

Virginia Graeme Baker Pool and Spa Safety Act

June 18, 2008 Staff Interpretation of Section 1404:

“Federal Swimming Pool and Spa Drain Cover Standard”*

On December 19, 2007, the President signed into law the Virginia Graeme Baker Pool and Spa Safety Act, named after the daughter of Nancy Baker and the granddaughter of former Secretary of State James Baker. Graeme Baker died in a tragic incident in June 2002 after the suction from a spa drain entrapped her under the water. This Act was first introduced by Rep. Debbie Wasserman-Schultz (FL) and was supported by the Baker family and Safe Kids Worldwide.

There is an annual average of 283 drowning deaths (2003-2005) and 2,700 emergency room-treated submersion injuries (2005-2007) involving children younger than 5 in pools and spas. In addition, from 1997-2007, there were 74 reported incidents associated with suction entrapment, including 9 deaths and 63 injuries. The new law is aimed at reducing these deaths and injuries by making pools safer, securing the environment around them, and educating consumers and industry on pool safety.

The Act specifies that on or after December 19, 2008, swimming pool and spa drain covers available for purchase in the United States must meet specific performance requirements. Additionally, public swimming pools, wading pools, spas and hot tubs must meet requirements for installation of compliant drain covers. New drain covers which meet the current standard are now beginning to make their way into the marketplace. Additionally, in certain instances, public pools and spas must have additional devices or systems designed to prevent suction entrapment.

U.S. Consumer Product Safety Commission (CPSC) staff has prepared this guidance document that spells out the technical requirements of Section 1404 of the Act, along with CPSC staff’s answers to certain enforcement and legal issues. This document takes into account comments provided to CPSC during an open comment period in March 2008. Comments were provided by a member of the U.S. House of Representatives, state government officials, pool industry representatives, safety equipment manufacturers and representatives, consumer safety organizations, and others.

CPSC staff urges all public pool and spa owners/operators, state and local health and safety officials, and those in the pool and spa industry to carefully review this document as they work toward complying with Section 1404 of the Act prior to December 19, 2008.

Contact CPSC at info@cpsc.gov or 301.504.7908 if you need further assistance.

**** This document, which was prepared by CPSC staff, has not been reviewed or approved by and may not necessarily represent the views of the Commission.***

ENGINEERING/MECHANICAL REQUIREMENTS

Note: italicized language is taken directly from the Pool & Spa Safety Act.

Drain Covers: *...each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard, or any successor standard...*

Staff interpretation: All public pools and spas must have ASME/ANSI A112.19.8¹ compliant Drain Covers on or after December 19, 2008. The basic requirements of the ASME/ANSI standard are:

- Cover material must be tested for structural integrity
- Cover must be tested for body entrapment and hair entrapment/entanglement
- Cover must display a flow value in gallons per minute (gpm) that indicates the maximum flow rate for which the cover has been approved

Main Drain: The term “main drain” means a submerged suction outlet typically located at the bottom of a pool or spa to conduct water to a recirculating pump.

Single Main Drain: *...each public pool and spa in the United States with a single main drain other than an unblockable drain...*

Staff interpretation: A **main drain** is a term usually referring to a plumbing fitting installed on the suction side of the pump in pools, spas and hot tubs (a **suction outlet**). Sometimes referred to as the drain, it is normally located in the deepest part of the pool, spa or hot tub. It does not literally drain the pool, spa or hot tub as a sink drain would, but rather connects to the pump to allow water to be drawn from the pool, spa or hot tub for circulation and filtration.

Staff interpretation: The term “single main drain” means a submerged suction outlet, with or without a skimmer, connected to a dedicated pool pump. A pool may have more than one single main drain if it has multiple suction outlets that are each connected to a dedicated pump. A group of suction outlets connected together is considered a single main drain if the centers of the outlets are located within three feet of one another.

