



Designation: F1908 – 08

Standard Guide for Fences for Residential Outdoor Swimming Pools, Hot Tubs, and Spas¹

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1. Scope

1.1 This guide provides recommended minimum requirements for various types of fences for residential outdoor swimming pools, hot tubs, and spas.

1.2 The values stated in inch-pound units are to be regarded as standard. The values stated in brackets are for information only.

2. Referenced Documents

2.1 ASTM Standards:²

[A392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric](#)

[A491 Specification for Aluminum-Coated Steel Chain-Link Fence Fabric](#)

[F552 Terminology Relating to Chain Link Fencing](#)

[F668 Specification for Polyvinyl Chloride \(PVC\), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric](#)

[F1183 Specification for Aluminum Alloy Chain Link Fence Fabric](#)

[F1345 Specification for Zinc-5 % Aluminum-Mischmetal Alloy-Coated Steel Chain-Link Fence Fabric](#)

[F1346 Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs](#)

[F2286 Design and Performance Specification for Removable Mesh Fencing for Swimming Pools, Hot Tubs, and Spas](#)

[F2518 Guide for Use of a Residential Swimming Pool, Spa, and Hot Tub Safety Audit to Prevent Unintentional Drowning](#)

2.2 CPSC Document:³

[CPSC Staff Recommendations, Barriers for Residential Swimming Pools, Spas, and Hot Tubs \(March 1992\)](#)

2.3 APSP Document:⁴

[ANSI/APSP-7 Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs](#)

2.4 ICC Document:⁵

[International Building Code—2006](#)

2.5 SBCCI Document:⁵

[1993 SBCCI Bluebook, Standard Swimming Pool Code](#)

2.6 ANSI Standards:⁶

[Z535.4 Product Safety Signs and Labels](#)

3. Terminology

3.1 See Terminology [F552](#) for definitions of terms relating to chain link fencing.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *fence, n*—a type of barrier that surrounds and obstructs access to the pool, tub, or spa.

3.2.2 *grade, n*—the finished elevation at any specified point of the ground or pavement outside the pool area.

3.2.3 *hot tub, n*—See *spa*.

3.2.4 *outdoor, adj*—located outside of a completely enclosed building or other structure.

3.2.5 *residential, adj*—situated on the premises of a detached one- or two-family dwelling or a one-family town house not more than three stories in height.

3.2.6 *spa (nonportable), n*—a permanent structure containing water over 24 in. [610 mm] deep, in which the water-heating and water-circulating equipment are not an integral part of the product, intended for recreational bathing.

3.2.7 *spa (portable), n*—a nonpermanent structure containing water over 24 in. [610 mm] deep, in which all controls, water-heating, and water-circulating equipment are an integral part of the product, intended for recreational bathing.

3.2.8 *swimming pool, n*—an in-ground, on-ground, or above-ground structure of a permanent, semi-permanent, or

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from U.S. Consumer Product Safety Commission (CPSC), 4330 East West Hwy., Bethesda, MD 20814, <http://www.cpsc.gov>.

⁴ Available from The Association of Pool and Spa Professionals (APSP), 2111 Eisenhower Avenue, Alexandria, VA 22314, <http://www.asps.org>.

⁵ Available from International Code Council (ICC), 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041-3401, <http://www.intlcode.org>.

⁶ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

portable fabrication containing water over 24 in. [610 mm] deep and designed and constructed in accordance with local codes, used for bathing, swimming, diving, racing, or other activity.

4. Summary of Practice

4.1 This guide is based in part upon recommendations of the CPSC, the American Association of Pediatrics, the National Center for Injury Prevention, and the American Medical Association. It also incorporates certain provisions of the APSP Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs (ANSI/APSP-7).

4.2 The CPSC recommends the use of barriers and other safety devices to create “layers of protection.” Performance Specifications F1346 and F2286 and Guide F2518 describe various other layers that should be used in conjunction with this guide to reduce the risk of drowning for children under the age of five in residential swimming pools, hot tubs, and spas.

5. Significance and Use

5.1 This guide sets forth minimum standard requirements for use in local codes and ordinances relating to residential outdoor swimming pools, hot tubs, and spas.

5.2 This guide does not have the effect of law, nor is it intended to supersede local codes and ordinances of a more restrictive nature.

5.3 Studies, as listed in Annex A1, have been referenced as the bases for certain recommendations in this guide and will assist those who intend to provide protection against drownings and near-drownings by restricting access to children under the age of five years in residential swimming pools, spas, and hot tubs. This would include, but not be limited to, state and local governments, model code organizations, building code groups, and consumers. It is understood that the format will vary depending upon the specific use and local conditions.

6. Requirements

6.1 *Height*—The top of the fence shall be a minimum of 48 in. [1219 mm] above grade measured on the side of the fence that faces away from the swimming pool. If the fence is mounted on top of an above ground pool, the top of the fence shall be a minimum of 36 in. [914 mm] above the top of the pool structure, provided the top of the pool structure is a minimum of 48 in. [1219 mm] above grade (see 3.2.2 for definition of *grade* specific to this guide).

