



Standard Guide for Fences for Non-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 non-residential outdoor swimming pools, hot tubs and spas.

1.2 The various types of fences may be chain link, wood, vinyl, ornamental steel or aluminum, welded wire, expanded metal, composite or others that would be incorporated into a design necessary to support the structure considering its height, application, location, and climatic condition. All types of fences shall be in accordance with ASTM standards.

1.3 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. The SI values stated in parentheses are provided for information purposes 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](#)

[F567 Practice for Installation of Chain-Link Fence](#)

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

[F900 Specification for Industrial and Commercial Steel Swing Gates](#)

[F964 Specification for Rigid Poly \(Vinyl Chloride\) \(PVC\) Exterior Profiles Used for Fencing and Railing](#)

[F1043 Specification for Strength and Protective Coatings on Steel Industrial Fence Framework](#)

[F1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated \(Galvanized\) Welded, for Fence Structures](#)

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

[F2630 Guide for Self-Closing/Self-Latching General-Purpose Gates](#)

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, which 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 definition of spa.

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

3.2.5 *non-residential, adj*—not situated on the premises of a detached one- or two-family dwelling nor a one-family town house less than four stories in height.

3.2.6 *spa (non-portable), 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 non-permanent 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 portable fabrication containing any depth or shape of water body designed and constructed in accordance with local codes, used for bathing, swimming, racing or other aquatic activities.

3.2.9 *waters, n*—any designed natural or man-made area (that is, reservoir, impoundment).

¹ This guide is under the jurisdiction of ASTM Committee F14 on Fences and is the direct responsibility of Subcommittee F14.10 on Specific Applications.

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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.

4. Summary of Guide

4.1 This guide is based in part upon recommendations of the United States Consumer Product Safety Commission, the National Center for Injury Prevention and Control, the American Medical Association, the American Academy of Pediatrics, and the National Aquatic Coalition, among others.

5. Significance and Use

5.1 This guide sets forth minimum standard requirements for use in local codes and ordinances relating to non-residential outdoor swimming pools, hot tubs, spas, and waters. This guide does not have the effect of law, nor is it intended to supersede local codes and ordinances of a more restrictive nature.

6. Requirements

6.1 *Height*—The top of the fence to be used around a non-residential outdoor swimming pool, hot tub, spa, or other water facility shall be of a height ranging from 48 in. (1.22 m) to 120 in. (3.05 m). The owner or its agents shall select the height after assessing the potential of intrusion when the pool is closed, taking into consideration the environment location, that is, city, suburban, exurban, or rural; the numbers of potential intruders with a likelihood of abilities to scale or penetrate the fence; will the pool be guarded or patrolled, ease of visibility into the pool area, will the pool area have night security lighting and will there be an access control security system. For example, a hotel pool that is well lighted and monitored twenty four hours a day will most likely require a 48-in. (1.22-m) high fence, whereas a pool back from a road, not easily visible, not lighted or patrolled, and having no access control security system will most likely require the higher 120-in. (3.05-m) fence.

6.2 *Visibility*—The fence shall be so designed and constructed that it has openness, which allows visibility from outside the pool area for patrols, guards, and others to inside the pool area to identify intruders and trespassers.

6.3 *Ground Clearance*—The maximum vertical clearance between grade and the bottom of the fence shall be 2 in. (50 mm) measured on the side of the fence, which faces away from the swimming pool.

6.4 *Horizontal And Vertical Members*—Where the fence is composed of horizontal and vertical members the horizontal members shall not extend more than 0.375 in. (10 mm) outside of the enclosure. The spacing between vertical members shall be no greater than 4 in. (102 mm) for fences having two consecutive horizontal rails spaced at least 45 in. (1143 mm) apart, measured from the top of one rail to the top of the next rail. The spacing between vertical members shall not exceed 1 ¾ in. (44 mm) for fence designs having no two consecutive horizontal members spaced at least 45 in. (1143 mm).

6.5 *Chain Link Fences*—Mesh opening for chain link fences shall be 1¼ in. (32 mm) in compliance with chain link fabric Specifications [A392](#), [A491](#), [F668](#), and [F1345](#).