Staff interpretation: Pools and spas with multiple main drains are not subject to the requirements of Section 1404(c)(1)(A)(ii).

Staff interpretation: **Multiple main drains** consist of, at minimum, two fully submerged suction outlets per pump, with drain cover centers at least 3 feet apart. While no maximum separation is noted, the connections between the outlets and the pump are important for proper operation and should be certified by a design professional and inspected by a licensed inspector to ensure hydraulic balance between outlets and the main suction line to the pump.

¹ The current approved version of this standard is A112.19.8-2007. There is an Addendum moving forward through the ASME/ANSI ballot process to correct errors in the test method for UV light exposure. The prior version of this standard is 1987 (reaffirmed in 1996) and addresses only hair entrapment potential.

Staff interpretation: Field Fabricated suction outlets are subject to the requirements of *ASME/ANSI A112.19.8*.

Unblockable Drain: (7) *UNBLOCKABLE DRAIN* - The term *unblockable drain* means a drain of any size and shape that a human body cannot sufficiently block to create a suction entrapment hazard.

Staff interpretation: An unblockable drain, to be consistent with the test procedures found in *ASME/ANSI A112.19.8*, would have minimum dimensions of 18" x 23", which represent the shoulder to waist measurements of the 99th percentile adult male.

Staff interpretation: unblockable drain may include:

- Drain configurations that prevent a seal from occurring (large aspect cover, such as 18" x 23" or larger cover)
- Long channels that cannot be blocked by the body (conceptual Figure a. below)
- Large outlet grate (diagonal measure of 29" or more) (conceptual Figure b. below)
- Circulation designs that do not include fully submerged suction outlets

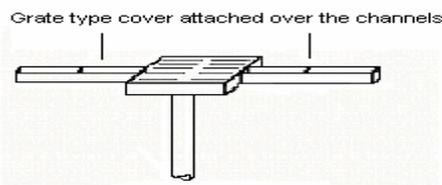


Figure a. Long Channel

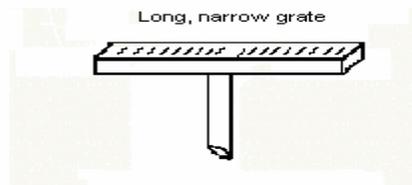


Figure b. Large Grate

Conceptual Unblockable Drain Configurations

Devices or Systems Designed to Prevent Entrapment: ...each public pool and spa in the United States with a single main drain other than an unblockable drain shall be equipped, at a minimum, with 1 or more of the following devices or systems designed to prevent entrapment...

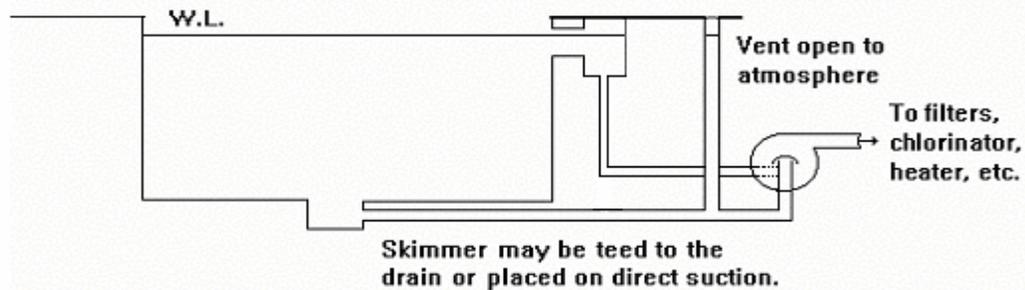
Staff Interpretation: In addition to having a drain cover or other anti-entrapment device that complies with *ASME/ANSI A112.19.8*, public pools and spas with single main drains must have one of the following additional systems or devices.

