~~Water Conditioning.~~ Water conditioning chemicals for use in recreational water facilities shall be certified to NSF/ANSI/CAN 50 and shall be used in accordance with the manufacturer's instructions pursuant the certification parameters.

508.3 ~~Water Chemistry.~~ Parameters for chemicals used within a swimming pool, spa, and hot tub shall be in accordance with Table 508.1.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The update separates the general provisions into three sections and adds a better defined use regarding "recreational water facilities." There are other venues used for aquatic recreational purposes that require water quality to meet at least the same level as pools. Water conditioning is common for pools and should meet minimum standards for quality and intended use. Section 508.3 is added to direct users to the appropriate section for water chemistry parameters shown in Table 508.1.



CODES ADMINISTRATION

Proposals

Item #: 044

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTANCE RANGE
Calcium hardness	200 – 400-2500 parts per million (ppm)

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The current maximum limit for calcium hardness in the 2018 Model Aquatic Health Code is 2500 ppm (5.7.4.4.3).

From a practical standpoint, high calcium levels can lead to the formation of insoluble calcium carbonate scale and cloudy water. However, in areas that have high calcium hardness in the source water, lowering the calcium hardness can be difficult and adds cost to maintaining the aquatic venue (costs of reverse osmosis or shipping in water). By raising the maximum level of calcium, more flexibility is given to operators to adjust pH and alkalinity levels to achieve balanced water (i.e. Langelier Saturation Index between -0.3 and +0.3) without having to drain the water.



CODES ADMINISTRATION

Proposals

Item #: 045

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Add new text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
DMH (dimethyl hydantoin)_(the DMH in BCDMH)	≤ 200 ppm

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change is adding DHM (Dimethyl Hydantoin) which is the DHM in BCDMH (Bromo Chloro-Dimethyl Hydantoin) products. It is a sanitizer product that is used to generate available bromine. It contains available bromine and available chlorine. High concentrations of DMH are known to build up in pools treated with BCDMH and tie up the bromine and reduce its effectiveness.

Similar problems occur in chlorinated pools that are over stabilized with cyanuric acid. The Oxidation Reduction Potential (ORP) levels plummet as the brominated pool water ages, and the minimum 750 mV ORP levels often become difficult to reach.

The addition of this parameter will give the end user another valuable tool in determining water quality and how to better understand what is occurring in the water chemistry.



CODES ADMINISTRATION

Proposals

Item #: 046

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Delete text without substitution

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
Ozone	Generator output shall equal 4—6 percent ozone by weight concentration Slip stream shall be 25—33 percent. ORP shall be > 850 mV
Ultraviolet light	0.39—0.65 watt seconds per square inches ($W \cdot s/in^2$)

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change recommends the removal of dosage specifications for ozone and UV as the manufacturer's operating parameters may fall outside these values.



CODES ADMINISTRATION

Proposals

Item #: 047

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Add new text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
Sodium Bromide (NaBr)	≤ 20 ppm

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change is adding a sodium bromide (NaBr) field to the water chemistry table. Sodium bromide is often used with granular chlorine (pool shock) as a catalyst to convert the bromides into the potent algae killers, hypobromous acid. NaBr is sometimes called a chlorine enhancer by some chemical manufacturers as it creates a synergy of high chlorine and high bromine levels. Bromides are usually used not for algae control, but to kill pool algae in out-of-control cases.

The reason for adding NaBr as a parameter is to make it available as an important reading to watch for since it may be consuming chlorine without the end user realizing what is causing this.



CODES ADMINISTRATION

Proposals

Item #: 048

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Add new text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
Total TOC (Total Organic Carbon)	≤ 200 ppm

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change is adding a new parameter to the water chemistry table. Organic contamination can significantly influence the quality of swimming pool water, and constant monitoring of the water quality is important. The swimming pool water quality can be checked by the permanganate index which is subject to numerous interferences like different halogens. There are several laboratories that already measure the concentration of Total Organic Carbon (TOC) instead of the permanganate index to evaluate the organic contamination of pool water, also because TOC determination is easy and fast. The addition of these parameters will give the end users an important water chemistry parameter to confirm and monitor swimming pool water for the health and safety of the public.



CODES ADMINISTRATION

Proposals

Item #: 049

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTANCE RANGE
Total alkalinity	80-120 -60-180 ppm

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The total alkalinity limits have been updated to be consistent with the 2018 Model Aquatic Health Code (5.7.4.4.1).

Where the total alkalinity is less than 60 ppm, there is not enough of a buffering capacity to resist a significant pH change if an acidic or basic chemical is added to the pool water. If there is not enough of a buffer capacity to resist a low pH, the water will become corrosive to metal fixtures and equipment, and bathers will experience discomfort. If there is a high pH, scale deposits will form. Where alkalinity is above 180 ppm, scale deposits form, disinfectant efficiency decreases, and the pH of the water becomes difficult to adjust.



CODES ADMINISTRATION

Proposals

Item #: 050

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
Free chlorine	1.0 - 5.0 ppm (pools) or as needed to maintain a 750 millivolt (mV) ORP 3.0 – 10.0 ppm (spas and hot tubs) or as needed to maintain a 750 mV ORP
Total bromine	4.5 – 6.5 ppm or as needed to maintain a 750 mV ORP <u>2.25 – 11.25 ppm (pools) or as needed to maintain a 750 millivolt (mV) ORP</u> <u>6.75 – 22.5 ppm (spas and hot tubs) or as needed to maintain a 750 mV ORP</u> (2.25 times the equivalent amount of chlorine)

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change is updating the ranges found in the total bromine column to match the parameters in the free chlorine column. The update replaces the “4.5 – 6.5 ppm” range needed to maintain the 750 mV ORP and replaces it with the specific “pools” and “spas and hot tubs” conversions found in the “free chlorine” columns. At 2.25 times the equivalent amount of chlorine, the existing range will be exceeded and is not realistic. The updated values align with the free chlorine columns when multiplied by 2.25.



CODES ADMINISTRATION

Proposals

Item #: 051

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Revise text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER	ACCEPTABLE RANGE
Free chlorine	1.0 - 5.0-4.0 ppm (pools venues not using cyanuric acid) or as needed to maintain a 750 millivolt (mV) ORP <u>2.0 – 5.0 ppm (pool venues using cyanuric acid) or as needed to maintain a 750 millivolt (mV) ORP</u> <u>2.0 - 5.0 ppm (spas and hot tub venues not using cyanuric acid) or as needed to maintain a 750 millivolt (mV) ORP</u> 3.0 – 10.0 ppm (spas and hot tubs venues using cyanuric acid) or as needed to maintain a 750 mV ORP

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The proposed change broadens the parameters for pool, spa, and hot tub venues regarding free chlorine and dependency on the use of “cyanuric acid” for maintaining ORP. These values were also found to be consistent with other industry standards and practices.



CODES ADMINISTRATION

Proposals

Item #: 052

USPSHTC 2024 Section: Table 508.1

SUBMITTER: Dr. Alison Osinski
Aquatic Consulting Services

RECOMMENDATION:
Revise text

**TABLE 508.1
WATER CHEMISTRY**

PARAMETER ¹	ACCEPTABLE RANGE
Free chlorine	1.0 - 5.0 ppm (pools ⁴) or as needed to maintain a 750 millivolt (mV) ORP 3.0 – 10.0 ppm (spas and hot tubs ⁵) or as needed to maintain a 750 mV ORP
TDS ³	< 1500 ppm
Turnover time ²	1400 gallons per day (gal/d) for each anticipated bather per day

For SI units: 1 millivolt = 0.001 V, 1 gallon per day = ~~0.000438 L/s~~ 3.785 L/day, 1 watt second per square inches = 0.155 J/cm² W·s/cm²

Notes:

¹When the maximum level has been reached, and the ORP is not met, one of the following shall be considered where approved:

(a) Add secondary disinfection system.

(b) Add an additional filtration system such as membrane, nano, or Granulated Activated Carbon (GAC).

(c) Lower the pH level.

(d) Replace the water.

(e) Reduce cyanides that are using up the chlorine.

²When bather load capacity is exceeded, the flow rate shall be increased, and secondary water treatment shall be performed.

³Not applicable where inline chlorine generators are used.

⁴For bodies of water where the temperature is maintained below 90°F (32.2°C).

⁵For bodies of water where the temperature is maintained above 90°F (32.2°C).

(portions of table not shown remain unchanged)

SUBSTANTIATION:

Table 508.1 is being updated with notes to address common chemistry conditions that result in maximum parameter levels being reached. There are times where a facility may reach the upper limits of the value; however, the ORP may not be in the limits. The notes guide the user to look at other parameters that may be affecting the unbalanced chemistry. This will prevent someone from only adding additional chlorine (for example) when the limit has already been reached.

The notes also address situations where the user load capacity may reach or exceed the facilities' capacity. Such situations should be considered, and appropriate actions need to take place. The aquatic facilities are balanced to circulate for a predicted capacity, and if that capacity is being exceeded, additional measurers of disinfection should be considered.

Note (3) provides an exception for situations where chlorinators are part of the system. Notes (4) and (5) point out that such parameters are based on a temperature range, and if those temperatures are exceeded, additional chemistry balance may be called for.



CODES ADMINISTRATION

Proposals

Item #: 053

USPSHTC 2024 Section: 211.0, 509.1, 509.2

SUBMITTER: Dr. Alison Osinski
Chair, USPSHTC Water Chemistry and Disinfection Task Group

RECOMMENDATION:
Revise text

509.0 Secondary Disinfection Systems.

509.1 General. Secondary disinfection systems shall ~~comply with~~ be certified to NSF/ANSI/CAN 50, and shall be installed and operated in accordance with the manufacturer's ~~installation~~ instructions.

509.2 Where Required. A secondary disinfection system shall be provided for increased risk aquatic venues, the following:

- ~~(1) Aquatic venues designed for children, such as wading pools, and recirculating interactive water play venues~~
- ~~(2) Therapy pools~~
- ~~(3) Sensory deprivation tanks~~

211.0 - 1 -

Increased Risk Aquatic Venue. An aquatic facility with its primary use being one or more of the following:

- (1) Children under the age of 5,
- (2) Persons who are immune system compromised, or
- (3) Therapy of patients with open wounds which may increase the risk of microbial contamination.

Examples of such facilities include therapy pools, swim schools, spray pads, wading pools, and facilities with high bather load to water ratios.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 509.1 is being updated to require certification to NSF/ANSI/CAN 50 for secondary disinfection systems. Clarification has also been made that these systems are to be both installed and operated in accordance with the manufacturer's instructions.

Section 509.2 is being modified to specify the requirement for secondary disinfection for any increased risk aquatic venue. In support of this change and to provide needed clarity, a definition for the term "increased risk aquatic venue" has also be provided. The terminology offered identifies three qualifications for risked use and offers examples of such facilities.

Furthermore, these changes align with current industry standards and are beneficial to the code as they promote public health and safety.



CODES ADMINISTRATION

Proposals

Item #: 054

USPSHTC 2024 Section: 509.4

SUBMITTER: Dr. Alison Osinski
Chair, USPSHTC Water Chemistry and Disinfection Task Group

RECOMMENDATION:
Revise text

509.0 Secondary Disinfection Systems.

509.4 Approved Systems. Secondary disinfection shall be provided by an ultraviolet light (UV) system, ~~or~~ ozone system, or other approved method.

SUBSTANTIATION:

The existing language is overly restrictive by only calling out UV (ultraviolet light) systems or ozone systems for approved secondary disinfection. The addition of "other approved methods" will allow other means of secondary disinfection such as advanced oxidation systems that are used to kill chlorine-resistant organisms, like Cryptosporidium.



