

**U.S. Consumer Product Safety Commission**

**Technical Guidance**

**for**

**Section 1406**

**of the**

**Virginia Graeme Baker Pool and Spa Safety Act:**

**Minimum Requirements for Grant Eligibility<sup>1</sup>**

**July 2011**

Section 1405 of the Virginia Graeme Baker Pool and Spa Safety Act (“Act”) specifies that the Commission shall establish a pool and spa safety grant program to encourage States or political subdivisions of a State to enact statutes that address the prevention of child drowning by requiring barriers to pool entry and anti-entrapment devices and systems.<sup>2</sup>

Section 1406 of the Act specifies the *minimum* requirements States or political subdivisions of a State must meet to be eligible to apply for a grant under the Act’s grant program. To provide assistance to States or political subdivisions of a State that may be considering enacting or amending existing statutes related to pool and spa safety, the U.S. Consumer Product Safety Commission (CPSC) staff prepared a September 2008 draft guidance document that described technical issues for consideration in connection with the requirements of Section 1406 of the Act and asked for public comment.<sup>3</sup> This final guidance document incorporates changes based on public comments to the September 2008 draft guidance.

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<sup>1</sup> A copy of the Virginia Graeme Baker Pool and Spa Safety Act can be accessed at [www.poolsafety.gov/pssa.pdf](http://www.poolsafety.gov/pssa.pdf). The Act established a grant program for States. The 2011 Appropriations Bill for the CPSC amended the term “State” in the Act to include any political subdivision of a State. “For purposes of eligibility for the grants authorized under Section 1405, such term shall also include any political subdivision of a State.” Pub. L. No. 112-10 [H.R. 1473], § 1576, 125 Stat. 38 (2011).

<sup>2</sup> Funds were appropriated for Fiscal Year (FY) 2009 (with obligation authority through September 30, 2010) and for FY 2010 (with obligation authority through September 30, 2011). Funds also have been appropriated for FY 2011 (with obligation authority through September 30, 2012).

<sup>3</sup>The 2008 draft guidance document is available at [www.poolsafety.gov/pssa1406/pubcom.html](http://www.poolsafety.gov/pssa1406/pubcom.html). The public comments are available at [www.cpsc.gov/library/foia/foia09/pubcom/pssa10202008.pdf](http://www.cpsc.gov/library/foia/foia09/pubcom/pssa10202008.pdf).

To be eligible for a grant, a State or a political subdivision of a State must have certain barrier protection and entrapment prevention requirements in place. These requirements, with accompanying technical guidance, are discussed below.<sup>4</sup> These requirements are *minimum* requirements, and CPSC staff notes that States and political subdivisions of a State are free and *encouraged* to go above and beyond these minimum requirements, so long as the additional requirements do not conflict with the Act.

## 1. **Barriers**<sup>5</sup>

The Act defines “swimming pool” or “spa” as “any outdoor or indoor structure intended for swimming or recreational bathing, including in-ground and above-ground structures, and includes portable hot tubs, spas, portable spas, and non-portable wading pools”. P.L. No.110-140, §1403. *The CPSC staff interprets this definition to also include on-ground pools and spas, non-portable spas, non-portable hot tubs, and larger inflatable pools that can hold water over 24 inches deep, regardless of whether the pool has a circulation system.*

To be eligible for a grant, the State or political subdivision of a State must have in place a statute that requires the enclosure of all outdoor residential pools and spas by barrier to entry. Pub. L. No. 110-140, §1406(a)(1)(A)(i). *The CPSC staff interprets this to include existing pools and spas.* Further, according to the Act, the barriers to entry should effectively provide protection against potential drowning or near-drowning of young children by preventing them from gaining unsupervised and unfettered access to outdoor residential swimming pools and spas.

The CPSC staff’s judgment and interpretation as to what an effective *minimum* barrier should entail, for the purposes of applying for a grant under the Act, follows. As already noted, these requirements are *minimum* requirements, and CPSC staff notes that States and political subdivisions of a State are free and encouraged to go above and beyond these minimum requirements, so long as the additional requirements do not conflict with the Act.