(1) *SAFETY VACUUM RELEASE SYSTEM (SVRS)* - A safety vacuum release system which ceases operation of the pump, reverses the circulation flow, or otherwise provides a vacuum release at a suction outlet when a blockage is detected, that has been tested by an independent third party and found to conform to *ASME/ANSI standard A112.19.17* or *ASTM standard F2387*.

STATUTORY DEFINITION OF A SVRS: The term “safety vacuum release system” means a vacuum release system capable of providing vacuum release at a suction outlet caused by a high vacuum occurrence due to a suction outlet flow blockage.

(II) SUCTION-LIMITING VENT SYSTEM - A suction-limiting vent system with a tamper-resistant atmospheric opening.

Staff interpretation: A suction-limiting vent system is also called an **atmospheric vent**. It is a pipe teed to the suction side of the circulation system on one end and open to the atmosphere on the opposite end. The pipe is normally full of water equal to the same height as the pool. When a blockage occurs at the main drain, air is introduced into the suction line thus causing the pump to lose prime and relieving the suction forces at the main drain (suction outlet).

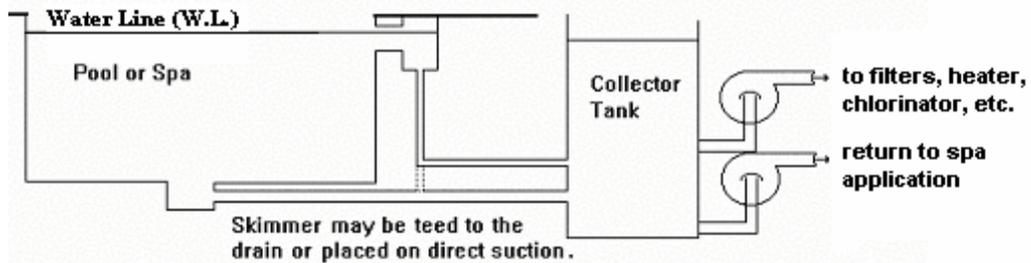


Conceptual Suction-Limiting Vent System to Relieve Main Drain Suction

Currently there are no approved voluntary standards for suction-limiting vent systems; however, an ASTM International voluntary standards task group was formed in March 2004 and is currently developing minimum requirements for field-fabricated vent pipes. The performance of the vent, the ability to prevent obstructions from occurring within the vent, and a test procedure to assess performance are being addressed. The correct design and construction of the suction-limiting vent system are important to the overall function and should be certified by a design professional and inspected by a licensed inspector.

(III) GRAVITY DRAINAGE SYSTEM - A gravity drainage system that utilizes a collector tank.

Staff interpretation: A gravity drainage system utilizing a collector tank is a swimming pool/spa with a separate water storage vessel from which the pool circulation pump draws water. Water moves from the pool to the collector tank due to atmospheric pressure, gravity and the displacement of water by bathers which removes the need for direct suction at the pool. This type of system is also referred to as a reservoir, surge tank, or surge pit.



Conceptual Gravity Drainage System – Direct Suction Removed from the Pool

Currently there are no voluntary standards for gravity drainage systems or collector tank specifications.

(IV) AUTOMATIC PUMP SHUT-OFF SYSTEM - An automatic pump shut-off system.

Staff interpretation: An automatic pump shut-off system would be a device that could sense a drain blockage and shut off the pump system. Some safety vacuum release systems may meet this definition.

One pump motor manufacturer has developed a circuit board for its motors that monitors current to the motor and shuts the pump off when a noticeable change in current occurs, possibly caused by an entrapped bather.

The National Electrical Code (NEC) regulation number 680.40 has a requirement for an emergency stop switch for the pump to be located within 5 feet of a public spa in case of bather entrapment. However, this switch is manually operated and would require the presence of another person to activate the switch and therefore would not qualify as “an automatic pump shut-off system” under this Act.

Currently there are no voluntary standards for automatic pump shut-off systems, though the current SVRS standards provide release and response time performance criteria.

(V) DRAIN DISABLEMENT - A device or system that disables the drain.