CODES ADMINISTRATION

Proposals

Item #: 055

USPSHTC 2024 Section: 509.4.2.1, 509.4.2.4

SUBMITTER: Dr. Alison Osinski
Chair, USPSHTC Water Chemistry and Disinfection Task Group

RECOMMENDATION:
Revise text

509.0 Secondary Disinfection Systems.

509.4 Approved Systems. (remaining text unchanged)

509.4.2 Ozone Systems. (remaining text unchanged)

509.4.2.1 Oxidation Reduction Potential. Ozone generating equipment shall be equipped with an approved oxidation reduction potential (ORP) monitor/controller. The ORP of the ozone system shall be not less than ~~600~~ 650 mV, and not more than 900 mV where measured after the ozone side-stream remixes into the recirculation system and upstream of the halogen feed location and pH chemical feed equipment.

509.4.2.4 Alarm Required. When the ORP reading for the ozone system drops below ~~600~~ 650 mV, approved audible and visual alarms shall be installed to alert facility staff.

SUBSTANTIATION:

The World Health Organization and CDC have determined that a minimum of 650 mV is required for virtually instantaneous inactivation of most pathogens and as such, this value has become the industry standard for a minimum acceptable ORP value.



CODES ADMINISTRATION

Proposals

Item #: 056

USPSHTC 2024 Section: 510.0, 510.1

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Add new text

510.0 Supplemental Disinfection Systems.

510.1 General. Supplemental disinfection systems shall be certified to NSF/ANSI/CAN 50 and shall be installed and operated in accordance with the manufacturer's instructions.

(renumber remaining sections)

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

NSF/ANSI/CAN 50 provides detailed specifications for primary, secondary, and supplemental disinfection systems. Requiring certification of these systems to this standard is both applicable and necessary to ensure the appropriate log reductions are met for *Cryptosporidium parvum*, *Pseudomonas aeruginosa*, and *Enterococcus faecium*. NSF/ANSI/CAN 50 also includes the necessary terminology for the distinction between these disinfection systems based on the parasite or bacteria being reduced through treatment. Primary and secondary treatment are already addressed within this code, and including "supplemental disinfection" will improve and promote bather safety. For these reasons, the language is beneficial.



CODES ADMINISTRATION

Proposals

Item #: 057

USPSHTC 2024 Section: 221.0, 510.3.8

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

510.0 Surface Skimmers and Perimeter Overflow Systems.

510.3 Perimeter Overflow Systems. (remaining text unchanged)

510.3.8 Surge Tank Storage Capacity. A perimeter overflow system shall be provided with a surge storage of not less than 1 gallon per square foot (gal/ft^2) (41 L/m²) of pool water surface area. The system shall prevent flooding and backflow of skimmed water into the pool and shall be capable of processing not less than 125 percent of the approved total recirculation flow rate. The surge tank storage capacity shall be permitted in the perimeter overflow channel, the overflow water drain piping returning to the surge chamber, and in the surge chamber. The tank capacity specified shall be the net capacity. The minimum, maximum, and normal pool operating water levels in the surge tank shall be determined by the registered design professional, shall be marked on the tank, and shall be readily visible. Surge tanks shall have overflow pipes to convey excess water to waste piping via an air gap or other approved backflow prevention device.

221.0 – S –

Surge Tank. A storage vessel within the pool recirculating system used to contain the water displaced by bathers. Surge Tank Storage Capacity. The storage volume in a surge tank, gutter, and plumbing lines.

SUBSTANTIATION:

Surge tanks offer protection from overflow caused by water displaced of bathers. Such systems must prevent flooding and backflow into the pool and must provide sufficient capacity for recirculation and disinfection. Additionally, markings must be provided on such tanks as they assist the end user in monitoring and easily indicating if the system is operating at the required capacity.

In further support of these updated requirements, definitions for "surge tank" and "surge tank storage capacity" have been provided. Both definitions offer clarity and assist with interpreting provisions.



CODES ADMINISTRATION

Proposals

Item #: 058

USPSHTC 2024 Section: 511.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

511.0 Pool, Spa, and Hot Tub Suction Outlets.

511.1 General. Pool, spa, or hot tub suction outlets shall comply with APSP/ICC 16 and Section 810.0.

Exception: Self-contained spas that are in accordance with UL 1563.

SUBSTANTIATION:

Section 511.1 is being modified to reference the entrapment prevention requirements listed in Section 810.0 (Entrapment Prevention). This referenced section includes specific provisions for submerged suction outlets which are designed to reduce the risk of injury or death caused by entrapment. Such reference should be made within this section as it is applicable to installation of suction outlets for pools and spas.



CODES ADMINISTRATION

Proposals

Item #: 059

USPSHTC 2024 Section: 511.1.2.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

511.0 Pool, Spa, and Hot Tub Suction Outlets.

511.1.2 Suction Cleaner Device Outlets. (remaining text unchanged)

511.1.2.1 Dedicated Vacuum Outlets. A shutoff valve shall be installed in the vacuum piping and shall remain in the closed position when the vacuum outlet is not in use. Wall vacuum outlets shall be **self-closing and self-latching, and shall be** installed at a depth not exceeding 12 inches (305 mm) below the pool, spa, or hot tub water surface. Suction fittings shall be in accordance with IAPMO SPS 4.

SUBSTANTIATION:

Section 511.1.2.1 is being revised to specify that wall vacuum outlets are to be self-closing and self-latching. This minor modification is necessary to ensure safety as this language aligns with other safety specifications for entrapment prevention. For these reasons, the revisions are beneficial to the code.



CODES ADMINISTRATION

Proposals

Item #: 060

USPSHTC 2024 Section: 602.2 - 602.3

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Revise text

602.0 Installation Requirements.

602.2 Equipment Rooms or Enclosures. Equipment rooms shall be in accordance with Section 602.2.1 through Section 602.3.

602.2.1 General. Floors shall be constructed of concrete or other nonabsorbent material in accordance with the building code, and shall be provided with an approved means of drainage in accordance with the plumbing code. Equipment rooms located in a flood hazard area shall comply with Section 301.4.

602.2.2 Equipment Room Ventilation. Enclosed equipment rooms shall be ventilated in accordance with the mechanical code.

602.2.3 Storage of Chemicals. Storage of chemicals shall comply with the building code and the fire code.

Combustion, HVAC, and electrical equipment shall not be located in the same room used for chemical storage or exposed to chemical fumes or vapors.

602.3 602.2.4 Indoor Access. Where access to an equipment room is made through an aquatic facility, a door shall be installed. The door shall be equipped with an automatic closer and lock, and a gasket or other approved means to prevent passage of air, fumes, or vapors. The floor of the equipment room shall be sloped away from the door to the aquatic facility.

SUBSTANTIATION:

The proposed change separates the provisions for equipment rooms and enclosures into various sections for clarity. The current layout addressed too many varying topics within the same section. This separation will assist with interpreting applicability and locating specific requirements. Reference has also been made to Section 301.4 to address equipment rooms located in flood hazard areas.



CODES ADMINISTRATION

Proposals

Item #: 061

USPSHTC 2024 Section: 702.4, Table 1001.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

702.0 Heaters.

702.4 Heat Pumps. Heat pumps for pools, spas, or hot tubs shall comply with UL 1995 or UL 60335-2-40. Heat pumps shall also comply with ANSI/AHRI 1160.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ANSI/AHRI 1160-2014</u>	<u>Performance Rating of Heat Pump Pool Heaters</u>	<u>Appliances and Equipment</u>	<u>702.4</u>

(portions of table not shown remain unchanged)

Note: ANSI/AHRI 1160 meets the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

ANSI/AHRI 1160 is being added to Section 702.4 as it pertains to performance of heat pumps for pools and spas. The proposed standard establishes definitions, classifications, testing requirements, rating requirements, and performance ratings. Such addition further enhances the code and provides a performance based standard in addition to the electrical requirements of UL.



CODES ADMINISTRATION

Proposals

Item #: 062

USPSHTC 2024 Section: 702.5

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

702.0 Heaters.

702.5 Solar Pool, Spa, and Hot Tub Heaters. Where solar technology is used to heat a swimming pool, spa, or hot tub, it shall comply with NSF/ANSI/CAN 50 and be installed in accordance with the Uniform Solar, Hydronics and Geothermal Code and the manufacturer's installation instructions.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:
Section 702.5 is being updated to ensure both compliance with NSF/ANSI/CAN 50 and the USHGC for the use of solar technology to heat pools and spas. NSF/ANSI/CAN 50 is an accepted industry standard addressing equipment and chemicals for pools and spas, and the inclusion of both of these references promotes optimal operation and proper installation.



CODES ADMINISTRATION

Proposals

Item #: 063

USPSHTC 2024 Section: 702.5 - 702.5.3

SUBMITTER: Jazmin Curiel
Self

RECOMMENDATION:
Revise text

702.0 Heaters.

702.5 Solar Pool, Spa, and Hot Tub Heaters. Where solar technology is used to heat a swimming pool, spa, or hot tub, it shall be installed in accordance with the Uniform Solar, Hydronics and Geothermal Code, [Section 702.5.1 through Section 702.5.3](#), and the manufacturer's installation instructions.

[702.5.1 Water Chemistry.](#) Where water from a swimming pool, spa or hot tub is heated by way of circulation through solar collectors, the chemistry of such water shall comply with the requirements of Table 508.1, and shall be filtered in accordance with Section 702.5.2 and Section 702.5.2.1.

[702.5.2 Filter.](#) A filter shall be provided to remove debris from the water entering the solar loop.

[Exception:](#) A solar swimming pool, spa, or hot tub heating system with a heat exchanger.

[702.5.2.1 Location.](#) A filter shall be located upstream of a pump used to direct water to solar collectors.

[702.5.3 Corrosion Resistant.](#) Glazed solar collectors made of copper shall not be used for solar pool, spa, or hot tub heating.

[Exception:](#) Where a heat exchanger is provided between the collector circuit and the swimming pool, spa, or hot tub water.

SUBSTANTIATION:

The most recent edition of the USHGC has clear provisions pertaining to solar thermal systems which are utilized to heat swimming pools, spas, or hot tubs. Incorporating these provisions within the USPSHTC allows for users of the code to have access to these minimum requirements while still requiring compliance with the USHGC for installation of solar energy systems.

The requirements being addressed pertain to water chemistry, filters, and corrosion resistance. Proper water chemistry parameters have been listed within Table 508.1 and have been updated over recent code cycles to ensure such parameters are current. For this reason, Table 508.1 is being referenced within proposed Section 702.5.1.

A required filter is also being proposed to prevent debris and unwanted particles from entering the solar loop. This is necessary to ensure the flow rate of water through the loop is not decreased or stopped by a blockage within the loop.

Additionally, the use of glazed solar collectors made of copper has been prohibited since this material may lead to excessive concentrations of copper ions within the pool water. This causes the pool water to become acidic as it drops the pH of the water. This also commonly leads to the formation of colored residue along the pool wall. For these reasons, the above provisions are being added.



CODES ADMINISTRATION

Proposals

Item #: 064

USPSHTC 2024 Section: 803.2

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Revise text

803.0 Barrier Requirements.

803.2 Barrier Location. Barriers shall be not less than 48 inches (1219 mm) above a permanent object that is within 48 inches (1219 mm) of the outside of the barrier. Measurement shall be taken perpendicular from the height of the barrier. The distance between the barrier and the swimming pool, spa, or hot tub edge shall not be less than 24 inches (610 mm).

SUBSTANTIATION:

The proposed minimum distance between the pool, spa or hot tub edge and the barrier is needed to allow for walking access around the inside of the fence for both maintenance and/or retrieval of a bather or object.