**Residential *outdoor* in-ground, on-ground, and above-ground swimming pools and spas, larger inflatable pools that can hold water over 24 inches deep, non-portable spas and hot tubs, portable spas and hot tubs (except as noted in Sec. 1.4 below), and non-portable wading pools, including existing pools and spas,** shall have a barrier which complies with the following requirements:

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<sup>4</sup>As specified in the Act, the Commission shall use these requirements solely for the purpose of determining eligibility for a grant, and not for other enforcement purposes.

<sup>5</sup> This section is based on *CPSC Safety Barrier Guidelines for Home Pools*, CPSC Publication No. 362, U.S. Consumer Product Safety Commission, Washington, D.C.

## **1.1 Fences and/or Walls**

**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. Normal construction tolerances and masonry joints are allowed.

**1.1.2** Where a barrier (fence) is constructed of horizontal and vertical members, then:

**1.1.2.1** If the distance between the tops of the horizontal members 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 ¾ inches (44 mm) in width.

**1.1.2.2** If the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, the spacing between the vertical members of the fence shall not exceed 4 inches (102 mm) in width.

**1.1.2.3** Any decorative cutout spacing within vertical members of the fence shall not exceed 1 ¾ inches (44 mm) in width.

**1.1.3** The maximum mesh size for a chain link fence shall not exceed 1¼ inches (32 mm) square [1 ¾ 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 ¾ inches (44 mm). See Figure A on the next page.

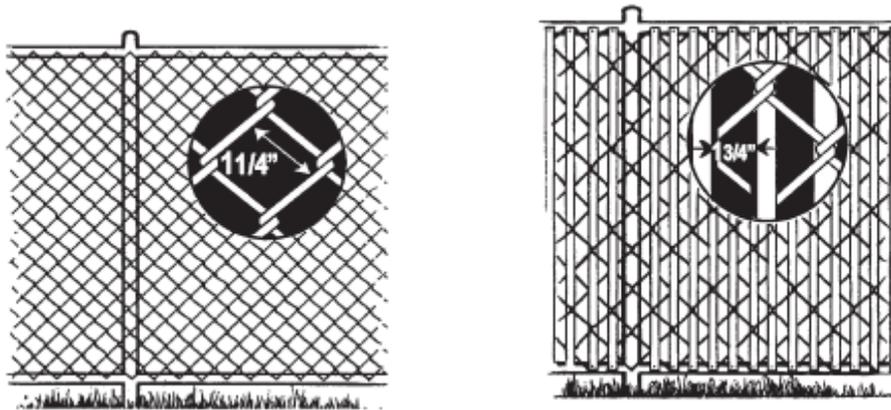


Figure A. Maximum chain link fence opening.

- 1.1.4** For a barrier (fence) made up of crossed wood, polyvinyl chloride (PVC), or metal strips (latticework), the maximum opening between the diagonal members shall not exceed 1 ¾ inches (44 mm).
- 1.1.5** Removable mesh fencing for swimming pools should meet the requirements of ASTM F2286-05: “Design and Performance Specification for Removable Mesh Fencing for Swimming Pools, Hot Tubs, and Spas.”
- 1.1.6** For above-ground or on-ground pools, the pool structure itself may serve as a ground level barrier only if it is at least 48 inches (1219 mm) high. 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 to make it at least 48 inches (1219 mm) high, then the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm). See also Section 1.5 below.
  - 1.1.6.1** Where access to an above-ground pool is provided by a ladder or steps, then:
    - 1.1.6.1.1** The steps or ladder shall be designed to be secured, locked, or removed to prevent access, or
    - 1.1.6.1.2** A barrier such as one described in Section 1.1.1 above shall surround the steps or ladder.

## 1.2 Access Gates

- 1.2.1** Access gates shall meet the requirements of Section 1.1 (Fences and/or Walls) above and shall be equipped to accommodate a locking device.