Staff interpretation: Staff is not aware of a product that meets this description that is currently on the market. In the past, companies have developed products that sealed the suction outlet or shut off the pump when a cover is removed.

Additional consideration can be given to physically removing the submerged suction outlet (drain) by filling the sump with concrete (effectively removing the suction outlet from the bottom of the pool) as long as another source(s) of water for the suction side of the pump is(are) available, such as skimmers, re-plumbing the suction outlet into a return inlet (permanently reversing flow), or permanently disabling the suction outlet plumbing at the pump (removing the suction outlet connection to the pump) to remove the suction entrapment potential at the submerged outlet (drain).

Currently there are no voluntary standards for disablement devices or instructions for filling or re-plumbing the suction outlet.

(VI) OTHER SYSTEMS - Any other system determined by the Commission to be equally effective as, or better than, the systems described in subclauses (I) through (V) of this clause at preventing or eliminating the risk of injury or death associated with pool drainage systems.

Staff interpretation: This will allow the development of future products. Currently, the Commission has not determined that any other system is equally effective as, or better than, the systems described in subclauses (I) through (V) of this clause. Further, there are no voluntary standards for such other systems.

ENFORCEMENT AUTHORITY

The Virginia Graeme Baker Pool and Spa Safety Act states that the requirements of Section 1404(b) shall be treated as a consumer product safety rule under the Consumer Product Safety Act. Under Section 19 of the Consumer Product Safety Act, it is unlawful for any person to manufacture for sale, offer for sale, distribute in commerce or import into the United States any consumer product that is not in conformity with an applicable consumer product safety rule. 15 U.S.C. § 2068(a). Accordingly, on or after December 19, 2008, it will be unlawful to manufacture for sale, offer for sale, distribute or import into the United States a drain cover that does not meet the entrapment protection standards of the ASME/ASNI A112.19.8 performance standard or any successor standard. Any person who knowingly commits a prohibited act under Section 19 of the Consumer Product Safety Act is subject to a civil penalty under Section 20 of the Consumer Product Safety Act. 15 U.S.C. § 2069(a)(1). Under current law, the maximum penalty for one or more related violations is \$1.825 million. Congress is considering legislation that would increase this penalty to \$10 million or higher. A willful violation of the drain cover standard could result in criminal penalties, including fines or imprisonment, under Section 21 of the Consumer Product Safety Act. 15 U.S.C. § 2070(a).

Any production, distribution or sale of a drain cover that does not meet the applicable standard also could trigger a requirement to report to the Commission under Section 15(a) of the Consumer Product Safety Act. Specifically, a manufacturer, distributor or retailer who obtains information which reasonably supports the conclusion that a drain cover fails to comply with an applicable consumer product safety rule must “immediately inform the Commission of such failure to comply...” 15 U.S.C. § 2064(b)(1).

The Act also addresses enforcement of Section 1404(c)(1), which identifies certain required equipment for public pools. Specifically, Section 1404(c)(3) of the Act states that any violation of the required equipment provisions is to be considered a violation of Section 19(a)(1) of the Consumer Product Safety Act. As explained above, any violation of Section 19(a)(1) may result in the imposition of civil or criminal penalties under Sections 20 or 21 of the Consumer Product Safety Act.

ENFORCEMENT DISCRETION

Public pools and spas that are not in operation on December 19, 2008 need not meet the requirements of the Pool and Spa Safety Act until they return to operation.

Upon re-opening for use by the public after December 19, 2008, all public pools and spas must be in compliance with the Pool and Spa Safety Act, as specified in the engineering and enforcement sections above.

LEGAL RESPONSE TO PUBLIC COMMENTS

- a) One commenter asked whether section 1404(c)(1)(A)(i) applies to all new pools constructed one year after date of enactment, or to all public pools in the United States, regardless of the date of construction.