CODES ADMINISTRATION

Proposals

Item #: 065

USPSHTC 2024 Section: 803.3.4, Table 1001.1

SUBMITTER: Samantha Liu
Self

RECOMMENDATION:
Revise text

803.0 Barrier Requirements.

803.3 Barrier Height. (remaining text unchanged)

803.3.4 Chain Link Barrier. Maximum mesh size for chain link barriers shall not exceed 1¾ inches (44 mm) square. Removable mesh fencing shall be installed in accordance with the manufacturer's instructions and shall comply with ASTM F2286.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASTM F2286-2016	Removable Mesh Fencing for Swimming Pools, Hot Tubs, and Spas	Fencing	803.3.4

(portions of table not shown remain unchanged)

Note: ASTM F2286 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 803.3.4 is being updated to include requirements for removable mesh fencing. ASTM F2286 is appropriate for reference as it outlines the performance and design requirements for removable mesh safety barriers used for swimming pools, hot tubs, and spas to reduce the incidence of injuries or death for infants and children. For these reasons, the additional language is necessary.



CODES ADMINISTRATION

Proposals

Item #: 066

USPSHTC 2024 Section: 803.8, Table 1001.1

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Add new text

803.0 Barrier Requirements.

803.8 Alarms. Where installed, alarms for automatic and rapid detection of accidental, unintentional, or unsupervised entry of a swimming pool or spa shall comply with ASTM F2208.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ASTM F2208-2008 (R2019)</u>	<u>Residential Pool Alarms</u>	<u>Alarms</u>	<u>803.8</u>

(portions of table not shown remain unchanged)

Note: ASTM F2208 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The section for barrier requirements is being improved through the inclusion of alarms. The proposed new language provides reference to ASTM F2208 as this standard covers devices that provide rapid and automatic detection in cases of unintentional, unsupervised or accidental entry of a child one year of age or older into the water of swimming pools or spas. The proposed language enhances the code and further promotes safe use of swimming pools and spas.



CODES ADMINISTRATION

Proposals

Item #: 067

USPSHTC 2024 Section: 804.1 - 804.5

SUBMITTER: John Taecker
UL LLC

RECOMMENDATION:
Revise text

804.0 Electrical Safety.

804.1 General. Swimming pools, spas, and hot tubs shall comply with the electrical safety requirements of ~~Section 804.2 through Section 804.5, and~~ NFPA 70.

~~**804.2 Grounding.** The following devices and equipment associated with a swimming pool, spa, or hot tub shall be grounded in accordance with NFPA 70, Article 680:~~

- ~~(1) Underwater lighting~~
- ~~(2) Electrical equipment and panelboards~~
- ~~(3) Ground-fault circuit interrupters~~

~~**804.3 Bonding.** The following devices, parts and equipment associated with a swimming pool, spa, or hot tub shall be bonded in accordance with NFPA 70, Article 680:~~

- ~~(1) Metal parts within or attached to a pool, spa, or hot tub~~
- ~~(2) Electrical equipment that is part of the circulation system~~
- ~~(3) Electrical equipment that is part of a pool cover assembly~~
- ~~(4) Metal piping~~
- ~~(5) Metal surfaces~~

~~(6) Electrical devices and controls that are not part of a pool, spa, or hot tub~~

~~**804.4 GFCI Protection.** The following devices and equipment associated with a swimming pool, spa, or hot tub shall be GFCI protected in accordance with NFPA 70, Article 680:~~

- ~~(1) Receptacles located within the general area of a pool, spa, or hot tub~~
- ~~(2) Receptacles used for power generation for pools, spas, and hot tubs~~
- ~~(3) Electrical equipment~~

~~**804.5 Emergency Shutoff.** An emergency shutoff device that stops power to all systems and equipment of a public swimming pool, spa, or hot tub shall be marked and located in accordance with NFPA 70, Article 680.~~

SUBSTANTIATION:

The requirements in Sections 804.2 through Section 804.5 are incomplete and in conflict with the more detailed and correct requirements in NFPA 70.



CODES ADMINISTRATION

Proposals

Item #: 068

USPSHTC 2024 Section: 806.1

SUBMITTER: Jazmin Curiel
Self

RECOMMENDATION:
Revise text

806.0 Safety Covers.

806.1 General. Safety covers for swimming pools, wading pools, spas, and hot tubs shall be installed in accordance with ASTM F1346. A cover shall not be installed where a swimming pool, spa, or hot tub is in use. Operators for electrically operated swimming pool and spa covers shall comply with UL 2452.

SUBSTANTIATION:

The scope of ASTM F1346 states that the specification establishes requirements for safety covers for swimming pools, spas, hot tubs, and wading pools. Since the purpose of these covers is to ensure safety and prevent unauthorized access to the pool or spa, the inclusion of wading pools is beneficial.



CODES ADMINISTRATION

Proposals

Item #: 069

USPSHTC 2024 Section: 216.0, 403.3, 403.7, 810.0, 810.1

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

810.0 Suction Entrapment Prevention.

810.1 General. Suction outlets for pools, spas and hot tubs shall comply with Section 511.0. Single blockable suction outlet systems shall not be installed in new or retrofit applications. Existing public swimming pools, spas or hot tubs utilizing a single blockable suction outlet shall be installed with a means of secondary entrapment prevention in accordance with one of the systems in accordance with Section 810.2 through Section 810.6.

Exceptions:

- (1) Self-contained spas that are in accordance with UL 1563.
- (2) Suction entrapment prevention for wading pools shall be in accordance with Section 403.7.

403.0 Wading Pools.

403.3 Water Depth. Wading pools and the perimeter water depth shall not exceed 18 inches (457 mm). Perimeter water depth areas that exceed 9 inches (229 mm) shall be considered nonentry areas.

403.7 Suction Entrapment Prevention. Wading pools shall not have suction outlets. Skimmers or overflow gutters shall be installed and shall accommodate 100 percent of the circulation system flow rate.

216.0 – N –

Nonentry Area. An area of the deck from which entry into the pool, spa, or hot tub is prohibited.

Note: UL 1563 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Several changes are recommended to Section 810.0 (Entrapment Prevention) and 403.0 (Wading Pools). First, self-contained spas that comply with UL 1563 are not required to meet 810.0. Second, wading pools shall not contain suction outlets. Lastly, wading pools shall have nonentry areas where the water depth exceeds 9 inches for the health and safety of the public. A definition for "nonentry area" is also being added to clarify the intent of Section 403.3.



CODES ADMINISTRATION

Proposals

Item #: 070

USPSHTC 2024 Section: 810.1 - 810.1.3

SUBMITTER: Jim Majerowicz
Plumbers Local Union 130 U.A.

RECOMMENDATION:
Revise text

810.0 Entrapment Prevention.

810.1 General. Suction outlets for pools, spas and hot tubs shall comply with Section 511.0, and Section 810.1.1 through Section 810.1.3.

810.1.1 New and Retrofit Pools and Spas. For new and retrofit applications, swimming pools, spas and hot tubs shall be installed with not less than two suction outlets per circulating pump. Suction outlets shall be hydraulically balanced and installed not less than 3 feet (914 mm) apart.

Exceptions:

(1) Wading pools in accordance with Section 810.1.3.

(2) Where a pool or spa is designed to circulate water by means of skimmers or a perimeter overflow system, the pool or spa shall not be required to have two suction outlets per circulating pump.

810.1.2 Existing Pools and Spas. ~~Single blockable suction outlet systems shall not be installed in new or retrofit applications.~~ Existing public swimming pools, spas or hot tubs utilizing a single blockable suction outlet shall be installed with a means of secondary entrapment prevention in accordance with one of the systems in accordance with Section 810.2 through Section 810.6.

Exception: Wading pools in accordance with Section 810.1.3.

810.1.3 Wading Pools. Submerged suction outlets shall not be installed where accessible to the bather.

SUBSTANTIATION:

Section 810.1.1 (New and Retrofit Pools and Spas) is being proposed to provide more detailed requirements pertaining to the design and installation of suction outlets for entrapment prevention. The requirement for hydraulically balanced outlets spaced not less than 3 feet part is consistent with both industry standards and federal regulations for health and safety.

Since wading pools are only 18 inches deep, submerged suction outlets installed in areas that are easily accessible to the bather pose a significant hazard. Suction entrapment is more likely to occur because the outlets are closer to the bathers. Children are the primary users of wading pools and are less likely to be able to remove themselves from such suction outlets in the event of entrapment. For these reasons, the language is necessary.



CODES ADMINISTRATION

Proposals

Item #: 071

USPSHTC 2024 Section: 902.1

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

902.0 Diving Equipment.

902.1 General. Diving facilities including location and placement of diving equipment, minimum dimensions, depth, slope, size of envelope shall comply with Section 301.2 and FINA standards, and shall be installed in accordance with the manufacturer's installation instructions. Minimum dimensions shall comply with FINA Part X. Diving equipment shall not be installed in or on nondiving public pools.

SUBSTANTIATION:

For health and safety of the public, it should be stated that diving equipment shall not be installed in or on nondiving public pools. Nondiving pools are commonly known as Type O pools.



CODES ADMINISTRATION

Proposals

Item #: 072

USPSHTC 2024 Section: 206.0, 221.0, 904.1

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

904.0 Starting Platforms.

904.1 General. Starting platforms intended for competitive ~~use~~ diving shall be installed in accordance with the manufacturer's installation instructions and shall comply with FINA Part X. Starting platforms utilized for training purposes shall not be installed where pool depths are less than 79 inches (2007 mm).

206.0 – D –

Diving Platform. A sStationary platform structure designed for competitive diving. Also known as a starting platform or a diving tower.

221.0 – S –

Starting Platform. See Diving Platform.

SUBSTANTIATION:

FINA Part X is the standard referenced for starting platforms. Such structures are also known as diving platforms or diving towers. In fact, there is a definition for "diving tower" that already exists in the code. This definition is sufficient for describing starting platforms as well; therefore, alternate titles are recommended in Chapter 2 (Definitions). The definition is also updated to harmonize with Section 904.1 which should state that starting platforms are intended for competitive diving.



CODES ADMINISTRATION

Proposals

Item #: 073

USPSHTC 2024 Section: 221.0, 907.1

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

907.0 Wave Pools.

907.1 General. Wave pools shall have a means of entry and exit in accordance with Section 802.3. The floor slope of a wave pool shall not exceed 1 foot (305 mm) in 12 feet (3658 mm). Caissons shall be separated from areas used by bathers with a float line in accordance with the Authority Having Jurisdiction. Openings in a caisson shall be designed to prevent the passage of a 4 inch (102 mm) diameter sphere. Not less than two emergency shut-off switches (one on each side) shall be provided to disable the wave action, and shall be located such that the switches or wave generation equipment are not capable of being accessed by unauthorized personnel. An automatic audible warning system shall be provided to indicate the beginning of wave generation. Approved "NO DIVING" signage shall be provided around the perimeter of the pool, except in areas not accessible by bathers or at zero-depth entries, at intervals of not less than 25 feet (7620 mm). A perimeter deck shall be provided at ~~the shallow~~ areas or ~~beach-end~~ zero-depth entries where bathers are capable of accessing the wave pool, and in locations where access is required for lifeguards. The sides of the wave pool shall be protected from unauthorized entry into the wave pool by the use of a fence or other approved barrier.

221.0 – S –

Shallow Area. Water depth areas less than or equal to 5 feet (1524 mm).

(below shown for reference only)

206.0 – D –

Deep Area. Water depth areas exceeding 5 feet (1524 mm).

228.0 – Z –

Zero-Depth Entry. An entry that starts at deck level and ends at the bottom of the aquatic venue. Also known as a beach entry or sloped entry.

SUBSTANTIATION:

This proposal adds a definition for "shallow area" as used in the code to address water depth areas of 5 feet or less. The current definition of "deep area" addresses water depth areas exceeding 5 feet. Similar definitions have been added to other codes, standards, and jurisdictions and should also be included in this code. Additionally, the term "beach end" should be updated to "zero-depth entries" as "beach end" is not defined in the code, but "zero-depth entries" is defined in Chapter 2.



