



**Summary of Substantive Changes  
between the 1999 and the 2014 editions of  
ANSI/APSP/ICC-3 “Permanently Installed Residential Spas”**

**Presented to the IAPMO Standards Review Committee on January 8, 2018**

**General:** The changes to this standard may have an impact on currently listed products. The significant changes are:

- Expanded the scope to include exercise or swim spas (see Section 1).
- Added requirements for the maximum allowable distance from the deck to the to the uppermost tread or step in a pool and the minimum depth required for steps in water depths over 48 inches (see Section 5.6).
- Changed the maximum allowable slope for wooden or composite board decks from 2° to 4° (see Section 6.4).
- Added the requirement that circulation systems shall comply with ANSI/APSP/ICC-7 in addition to ANSI/NSF 50 (see Section 7.1).
- Added an additional requirement for circulation system components, that the equipment shall be mounted to prevent them from being used to gain access to the spa (see Section 7.3).
- Added a requirement that filters shall be tested and listed to NSF 50 (see Section 8.1).
- Added a new requirement that chemical feeders and heaters that depend on circulation pump flow must be permanently wired to the time clock (see Section 8.7).
- Added a new requirement that access must be provided to the pumps and motors for service and that mechanical seal components shall be corrosion resistant (see Section 9.5 and 9.7).
- Updated the requirements for inlets and outlets to correlate with the referenced standards ANSI/APSP/ICC-7 and ANSI/APSP-16 and added new requirements for hydrotherapy jets and fittings jets (see Section 10)
- Added a requirement that skimmers shall be capable of handling 100% of the circulation flow (see Section 11.3)
- Replaced reference to UL 1563 with a reference to NFPA 70 for grounding and bonding and added new specifications and requirements for the disconnect means and the electrical energy supply for electrical heating appliances (see Section 12)
- Changed the requirement for sanitizing, oxidation equipment and chemical feeders from compliance with NSF 50 to EPA registered (see Section 17)



## 1 Scope and Definitions

Section 1, Scope and Definitions: Expanded the scope to include exercise or swim spas, clarified that the standard does not cover public facilities, and added a number of additional reference standards and definitions as follows:

**1.1** *This standard is intended to cover permanently installed residential spas and swim spas and not public spas, swim spas or factory built residential portable spas, swim spas that are used for bathing and are operated by an owner. In this type of spa the heater and water circulating equipment are not an integral part of the product. The spa is intended as a permanent fixture, and is not intended to be moved.*

*NOTE: For the purpose of this standard, the use of the term spa refers to a “permanently installed residential spa or swim spa.”*

**1.2** *A permanently installed residential swim spa, also known as an exercise spa, is any swim spa other than a factory built residential portable spa or public spa consisting of a large unobstructed volume of water that allows the 99th percentile man to swim (see Section 5.1.4). The design and construction of a permanently installed residential swim spa includes specific features and equipment to produce a water flow intended to allow recreational physical activity including, but not limited to, swimming in place. Permanently installed residential swim spas may include peripheral jetted seats intended for water therapy, heater, circulation and filtration system, or may be a separate distinct portion of a combination spa/swim spa and may have separate controls.*

**1.3** *This standard is not meant to cover public spas or public swim spas, factory built residential portable spas or swim spas or other spas, such as those operated for medical treatment, physical therapy or other purposes.*

~~**1.4** *Other standards are referenced in this standard for items not covered.*~~

~~**1.2 1.4** *This standard is meant to cover certain aspects of the design, equipment, operation, installation, new construction, remodeling and renovation of spas and swim spas. This standard shall be met notwithstanding certain variations in equipment, materials, and design.*~~

Section 1.5, Normative references: Referenced standards were updated, removed and added as follows:

**1.5 Normative references.** *The following standards contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the latest published editions of the standards indicated in Section 2.1.*

~~**2.1** *The materials of manufacture shall be capable of fulfilling the design, installation, and intended use requirements guidelines in this standard. If the materials of manufacture, components and accessories used in permanently installed residential spas or swim spas consist of the following, these standards shall be applicable.*~~