Section 1404(c)(1)(A)(i) provides, “Beginning 1 year after the date of enactment of this title, each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with ASME/ANSI A112.19.8 performance standard, or any successor standard.” Because the Act does not limit the requirement to pools and spas constructed one year after the date of enactment, we interpret this requirement to apply to all public pools and spas meeting the definition of public pool and spa in section 1404(c)(2) of the Act, regardless of the pool or spa’s date of construction.

- b) One commenter stated that section 1404(c)(1)(A)(ii) does not exclude pools and spas with multiple drains.

Section 1404(c)(1)(A)(ii) provides, “each public pool and spa in the United States *with a single main drain other than an unblockable drain* shall be equipped, at a minimum, with one or more of the following devices or systems designed to prevent entrapment by pool or spa drains...” The requirement that a public pool or spa be equipped with an anti-entrapment device or system applies to public pools or spas with a single main drain other than an unblockable drain. Thus, a plain reading of the statute indicates that pools and spas with multiple main drains are excluded from this provision.

- c) Another commenter strongly recommended that the CPSC interpret Section 1404(c)(1)(A)(ii) to require anti-entrapment devices or systems for all pools that have multiple drains—where those drains operate under independent drain systems.

If a pool or spa subject to the Act has more than one independent drain served by a separate, dedicated pump, then each such drain is a “single main drain” and must comply with the requirements of Section 1404 (c)(1)(A)(ii).

- d) Several commenters noted their states have pool and spa safety requirements that differ from those in the Virginia Graeme Baker Pool and Spa Safety Act (“Act”), and asked what effect the Act has on state requirements.

The Act contains no provision on its preemptive effect and, therefore, does not by its terms expressly preempt state law. However, section 1404(b) of the Act has been deemed by Congress to be a “consumer product safety rule” under the Consumer Product Safety Act. For this reason, we believe that the preemptive provisions of Section 26 apply directly to the Section 1404(b) requirement that all swimming pool or spa drain covers manufactured, distributed, or entered into commerce in the United States conform to ASME/ANSI A112.19.8. Drain covers or other anti-entrapment systems or devices marketed or sold in the U.S. on or after December 19, 2008 need to meet the new federal standard.

Congress required that each public pool and spa in the United States be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard *and* that each public pool and spa with a particular configuration be equipped “at a minimum” with one or more enumerated devices or systems designed to prevent entrapment associated with pool and spa drains. The fact that the Act lays out “minimum” requirements suggests Congress contemplated a minimum floor of protection, above which States could regulate. The impact of the Act on a particular state law or regulation needs to be assessed on a state by state basis. For a more detailed legal analysis of this issue with regard to a particular state, see CPSC’s May 6, 2008 letter to the Florida Department of Health.

- e) One commenter requested clarification as to whether all or what portion of the 1404 provisions (1404(a), (b), or (c)) are to be enforced as consumer product safety rules.

Section 1404(a) provides that the requirements in section 1404(b) are to be treated as a consumer product safety rule issued by the Consumer Product Safety Commission under the Consumer Product Safety Act. Thus, section 1404(b) will be enforced as a consumer product safety rule. Section 1404(c) is not characterized by the Act as a rule, but the statute sets forth specifically that “a violation of section 1404(c)(1) is to be considered a violation of section 19(a)(1) of the Consumer Product Safety Act and may also be enforced under section 17 of the CPSA.”

Virginia Graeme Baker Pool and Spa Safety Act

September 2008 CPSC Staff Draft Technical Guidance on Section 1406: Minimum State Law Requirements¹

Section 1405 of the Virginia Graeme Baker Pool and Spa Safety Act specifies that the Commission shall establish a grant program for each of fiscal years 2009 and 2010. However, Congress has not yet appropriated funds for this program. When Congress funds this grant program, we will notify the States. To provide assistance to States that may be considering enacting statutes (or amending existing statutes), U.S. Consumer Product Safety Commission (CPSC) staff has prepared this draft guidance document that describes technical issues for consideration in connection with the requirements of Section 1406 of the Act.