CODES ADMINISTRATION

Proposals

Item #: 074

USPSHTC 2024 Section: 907.1 - 907.6

SUBMITTER: Joel Nunez
Upland Pool Supply LLC

RECOMMENDATION:
Revise text

907.0 Wave Pools.

907.1 General. Wave pools shall have a means of entry and exit in accordance with Section 802.3. The floor slope of a wave pool shall not exceed 1 foot (305 mm) in 12 feet (3658 mm). Caissons shall be separated from areas used by bathers with a float line in accordance with the Authority Having Jurisdiction. Openings in a caisson shall be designed to prevent the passage of a 4 inch (102 mm) diameter sphere.

907.2 Emergency Shut-Off. Not less than two emergency shut-off switches (one on each side) shall be provided to disable the wave action, and shall be located such that the switches or wave generation equipment are not capable of being accessed by unauthorized personnel.

907.3 Audible Warning. An automatic audible warning system shall be provided to indicate the beginning of wave generation.

907.4 No Diving. ~~Approved~~ "NO DIVING" signage with the universal symbol for "No Diving," which is a red circle with a slash through it superimposed over the image of a diver, and the words "NO DIVING" shall be provided around the perimeter of the pool, ~~except in areas not accessible by bathers or at zero-depth entries,~~ at intervals of not less than 25 feet (7620 mm). The symbol and lettering shall be not less than 4 inches (102 mm) in height; shall contrast with the background it is placed; shall be weather-resistant and shall be slip-resistant where located on the deck.

Exception: Areas not accessible by bathers and zero-depth entries shall not require "NO DIVING" signage.

907.5 Deck Required. A perimeter deck shall be provided at the shallow or beach end where bathers are capable of accessing the wave pool, and in locations where access is required for lifeguards.

907.6 Fence or Barrier Required. The sides of the wave pool shall be protected from unauthorized entry into the wave pool by the use of a fence or other approved barrier.

SUBSTANTIATION:

This proposal expands on the "NO DIVING" signage requirements in Section 907.1 by adding specifications from Section 402.8 (Markings) and 402.8.1 (No Diving). This would provide additional safety provisions for "NO DIVING" signage. Additional section titles are also recommended for ease of use.



CODES ADMINISTRATION

Proposals

Item #: 075

USPSHTC 2024 Section: 907.2, Table 1001.1

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Add new text

907.0 Wave Pools.

907.2 Stationary Wave Pools. Stationary wave pools shall be in accordance with ASTM F3133.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
ASTM F3133-2021	Classification, Design, Manufacture, Construction, Maintenance, and Operation of Stationary Wave Systems	Wave Pools	907.2

(portions of table not shown remain unchanged)

Note: ASTM F3133 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Stationary wave pools are popular attractions which are currently not addressed in the USPSHTC. Chapter 9 serves as the optimal location for these provisions as it applies to aquatic recreational attractions. Section 907.0 is specific to wave pools and providing users of the code with the appropriate standard for stationary wave systems helps to ensure proper design, manufacturing, construction, maintenance and operation requirements are met.



CODES ADMINISTRATION

Proposals

Item #: 076

USPSHTC 2024 Section: 908.1 - 908.14.1

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Revise text

908.0 Interactive Water Play Venues.

908.1 General. Interactive water play venues shall be in accordance with Section 908.2 through Section 908.14.1.

908.2 Slip-Resistant Surfaces. An interactive water play venue shall have a nonabrasive, slip-resistant surface that will withstand repeated cleanings. Interactive waterplay venue surfacing systems shall be in accordance with NSF/ANSI/CAN 50. Surface areas shall be resistant to UV and chlorine exposures.

908.3 Drains. Interactive water play venues shall be sloped uniformly not less than 1/4 inch per foot (20.8 mm/m) towards the drains or as required by the Authority Having Jurisdiction to prevent the accumulation of water. Drainage flow to the spray ground treatment tank shall be by gravity. Only water from the interactive water play zone splash pad shall flow back to the gravity-fed collection tank. Direct suction outlets shall be prohibited. Openings in drain covers shall not exceed 1/2 of an inch (12.7 mm) in size. Drain covers shall be flush with the splash pad zone surface and require a tool for removal.

908.4. Landscape Debris. Interactive water play venues shall be kept free of landscape debris in accordance with one of the following:

- (1) Landscaping shall be not less than eight feet (2438 mm) from of deck area(s) adjacent to splash zones.
- (2) The perimeter edges of splash zones shall have raised curbs not less than 4 inches (102 mm) in height.
- (3) Raised planters shall be permanently installed along the perimeter of the splash zones to create a barrier.

908.5 Barriers. Where more than one water aquatic venue is installed within the same facility, a barrier of not less than 4 feet (1219 mm) in height shall be installed between an interactive water play venue and another body of water located within the same aquatic facility unless there is a separation distance of not less than 15 feet (4572 mm). The nozzle velocity of an interactive water play venue shall not exceed 20 feet per second (ft/s) (6.1 m/s).

908.6 Decks. A deck of not less than 4 feet (1219 mm) in width shall be provided around the perimeter of the interactive water play zone. The deck shall be sloped away from the interactive water play zone.

908.7 Lighting. Where an interactive water play venue will be in operation at night or during periods of inadequate natural lighting, artificial lighting shall be provided.

908.8 Water Collection and Treatment Tank. Interactive water play venues shall drain to a collection and treatment tank. The tank shall have a means of access for inspection and cleaning as required by the Authority Having Jurisdiction. The access hatch or lid shall remain locked and require tool or key for entry. Tanks shall be provided with a means to empty the tank for maintenance and service.

908.8.1 Tank Size. The tank capacity shall be the larger of the following:

- (1) Not less than 1000 gallons (gal) (3785 L), or
- (2) Ten times the number of gallons per minute (gpm) (L/s) required by the maximum number of features that can operate simultaneously at any given time. The required flow rate (gpm) for each feature or nozzle shall be as specified by the manufacturer.

908.8.2 Tank Draw Down. The volume of water in the tank, at the operating water level, shall not decrease more than 15 percent of the tank capacity when all pumps and discharge piping are primed with water to the discharge points of all nozzles or features that can operate simultaneously at any given time.

908.9 Make-Up Water System. The interactive play venue tank shall contain an automatic potable water fill system to maintain the minimum water level in the collection and treatment tank. The potable water supply shall be protected with a backflow preventer as required by the plumbing code.

908.10 Filtration Pump. The filtration pump shall be capable of producing a turnover rate of 30 minutes or less for the surge tank. The pump shall draw its water from the lowest portion of the surge tank.

908.11 Spray Nozzle and Water Feature Water Disinfection. The water supply to the spray nozzles and water features shall be supplied from the water collection and treatment tank that is sanitized and filtered. When a separate feature pump is installed, those pumps shall have an electrical interlock that will prevent operation of the feature pump when the filtration pump is not operating.

908.12 Secondary Disinfection System. In addition to the primary form of sanitation, all water supplied to the features shall pass through a secondary disinfection system before discharge to the user. The secondary treatment system shall be listed and labeled in accordance with NSF/ANSI/CAN 50 as having a single-pass, three-log 99.9 percent reduction of the cryptosporidium surrogate.

908.13 Operating Instructions. Documentation and operating instructions for an interactive water play venue shall be provided to the operator. The operating instructions shall require that the circulation system be operated continuously for not less than four turnovers prior to operation of the venue.

908.2-908.14 Interactive Aquatic Play Equipment. Climbable and climb-resistant aquatic play components, composite aquatic play structures, user controls, water slides less than 6 feet (1829 mm) in height, water sprays and fountains installed on wet decks and wading, swimming or leisure pools shall comply with ASTM F2461. Climbable play equipment shall also comply with ASTM F1487. Water slides greater than 6 feet (1829 mm) shall be in accordance with Section 906.1.

908.14.1 Nozzles. The nozzle velocity of an interactive water play venue shall not exceed 20 feet per second (ft/s) (6.1 m/s). Nozzles shall be flush to the splash zone surface. The nozzle orifice shall not be larger than ½ inch in diameter (15 mm). Nozzles not installed on the walking surface shall be designed to be visible to patrons using the interactive water play feature.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 908.0 is being revised to include necessary requirements for venue design, water collection and treatment, and interactive aquatic play equipment. As there currently existed valuable requirements within Section 908.1, the provisions were separated based on applicability and organized for easier interpretation.

Section 908.2 through Section 908.7 addresses topics which pertain to surface finishes, decks, drainage, landscaping, barriers, and lighting. Existing language was reviewed and improved for clarity and enforceability.

In particular, Section 908.2 was improved through reference to NSF/ANSI/CAN 50 for surfacing systems as this standard offers evaluation and testing criteria to assess safety of surfaces specifically for interactive waterplay venues. Additionally, the provided decking requirements align with the provisions of Section 416.0 to prevent conflict within the code.

Section 908.8 through Section 908.10 cover water collection and storage for treatment prior to recirculation. Provisions have been included to address tank size and draw down as well to ensure potable water is supplied to maintain minimum water levels.

Provisions for disinfection and treatment are then provided in Section 908.11 and 908.12. Secondary treatment systems are required to comply with NSF/ANSI/CAN 50, and the provided log reduction aligns with the specifications of the standard for consistency.



CODES ADMINISTRATION

Proposals

Item #: 077

USPSHTC 2024 Section: 203.0, 503.1, 908.3

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Revise text

908.0 Interactive Water Play Venues.

908.3 Artificial White Water Courses. Artificial white water courses shall be designed and maintained in accordance with the manufacturer's instructions and comply with the local health and safety regulations. These venues shall run continuously.

503.0 Turnover Time.

503.1 General. The entire design of matched components shall have a capacity to provide a complete turnover of water in accordance with local and state codes or regulations, and the manufacturer's instructions. Maximum turnover time shall be required as follows:

- (1) Private pools – 8 hours
- (2) Public pools – 6 hours
- (3) Wading pools – 1 hour
- (4) Private spas and hot tubs – 1 hour
- (5) Public spas and hot tubs – ½ hour
- (6) Water slides and landing pools – 2 hours
- (7) Wave pools – 3 hours
- (8) Leisure rivers – 3 hours
- (9) Spray grounds – ½ hour
- (10) Activity pools – 2 hours
- (11) Diving pools – 8 hours
- (12) Surf pools – as required by the manufacturer
- (13) Artificial white water courses (pumped) – as required by the manufacturer

203.0 – A –

Artificial White Water Courses. Man-made venues that use pumps to recirculate water and are considered large swimming pools. These are used for immersion, splashing, and designed to create a river-rapid experience.

SUBSTANTIATION:

This proposal is for man-made artificial white water courses that are recirculating the water. These are considered large swimming pools that use pumps to move water to a higher elevation to create a river-like experience. These venues are usually quite large and are moving a lot of water. Since these venues and attractions are used for splashing and immersion of patrons, it is important to keep the water quality maintained a level at least equal to a swimming pool.

Because of the chemicals needed to maintain the water quality, these venues should run continuously to protect the public. The change also adds a referenced to the turn over time to allow for design parameters by the manufacturer to determine the appropriate flow rate for the unique system and venue.



CODES ADMINISTRATION

Proposals

Item #: 078

USPSHTC 2024 Section: 208.0, 908.15

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Add new text

908.0 Interactive Water Play Venues.

908.15 Float Tanks. Float tanks shall be installed and maintained in accordance with manufacturer's instructions and shall comply with NSF/ANSI/CAN 50.