- 1.2.2** 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:
- 1.2.2.1** 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
  - 1.2.2.2** The gate and barrier shall have no opening greater than ½ inch (13 mm) within 18 inches (457 mm) of the release mechanism.
- 1.2.3** Access gates used with removable mesh fencing systems must meet the requirements of Section 1.2.1, i.e., manual “layback” entrances do not meet the requirement.
- 1.2.4** Gates other than those for pedestrian access shall be equipped with a self-latching device.

### **1.3 Dwelling Walls**

- 1.3.1** For swimming pools or spas where dwelling walls serve as a part of a barrier, one of the following shall be in place:
- 1.3.1.1** 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 2017 General-Purpose Signaling Devices and Systems*, Section 77, Residential Water Hazard Entrance Alarm Equipment.
    - 1.3.1.1.1** The alarm system shall be equipped with a manual means to temporarily deactivate the alarm for not more than 15 seconds.
    - 1.3.1.1.2** The deactivation means shall be located not less than 54 inches (1372 mm) from the floor or threshold of the door.
  - 1.3.1.2** A power safety cover for swimming pools or a manual **lockable** safety cover for non-portable spas and non-portable hot tubs 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*.

- 1.4 Residential outdoor portable spas and residential outdoor portable hot tubs** are exempt from the requirements listed in Sections 1.1 (Fences and/or Walls), 1.2 (Access Gates), and 1.3 (Dwelling Walls) above. However, if fences and/or walls meeting the requirements of Sections 1.1 – 1.3 are not used as a barrier to entry, then a **lockable** manual safety cover that complies with ASTM F1346 must be used.
- 1.5 All barriers** should be located so as to prohibit permanent structures, equipment, or similar objects from being used to climb the barriers.
- 1.6. Additional Layers of Protection** that provide a barrier to entry are available. These are not required for meeting the minimum eligibility requirements for purposes of the Act’s Grant Program, but CPSC encourages their use. See Section 3 below.

## **2. Entrapment Prevention Devices**

Section 1406 of the Act also sets forth that States or political subdivisions of a State, in order to be eligible for a grant, must have in their statutes certain minimum requirements to prevent entrapment. These requirements apply to all pools and spas, public and residential, including in-ground and above-ground pools, portable and non-portable hot tubs, portable and non-portable spas, and non-portable wading pools. Pub. L. No.110-140, §1403.

These entrapment prevention requirements are *minimum* requirements the States or political subdivisions of a State must include in their statutes to be eligible for a grant under the Act, and States and political subdivisions of a State are free and encouraged to go above and beyond these requirements so long as the additional requirements do not conflict with the Act.

The CPSC’s judgment and interpretation as to what the minimum requirements should entail, for purposes of applying for a grant, follow.

**Residential and public outdoor and indoor in-ground, on-ground, and above-ground swimming pools and spas, larger inflatable pools that can hold water over 24 inches deep (regardless of whether the pool has a circulation system), portable and non-portable spas, portable and non-portable hot tubs, and non-portable wading pools, including existing pools and spas (except where noted below), shall meet the following entrapment prevention requirements:**

- 2.1** All pools and spas shall be equipped with anti-entrapment devices or systems designed to prevent suction entrapment by pool or spa drains. Pub. L. No. 110-140, §1406(a)(1)(A)(ii). Such systems include multiple drain systems (including pools without a single main drain), a safety vacuum release system, a suction-limiting vent

system, a gravity drainage system, an automatic pump shut-off system, an unblockable drain cover, or drain disablement.

**2.1.1** Portable spas certified to UL 1563 by a Nationally Recognized Testing Laboratory (NRTL) are considered to comply with the entrapment prevention provisions of the Act.

**2.2** Pools and spas constructed more than one year after enactment of the State's or political subdivision of a State's statute establishing requirements that comply with provisions of the Act shall have:

- (a) more than one drain; or
- (b) one or more unblockable drains; or
- (c) no main drain.

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

**2.2.1** CPSC staff interprets a multiple main drain system without isolation capability with covers on each submerged suction outlet that meet ASME/ANSI A112.19.8 – 2007<sup>6</sup> Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs to meet the requirements for “more than 1 drain.”