To be eligible for a grant, as provided for in Section 1405 of the Virginia Graeme Baker Pool and Spa Safety Act, a State, at a minimum, must have certain requirements in place which are discussed below with technical guidance on those requirements.²

CPSC may establish additional minimum State law requirements for existing pools and spas to ensure that users are protected against entrapment hazards, following public notice of the intent to publish such requirements and a 30-day comment period. Pub. L. No. 110-140, §1406(a)(1)(B). As specified in the Act, the Commission will consider current or revised national performance standards on pool and spa barrier protection and entrapment prevention. In addition, the requirements will be consistent with the guidelines contained in the Commission's publication entitled 'Guidelines for Entrapment Hazards: Making Pools and Spas Safer,' and will take into consideration various systems, devices and practices that have been developed to protect against or prevent entrapment hazards. Pub. L. No. 110-140, §1406(a)(4).

1. Barriers³

To be eligible for a grant, the State statute must require the enclosure of all outdoor residential pools and spas by barrier to entry. Pub. L. No. 110-140, §1406(a)(1)(A)(i). The

¹ These comments are those of CPSC staff, have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

² As specified in the Act, the Commission shall use these requirements solely for the purpose of determining the eligibility of a State for a grant, and not for other enforcement purposes.

³ Based on *CPSC Safety Barrier Guidelines for Home Pools*, CPSC Publication No. 362, U.S. Consumer Product Safety Commission, Washington, DC.

barriers to entry should effectively provide protection against potential drowning or near-drowning of young children by restricting access to swimming pools and spas.

Following is the CPSC staff's judgment and interpretation as to what an effective barrier may entail:

- 1.1 **Fences and/or Walls.** Outdoor swimming pools, such as in-ground, above-ground, or on-ground pools, and spas shall have a barrier (e.g., fence and/or wall) which complies with the following:
 - 1.1.1 The top of a fence or wall used as a barrier shall be a minimum of 48 inches (1219 mm) above grade. The bottom of a fence shall be no more than 4 inches (102 mm) above grade when that grade is a hard surface such as cement/asphalt. The bottom of a fence shall be no more than 2 inches (51 mm) above grade when that grade is a soft surface such as grass or ground/natural surface. All measurements shall be taken on the barrier side farthest from the pool.
 - 1.1.1.1 Solid barriers such as brick or rock walls shall have no indentations or protrusions that can provide hand and/or foot holds, other than normal construction tolerances and masonry joints.
 - 1.1.2 For above-ground or on-ground pools, the pool structure itself may serve as a ground level barrier. If the top of the pool structure is less than 48 inches above grade and a barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
 - 1.1.2.1 Where access to an above-ground pool is provided by a ladder or steps, then:
 - 1.1.2.1.1 The steps or ladder shall be designed to be secured, locked, or removed to prevent access, or
 - 1.1.2.1.2 A barrier such as one described in Section 1.1.1 above shall surround the steps or ladder.
 - 1.1.3 Where a barrier (fence) is constructed of horizontal and vertical members, then:
 - 1.1.3.1 If the distance between the top of a horizontal member and ground level is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. The spacing between the vertical members shall not exceed 1-3/4 inches (44 mm) in width. Any decorative cutout spacing within vertical members of the fence shall not exceed 1-3/4 inches (44 mm) in width.

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- 1.1.3.2 If the distance between the top of a horizontal member and ground level is 45 inches (1143 mm) or more, the spacing between the vertical members shall not exceed 4 inches (102 mm) in width. Any decorative cutout spacing within vertical members of the fence shall not exceed 1-3/4 inches (44 mm) in width.
- 1.1.4 The maximum mesh size for a chain link fence shall not exceed 1-1/4 inches (32 mm) square [1-3/4 inches (44 mm) diagonal]. A larger mesh size may be used if slats fastened at the top or bottom of the fence are used to reduce mesh openings to no more than 1-3/4 inches (44 mm). See Figure A below.