*Concrete Slab: ACI 302.1R-04, Guide for Concrete Floor and Slab Construction<sup>1</sup>*

*IAPMO IS-2-90 2003, Tile Lined Roman Bathtubs<sup>3</sup>*

*ASTM B 88-96 2003, Standard Specification for Seamless Copper Water Tube<sup>5</sup>*

*ASTM D 1527-77 99 (1995 2005), Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80<sup>7</sup>*



ASTM D1785-~~96~~ [06](#), Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120<sup>8</sup>

IAPMO PS-33-~~93~~ [09](#), Standard Specification for Flexible Hose for Pools, Hot Tubs, Spas and Jetted Bathtubs<sup>9</sup>

ASTM D2846/D2846M-~~95~~ [09](#), Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold- Water Distribution Systems<sup>10</sup>

ASTM D3309-~~95a~~ [96a \(R2002\)](#), Standard Specification for Polybutylene (PB) Plastic Hot- and Cold-Water Distribution Systems<sup>11</sup>

ASTM A53m-~~96a~~ [07](#), Standard Specification for Pipe, Steel Black and Hot-Dipped, Zinc-Coated, Welded and Seamless<sup>12</sup>

ASTM D2235-~~95~~ [04](#), Specification for Solvent Cements for Acrylonitrile Butadiene Styrene (ABS) Plastic Pipe and Fittings<sup>13</sup>

ASTM D 2564 ~~95~~ [2004](#), Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems<sup>14</sup>

ASTM F493-~~95~~ [04](#), Specification for Solvent Cements for Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe and Fittings<sup>15</sup>

IAPMO IS 3-~~93~~ [2006](#), Installation Standard for Copper Plumbing Tube, Pipe, and Fittings<sup>16</sup>

IAPMO IS 21-~~89~~ [2006](#), Installation Standard for Welded Copper and Copper Alloy Water Tube<sup>17</sup>

ANSI/ASME B1.20.1-[1983 \(R2001\)](#) Pipe Threads, General Purpose (in.)<sup>18</sup>

~~ANSI/ASME A112.19.8-M-1987 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathtub Appliances~~

[ANSI/APSP16-2011, Standard for Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs<sup>19</sup>](#)

ASTM C564-~~95-A~~ [08](#), or equivalent SAE J20e Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings<sup>20</sup>

NEMA MG1 [2008](#), Motors, and Generators<sup>21</sup>

UL 1081-[08](#) Standard for Safety Swimming Pool Pumps, Filters, and Chlorinators<sup>22</sup>

UL 1261-[2006](#), Electric Water Heaters for Pools and Tubs<sup>23</sup>

~~ANSI Z21.56a-1987, Gas Fired Pool Heaters (supplement)~~

ANSI Z 21.56~~a-1996~~ [2013](#), Gas Fired Pool Heaters<sup>24</sup>

[UL 1995 - Standard for Heating and Cooling Equipment<sup>25</sup>](#)

NSF/ANSI 50-[2012](#) Equipment for Swimming Pools, Spas, Hot Tubs, and Other Recreational Water Facilities<sup>26</sup>

UL 1563-[2009](#) Standard for Electric Spas, Equipment Assemblies, and Associated Equipment<sup>27</sup>

[ANSI/APSP/ICC-7, 2013 Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins<sup>31</sup>](#)

[ANSI/APSP-16, 2011 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs<sup>32</sup>](#)

[ANSI/APSP-11 American National Standard for Water Quality in Public Pools and Spas, and APSP, 2013 Workmanship Guidelines and Practices for Residential Inground Swimming Pools, Spas and Swim Spas](#)

**1.7 Workmanship.** All work shall be performed in accordance with the latest published edition of APSP Workmanship Guidelines and Practices for Residential Inground Swimming Pools, Spas and Swim Spas.



## **1.8 Definitions**

**Alteration:** See Remodel, Renovate.

**Drain:** A suction outlet, comprising a fitting, fitting assembly, cover/grate, and related components that provide a localized low-pressure area for the transfer of water from spa or swim spa (See Suction outlet).

**Dynamic head:** The sum of the total resistance caused by friction and/or changes in elevation, of the water flow through the entire circulation system that the pump has to overcome to achieve the necessary flow rate.