6.6 *Diagonal Members*:

6.6.1 Where the fence is composed of diagonal members, such as in a lattice fence, any opening created by the diagonal members shall be a maximum of 1¾ in. (44 mm) measured in its largest direction.

6.6.2 Diagonal bracing members extending from one corner to the opposite corner creating a ladder effect on all styles of fences and gates are not permitted where spacing between the vertical members in any area between posts exceeds 1¾ in. (44 mm).

6.7 *Structural Design*—The fences shall be structurally designed so as to withstand stresses from wind load, ice load or other such environmental stresses applicable to the geographic region in which the fence is installed. The structural design of the fence shall comply with local regulations regarding height or visibility restrictions. Chain link, welded wire and expanded metal fence framework shall be constructed using framework material cited in Specification [F1043](#), Table 3 Heavy Industrial Fence Framework or Specification [F1083](#). Vinyl fences shall be constructed of profiles manufactured in accordance with Specification [F964](#).

6.8 *Access Gates*:

6.8.1 Double leaf access gates shall be equipped with a drop bar and padlock that is always locked when the gate is not in use. Chain link fence double gates shall be in compliance with Specification [F900](#) and shall be of the height of the fence.

6.8.2 Single leaf pedestrian gates shall open outward away from the pool shall be self-closing and shall have a self-latching device in accordance with Specification [F2630](#). The release mechanism of the latching device shall be located a minimum of 54 in. (1372 mm) above grade. Gates shall be locked when pool area is closed. Chain link fence single gates shall be in compliance with Specification [F900](#) and shall be of the height of the fence or include a transom above.

6.9 The fence shall completely surround the pool structure whenever possible.

6.10 Above ground non-residential pools or on-ground non-residential pools shall be enclosed by the same types of fence/barrier as in-ground non-residential pools and meet the criteria excluding fencing on the perimeter of the above ground pool structure.

6.11 *Pool Illumination*—The pool, if open for evening or night use and those complexes unattended during the night that are illuminated, should be illuminated of evenly distributed intensity to comply with federal, state and local codes. It is recommended that the guidelines published by the Illuminating Engineering Society of North America be used to determine the appropriate illumination level for each site design. If competition as well as recreational swimming and other water activities are to be included in the venue, at least 75-ft candles shall be provided. Light fixtures in danger of being vandalized should have protective coverings.

6.12 *Grounding*—When applicable the fence shall be grounded in compliance with the requirements of local utilities and electrical codes.

7. Prohibited Locations

7.1 Swimming pool fence/barriers shall be located so as to prohibit the use of permanent structures, equipment or similar objects to aid in climbing the fence/barrier.

7.2 *Clear Zone*—There shall be an external clear zone of at least 72 in. (1829 mm) between the swimming pool fence/barrier and any permanent structures or pool equipment such as pumps, filters, heaters, etc. which can be used as an aid to climb the fence/barrier. Landscape elements that can support a 25-lb (11.34-kg) load or more that can be used as an aid in climbing shall not be allowed in this clear zone.

8. Maintenance and Inspection

8.1 It is the responsibility of the owner, occupant or tenant to maintain the integrity of the fence and to regularly inspect the gates, doors, etc. for proper closing and latching operation.

8.1.1 Safety signs and boards are used to communicate important information to users regarding the existence of hazards and ways to avoid personal injury. The communication of safety critical information is a non-delegable responsibility

of owners and operators and often can only be accomplished through the use of appropriately designed informational signs, signboards and placards. Warnings are used:

8.1.1.1 To tell people about a threat to their well-being posed by dangerous conditions or products;

8.1.1.2 To change behavior so that people act safely as opposed to acting unsafely; and

8.1.1.3 To remind people of 8.1.1.1 and 8.1.1.2.

If it is foreseeable that people will be injured when they act in a certain way, and careful evaluation shows when physical safety measures cannot be provided to ameliorate the consequences of their acts then WARNING SIGNS are required on the fencing around the pool that meet ASTM and ANSI standards.

8.2 Keep the external area near the fence free of toys, furniture or other objects, which could be moved and used to climb the fence.

9. Keywords

9.1 fence ; fences; barriers; hot tubs; pools; spas; swimming pools

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