6.2 *Visibility*—The fence on top of an above ground pool shall be so designed and constructed that it has at least a 65 % open area to allow visibility from a designated supervising area outside the pool area to inside the pool area.

6.3 *Ground Clearance*—The maximum vertical clearance between grade and the bottom of the fence shall be 4 in. [102 mm] measured on the side of the fence that faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above ground pool, the fence may be at ground level or mounted on top of the pool structure. Where the fence is mounted on top of the pool structure, the space

between the top of the pool structure and the bottom of the fence shall be no greater than 4 in. [102 mm] in any direction.

6.4 *Solid Barriers* that do not have openings, such as masonry or stone walls, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints. Such indentations shall not be deeper than 0.375 in. [10 mm].

6.5 *Horizontal and Vertical Members* —Where the fence is composed of horizontal and vertical members and if the distance between the tops of the horizontal members is less than 45 in. [1143 mm], the horizontal members shall not extend more than 0.375 in. [10 mm] outside of the enclosure, and the spacing between the vertical members shall not exceed 1 3/4 in. [44 mm] (see Fig. 1). If the distance between the tops of at least two consecutive horizontal members is 45 in. [1143 mm] or more, the spacing between the vertical members shall not exceed 4 in. [102 mm] (see Fig. 2). Where there are decorative cutouts, the spacing within the cutouts shall not exceed 1 3/4 in. [44 mm].

6.6 *Chain Link Fences*—Mesh opening for chain link fences shall be a nominal 1 1/4 in. [32 mm] measured between the parallel sides of the mesh, and a maximum of 1 3/4 in. [44 mm] measured horizontally between the corners of the installed mesh, as illustrated in Fig. 3 (see Note 1), unless the fence is provided with privacy slats (see Note 2) fastened at the top or the bottom, in which case no opening in the mesh shall exceed 1 3/4 in. [44 mm].

NOTE 1—If the tolerance of ± 1/8 in. [3.2 mm] indicated in Specifications A392, A491, F668, F1183, and F1345 is rigidly applied to an ordered nominal mesh size of 1 1/4 in. [32 mm] measured between the parallel sides of the mesh, the result could be a dimension exceeding the specified maximum of 1 3/4 in. [44 mm] measured horizontally between the corners of the installed mesh. The degree of tension applied to the fabric during installation could also affect this horizontal dimension. In all cases, the horizontal opening between the corners of the fabric mesh after tensioning shall not exceed 1 3/4 in. [44 mm].

NOTE 2—*Caution Regarding Privacy Slats*—Privacy slats where used shall not violate the requirements of 6.2 regarding visibility.

6.7 *Diagonal Members:*

6.7.1 Where the fence is composed of diagonal members, such as in a lattice fence, any opening created by the diagonal

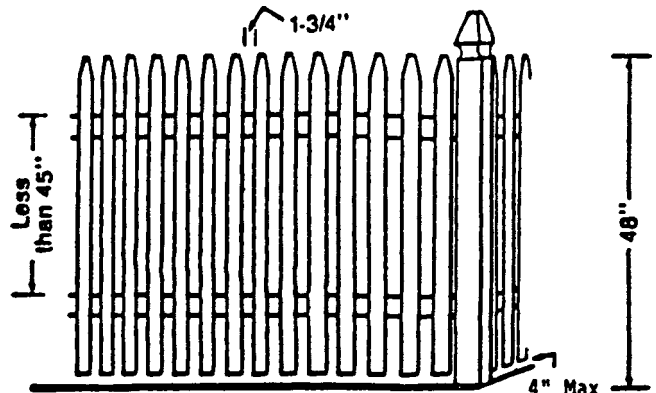


FIG. 1 If Horizontal Members are Less Than 45 in. Apart, Vertical Spacing Shall Not Exceed 1 3/4 in.

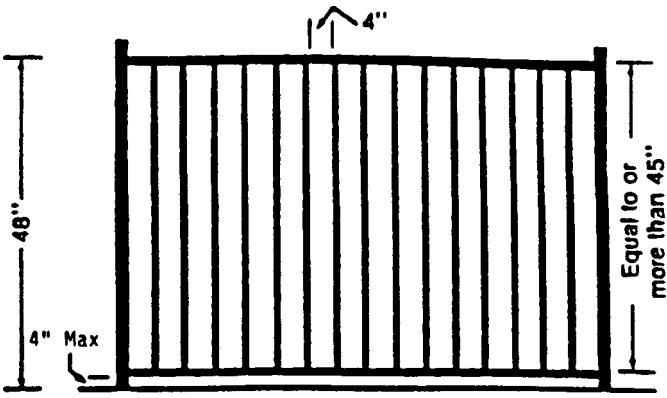


FIG. 2 If Horizontal Members are Equal to or More Than 45 in. Apart, Vertical Spacing Shall Not Exceed 4 in.