**EPA-registered product:** A product bearing the EPA stamp indicating that it meets EPA standards for efficacy, human health and safety, environmental impact, use instructions, and product labeling. All products that claim to kill or control bacteria, algae, etc., are required to be registered.

**Remodel:** To install cosmetic changes, accessory add-ons, alterations, or modernizations to an existing installation. (See Renovate.)

**Renovate:** To restore or repair all or part of a spa or swim spa structure and/or its component parts, including the rebuilding and/or replacing of worn or broken parts. (See Remodel.)

**Slip-Resisting:** A surface that has been so treated or constructed to significantly reduce the chance of a user slipping. The surface shall not be an abrasion hazard.

**Suction outlet:** A submerged aperture or fitting, other than a skimmer, on the sidewall or bottom of a spa or swim spa through which water under negative pressure (vacuum) is drawn from the spa to the pump or circulation system.

**Suction piping (influent):** Piping that is connected to the suction side of the pump.

**Waterline:** The waterline shall be defined in one of the following ways:

- 1. Skimmer system:** The waterline shall be at the midpoint of the operating range of the skimmers when there are no users in a spa or swim spa.
- 2. Overflow system:** The waterline shall be at the top of the overflow rim.

## 2 General Design Criteria

Section 2, General Design Criteria: Added the following general requirements for materials:

**2.1 Materials of components and accessories.** *The materials of components and accessories used for permanently installed inground residential spas and swim spas shall be compatible with the environment in which they are installed. The materials shall be capable of fulfilling the design, installation, and the intended use requirements in this standard.*

**2.2 ~~Material Surfaces:~~ Selection of materials.** *All material surfaces that come in contact with The selection of materials, manufactured components, accessories, and construction processes shall be such that external surfaces and edges that are exposed to the user ~~shall be~~ are arranged and finished so that they ~~do will~~ not constitute a cutting, pinching, puncturing, or abrasion hazard ~~under casual contact and intended use.~~*

**2.2.1 Product Materials** shall be maintained in accordance with manufacturer's specifications.



## 5 Dimensional Design and Tolerances

Section 5.1, Shape: Added dimensional requirements for swim spas as follows:

**5.1.4 Human measurement for swim spa.** *The design shall allow for dimensions that allow the 99th percentile male to swim utilizing swim jets for an aquatic workout, per The Measures of Man and Woman by Alvin R. Tilley, John Wiley & Sons, Inc.*

Section 5.2, Water Depth; Added water depth requirements for swim spas as follows:

*The maximum water depth shall be 4 ft. (122 cm) except swim spas, where the maximum water depth shall be 6 ft. (183 cm), measured from the waterline.*

**EXCEPTIONS:** *Spas and swim spas that are designed for a special purposes and approved by the authority having jurisdiction.<sup>3</sup>*

Section 5.5, Floor Slope: Added exceptions for the floor slope of swim spas as follows:

*Floor slopes shall be in compliance with Sections 5.5.1 through 5.5.3, except where required by the ADA Accessibility Guidelines (ADAAG).*

**NOTE:** *For ADA requirements, see U.S. ADA Accessibility Guidelines (ADAAG). (For more information on the U.S. Department of Justice Americans with Disabilities Act, visit the ADA web site at [www.usdoj.gov/crt/ada/adahom1.htm](http://www.usdoj.gov/crt/ada/adahom1.htm).)*

~~5.5~~ **5.5.1** *The slope of the floor shall not exceed 1 ft. in 12 ft. (1:12).*

**5.5.2 Exception.** *For swim spas, the slope of the floor from the shallow end wall towards the deep area shall not exceed 1 ft. in 7 ft. (1:7) to the point of the first slope change.*

**5.5.3 Exception.** *For swim spas, the slope of the floor from the point of the first slope change toward the deep end shall not exceed 1 ft. in 3 ft. (1:3).*

Section 5.6, Steps, Seats, Recessed Steps, Ladders, and Recessed Treads: Added requirements for the maximum allowable distance from the deck to the to the uppermost tread or step in a pool and the minimum depth required for steps in water depths over 48 inches as follows:

**5.6.1 Entry/exit.** *Steps, seats, ladders, or recessed treads in the spa or swim spa shall be provided for entry and exit where water depths are greater than 24 in. (61 cm).*

~~5.6.2~~ **Design and Construction: Steps.** *The design and construction of spa steps into the spa or swim spa in either shallow or deep water, including recessed steps stairs and seat benches, where used, shall conform to ~~Articles~~ Sections 5.6.2.1 through ~~5.6.2.6~~ **5.6.2.8.***

**5.6.2.1 Step** *Treads shall have a minimum unobstructed horizontal depth of 10 in. (254 mm) and a minimum unobstructed walking surface area of 240 sq in. (1548 cm<sup>2</sup>).*

**5.6.2.2 All risers heights** *at the centerline ~~of treads~~, except for the bottom riser, shall have a maximum uniform height of 12 in. (305 mm).*

~~5.6.2.3~~ *The first and last risers are not required to be uniform but shall comply with riser height requirements as noted above. The first (top) riser is measured from the finished deck.*

**5.6.2.3 with** *The bottom riser height is allowed to vary plus or minus 2 inches (2") [5.08 cm] from the uniform riser height to the floor.*



[5.6.2.5 The vertical distance from the spa or swim spa coping, deck, or step surface to the uppermost tread shall be a maximum of 12 in. \(305 mm\).](#)

[5.6.2.6 When stairs are located in water depths over 48 in. \(1.2 m\), the lowest tread shall be no less than 48 in. \(1.2 m\) below the deck.](#)

## 6 Decks

Section 6.4, Wooden or Composite Board Decks: Changed the maximum allowable slope for wooden or composite board decks from 2° to 4° as follows:

### [6.4. Wooden or Composite Board Decks](#)

**6.4.1** *There is no minimum slope requirement for wooden or composite board decks. The maximum slope for wooden or composite board decks shall be ~~1/8~~ 1/4 in. per ft (1:48).*

**6.4.2** *Expansion gaps shall be required between deck boards and shall be consistent with good construction practices with respect to the type of wood used.*

Section 6.5, Stone, Brick, Brick Pavers, Concrete Pavers, and Tile Decks: Added general requirements for stone, brick, and tile decks as follows:

### [6.5 Stone, brick, brick pavers, concrete pavers, and tile decks](#)

[6.5.1 Installation of these types of decks shall follow local accepted construction practices. Drainage slope requirements shall be in accordance with the drainage requirements of Sections 6.1.1 through 6.6.1.](#)

## 7 Circulation Systems

Section 7.1, Compliance: Added the requirement that circulation systems shall comply with ANSI/APSP/ICC-7 in addition to ANSI/NSF 50 as follows:

*Circulation systems, components, and equipment shall comply with the latest published editions of ANSI/NSF 50 [and ANSI/APSP/ICC-7.](#)*

Section 7.3, Circulation system components: Added an additional requirement for circulation system components, that the equipment shall be mounted to prevent them from being used to gain access the spa as follows:

~~7.2.3~~ **7.3.1** *Spa or swim spa equipment [and components shall be installed according to the manufacturer's instructions and](#) shall be properly supported to prevent damage from misalignment, settlement or operational movement, ~~etc.~~ The equipment shall be mounted so as to minimize the potential for the accumulation of debris and moisture, following manufacturer's ~~instructions~~ [specifications, and shall be located so as to prevent them from being used as a means of access to the spa or swim spa by young children.](#)*

Section 7.4, Pressure Test of Circulation System Piping: Added an allowance to conduct the pressure test under the test condition specified by the authority having jurisdiction as follows:



**7.4 Pressure test of circulation system piping.** Circulation system piping, other than that integrally included in the manufacture of the spa or swim spa, shall be subject to an induced static hydraulic pressure test (sealed system ~~with air purged at twenty-five pounds per square inch~~ 25 psi (pounds/sq. in.) (1.76 kg/sq. cm, or 172.37 kPa) for 30 minutes or at the test condition specified by the authority having jurisdiction. This test shall be performed before the deck is poured and the pressure shall be maintained ~~throughout~~ until the deck ~~pour~~ is poured or installed.