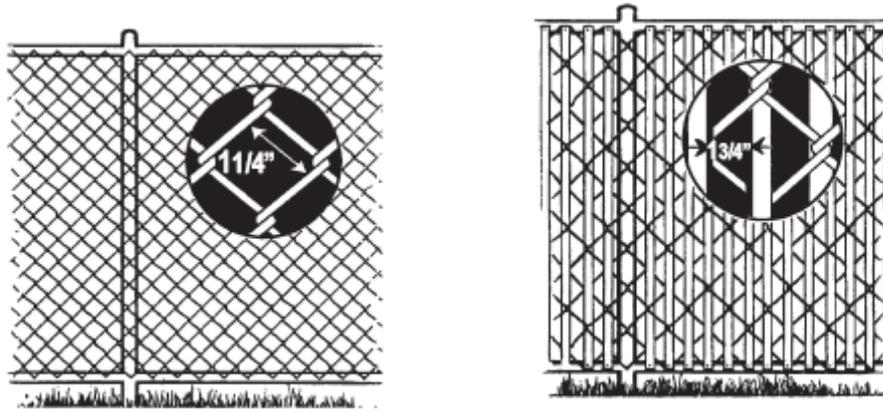


Figure A. Maximum chain link fence opening.

- 1.1.5 For a barrier made up of diagonal members (latticework), the maximum opening between the diagonal members shall not exceed 1-3/4 inches (44 mm).
- 1.2 **Access Gates.** Access gates shall meet the requirements of Section 1.1 (Fences and/or Walls) above and shall be equipped to accommodate a locking device.
- 1.2.1 Pedestrian access gates shall open outward away from the pool and shall be self-closing and self-latching. A locking device shall be included in the gate design. Where the release mechanism of the self-latching device is less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings must comply with the following:
- 1.2.1.1 The release mechanism shall be on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and
- 1.2.1.2 The gate and barrier shall have no opening greater than 1/2 inch (13 mm) within 18 inches (457 mm) of the release mechanism.
- 1.2.2 Gates other than for pedestrian access shall be equipped with a self-latching device.

1.3 **Dwelling Walls.** For swimming pools or spas where dwelling walls serve as a part of a barrier, one of the following shall be in place:

1.3.1 A door in the wall that provides direct access to the pool shall be equipped with an audible alarm system meeting Underwriters Laboratories Inc. (UL) standard UL 2107 *General-Purpose Signaling Devices and Systems*, Section 77, Residential Water Hazard Entrance Alarm Equipment.

1.3.1.1 The alarm system shall be equipped with a manual means to temporarily deactivate the alarm for not more than 15 seconds.

1.3.1.2 The deactivation means shall be located not less than 54 inches (1372 mm) from the floor or threshold of the door.

1.3.2 A power safety cover that meets the requirements of ASTM F1346 *Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas, and Hot Tubs*.

1.3.2.1 Manual covers for spas shall be used whenever the spa is not in use. Manual safety covers shall meet all the requirements of ASTM F1346.

2. **Entrapment Protection/Prevention Devices**

Section 1406 also sets forth that States must have certain minimum requirements to prevent entrapment in order to be eligible for a grant. The provisions of this section apply to the use of entrapment protection/prevention devices on swimming pools and spas that are not covered by section 1404's requirements for anti-entrapment on public pools⁴ ("non-public pools").

To be eligible for a grant, a State statute must require that all pools and spas are equipped with anti-entrapment devices or systems. Pub. L. No. 110-140, §1406(a)(1)(A)(ii). The devices/systems described are intended to provide protection against drowning or near-drowning due to suction entrapment.

