

ANSI/APSP/ICC-16 2017

# American National Standard for Suction Outlet Fitting Assemblies (SOFA) for Use in Pools, Spas and Hot Tubs



Approved August 18, 2017



*The Association of  
Pool & Spa Professionals®*



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ANSI/APSP/ICC-16 2017

**American National Standard for  
Suction Outlet Fitting Assemblies (SOFA) for Use in  
Pools, Spas, and Hot Tubs**

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Approved August 18, 2017  
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This standard is published in partnership with the International Code Council (ICC). The ICC develops and publishes **International Building Code (IBC)** and **International Residential Code (IRC)**, which are adopted as the basis for the building codes used in most states and jurisdictions within the United States. Additionally, APSP and the ICC have collaborated to develop the first comprehensive model swimming pool and spa code, known as the **International Swimming Pool and Spa Code (ISPSA)**. This landmark document incorporates and references material from ANSI/APSP standards and ICC's model codes, to create a stand-alone code that is consistent with codes and standards from both organizations.

These codes and standards are the result of a joint effort between ICC and APSP as a service to both the swimming pool and spa community, and building code professionals. It is the hope of both organizations that they will lead to enhanced safety for pool and spa users around the world.

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## Foreword

This Foreword is not part of the American National Standard ANSI/APSP/ICC-16 2017. It is included for information only.

The ANSI/APSP/ICC-16 2017, *Standard for Suction Outlet Fitting Assemblies (SOFA) for Use in Pools, Spas, and Hot Tubs*, was approved by the American National Standards Institute (ANSI) on August 18, 2017. This standard is a revision of ANSI/APSP-16 2011 *Standard for Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs*.

The objective of this voluntary standard is to provide recommended minimum guidelines for testing and marking requirements for suction fittings that are designed for use on totally submerged suction outlets in swimming pools, spas, and hot tubs, as well as other aquatic facilities. This Standard is being considered by the U.S. Consumer Product Safety Commission (CPSC) for adoption as a referenced Consumer Product Safety Standard, under the term of the Virginia Graeme Baker Pool and Spa Safety Act. Once that occurs, this Standard will become and have the effect of a Federal Regulation.

The non-mandatory Appendices included with this Standard are provided by the Standard Writing Committee to assist the user by highlighting key compliance elements, their location in the Standard along with clarifying footnotes. Appendix A is a checklist style index organized into related categories. For example, there is a column for laboratory test reports, Registered Design Professional SOFAs, product instructions, markings and labeling. Appendix B is a threaded fastener test report form that captures required data along with suggested information to identify the SOFA components, lab technician and lab location. Appendix C is a Hair Entrapment Testing report form and Appendix D is a Body Entrapment Testing report form. The Appendices are not a substitute for reading, understanding and following the Standard.

The APSP does not certify, test or endorse any product.

The recommendations and testing practices in this standard are based upon sound engineering principles, research, and field experience that, when applied properly, contribute to the delivery, installation and maintenance of a safe product. The intent of test laboratory accreditation is limited to technical requirements section to demonstrate competence performing testing and using equipment within the scope of this Standard such that the various test procedures and tolerances are applied uniformly resulting consistent product performance and flow ratings. It was not considered and therefore is not intended that elements of the ISO 17025 Standard, beyond the Scope of this Standard, be required, such as how a laboratory is legally organized, enters into business contracts, chooses to purchase supplies, provides services to its customers, etc.

The words “safe” and “safety” are not absolutes. While the goals of this standard are to design, construct and maintain a safe, enjoyable product, it is recognized that risk factors cannot, as a practical matter, be reduced to zero in any human activity. This standard does not replace the need for good judgment and personal responsibility. In permitting use of the pool or spa by others, owners must consider the skill, attitude, training, and experience of the expected user.

As with any product, the specific recommendations provided by the manufacturer should be carefully observed for installation, use and maintenance, including the service “Life in Years”, after which the product’s suitability for use has ended, and must be replaced.

This standard was prepared by the APSP-16 Suction Outlet Fitting Assemblies (SOFA) for Use in Pools, Spas, and Hot Tubs (Drain Cover) Standard Writing Committee of the Association of Pool and Spa Professionals (APSP) in accordance with American National Standards Institute (ANSI) Essential Requirements: Due process requirements for American National Standards (ANS).

Consensus approval was achieved by a ballot of the balanced APSP Standards Consensus Committee (SCC) below and through an ANSI Public Review process. The ANSI Public Review provided an opportunity for additional input from industry, academia, regulatory agencies, safety experts, state code and health officials, and the public at large.

Suggestions for improvement of this standard should be sent to the Association of Pool and Spa Professionals, 2111 Eisenhower Avenue, Alexandria, VA 22314.