Section 7.5, Swimjet Systems For Spas and Swim Spas: Added requirements for swim jet systems that are part of the filtration system as follows:

**7.5 Swimjet systems for spas and swim spas**

**7.5.1 If the swim jet system is an integral part of the filtration system, it shall meet the guidelines of Section 7.**

7.7 Piping and Fittings: Moved the requirement that the suction piping shall not collapse when flow on the suction side is completely shut-off from section 8.5 as follows.

~~7.4~~ **7.7 Piping and fittings.** The circulation system piping and fittings shall be considered process piping, made of material compatible with spa water and able to withstand operating pressures of 1.5 times the design working pressure of the spa jets.

~~8.5~~ **7.7.1 The suction piping shall not collapse when there is a complete shutoff of flow on the suction side of the pump.**

Section 7.9, Maintenance and instructions: Added an allowance to provide an owner's manual for the manufactured components as follows:

~~7.7~~ **7.9 Maintenance and instructions.** Written operation and maintenance specifications shall be provided ~~for~~ or owner's manual for all the manufactured components that are part of the circulation systems shall be provided to the spa or swim spa owner.

## 8 Filters

Section 8.1: Added a requirement that filters shall be tested and listed as follows:

**8.1 Compliance: Filtration systems, components and equipment** Filters shall be tested and listed by a nationally recognized testing laboratory and shall comply with ~~the latest revision published edition of~~ ANSI/NSF 50 ~~1996, "Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs."~~

Section 8.5, Piping: Clarified that pipe must withstand 1.5 times the rated maximum working pressure as follows:

**8.5 Piping.** Piping furnished with the filter shall be made of suitable material capable of withstanding 1.5 times the rated maximum working pressure. ~~The suction piping shall not collapse when there is a complete shut-off of flow on the suction side~~ of the pump.



Section 8.7, Time clock/related devices: Added a new requirement that chemical feeders and heaters that depend on circulation pump flow must be permanently wired to the time clock as follows:

~~7.6 Water Clarity: 8.7 Time clock/related devices. Time clocks may be and/or other devices are permitted to be used to set the operating period of the circulation system and its components. The circulation system shall be capable of maintaining supporting water clarity and water chemistry requirements (see Appendix A). When time clocks are used, they shall also govern the operating time of appurtenant devices such as chemical/sanitizer feeders, heaters, etc. that are dependent upon circulation pump flow.~~

8.7.1 When appurtenant devices such as chemical / disinfectant feeders, heaters, and other devices that depend on circulation pump flow are used, they shall be permanently wired into the time clock (when applicable). See manufacturer's specifications.

## 9 Pumps and Motors:

Section 9, Pumps and Motors: Added a new requirement that access must be provided to the pumps and motors for service and that mechanical seal components shall be corrosion resistant as follows:

9.5 Access to the pump(s) and motor(s) shall be provided for inspection and service.

9.7 Where a mechanical pump seal is provided, components of the seal shall be corrosion resisting and capable of operating under conditions normally encountered in a spa or swim spa operation.

## 10 Inlets and Outlets

Section 10, Inlets and Outlets: Updated the requirements for inlets and outlets to correlate with the referenced standards ANSI/APSP/ICC-7 and ANSI/APSP-16 and added new requirements for hydrotherapy jets and fittings jets as follows:

~~10.5 10.1 Entrapment avoidance. Vacuum systems shall have access fittings mounted outside the spa. The access fittings shall not be accessible to the user. The submerged suction piping and fittings shall comply with the latest published edition of ANSI/APSP/ICC-7.~~

~~10.2 Testing and certification. Spa suction outlets shall be provided with a cover that has been tested and accepted by a nationally recognized testing laboratory and comply with ANSI/ASME A112.19.8M — 1987 "Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathtub Appliances." Submerged outlet(s) other than skimmers, when used, shall be sized and installed in accordance with the latest published editions of ANSI/APSP/ICC-7 and ANSI/APSP-16.~~

~~10.3 Installation: Spa suction outlets shall be sized and installed in accordance with manufacturer's specifications. Water Velocity. Water velocity through the openings of submerged cover/outlets shall comply with the latest editions of ANSI/APSP/ICC-7 and ANSI/APSP-16.~~

10.5 Number of inlets. Return inlet fittings shall be of sufficient size or quantity to allow for a designed turnover rate of the circulation system. Therapy jets shall be allowed to serve the function of return inlets.