⁴ Public pools and spas must comply with section 1404 of the statute. Section 1404(c)(2) defines public pool and spa as a swimming pool or spa that is "(A) open to the public generally, whether for a fee or free of charge; (B) open exclusively to-- (i) members of an organization and their guests; (ii) residents of a multi-unit apartment building, apartment complex, residential real estate development, or other multi-family residential area (other than a municipality, township, or other local jurisdiction); or (iii) patrons of a hotel or other public accommodations facility; or (C) operated by the Federal Government (or by a concessionaire on behalf of the Federal Government) for the benefit of members of the Armed Forces and their dependents or employees of any department or agency and their dependents.

- 2.1 Non-public pools or spas constructed more than one year after enactment of the State statute establishing requirements that comply with provisions of the Act, shall use:
- (A) More than one drain (CPSC staff believes a multiple main drain system without isolation capability with covers on each submerged suction outlet that meet ASME/ANSI A112.19.8 *Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs*, would meet such a requirement); or
 - (B) One or more unblockable drains; or
 - (C) No main drain.

Pub. L. No. 110-140, §1406(a)(1)(A)(iii).

- 2.2 All non-public pools and spas with a main drain, other than an unblockable drain, shall be required to use a suction outlet cover that meets ASME/ANSI A112.19.8. Pub. L. No. 110-140, §1406(a)(1)(A)(iv).

Should the Commission undertake such a rulemaking to establish additional minimum state requirements, the Commission is required by the Act to require the use of one of the following except in pools constructed without a single main drain:

- (A) Safety Vacuum Release System
- (B) Suction-Limiting Vent System
- (C) Gravity Drainage System
- (D) Automatic Pump Shut-off System
- (E) Drain Disablement
- (F) Other systems determined by the Commission to be equally effective as, or better than, the systems described in subparagraphs (A) through (E).

Pub. L. No. 110-140, §1406(d).

3. Additional Layers of Protection (not required)

Although not required, states may consider requirements for additional layers of protection to supplement requirements described in Section 1 (Barriers) and Section 2 (Entrapment Protection/Prevention Devices) above. The following types of equipment have been identified by staff as possible additional safety requirements that States may want to consider:

- 3.1 **Window Guards**. A window in a wall that allows access to the pool may be equipped with window guards that limit access or be affixed with a childproof device to limit the window opening to less than 4 inches. The window guard shall meet ASTM F2006

Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows.

3.2 **Swimming Pool Alarms.** A pool alarm may be used to provide warning that a pool has been entered. There are pool-based alarms, surface and subsurface, as well as perimeter alarms that monitor the pool area. All alarms shall meet the requirements of ASTM F2208 *Standard Specification for Pool Alarms.*

3.2.1 Surface alarms float on the pool's surface and are activated by waves in the pool. The device shall provide an alarm at the pool and within the residence and shall meet the requirements of ASTM F2208.

3.2.2 Subsurface alarms respond to pressure waves under the water surface, generated by the displacement of water when an object enters the pool. The device shall provide an alarm at the pool and within the residence and shall meet the requirements of ASTM F2208.

3.2.3 Perimeter alarms, used in conjunction with barriers meeting the requirements of Sections 1.1.2 – 1.1.4, shall meet the performance requirements of ASTM F2208.

3.3 **Entrapment Prevention.** Due to care and maintenance concerns associated with circulation systems that include submerged suction outlets and covers, consideration may be given to the installation of a back-up system that relieves entrapping suction and/or shuts down the pump when a blockage is detected [e.g., an SVRS or other technology] in case unanticipated conditions arise that may present an entrapment hazard.

Note: The Act requires that any state receiving grant funds shall use at least 50 percent of the grant amount to hire and train enforcement personnel for implementation and enforcement of the State's swimming pool and spa safety law. The remaining money shall be used to educate pool construction, installation, and service companies about the standards and to educate pool owners, operators, and the public about pool safety and drowning and entrapment prevention, as well as to defray any administrative costs associated with training and education programs.