

ANSI/APSP/ICC-7 2013



American National Standard for Suction Entrapment Avoidance In Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins

Approved October 8, 2013




*The Association of
Pool & Spa Professionals®*



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Suction Entrapment Avoidance in Swimming Pools,
Wading Pools, Spas, Hot Tubs And Catch Basins**



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Approved October 8, 2013
American National Standards Institute

American National Standard

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Foreword

This Foreword is not part of the American National Standard ANSI/APSP/ICC-7 2013. It is included for information only.

The *ANSI/APSP/ICC-7 2013 Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs And Catch Basins* was approved by ANSI on October 8, 2013.

The objective of this voluntary standard is to provide recommended minimum guidelines for suction entrapment avoidance in the design, equipment, operation, and installation of new and existing swimming pools, wading pools, spas, hot tubs, and catch basins for builders, installers, pool operators, and service professionals. It is intended to meet the needs for incorporation into national or regional building codes, and also for adoption by state and/or local municipalities as a local code or ordinance. It is understood that for the sake of applicability and enforceability, the style and format of the standard may need adjustment to meet code or ordinance style of the jurisdiction adopting this document.

The design recommendations and construction practices in this standard are based upon sound engineering principles, research, and field experience that, when applied properly, contribute to the delivery and installation of a safe product.

The words “safe” and “safety” are not absolutes. While the goal of this standard is to design and construct 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 good judgment and personal responsibility. In permitting use of the pool, spa, swim spa or portable spa by others, owners must consider the skill, attitude, training and experience of the expected user.

As with any product, the specific recommendations for installation and use provided by the manufacturer should be carefully observed.

This standard was prepared by the This standard was prepared by the APSP-7 Suction Entrapment Avoidance 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.

Consensus approval was achieved by a ballot of the balanced APSP Standards Consensus Committee 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.

This standard is published in partnership with the International Code Council (ICC). ICC develops and publishes the *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 ICC have collaborated to develop the first comprehensive model swimming pool and spa code, known as the *International Swimming Pool and Spa Code*. 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.

Organizations Represented

Consensus approval in accordance with ANSI procedures was achieved by ballot of the following APSP Standards Consensus Committee. 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 2013 Standard for Public Swimming Pools
 ANSI/APSP-2 1999 Standard for Public Spas
 ANSI/APSP-3 1999 Standard for Permanently Installed Residential Spas
 ANSI/APSP/ICC-4 a 2013 Standard for Aboveground/Onground Residential Swimming Pools
 ANSI/APSP/ICC-5 2011 Standard for Residential Inground Swimming Pools
 ANSI/APSP/ICC-6 2013 Standard for Residential Portable Spas and Swim Spas
 ANSI/APSP/ICC-7 2013 Standard for Suction Entrapment Avoidance in Recreational Aquatic Vessels
 ANSI/APSP/ICC-8 2005 (R2013) Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs
 ANSI/APSP-9 Standard for Aquatic Recreation Facilities (in progress)
 ANSI/APSP-11 2009 Standard for Water Quality in Public Pools and Spas
 ANSI/APSP/ICC-14 2011 Standard for Portable Electric Spa Energy Efficiency
 ANSI/APSP/ICC-15-a 2013 Standard for Residential Pool and Spa Energy Efficiency
 ANSI/APSP-16 2011 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs
 APSP 2013 Workmanship Standards for Swimming Pools and Spas

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1 Scope

1.1 General. This standard covers design and performance criteria for circulation systems including components, devices, and related technology installed to protect against entrapment hazards in residential and public swimming pools, wading pools, inground spas, infinity edge basins, (infinity edge type pools) and catch Pools, and Aquatic Recreation Facilities.

1.1.1 Portable Factory Built Electric Spas/Hot Tubs. Suction entrapment avoidance guidelines for portable electric spas/hot tubs are not covered by this standard they are covered by UL 1563, Electric Spas, equipment Assemblies, and Associated Equipment.⁶

1.1.2 This standard applies to new and, when retrofitting, existing installations.

1.1.3 DANGER! SUCTION ENTRAPMENT HAZARD: To avoid serious injury or death, the pool or spa shall be closed to bathers if any suction outlet cover/grate is missing, broken, or incorrectly installed. There is no backup for a missing, damaged or incorrectly installed suction outlet cover/grate. See Appendix C.

1.2 Alternative methods. The provisions of this standard are not intended to prevent the use of any alternative material, system, or method of construction, provided any such alternative meets the intent and requirements of this standard, follows manufacturer's product specific instructions and is approved by the authority having jurisdiction.

2 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this standard.

ANSI/APSP-16 2011, Suction fittings for swimming and wading pools, spas, hot tubs and whirlpool bathtub appliances¹

ANSI/ASME A112.19.17-2010, Manufactured safety vacuum release systems (SVRS) for residential and commercial swimming pool, spa, hot tub and wading pool suction systems²

ASTM F 2387-12, Standard specification for manufactured safety vacuum release systems, swimming pools, spas and hot tubs³

IAPMO SPS-4 2009, Special use suction fittings for swimming pools, spas and hot tubs (for suction side automatic swimming pool cleaners)⁴

NFPA 70-2011, National Electrical Code, Article 680, Swimming pools, fountains, and similar installations⁵

UL 1563 2009, Electric Spas, Equipment Assemblies, and Associated Equipment.⁶

3 Definitions

alternative method: A substitute way of achieving the same goal or purpose.

anti-entrapment cover: See CERTIFIED SUCTION OUTLET COVER/GRATE.

anti-vortex cover: An outlet cover designed to prevent air entrainment from the surface of the water. This term is no longer used to describe CERTIFIED SUCTION OUTLET COVER/GRATE.

approved safety outlet cover: See CERTIFIED SUCTION OUTLET COVER/GRATE.

automatic pump shut-off system (APSS): A pump motor control or other device capable of turning off, stopping, or otherwise incapacitating a pump(s) in response to a condition (i.e., high vacuum, low flow, low current, etc.) that would indicate that a suction entrapment event has occurred.

branch piping: All pipe and fittings, including the "run" of the junction tee, located between multiple suction outlets fitting (see *Figures 1 and 9-14*).

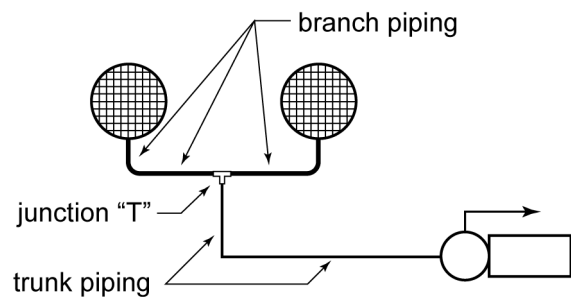


Figure 1. Branch piping

1. Association of Pool & Spa Professionals (APSP), 2111 Eisenhower Avenue, Alexandria, VA 22314 (703) 838-0083, www.APSP.org.
2. American Society of Mechanical Engineers (ASME), 3 Park Avenue, 20th Floor, New York, NY 10016, (212) 591-8562, www.asme.org
3. ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428, (610) 832-9500, www.astm.org
4. International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia St., Ontario, CA 91761. (909) 472-4100, www.iapmo.org
5. National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, (617) 770-3000, www.nfpa.org
6. Underwriters Laboratories Inc. (UL), 333 Pfingston Road, Northbrook, IL 60062-2096. (847) 272-8800, www.ul.com