**10.6 Outlets Per Pump:** ~~A minimum of two (2) suction outlets shall be provided for each pump in the suction outlet system, separated by a minimum of three feet (3') [91.44 cm] or located on two (2) different planes; i.e. one (1) on the bottom and one (1) on the vertical wall, or one (1) each on two (2) separate vertical walls. These suction outlets shall be plumbed such that water is drawn through them simultaneously through a common line to the pump. Inlets and outlets from the circulation system shall be designed so as not to constitute a hazard to the user.~~

**10.7 Important Safety Note Consideration:** ~~The spa shall not be operated if the suction outlet grate is missing, broken, or secured in such a way that it is removable without the use of tools. To avoid serious injury or death, close the spa or swim spa to bathers if any outlet cover/grate is missing, broken, or inoperative. There is no backup for missing or damaged outlet cover/grates for all five (5) entrapment hazards:~~

- hair entrapment
- limb entrapment
- body entrapment
- mechanical entrapment
- evisceration

(See also Appendix F.)

~~**10.7-Cleaner Fittings:** **10.8** Where ~~When~~ provided, the vacuum ~~or pressure~~ (suction) cleaner fitting(s) shall be located in an accessible position(s) at least six inches (6") [15.24 cm] and not greater than eighteen inches (18") [45.72 cm] below the minimum operating water level or as an attachment to the skimmer(s) installed in accordance with the latest published edition of ANSI/APSP/ICC-7.~~

**10.9 IMPORTANT SAFETY CONSIDERATION:** Under no circumstances shall any submerged suction outlet be located on seating or lounge area.

#### **10.10 Swim jet systems with hydrotherapy combination fittings**

**10.10.1** A combination hydrotherapy fitting that incorporates a suction outlet and hydrotherapy inlet shall be designed in such a way as to avoid body entrapment, hair entrapment, and entanglement.

## 11 Surface Skimmer Systems

Section 11.1, Design and Construction: Expanded the requirements for skimmers to include swim spas and clarified that the weir of a spa that spills into a pool serves the function of a skimmer as follows:

~~**11.1** Skimming devices shall comply with the latest revision of ANSI/NSF-50 1996 "Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs."~~

~~**11.2** **11.1 Design and construction.** Skimming devices shall be provided on all residential spas ~~or swim spas~~, and shall be designed and constructed to skim the spa ~~or swim spa~~ surface when the water level is maintained within the operational parameters of the system's rim or weir device. The weir of a spa or swim spa which spills into a pool serves the function of a skimmer.~~



Section 11.3, Automatic Surface Skimmers: Added a requirement that skimmers shall be capable of handling 100% of the circulation flow as follows:

**11.4 11.3 Automatic surface skimmers.** *Where automatic surface skimmers are used as the sole overflow system, at least one (1) surface skimmer shall be installed for each 150 square ft (13.94 m<sup>2</sup>), or fraction thereof, of water surface area. ~~When skimmers are used, they shall be located to optimize skimming action over the surface of the spa.~~*

11.3.1 The skimmer shall be capable of handling 100 percent of the circulation flow.

## 12 Electrical Requirements

Section 12, Electrical Requirements: Replaced reference to UL 1563 with a reference to NFPA 70 for grounding and bonding and added new specifications and requirements for the disconnect means and the electrical energy supply for electrical heating appliances as follows:

~~12.1 Testing and Certification: Electrical components used in a permanently installed residential spa shall be evaluated for the application and accepted by a nationally recognized testing laboratory.~~

~~12.2 Compliance: 12.1 Electrical components.~~ All Electrical components installed in and/or adjacent to an inground residential spa or swim spa shall comply with the requirements of the latest published edition of the National Electrical Code NFPA 70 (NEC<sup>®</sup>), and the authority having jurisdiction and any federal, state, or local codes. In areas where no authority has jurisdiction, the latest published NEC and any federal, state, or local codes shall apply.