**2.3** All 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).

### **3. Additional Layers of Protection**

Although not required for purposes of meeting minimum eligibility requirements for applying for grants under the Act's grant program, States or political subdivisions of a State are encouraged to consider requirements for additional layers of protection to supplement the requirements described in Section 1 (Barriers) and Section 2 (Entrapment Prevention Devices) above. The following devices have been identified by CPSC staff as additional safety requirements that States or political subdivisions of a State are encouraged to include in their statutes.

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<sup>6</sup> This is the most current version of ASME/ANSI A112.19.8. It includes an addendum, A112.19.8a-2008. If a successor standard to ASME/ANSI A112.19.8 is proposed, and the U.S. Consumer Product Safety Commission determines the proposed revision is in the public interest, it will incorporate the revision into the standard after providing 30 days notice to the public.

### 3.1 Window Guards

**3.1.1** A window in a wall that allows access to the pool or spa 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 (102 mm). 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

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

**3.2.1.1** 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.

**3.2.1.2** 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.

**3.2.2** Perimeter alarms, used in conjunction with barriers meeting the requirements of Sections 1.1 – 1.3 above shall meet the performance requirements of ASTM F2208.

## 4. National Consensus Standards and Guides

### *Barriers*

#### - Fencing

- **ASTM F1908 - 08** *Standard Guide for Fences for Residential Outdoor Swimming Pools, Hot Tubs, and Spas*  
[www.astm.org/Standards/F1908.htm](http://www.astm.org/Standards/F1908.htm)
- **ASTM F2286 - 05** *Standard Design and Performance Specifications for Removable Mesh Fencing for Swimming Pools, Hot Tubs, and Spas*  
[www.astm.org/Standards/F2286.htm](http://www.astm.org/Standards/F2286.htm)

- **Pool, Spa, and Hot Tub Covers**

- **ASTM F1346 - 91(2003)** *Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs*  
[www.astm.org/Standards/F1346.htm](http://www.astm.org/Standards/F1346.htm)

- **Windows**

- **ASTM F2006** *Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows*  
[www.astm.org/Standards/F2006.htm](http://www.astm.org/Standards/F2006.htm)

- **Entrance Alarms**

- **UL 2017** *General –Purpose Signaling Devices and Systems, Section 77, Residential Water Hazard Entrance Alarm Equipment*  
[www.comm-2000.com](http://www.comm-2000.com)

- **Residential Pool Alarms**

- **ASTM F2208 - 08** *Standard Safety Specification for Residential Pool Alarms*  
[www.astm.org/Standards/F2208.htm](http://www.astm.org/Standards/F2208.htm)

- **General**

- **ASTM F2518 - 06** *Standard Guide for Use of a Residential Swimming Pool, Spa, and Hot Tub Safety Audit to Prevent Unintentional Drowning*  
[www.astm.org/Standards/F2518.htm](http://www.astm.org/Standards/F2518.htm)

## ***Entrapment Prevention***

- **Suction Fittings**

- **ASME/ANSI A112.19.8 - 2007 (addendum 8a-2008)** *Suction Fittings for Use in Swimming Pools, Wading pools, Spas, and Hot Tubs*  
[www.asme.org](http://www.asme.org) (Enter A112.19.8 into “Search ASME” field)  
or  
<http://webstore.ansi.org> (Enter A112.19.8 into “Enter Document Number” field)

- **Safety Vacuum Release Systems**

- **ASTM F2387 - 04** *Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas, and Hot Tubs*  
[www.astm.org/Standards/F2387.html](http://www.astm.org/Standards/F2387.html)

- **ASME/ANSI A112.19.17 - 2002 *Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spas, Hot Tub and Wading Pool Suction Systems***  
[www.asme.org](http://www.asme.org) (Enter A112.19.17 into “Search ASME” field)  
or  
<http://webstore.ansi.org> (Enter A112.19.17 into “Enter Document Number” field)

## **5. General Note about the Virginia Graeme Baker Pool and Spa Safety Act**

Section 1405(d) of the Act, as amended, requires that any State or political subdivision of a 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 or political subdivision of a 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. A copy of the Act can be accessed at [www.poolsafety.gov/pssa.pdf](http://www.poolsafety.gov/pssa.pdf).