208.0 – F –

Float Tank. A tub or vessel that contains a saturated solution of magnesium sulfate and has a specific gravity between 1.23 and 1.3. These environments provide light and sound reduction, and are maintained at a temperature between 92 °F and 96 °F (33.3 °C and 35.6 °C). Also known as a floatation tank, a sensory deprivation tank, a float room/pod/spa/chamber, or an isolation tank.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Float tanks have been around for many years, and these systems have unique methods of maintaining their water solutions. There is a standard currently being developed for these systems, and it is very important to add a minimum guidance document for these systems for the health and safety of the public.



CODES ADMINISTRATION

Proposals

Item #: 079

USPSHTC 2024 Section: 203.0, 908.16

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Add new text

908.0 Interactive Water Play Venues.

908.16 Artificial Lagoons. Artificial lagoons that contain pumps shall be designed and maintained in accordance with the manufacturer's instructions and comply with the local health and safety regulations.

203.0 – A –

Artificial Lagoons. A body of water designated for recreational activity that varies in size, from very small, to very large. In an aquatic recreation facility, a human-made impoundment of water designed to visually mimic a natural body of water such as a large pond or small lake. Such impoundments consist of one or more designated swimming areas and may also include areas not designated for swimming. Areas not designated for swimming can be used for such purposes as kayaking, paddle-boarding, windsurfing, boating, and for scuba diving.

SUBSTANTIATION:

Artificial lagoons are popular venues with portions of them containing recirculating systems to protect the health and safety of the public. These facilities vary in size and only designate only a portion for recreational activity. The code is currently silent with regards to these facilities. It is important to provide minimum guidance to the end users to protect the public.



CODES ADMINISTRATION

Proposals

Item #: 080

USPSHTC 2024 Section: 221.0, 225.0, 908.17

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Revise text

908.0 Interactive Water Play Venues.

908.17 Surf Pools. Artificial surf pools, surf venues, and wave pools shall be designed and maintained in accordance with the manufacturer's instructions and shall comply with the local health and safety regulations.

221.0 – S –

Surf Pool. A pool in which ocean waves are simulated for the purpose of surfing or other similar activities. These venues typically have large mechanisms that generate a lot of water movement. Waves are of a size that can generate surfing conditions.

Surf Venue. Stationary systems capable of producing waves for surfing.

225.0 – W –

Wave Pool. Pool in which standing waves are generated in an assortment of patterns. Waves are of a size that can generate surfing conditions.

SUBSTANTIATION:

Surfing venues are popular attractions, and it is important to designate them appropriately and give guidance for health and safety of the public. This provision will bring awareness to such venues and require that they are appropriately designed for public use by being approved by the local health and safety regulations. Additionally, new definitions are being added to identify the various types of surf facilities.



CODES ADMINISTRATION

Proposals

Item #: 081

USPSHTC 2024 Section: 214.0, 908.18

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Revise text

908.0 Interactive Water Play Venues.

908.18 Lazy Rivers. Lazy rivers shall be designed and maintained in accordance with the manufacturer's instructions and shall comply with Section 401.5, Section 401.6, and local health and safety regulations.

214.0 – L –

Lazy River. An aquatic attraction in which a channeled flow of water carries bathers around a course by means of artificial current. Also known as a leisure river, ~~or a~~ current channel or an active river.

SUBSTANTIATION:
This provision will bring awareness to such venues and require that they are appropriately designed for public use by being approved by the local health and safety regulations. Additionally, existing provisions for lazy rivers were referenced to assist users in locating all applicable provisions.



CODES ADMINISTRATION

Proposals

Item #: 082

USPSHTC 2024 Section: 207.0, 908.19, Table 1001.1

SUBMITTER: Kenneth Gregory
Chair, USPSHTC Aquatic Recreational Attractions Task Group

RECOMMENDATION:
Add new text

908.0 Interactive Water Play Venues.

908.19 Elevated Pools, Spas, and Other Aquatic Venues. Elevated pools, spas and other aquatic venues integrated into a building or structure shall comply with ANSI/PHTA/ICC 10.

207.0 – E –

Elevated Pool. A swimming pool that is integrated in a structure that is above ground level.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ANSI/PHTA/ICC 10-2021</u>	<u>Elevated Pools, Spas and Other Aquatic Venues Integrated into a Building or Structure</u>	<u>Elevated Aquatic Venues</u>	<u>908.19</u>

(portions of table not shown remain unchanged)

Note: ANSI/PHTA/ICC 10 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Elevated pools are common in high rise buildings. It is important to ensure that the structures are designed to withstand the pool conditions and loads. The addition of the standard gives specific guidance to the end user with minimum provisions to ensure that structures are capable supporting the aquatic venues.



CODES ADMINISTRATION

Proposals

Item #: 083

USPSHTC 2024 Section: 909.0, 909.1, Table 1001.1

SUBMITTER: Adam Segura
Self

RECOMMENDATION:
Add new text

909.0 Transportation Conveyor Systems.

909.1 General. Transportation conveyor systems used for patrons in aquatic attraction venues and water related rides or devices shall be in accordance with ASTM F3158.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ASTM F3158-2021</u>	<u>Patron Transportation Conveyors Used with a Water Related Amusement Ride or Device</u>	<u>Water Rides</u>	<u>909.1</u>

(portions of table not shown remain unchanged)

Note: ASTM F3158 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Currently, the code is silent on transportation conveyors for patrons loading/unloading or to transport patrons on rafts, tubes, or other water related vehicles. The standard will provide the minimum guidelines and requirements for the safety of all patrons.



CODES ADMINISTRATION

Proposals

Item #: 084

USPSHTC 2024 Section: Table 1001.1

SUBMITTER: Shannon Banchemo
ACI

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ACI 318- 2014 2019	Building Code Requirements for Structural Concrete	Miscellaneous	402.3.1, 405.3.1

(portions of table not shown remain unchanged)

Note: ACI 318 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The above revisions reflect the latest updates to the ACI standards that are referenced in Table 1001.1.



CODES ADMINISTRATION

Proposals

Item #: 085

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Angela Guzman/Steven Rossi
ASME

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASME B16.3- 2016 <u>2021</u>	Malleable Iron Threaded Fittings: Classes 150 and 300	Fittings	Table 307.1, Table 309.1
ASME B16.4- 2016 <u>2021</u>	Gray Iron Threaded Fittings: Classes 125 and 250	Fittings	Table 307.1

(portions of table not shown remain unchanged)

Note: ASME B16.3 and ASME B16.4 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
ASME A112.19.7- 2012-2020 /CSA B45.10- 2012 (R2017) <u>2020</u>	Hydromassage Bathtub Systems	Fixtures
ASME A112.19.19-2016 <u>(R2021)</u>	Vitreous China Nonwater Urinals	Fixtures
ASME B16.1- 2015-2020	Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250	Fittings
ASME B16.5- 2017-2020	Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch	Fittings
ASME B16.21- 2016-2021	Nonmetallic Flat Gaskets for Pipe Flanges	Joints
ASME B16.34- 2017-2020	Valves - Flanged, Threaded, and Welding End	Valves
ASME B16.39- 2014-2019	Malleable Iron Threaded Pipe Unions: Classes 150, 250, and 300	Fittings
ASME B16.47- 2017-2020	Large Diameter Steel Flanges: NPS 26 through NPS 60 Metric/Inch	Fittings
ASME B36.10M- 2004 <u>(R2010)-2018</u>	Welded and Seamless Wrought Steel Pipe	Piping, Ferrous

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the ASME standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 086

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Lauro Pilla / Nikki Kidd
CSA

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASSE 1070- 2015 <u>2020</u> /ASME A112.1070- 2015 <u>2020</u> /CSA B125.70- 2015-2020	Water Temperature Limiting Devices	Valves	410.3
CSA B45.11- 2017/IAPMO Z401- 2017. (<u>R2021</u>)	Glass Plumbing Fixtures	Fixtures	410.1
CSA B64.2.1.1- 2014 <u>(R2016)-2021</u>	Hose Connection Dual Check Vacuum Breakers (HCDVB)	Backflow Protection	415.1
CSA B137.1- 2017 <u>2020</u>	Polyethylene (PE) Pipe, Tubing, and Fittings for Cold-Water Pressure Services	Piping, Plastic	Table 307.1
CSA B137.5- 2017 <u>2020</u>	Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications	Piping, Plastic	Table 307.1
CSA B137.6- 2017 <u>2020</u>	Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing, and Fittings for Hot- and Cold-Water Distribution Systems	Piping, Plastic	Table 307.1
CSA B137.9- 2017 <u>2020</u>	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems	Piping, Plastic	Table 307.1
CSA B137.10- 2017 <u>2020</u>	Crosslinked Polyethylene/Aluminum/ Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems	Piping, Plastic	Table 307.1
CSA B137.11- 2017 <u>2020</u>	Polypropylene (PP-R <u>& PP-RCT</u>) Pipe and Fittings for Pressure Applications	Piping, Plastic	Table 307.1, 308.11.1
CSA B137.18- 2017 <u>2020</u>	Polyethylene of Raised Temperature Resistance (PE-RT) Tubing Systems for Pressure Applications	Piping, Fittings	Table 307.1
CSA/ <u>ANSI</u> Z21.56- 2019/ <u>CSA 4.7-2019</u>	Gas-Fired Pool Heaters (same as CSA 4.7)	Fuel Gas, Appliances and Equipment	405.4, 702.1

(portions of table not shown remain unchanged)

Note: The CSA standards meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
ASME A112.19.7- 2012-2020 /CSA B45.10- 2012 (R2017) 2020	Hydromassage Bathtub Systems	Fixtures
CSA Z21.22-2015 (R2020)/CSA 4.4- 2015 (R2020)	Relief Valves for Hot Water Supply Systems (same as CSA 4.4)	Valves

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the CSA standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 087

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Terry Burger
ASSE

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASSE 1061- 2015 <u>2020</u>	Push-Fit Fittings	Fittings	Table 307.1, 308.1.3.3, 308.2.1.1, 308.3.2.1
ASSE 1070- 2015 <u>2020</u> /ASME A112.1070- 2015 <u>2020</u> /CSA B125.70- 2015-2020	Water Temperature Limiting Devices	Valves	410.3
ASSE 1079-2012 (<u>R2021</u>)	Dielectric Pipe Unions	Joints	308.15, 308.16.1, 308.16.3

(portions of table not shown remain unchanged)

Note: ASSE 1061, ASSE 1070/ASME A112.1070/CSA B125.70, and ASSE 1079 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
ASSE 1013- 2011 <u>2021</u>	Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers <u>Prevention Assemblies</u>	Backflow Protection
ASSE 1015- 2011 <u>2021</u>	Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies	Backflow Protection
ASSE 1024-2017 (<u>R2021</u>)	Dual Check Backflow Preventers	Backflow Protection
<u>ANSI/CAN/ASSE/IAPMO</u> 1055- 2018 <u>2020</u>	Chemical Dispensing Systems Dispensers with Integral Backflow Protection	Backflow Protection
ASSE 1060-2017	Outdoor Enclosures for Fluid Conveying Components <u>(with Errata dated February 1, 2019)</u>	Miscellaneous

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the ASSE standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 088