~~12.3.1 12.2 IMPORTANT SAFETY CONSIDERATION: Grounding and Bonding.~~ To reduce the hazard of electrical shock, the requirements for grounding and bonding as specified in NFPA 70 (NEC) are particularly important and shall be adhered to ~~reduced the hazard of electrical shock.~~

~~12.3 Grounding and Bonding: Grounding and bonding required in a permanently installed residential spa shall comply with the requirements of the National Electrical Code (NEC)<sup>®</sup>, ANSI/UL 1563 "Standard for Electric Hot Tubs, Spas and Associated Equipment" and the authority having jurisdiction.~~

~~12.4 12.3 Disconnecting Switch means.~~ Disconnecting means shall be accessible, ~~shall be accessible~~ located within sight of the spa electrical equipment, and shall ~~be located at least five feet (5') [1.524 m] horizontally from the inside walls of the spa.~~ meet the additional requirements in Sections 12.3.1 and 12.3.2 below.

12.3.1 The maintenance disconnecting means shall be located at a minimum of 5 ft. (1.52 m) horizontally from the inside walls of the spa or swim spa, unless separated from the open water by a permanently installed barrier that provides a 5 ft (1.52 m) or greater reach path, and shall be clearly labeled "MAINTENANCE DISCONNECTING SWITCH USE ONLY." This is not an emergency switch.

12.3.2 For installations other than single-family dwellings, an emergency disconnecting means for the purpose of stopping the motor(s) that provide power to the recirculation system and jet system shall be installed at a point readily accessible to the users, adjacent to, within sight of the spa or swim spa, shall be located at a minimum of 5 ft. (1.52 m) horizontally from the inside walls of the spa or swim spa, and shall be clearly labeled "EMERGENCY SPA SHUTOFF SWITCH." This is an emergency switch.

12.4 Electrical energy supply for electrical heating appliances. Electric heating appliances shall be installed in accordance with the latest published edition of the National Electrical Code NFPA 70 (NEC<sup>®</sup>),



*the authority having jurisdiction and any federal, state, or local codes. In areas where no authority has jurisdiction, the latest published NEC and any federal, state, or local codes shall apply.*

### 13 Air Blower and Air Induction Systems:

Section 13.7, Electrical Supply: Clarified that federal, state and local codes apply in addition to NFPA 70 as follows:

**13.7 Electrical supply.** *Air blowers shall be installed in accordance with the latest published edition of the National Electrical Code NFPA 70 (NEC<sup>®</sup>), the authority having jurisdiction, and any federal, state, or local codes. In areas where no authority has jurisdiction, the latest published NEC and any federal, state, or local codes shall apply.*

### 14 Heaters and Temperature Requirements

Section 14, Heaters and Temperature Requirements: Added a safety consideration for fossil fuel spa and swim spa heaters, changed the reference standard for heat pumps from UL 559 to UL 1995 and changed requirements for controls from UL 1563 and UL 372 to compliance with ASHRAE 62.1 as follows:

**14.1 IMPORTANT SAFETY CONSIDERATION:** *Fossil fuel spa and swim spa heaters produce poisonous carbon monoxide gas as a by-product of combustion. Proper venting of exhaust gases and correct sizing of gas meters, gas supply piping, make-up air intakes, etc. is critical in preventing potential carbon monoxide gas poisoning or loss of life.*

~~**14.3 Water Temperature:** Components provided for water temperature controls shall be evaluated for suitability for its intended application.~~

~~**14.2 Testing and Certification:**~~ **14.3** Heaters shall be tested and shall comply with the requirements of the latest published editions of ANSI Z21.56 for Gas Heaters or UL 1261 for Electric Heaters. Heat pumps shall comply with ~~UL 559 specifications and be evaluated for the application and accepted by a nationally recognized testing laboratory~~ the latest published edition of ANSI/UL 1995.