## Organizations Represented

Consensus approval in accordance with ANSI procedures was achieved by ballot of the following APSP Standards Consensus Committee (SCC). Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

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In accordance with American National Standards Institute (ANSI) procedures, this document will be reviewed periodically. The Association of Pool & Spa Professionals welcomes your comments and suggestions, and continues to review all APSP standards, which include:

**ANSI/APSP/ICC-1** Standard for Public Swimming Pools

**ANSI/NSPI-2** Standard for Public Spas

**ANSI/APSP/ICC-3** Standard for Permanently Installed Residential Spas and Swim Spas

**ANSI/APSP/ICC-4** Standard for Aboveground/Onground Residential Swimming Pools

**ANSI/APSP/ICC-5** Standard for Residential Inground Swimming Pools

**ANSI/APSP/ICC-6** Standard for Residential Portable Spas and Swim Spas

**ANSI/APSP/ICC-7** Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins

**ANSI/APSP/ICC-8** Standard for Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs

**ANSI/IAF-9** Standard for Aquatic Recreation Facilities

**ANSI/APSP-11** Standard for Water Quality in Public Pools and Spas

**ANSI/APSP/ICC/NPC-12** Standard for the Plastering of Swimming Pools and Spas

**ANSI/APSP/ICC-13** Standard for Water Conservation Efficiency in Pools, Spas, Portable Spas and Swim Spas

**ANSI/APSP/ICC-14** Standard for Portable Electric Spa Energy Efficiency

**ANSI/APSP/ICC-15** Standard for Residential Swimming Pool and Spa Energy Efficiency

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# American National Standard for Suction Outlet Fitting Assemblies (SOFA) for Use in Pools, Spas, and Hot Tubs

## 1 GENERAL

### 1.1 Scope

This standard establishes materials, testing, use, installation, and marking requirements for new or replacement *bather-accessible* Suction Outlet Fitting Assemblies (SOFAs), other than maintenance drains, that are designed to be *fully submerged* for use in any *pool*, which include, but are not limited to a swimming pool, hot tub, spa, portable spa, or non-portable wading pool, or other aquatic venue intended for swimming or recreational bathing. The term *pool* is used throughout this standard as an identifier for these bodies of water.

**1.1.1 Effective date.** This standard becomes effective 18 months after adoption by the U.S. Consumer Product Safety Commission (CPSC).

**1.1.2 Existing product compliance.** SOFA components that were manufactured or installed before the effective date of this standard, and that meet APSP-16 2011, shall be considered in compliance with this standard.

**1.1.3 Service life.** Cover/grates and all other SOFA components shall be replaced at or before the end of their service life as stated by the manufacturer. Service life begins the month and year in which a SOFA component is installed with or without water.

**1.1.4 Skimmers** are excluded from the scope of this standard.

**1.1.5 Vacuum cleaner ports.** *Vacuum connection covers* are excluded from the scope of this standard. See the International Association of Plumbing and Mechanical Officials (IAPMO) SPS-4, Special Use suction fittings for Swimming Pools, Spas and Hot tubs for Suction-Side Automatic Swimming Pool Cleaners.

### 1.2 Suction Outlet Fitting Assembly Types

**1.2.1 General purpose SOFAs:** A manufactured SOFA for transferring water from the pool directly or indirectly to a pump.

**1.2.2 Maintenance drain and fire suppression water source outlet:** A manufactured, restricted use fitting used only by pool maintenance personnel or fire suppression personnel ONLY at times when the pool is closed to *bathers*. Maintenance drains and fire suppression water source outlets are exempt from sections 5 and 6 of this standard. Any SOFA certified to this standard shall be permitted to serve this purpose.

**1.2.3 Self-contained spa SOFAs:** A manufactured, restricted use, SOFA that is distributed exclusively as a component of a self-contained factory-manufactured spa, where the *self-contains spa SOFA* has been further evaluated while installed in the spa at the time it is tested and certified in conformance with ANSI/UL 1563.

**1.2.4 Swim jet combination SOFAs:** A manufactured SOFA that merges a suction port(s) and discharge port(s) into as single assembly for use in a *single SOFA system* and/or a *multiple SOFA system*.

**1.2.5 Registered Design Professional SOFAs:** A field-built SOFA that is typically used for high flow rate systems found in large public pools and water park type recreation facilities. They shall be designed using only *sumps* that qualify as *unblockable*. The term *RDP SOFA* is used throughout this standard as an identifier for this type of SOFA.

**1.2.6 Venturi SOFAs:** A manufactured, restricted use, *blockable* SOFA distributed exclusively as a component of a water-driven suction system that returns all water from the Venturi SOFA to the pool without it passing through a pump.

### 1.3 Certifications

#### 1.3.1 Prohibited certifications.

**1.3.1.1** Manufactured SOFAs and *RDP SOFAs* that are not evaluated to all applicable sections or fail any applicable requirement of this standard shall not be certified as meeting this standard.

#### 1.3.2 Required testing and certification.

**1.3.2.1** *Manufactured* SOFAs shall be tested by a laboratory in conformance with paragraph 1.3.4 and certified by an agency in conformance with paragraph 1.3.5.

**1.3.2.2** *RDP SOFAs* shall be designed, installed, and certified in conformance with all applicable requirements of this standard by a *registered design professional* whose credentials are in conformance with the paragraph 1.3.6.

**1.3.2.3** *Manufacturers* and *registered design professionals* of SOFAs intended to enter commerce within the United States shall make available a General Certificate of Conformity (GCC) for each SOFA model as required by 16 CFR Part 1450.