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Steve Mawn
ASTM

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASTM A53/A53M- 2018-2020	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	Piping, Ferrous	Table 307.1, Table 309.1
ASTM A74- 2017-2021	Cast Iron Soil Pipe and Fittings	Piping, Ferrous	Table 309.1
ASTM A240/A240M- 2019-2020a	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications	Miscellaneous	402.3.3, 405.3.3
ASTM A312/A312M- 2019-2021	Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	Piping, Ferrous	Table 307.1
ASTM A554- 2016-2021	Welded Stainless Steel Mechanical Tubing	Piping	Table 307.1
ASTM A778/A778M- 2016.(R2021)	Welded, Unannealed Austenitic Stainless Steel Tubular Products	Piping	Table 307.1
ASTM A888- 2018a-2021a	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications	Piping, Ferrous	Table 309.1
ASTM A1056- 2012(R2017)-2020	Cast Iron Couplings Used for Joining Hubless Cast Iron Soil Pipe and Fittings	Piping, Ferrous	310.2.2
ASTM B32- 2008(R2014)-2020	Solder Metal	Joints	308.1.4, 310.3.3
ASTM B42- 2015a-2020	Seamless Copper Pipe, Standard Sizes	Piping, Copper Alloy	Table 307.1
ASTM B43- 2015-2020	Seamless Red Brass Pipe, Standard Sizes	Piping, Copper Alloy	Table 307.1, Table 309.1
ASTM B75/B75M- 2019-2020	Seamless Copper Tube	Piping, Copper Alloy	Table 307.1, Table 309.1
ASTM B88- 2016-2020	Seamless Copper Water Tube	Piping, Copper Alloy	307.3, Table 307.1
ASTM B306- 2013-2020	Copper Drainage Tube (DWV)	Piping, Copper Alloy	Table 309.1
ASTM B447-2012a (R2021)	Welded Copper Tube	Piping, Copper Alloy	Table 307.1
ASTM C425- 2004(R2018)-2021	Compression Joints for Vitrified Clay Pipe and Fittings	Joints	310.7.1
ASTM C564- 2014-2020a	Rubber Gaskets for Cast Iron Soil Pipe and Fittings	Joints	310.2.2
ASTM C1277- 2018-2020	Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings	Joints	310.2.2

ASTM C1460- 2017 2021	Shielded Transition Couplings for Use with Dissimilar DWV Pipe and Fittings Above Ground	Joints	310.8
ASTM C1461- 2008 (R2017) - 2021	Mechanical Couplings Using Thermoplastic Elastomeric (TPE) Gaskets for Joining Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems for Above and Below Ground Use	Joints	310.8
ASTM C1540- 2018 2020	Heavy-Duty Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings	Joints	310.2.2
ASTM C1563-2008 (R2017) - (R2021)	Gaskets for Use in Connection with Hub and Spigot Cast Iron Soil Pipe and Fittings for Sanitary Drain, Waste, Vent, and Storm Piping Applications	Joints	310.2.2
ASTM D1785- 2015e1 - 2021a	Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120	Piping, Plastic	Table 307.1, Table 309.1
ASTM D1790- 2014 2021	Brittleness Temperature of Plastic Sheeting by Impact	Testing	402.3.5
ASTM D2235- 2004 (R2016) - 2021	Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings	Joints	310.1.2
ASTM D2239- 2012a 2021	Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter	Piping, Plastic	Table 307.1
ASTM D2241- 2015 2020	Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)	Piping, Plastic	Table 307.1
ASTM D2466- 2017 2021	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	Fittings	Table 307.1
ASTM D2467- 2015 2020	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	Fittings	Table 307.1
ASTM D2564- 2012 (R2018) - 2020	Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems	Joints	308.12.2, 310.5.2
ASTM D2609- 2015 2021	Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe	Fittings	Table 307.1
ASTM D2661- 2014e1 - 2021	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings	Piping, Plastic	Table 309.1
ASTM D2665- 2014 2020	Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings	Piping, Plastic	Table 309.1
ASTM D2680- 2001 (R2014) - 2020	Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping	Piping, Plastic	Table 309.1
ASTM D2683- 2014 2020	Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing	Fittings	Table 307.1
ASTM D2737- 2012a 2021	Polyethylene (PE) Plastic Tubing	Piping, Plastic	Table 307.1
ASTM D3035- 2015 2021	Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter	Piping, Plastic	Table 307.1
ASTM D3212- 2007 (R2013) - 2020	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals	Joints	310.1.1, 310.5.1
ASTM F437- 2015 2021	Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	Fittings	Table 307.1
ASTM F441/F441M- 2015 - 2020	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	Piping, Plastic	Table 307.1
ASTM F442/F442M- 2019 - 2020	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)	Piping, Plastic	Table 307.1, 308.2.2
ASTM F493- 2014 2020	Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings	Joints	308.2.2, 308.3.1
ASTM F656- 2015 2021	Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings	Joints	308.2.2, 308.3.1, 308.12.2, 310.5.2

ASTM F794- 2003 (R2014) -2021	Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter	Piping, Plastic	Table 309.1
ASTM F876- 2019a 2020b	Crosslinked Polyethylene (PEX) Tubing	Piping, Plastic	Table 307.1, 308.9.1
ASTM F877- 2019 2020	Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems	Piping, Plastic	Table 307.1
ASTM F1281-2017 (R2021) e1	Crosslinked Polyethylene/Aluminum/ Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe	Piping, Plastic	Table 307.1
ASTM F1487- 2017 2021	Consumer Safety Performance Specification for Playground Equipment for Public Use	Equipment	908.2
ASTM F1960- 2019a 2021	Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	Fittings	Table 307.1
ASTM F1974-2009 (R2015) - (R2020)	Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Composite Pressure Pipe	Fittings	Table 307.1, 308.7.1, 308.10.1
ASTM F2159- 2019a 2021	Plastic Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps for SDR9 Cross-linked-Crosslinked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	Joints	Table 307.1
ASTM F2376- 2017a 2021a	Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems	Water Slides	906.1
ASTM F2387- 2004 (R2012) -2021	Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas and Hot Tubs	Entrapment Prevention	810.2
ASTM F2389- 2019 2021	Pressure-rated Polypropylene (PP) Piping Systems	Piping, Plastic	Table 307.1, 308.11.1
ASTM F2461- 2018 2020a	Manufacture, Construction, Operation, and Maintenance of Aquatic Play Equipment	Equipment	908.2
ASTM F2620- 2019 2020a ^{e1}	Heat Fusion Joining of Polyethylene Pipe and Fittings	Joints	308.6.1.1, 308.6.1.3
ASTM F2735- 2018 2021	Plastic Insert Fittings for SDR9 Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	Fittings	Table 307.1

(portions of table not shown remain unchanged)

Note: The ASTM standards meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
ASTM C1440- 2017 2021	Thermoplastic Elastomeric (TPE) Gasket Materials for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems	Joints
ASTM D2672- 2014 2020e1	Joints for IPS PVC Pipe Using Solvent Cement	Joints
ASTM D2855- 2015 2020	Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets	Joints

ASTM D3311-2017 (R2021)	Drain, Waste, and Vent (DWV) Plastic Fittings Patterns	Fittings
ASTM F714- 2013 (R2019)-2021a	Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter	Piping, Plastic
ASTM F1673-2010 (R2016)-(R2021) ^{e1}	Polyvinylidene Fluoride (PVDF) Corrosive Waste Drainage Systems	Piping, Plastic

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the ASTM standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 089

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Paul Olson
AWWA

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
AWWA C153- 2011 <u>2019</u>	Ductile-Iron Compact Fittings	Fittings	Table 307.1
AWWA C901- 2017 <u>2020</u>	Polyethylene (PE) Pressure Pipe and Tubing, 3/4 in. (19 mm) through 3 in. (76 mm), for Water Service	Piping, Plastic	Table 307.1

(portions of table not shown remain unchanged)

Note: AWWA C153 and AWWA C901 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
AWWA C203- 2015 <u>2020</u>	Coal-Tar Protective Coatings and Linings for Steel Water Pipe	Miscellaneous
AWWA C500- 2009 <u>2019</u>	Metal-Seated Gate Valves for Water Supply Service	Valves

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the AWWA standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 090

USPSHTC 2024 Section: Table 1001.1

SUBMITTER: David Parney
CISPI

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
CISPI 301- 2018 -2021	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications	Piping, Ferrous	Table 309.1
CISPI 310- 2018 -2020	Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications	Joints	310.2.2

(portions of table not shown remain unchanged)

Note: CISPI 301 and CISPI 310 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The above revisions reflect the latest updates to the CISPI standards that are referenced in Table 1001.1.



CODES ADMINISTRATION

Proposals

Item #: 091

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Terry Burger
IAPMO

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
CSA B45.5-2017 /IAPMO Z124-2017	Plastic Plumbing Fixtures <u>(with Errata dated August 2017)</u>	Fixtures	408.1, 409.1, 410.1, 411.1
CSA B45.11-2017/IAPMO Z401-2017 <u>(R2021)</u>	Glass Plumbing Fixtures	Fixtures	410.1
IAPMO PS 117- 2019 <u>2021</u>	Press Connections	Fittings	Table 307.1
IAPMO Z1033-2015 <u>(R2020)</u>	Flexible PVC Hoses and Tubing for Pools, Hot Tubs, Spas, and Jetted Bathtubs	Miscellaneous	307.10

(portions of table not shown remain unchanged)

Note: CSA B45.5/IAPMO Z124, CSA B45.11/IAPMO Z401, IAPMO PS 117, and IAPMO Z1033 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
IAPMO PS 51- 2016 <u>2021</u>	Expansion Joints and Flexible Expansion Joints for DWV Piping Systems	Joints
IAPMO PS 53- 2019a <u>2020</u>	Grooved Mechanical Pipe Couplings and Grooved Fittings	Joints

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the IAPMO standards that are referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 092

USPSHTC 2024 Section: Table 1001.1

SUBMITTER: FINA
FINA

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
FINA Part X- 2017 2021	Facility Rules (2017-2021-2021-2025)	Competitive Swimming	402.5.1, 902.1, 903.1, 904.1

(portions of table not shown remain unchanged)

Note: FINA Part X meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:
The above revisions reflect the latest updates to the FINA standards that are referenced in Table 1001.1.



CODES ADMINISTRATION

Proposals

Item #: 093

USPSHTC 2024 Section: Table 1001.2

SUBMITTER: David Thompson
MSS

RECOMMENDATION:
Revise text

TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
MSS SP-6- 2017 2021	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings	Fuel Gas

(portions of table not shown remain unchanged)

SUBSTANTIATION:
The current year edition of this standard is 2021 making the official designation: MSS SP-6-2021.



CODES ADMINISTRATION

Proposals

Item #: 094

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: Alex Ing
NFPA

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
NFPA 400- 2019 -2022	Hazardous Material Code	Miscellaneous	807.3

(portions of table not shown remain unchanged)

Note: NFPA 400 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
NFPA 31- 2016 -2020	Installation of Oil-Burning Equipment	Fuel Gas, Appliances and Equipment

(portions of table not shown remain unchanged)

SUBSTANTIATION:
NFPA 31 and NFPA 400 have undergone revision since the last edition of the USPSHTC and we are requesting that it is updated to the latest edition years, as referenced in Table 1001.1 and Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 095

USPSHTC 2024 Section: Table 1001.1

SUBMITTER: Jeremy Brown
NSF

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
NSF/ ANSI 14-2018 <u>2020</u>	Plastics Piping System Components and Related Materials	Piping, Plastic	301.2, 307.1
NSF/ ANSI/CAN 50-2017-2020	Equipment and Chemicals for Swimming Pools, Spas, Hot Tubs, and Other Recreational Water Facilities	Appliances and Equipment	504.5, 506.1, 507.1, 507.1.3, 509.1, 509.3, 510.1, 604.1
NSF/ ANSI/CAN 61-2019-2020	Drinking Water System Components - Health Effects	Water Supply Components	307.1, 413.1, 504.6

(portions of table not shown remain unchanged)

Note: NSF/ANSI 14, NSF/ANSI/CAN 50, and NSF/ANSI/CAN 61 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The above revisions reflect the latest updates to the NSF standards that are referenced in Table 1001.1.



CODES ADMINISTRATION

Proposals

Item #: 096

USPSHTC 2024 Section: Table 1001.2

SUBMITTER: Nicholas Capezza
PHTA

RECOMMENDATION:
Revise text

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
APSP-PHTA/ICC 7-2013-2020	Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins	Safety Systems

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the APSP standards that are referenced in Table 1001.2.