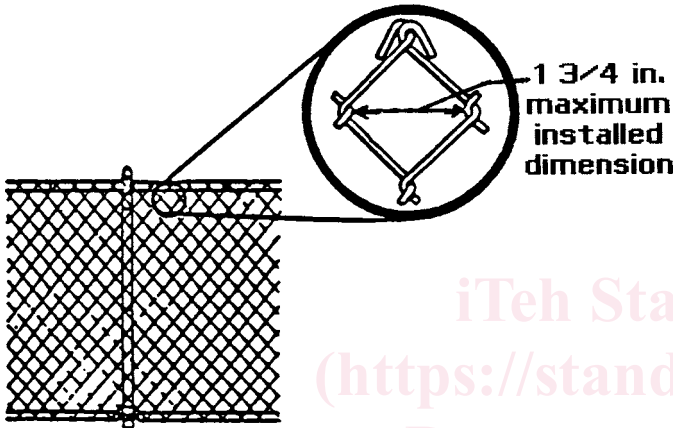


FIG. 3 Nominal 1 1/4 in. Square Chain Link Mesh

6.7.2 Diagonal bracing members extending from one side to the opposite side creating a ladder effect on all styles of fences and gates are not permitted where spacing of vertical members in any area between posts exceeds 1 3/4 in. [44 mm].

6.8 Access Gates:

6.8.1 *Double Leaf* access gates shall comply with the requirements of 6.1-6.6 and shall be equipped with a padlock or other key-operated locking device that must be locked when the gate is not in use.

6.8.2 *Single Leaf* access gates shall open outward away from the pool, shall be self-closing, and shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 in. [1372 mm] above grade, the release mechanism shall be located on the pool side of the gate a minimum of 3 in. [76 mm] below the top of the gate and the gate and fence shall have no opening greater than 1/2 in. [13 mm] within 18 in. [457 mm] of the release mechanism when the gate is in the fully closed position (see Fig. 4).

6.9 The fence shall completely surround the pool structure when practical. Where a building or dwelling or portion thereof must be utilized as part of the pool enclosure, and if the exterior wall or walls of that portion of the building contains doors, windows, or other openings refer to Performance Specifications F1346 and F2286 and Guide F2518 to install and ensure the proper layers of safety.

6.10 Above-Ground Pools or On-Ground Pools:

6.10.1 *Pool Wall*—An above-ground or on-ground pool wall itself may be the barrier if the pool structure is on grade and the wall is at least 48 in. [1219 mm] in height. Other types of barriers can be mounted on the pool structure or can surround the pool at ground level. Where the barrier is mounted on the pool structure, the opening between the top surface of the pool frame and the bottom of the fence shall be no greater than 4 in. [102 mm] in any direction. Where an above-ground or on-ground pool wall is less than 48 in. [1219 mm] above the

members located less than 48 in. [1219 mm] above grade shall be a maximum of 1 3/4 in. [44 mm] measured in its largest direction.

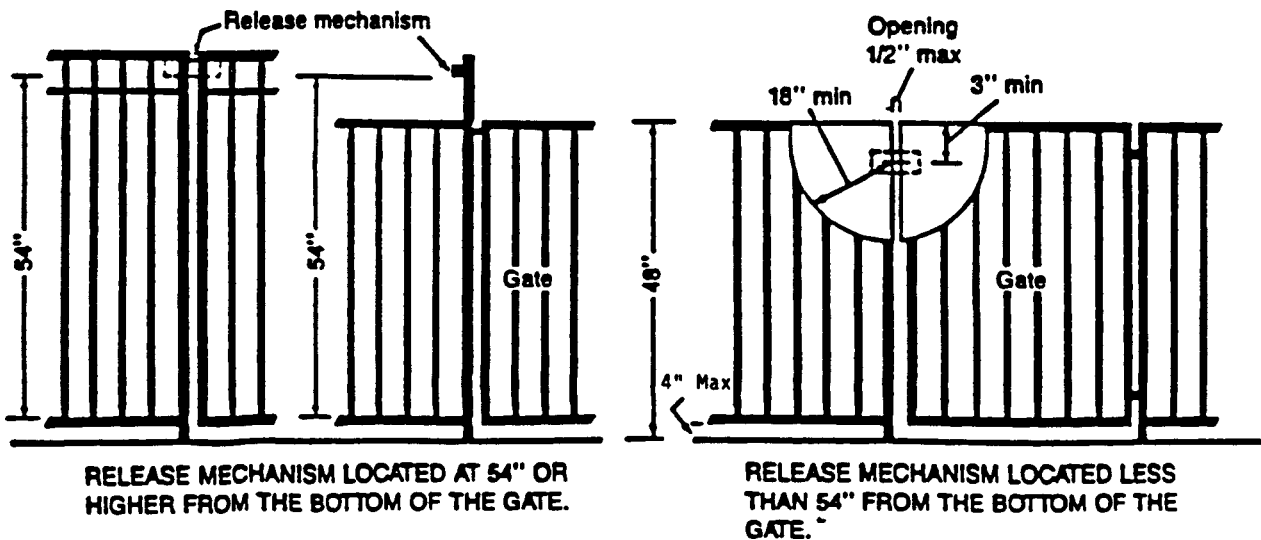


FIG. 4 Latch Release Mechanism