~~**14.3.1 14.4** Water temperature regulating controls shall comply with ANSI/UL 1563 “Standard for Electric Hot Tubs, Spas and Associated Equipment” and UL 372 “Primary Safety Controls for Gas and Oil-Fired Appliances.”~~

Owner/operator shall routinely check the spa water to ensure that the temperature does not exceed 104 °F (40 °C). If adjustments are necessary, they shall be performed in accordance with the manufacturer’s instructions or by a qualified technician.

~~**14.3.2 Water Temperature Limiting Controls:** Water temperature limiting controls shall comply with ANSI/UL 1563 “Standard for Electric Hot Tubs, Spas and Associated Equipment” and UL 372 “Primary Safety Controls for Gas and Oil-Fired Appliances.” Water temperature at the heater return outlet shall not exceed 122°F [50°C].~~

**14.10.2** *All spas and their related components that are installed in an indoor environment shall comply with the latest published edition of the ventilation requirements of ANSI/ASHRAE 62.1-Ventilation for*



[acceptable indoor air quality, Table 6-1, "Minimum Ventilation Rates in Breathing Zone," \(Sports and Entertainment section\), and federal, state or local codes.](#)

**14.7.2 14.10.4 IMPORTANT SAFETY CONSIDERATION:** [Some manufacturers recommend that the heater be turned off prior to stopping the water flow.](#) Mechanisms such as a fireman's switch adapted to the time clock will turn the heater off long enough for it to cool down before the time clock turns off the pump.

## 15 Water Supply

Section 15, Water Supply: Added a new requirement for use of a hose to fill the spa as follows:

**15.3 Hose use.** [If a hose is used to fill the spa or swim spa, the end of the hose shall not be permitted to hang inside the spa or swim spa unless the hose bibb is protected with a backflow prevention device approved by the appropriate state or local authority.](#)

~~**15.3 Over the Rim Spout:** An over the rim spout, if used for fresh water make-up, shall be properly shielded so as not to create a hazard. Its open end shall have no sharp edges and shall not protrude more than two inches (2") [5.08 cm] beyond the edge of the spa.~~

~~**15.4 Water Temperature:** Temperature of the incoming make-up water shall not exceed 104°F [40°C] as recommended in ANSI/UL 1563 "Standard for Electric Hot Tubs, Spas, and Associated Equipment."~~

## 17 Sanitizing, Oxidation Equipment, and Chemical Feeders

Section 17, Sanitizing, Oxidation Equipment, and Chemical Feeders: Changed the requirement for sanitizing, oxidation equipment and chemical feeders from compliance with NSF 50 to EPA registered as follows:

~~**17.1 Compliance.** Sanitizing equipment, oxidation equipment and chemical feeders, shall comply with the latest revision of ANSI/NSF-50 1996 "Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs." The Sanitizing equipment and the chemical feeders shall be capable of introducing a sufficient quantity of an approved sanitizing agent or other chemical to maintain the provisions as outlined in Appendix A.~~ [EPA registered sanitizer to maintain the water in a sanitary condition. \(For recommended guidelines, see Appendix A.\)](#)

~~**17.4 Low-Output Ozone Generating Equipment.** The installation and use of ozone generating equipment shall be limited to low output ozone-generating equipment. The installation and use of ozone-generating equipment shall conform to all the requirements of the authority having jurisdiction, as well as Articles 17.4.1 through 17.4.4.~~ comply with the manufacturer's specifications.

## 18 Safety Features:

Section 18, Safety Features: Clarified that spas are not intended for diving or sliding purposes and added a reference to Appendix C with an expanded list of the spa use parameters as follows:



*18.1 Residential spas and swim spas are for swimming, exercising, hydrotherapy, and wading only. No diving boards, slides, or other equipment are to be added to a residential spa or swim spa that in any way indicates that it may be used or intended for diving or sliding purposes.*

**18.5 Instructions.** The ~~installing agent~~ installer shall provide instructions to ~~inform~~ the owner ~~to post signage in a prominent location which states the safety,~~ with regard to the safety, emergency and operational aspects of the spa or swim spa ~~As a guide for language and layout of the safety signs reference ANSI Z 535 series of standards for "Safety Signs and Colors" and ANSI/UL 1563 "Standard for Electric Hot Tubs, Spas and Associated Equipment".~~ (See Appendix C).