CODES ADMINISTRATION

Proposals

Item #: 097

USPSHTC 2024 Section: Table 1001.1

SUBMITTER: Katelyn Simpson
TCNA

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
TCNA A108/A118/A136- 2017 <u>2021</u>	Installation of Ceramic Tile	Miscellaneous	402.3.4, 405.3.4
TCNA A326.3- 2017 <u>2021</u>	Test Method for Measuring Dynamic Coefficient of Friction of Hard Surface Flooring Materials	Safety	314.1.1, 314.1.2

(portions of table not shown remain unchanged)

Note: TCNA A108/A118/A136 and TCNA A326.3 meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

The above revisions reflect the latest updates to the TCNA standards that are referenced in Table 1001.1.



CODES ADMINISTRATION

Proposals

Item #: 098

USPSHTC 2024 Section: Table 1001.1, Table 1001.2

SUBMITTER: John Taecker
UL LLC

RECOMMENDATION:
Revise text

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
UL 399-2017	Drinking Water Coolers (with revisions through May 23, 2019 <u>July 31, 2020</u>)	Appliances	413.1
UL 676-2015	Underwater Luminaires and Submersible Junction Boxes (with revisions through October 14-22, 2019)	Miscellaneous	401.3.5
UL 1081-2016	Swimming Pool Pumps, Filters, and Chlorinators (with revisions through October 20, 2017 <u>July 23, 2020</u>)	Appliances and Equipment	507.2, 604.1
UL 1563-2009	Electric Spas, Equipment Assemblies, and Associated Equipment (with revisions through October 20, 2017 <u>September 10, 2020</u>)	Appliances and Equipment	405.1, 405.4, 510.1, 511.1, 604.1, 702.3
UL 1995-2015	Heating and Cooling Equipment (<u>with revisions through August 17, 2018</u>)	Appliances and Equipment	702.4
UL 60335-2-40-2017 <u>2019</u>	Household and Similar Electrical Appliances – Safety – Part 2- 40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers	Heat Pumps	702.4

(portions of table not shown remain unchanged)

Note: The UL standards meet the requirements for mandatory reference standards in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

**TABLE 1001.2
STANDARDS, PUBLICATIONS, PRACTICES, AND GUIDES**

DOCUMENT NUMBER	DOCUMENT TITLE	APPLICATION
UL 296-2017	Oil Burners (<u>with revisions through January 8, 2021</u>)	Fuel Gas, Appliances and Equipment

(portions of table not shown remain unchanged)

SUBSTANTIATION:

The above revisions reflect the latest updates to the UL standards that are referenced in Table 1001.1 and Table 1001.2.

Task Group Reports

**Aquatic
Recreational
Attractions
Task Group
Report**

Aquatic Recreational Attractions Task Group Report

Task Group Members:

Ken Gregory (Chair)
Alison Osinski
Joe Laco

Representation:

Pentair
Aquatic Consulting Services
Centers for Disease Control and Prevention (CDC)

During the September 13, 2021 virtual Technical Committee Meeting, the USPSHTC TC Chair, Arnie Rodio, approved the formation of a USPSHTC Aquatic Recreational Attractions Task Group to to further refine and develop aquatic recreation attraction provisions in the code.

The scope of this Task Group is to review and update current provisions for aquatic recreational attractions to improve requirements for design, materials, water quality, and methods of construction. Aquatic recreational attractions include, but are not limited to, float tanks, artificial white water courses (centers), spray grounds, water park attractions, surf parks, artificial lagoons, water rides, and attractions.

The Task Group met four times via teleconference on November 22, 2021; December 14, 2021; January 11, 2022; and March 25, 2022. Proposed recommendations were obtained from members of the Task Group and any interested parties.

Upon completion of the final Task Group meeting, 8 proposals were generated and submitted to the USPSHTC TC for consideration during the June 20, 2022 USPSHTC Technical Committee Meeting.

SECTION #: 203.0

RECOMMENDATION:

203.0 – A –

Aquatic Recreational Attraction. A facility that is designed for water play and recreation. Some examples of such venues include, but are not limited to, wave pools, leisure rivers, sand bottom pools, activity pools, inner tube rides, body slides, and interactive play attractions.

SUBSTANTIATION:

An aquatic recreational attraction may be misinterpreted as a water feature rather than a facility or venue designated for aquatic recreation and water play activities. In order to provide clarity for users of the code, it would be best to provide the clear terminology along with the listed examples as shown. This definition also supports the other recommendations generated by this Task Group. For these reasons, the terminology should be included in Chapter 2 (Definitions).

SECTION #: 211.0

RECOMMENDATION:

211.0 – I –

Interactive Water Play Aquatic-Venue. An indoor or outdoor installation that includes sprayed jetted or other water sources contacting bathers and not incorporating standing or captured water as part of the bather's activity area. These aquatic venues are also known as splash pads, spray pads, wet decks. For the purposes of this code, only those designed to recirculate water and intended for public use and recreation shall be regulated.

Interactive Water Play Features. A structure designed to be incorporated into a swimming pool or park, or to function as a stand-alone system. These structures include ~~The devices and~~ plumbing used to convey ~~the~~ treated water to ~~the a~~ play area(s) to ~~spray the bathers allow for active public recreational activities.~~ Designs include recirculated, filtered, or treated water which is sprayed, jetted, or poured, and comes into contact with bathers. Some examples include splash pads, spray pads, and wet decks.

SUBSTANTIATION:

The above definitions are being revised to provide additional clarity. Interactive water play aquatic venue is duplicative in describing the type of venue being defined. Additionally, Chapter 2 (Definitions) is the only location within the USPSHTC where "interactive water play aquatic venue" is used. All other sections of the code pertaining to these venues are referenced as "interactive water play venue." The proposed modification is therefore necessary for consistency and accuracy.

The terminology for "interactive water play feature" is also being updated to more appropriately describe what these structures are designed to be incorporated into, how they convey treated water, and what purpose they serve. Additional design details and examples of interactive water play features have been included to offer necessary guidance.

SECTION #: 908.1 - 908.14.1

RECOMMENDATION:

908.0 Interactive Water Play Venues.

908.1 General. Interactive water play venues shall be in accordance with Section 908.2 through Section 908.14.1.

908.2 Slip-Resistant Surfaces. An interactive water play venue shall have a nonabrasive, slip-resistant surface that will withstand repeated cleanings. Interactive waterplay venue surfacing systems shall be in accordance with NSF/ANSI/CAN 50. Surface areas shall be resistant to UV and chlorine exposures.

908.3 Drains. Interactive water play venues shall be sloped uniformly not less than 1/4 inch per foot (20.8 mm/m) towards the drains or as required by the Authority Having Jurisdiction to prevent the accumulation of water. Drainage flow to the spray ground treatment tank shall be by gravity. Only water from the interactive water play zone splash pad shall flow back to the gravity-fed collection tank. Direct suction outlets shall be prohibited. Openings in drain covers shall not exceed 1/2 of an inch (12.7 mm) in size. Drain covers shall be flush with the splash pad zone surface and require a tool for removal.

908.4. Landscape Debris. Interactive water play venues shall be kept free of landscape debris in accordance with one of the following:

- (1) Landscaping shall be not less than eight feet (2438 mm) from of deck area(s) adjacent to splash zones.
- (2) The perimeter edges of splash zones shall have raised curbs not less than 4 inches (102 mm) in height.
- (3) Raised planters shall be permanently installed along the perimeter of the splash zones to create a barrier.

908.5 Barriers. Where more than one water aquatic venue is installed within the same facility, a barrier of not less than 4 feet (1219 mm) in height shall be installed between an interactive water play venue and another body of water located within the same aquatic facility unless there is a separation distance of not less than 15 feet (4572 mm). The nozzle velocity of an interactive water play venue shall not exceed 20 feet per second (ft/s) (6.1 m/s).

908.6 Decks. A deck of not less than 4 feet (1219 mm) in width shall be provided around the perimeter of the interactive water play zone. The deck shall be sloped away from the interactive water play zone.

908.7 Lighting. Where an interactive water play venue will be in operation at night or during periods of inadequate natural lighting, artificial lighting shall be provided.

908.8 Water Collection and Treatment Tank. Interactive water play venues shall drain to a collection and treatment tank. The tank shall have a means of access for inspection and cleaning as required by the Authority Having Jurisdiction. The access hatch or lid shall remain locked and require tool or key for entry. Tanks shall be provided with a means to empty the tank for maintenance and service.

908.8.1 Tank Size. The tank capacity shall be the larger of the following:

- (1) Not less than 1000 gallons (gal) (3785 L), or
- (2) Ten times the number of gallons per minute (gpm) (L/s) required by the maximum number of features that can operate simultaneously at any given time. The required flow rate (gpm) for each feature or nozzle shall be as specified by the manufacturer.

908.8.2 Tank Draw Down. The volume of water in the tank, at the operating water level, shall not decrease more than 15 percent of the tank capacity when all pumps and discharge piping are primed with water to the discharge points of all nozzles or features that can operate simultaneously at any given time.

908.9 Make-Up Water System. The interactive play venue tank shall contain an automatic potable water fill system to maintain the minimum water level in the collection and treatment tank. The potable water supply shall be protected with a backflow preventer as required by the plumbing code.

908.10 Filtration Pump. The filtration pump shall be capable of producing a turnover rate of 30 minutes

or less for the surge tank. The pump shall draw its water from the lowest portion of the surge tank.

908.11 Spray Nozzle and Water Feature Water Disinfection. The water supply to the spray nozzles and water features shall be supplied from the water collection and treatment tank that is sanitized and filtered. When a separate feature pump is installed, those pumps shall have an electrical interlock that will prevent operation of the feature pump when the filtration pump is not operating.

908.12 Secondary Disinfection System. In addition to the primary form of sanitation, all water supplied to the features shall pass through a secondary disinfection system before discharge to the user. The secondary treatment system shall be listed and labeled in accordance with NSF/ANSI/CAN 50 as having a single-pass, three-log 99.9 percent reduction of the cryptosporidium surrogate.

908.13 Operating Instructions. Documentation and operating instructions for an interactive water play venue shall be provided to the operator. The operating instructions shall require that the circulation system be operated continuously for not less than four turnovers prior to operation of the venue.

908.2908.14 Interactive Aquatic Play Equipment. Climbable and climb-resistant aquatic play components, composite aquatic play structures, user controls, water slides less than 6 feet (1829 mm) in height, water sprays and fountains installed on wet decks and wading, swimming or leisure pools shall comply with ASTM F2461. Climbable play equipment shall also comply with ASTM F1487. Water slides greater than 6 feet (1829 mm) shall be in accordance with Section 906.1.

908.14.1 Nozzles. The nozzle velocity of an interactive water play venue shall not exceed 20 feet per second (ft/s) (6.1 m/s). Nozzles shall be flush to the splash zone surface. The nozzle orifice shall not be larger than ½ inch in diameter (15 mm). Nozzles not installed on the walking surface shall be designed to be visible to patrons using the interactive water play feature.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 908.0 is being revised to include necessary requirements for venue design, water collection and treatment, and interactive aquatic play equipment. As there currently existed valuable requirements within Section 908.1, the provisions were separated based on applicability and organized for easier interpretation.

Section 908.2 through Section 908.7 addresses topics which pertain to surface finishes, decks, drainage, landscaping, barriers, and lighting. Existing language was reviewed and improved for clarity and enforceability.

In particular, Section 908.2 was improved through reference to NSF/ANSI/CAN 50 for surfacing systems as this standard offers evaluation and testing criteria to assess safety of surfaces specifically for interactive waterplay venues. Additionally, the provided decking requirements align with the provisions of Section 416.0 to prevent conflict within the code.

Section 908.8 through Section 908.10 cover water collection and storage for treatment prior to recirculation. Provisions have been included to address tank size and draw down as well to ensure potable water is supplied to maintain minimum water levels.

Provisions for disinfection and treatment are then provided in Section 908.11 and 908.12. Secondary treatment systems are required to comply with NSF/ANSI/CAN 50, and the provided log reduction aligns with the specifications of the standard for consistency.

SECTION #: 208.0, 908.15

RECOMMENDATION:

908.0 Interactive Water Play Venues.

908.15 Float Tanks. Float tanks shall be installed and maintained in accordance with manufacturer's instructions and shall comply with NSF/ANSI/CAN 50.

208.0 – F –

Float Tank. A tub or vessel that contains a saturated solution of magnesium sulfate and has a specific gravity between 1.23 and 1.3. These environments provide light and sound reduction, and are maintained at a temperature between 92 °F and 96 °F (33.3 °C and 35.6 °C). Also known as a floatation tank, a sensory deprivation tank, a float room/pod/spa/chamber, or an isolation tank.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Float tanks have been around for many years, and these systems have unique methods of maintaining their water solutions. There is a standard currently being developed for these systems, and it is very important to add a minimum guidance document for these systems for the health and safety of the public.

SECTION #: 203.0, 908.16

RECOMMENDATION:

908.0 Interactive Water Play Venues.

908.16 Artificial Lagoons. Artificial lagoons that contain pumps shall be designed and maintained in accordance with the manufacturer's instructions and comply with the local health and safety regulations.

203.0 – A –

Artificial Lagoons. A body of water designated for recreational activity that varies in size, from very small, to very large. In an aquatic recreation facility, a human-made impoundment of water designed to visually mimic a natural body of water such as a large pond or small lake. Such impoundments consist of one or more designated swimming areas and may also include areas not designated for swimming. Areas not designated for swimming can be used for such purposes as kayaking, paddle-boarding, windsurfing, boating, and for scuba diving.

SUBSTANTIATION:

Artificial lagoons are popular venues with portions of them containing recirculating systems to protect the health and safety of the public. These facilities vary in size and only designate only a portion for recreational activity. The code is currently silent with regards to these facilities. It is important to provide minimum guidance to the end users to protect the public.

SECTION #: 221.0, 225.0, 908.17

RECOMMENDATION:

908.0 Interactive Water Play Venues.

908.17 Surf Pools. Artificial surf pools, surf venues, and wave pools shall be designed and maintained in accordance with the manufacturer's instructions and shall comply with the local health and safety regulations.

221.0 – S –

Surf Pool. A pool in which ocean waves are simulated for the purpose of surfing or other similar activities. These venues typically have large mechanisms that generate a lot of water movement. Waves are of a size that can generate surfing conditions.

Surf Venue. Stationary systems capable of producing waves for surfing.

225.0 – W –

Wave Pool. Pool in which standing waves are generated in an assortment of patterns. Waves are of a size that can generate surfing conditions.

SUBSTANTIATION:

Surfing venues are popular attractions, and it is important to designate them appropriately and give guidance for health and safety of the public. This provision will bring awareness to such venues and require that they are appropriately designed for public use by being approved by the local health and safety regulations. Additionally, new definitions are being added to identify the various types of surf facilities.

SECTION #: 214.0, 908.18

RECOMMENDATION:

908.0 Interactive Water Play Venues.

908.18 Lazy Rivers. Lazy rivers shall be designed and maintained in accordance with the manufacturer's instructions and shall comply with Section 401.5, Section 401.6, and local health and safety regulations.

214.0 – L –

Lazy River. An aquatic attraction in which a channeled flow of water carries bathers around a course by means of artificial current. Also known as a leisure river, ~~or a~~ current channel ~~or an active river.~~

SUBSTANTIATION:

This provision will bring awareness to such venues and require that they are appropriately designed for public use by being approved by the local health and safety regulations. Additionally, existing provisions for lazy rivers were referenced to assist users in locating all applicable provisions.

SECTION #: 207.0, 908.19, Table 1001.1

RECOMMENDATION

:

908.0 Interactive Water Play Venues.

908.19 Elevated Pools, Spas, and Other Aquatic Venues. Elevated pools, spas and other aquatic venues integrated into a building or structure shall comply with ANSI/PHTA/ICC 10.

207.0 – E –

Elevated Pool. A swimming pool that is integrated in a structure that is above ground level.

**TABLE 1001.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ANSI/PHTA/ICC 10-2021</u>	<u>Elevated Pools, Spas and Other Aquatic Venues Integrated into a Building or Structure</u>	<u>Elevated Aquatic Venues</u>	<u>908.19</u>

(portions of table not shown remain unchanged)

Note: ANSI/PHTA/ICC 10 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO’s Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Elevated pools are common in high rise buildings. It is important to ensure that the structures are designed to withstand the pool conditions and loads. The addition of the standard gives specific guidance to the end user with minimum provisions to ensure that structures are capable supporting the aquatic venues.

**Water
Chemistry
& Disinfection
Task Group
Report**

Water Chemistry and Disinfection Task Group Report

Task Group Members:

Alison Osinski (Chair)
Ken Gregory

Representation:

Aquatic Consulting Services
Pentair

During the September 13, 2021 virtual Technical Committee Meetings, the USPSHTC TC Chair, Arnie Rodio, approved the formation of a USPSHTC Water Chemistry and Disinfection Task Group to further refine and develop water chemistry and disinfection provisions in the code.

The scope of this Task Group is to review and update current water chemistry parameters for swimming pools, spas, and hot tubs, and to develop additional provisions for primary and secondary disinfection systems.

The Task Group met four times via teleconference on November 29, 2021; December 13, 2021; January 10, 2022; and March 25, 2022. Proposed recommendations were obtained from members of the Task Group and any interested parties.

Upon completion of the final Task Group meeting, 4 proposals were generated and submitted to the USPSHTC TC for consideration during the June 20, 2022 USPSHTC Technical Committee Meeting.

SECTION #: 508.1, 807.2, 807.3

RECOMMENDATION:

508.0 Primary Disinfection.

508.1 General. Chemicals for a swimming pool, spa, or hot tub shall be dispensed in accordance with the chemical manufacturer's instructions, ~~Material~~-Safety Data Sheets (~~M~~SDS), and applicable standards and regulations. Parameters for chemicals used within a swimming pool, spa, and hot tub shall be in accordance with Table 508.1.

807.0 Chemicals.

807.2 Handling. Chemicals shall be handled in accordance with the following provisions:

- (1) Chemical containers shall be labeled.
- (2) Chemicals shall be handled in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (3) Protective gear shall be worn in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (4) A separate measuring device shall be used for each chemical.
- (5) The mixing of chemicals that will violate the manufacturer's instructions shall be prohibited.
- (6) Water shall not be added to a chemical located within its container.

807.3 Storage. Chemicals used in the treatment of a public swimming pool, spa, or hot tub shall be stored in accordance with NFPA 400. Chemicals used in the treatment of a private swimming pool, spa, or hot tub shall be stored in accordance with the following provisions:

- (1) Federal, state and local requirements shall be followed.
- (2) Chemicals shall be stored and stacked in accordance with the manufacturer's instructions and ~~Material~~-Safety Data Sheets (~~M~~SDS).
- (3) Liquid chemicals shall be stored below solid, powdered, or granular products. Chemicals shall be stored on pallets or shelves, not on the floor. Secondary containment for all liquid chemicals shall be provided.
- (4) Chemicals shall be stored in a clean, cool, dry, uncluttered, well-lit, and well-ventilated area that is out of the reach of children and unauthorized personnel.
- (5) Chemical containers shall be sealed with the original label affixed.
- (6) Chemicals shall be stored away from flammable products. Smoking shall be prohibited in the presence of chemicals.
- (7) Chemicals shall not be stored in the same area as other chemicals or substances; this includes dissimilar or non-compatible chemicals, that are not used for the treatment of a pool, spa, or hot tub.
- (8) Chemical containers shall regularly be inspected for signs of moisture, corrosion, or damage.
- (9) Chemicals shall be used on a first in, first out basis.

SUBSTANTIATION:

The phrase "Material Safety Data Sheets" has been updated by removing the term "Material." OSHA requires that chemical manufacturers, distributors, or importers to now provide Safety Data Sheets (SDS) (formerly know as MSDS) with specific minimum sections to be included. The proposed change will correlate with the new identification of these documents.

SECTION #: 211.0, 509.1, 509.2

RECOMMENDATION:

509.0 Secondary Disinfection Systems.

509.1 General. Secondary disinfection systems shall ~~comply with~~ be certified to NSF/ANSI/CAN 50, and shall be installed and operated in accordance with the manufacturer's ~~installation~~ instructions.

509.2 Where Required. A secondary disinfection system shall be provided for increased risk aquatic venues, the following:

- ~~(1) Aquatic venues designed for children, such as wading pools, and recirculating interactive water play venues~~
- ~~(2) Therapy pools~~
- ~~(3) Sensory deprivation tanks~~

211.0 - I -

Increased Risk Aquatic Venue. An aquatic facility with its primary use being one or more of the following:

- (1) Children under the age of 5.
 - (2) Persons who are immune system compromised, or
 - (3) Therapy of patients with open wounds which may increase the risk of microbial contamination.
- Examples of such facilities include therapy pools, swim schools, spray pads, wading pools, and facilities with high bather load to water ratios.

Note: NSF/ANSI/CAN 50 meets the requirements for a mandatory reference standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Uniform Solar, Hydronics & Geothermal and Swimming Pool, Spa & Hot Tub Codes.

SUBSTANTIATION:

Section 509.1 is being updated to require certification to NSF/ANSI/CAN 50 for secondary disinfection systems. Clarification has also been made that these systems are to be both installed and operated in accordance with the manufacturer's instructions.

Section 509.2 is being modified to specify the requirement for secondary disinfection for any increased risk aquatic venue. In support of this change and to provide needed clarity, a definition for the term "increased risk aquatic venue" has also been provided. The terminology offered identifies three qualifications for risked use and offers examples of such facilities.

Furthermore, these changes align with current industry standards and are beneficial to the code as they promote public health and safety.

SECTION #: 509.4

RECOMMENDATION:

509.0 Secondary Disinfection Systems.

509.4 Approved Systems. Secondary disinfection shall be provided by an ultraviolet light (UV) system, ~~or~~ ozone system, or other approved method.

SUBSTANTIATION:

The existing language is overly restrictive by only calling out UV (ultraviolet light) systems or ozone systems for approved secondary disinfection. The addition of “other approved methods” will allow other means of secondary disinfection such as advanced oxidation systems that are used to kill chlorine-resistant organisms, like Cryptosporidium.

SECTION #: 509.4.2.1, 509.4.2.4

RECOMMENDATION:

509.0 Secondary Disinfection Systems.

509.4 Approved Systems. (remaining text unchanged)

509.4.2 Ozone Systems. (remaining text unchanged)

509.4.2.1 Oxidation Reduction Potential. Ozone generating equipment shall be equipped with an approved oxidation reduction potential (ORP) monitor/controller. The ORP of the ozone system shall be not less than ~~600~~ 650 mV, and not more than 900 mV where measured after the ozone side-stream remixes into the recirculation system and upstream of the halogen feed location and pH chemical feed equipment.

509.4.2.4 Alarm Required. When the ORP reading for the ozone system drops below ~~600~~ 650 mV, approved audible and visual alarms shall be installed to alert facility staff.

SUBSTANTIATION:

The World Health Organization and CDC have determined that a minimum of 650 mV is required for virtually instantaneous inactivation of most pathogens and as such, this value has become the industry standard for a minimum acceptable ORP value.
