APPENDIX G

SWIMMING POOLS, SPAS AND HOT TUBS

SECTION AG101
GENERAL

AG101.1 General. The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the lot of a one- and two-family dwelling.

SECTION AG102
DEFINITIONS

AG102.1 General. For the purposes of these requirements, the terms used shall be defined as follows and as set forth in Chapter 2.

ABOVE-GROUND/ON-GROUND POOL. See "Swimming pool."

BARRIER. A fence, wall, building wall or combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool.

HOT TUB. See "Swimming pool."

IN-GROUND POOL. See "Swimming pool."

RESIDENTIAL. That which is situated on the premises of a detached one- or two-family dwelling or a one-family townhouse not more than three stories in height.

SPA, NONPORTABLE. See "Swimming pool."

SPA, PORTABLE. A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating equipment are an integral part of the product.

SWIMMING POOL. Any structure intended for swimming or recreational bathing that contains water over 24 inches (610 mm) deep. This includes in-ground, aboveground and on-ground swimming pools, hot tubs and spas.

SWIMMING POOL, INDOOR. A swimming pool which is totally contained within a structure and surrounded on all four sides by walls of said structure.

SWIMMING POOL, OUTDOOR. Any swimming pool which is not an indoor pool.

SECTION AG103
SWIMMING POOLS

AG103.1 In-ground pools. In-ground pools shall be designed and constructed in conformance with ANSI/NSPI-5 as listed in Section AG107.

AG103.2 Above-ground and on-ground pools. Above-ground and on-ground pools shall be designed and constructed in conformance with ANSI/NSPI-4 as listed in Section AG107.

SECTION AG104
SPAS AND HOT TUBS

AG104.1 Permanently installed spas and hot tubs. Permanently installed spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-3 as listed in Section AG107.

AG104.2 Portable spas and hot tubs. Portable spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-6 as listed in Section AG107.

SECTION AG105
BARRIER REQUIREMENTS

AG105.1 Application. The provisions of this chapter shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near-drownings by restricting access to swimming pools, spas and hot tubs.

AG105.2 Outdoor swimming pool. An outdoor swimming pool, including an in-ground, aboveground or on-ground pool, hot tub or spa shall be provided with a barrier which shall comply with the following:

1. The top of the barrier shall be at least 48 inches (1219 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an aboveground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the 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).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizon-tal members is less than 45 inches (1143 mm), the horizon-tal members shall be located on the swimming

pool side of the fence. Spacing between vertical members shall not exceed 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.

5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizon-tal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within ver-tical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2.25-inch (57 mm) square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to not more than 1.75 inches (44 mm).
7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1.75 inches (44 mm).
8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
   - 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and
   - 8.2. The gate and barrier shall have no opening greater than 0.5 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.
9. Where a wall of a dwelling serves as part of the barrier one of the following conditions shall be met:
   - 9.1. The pool shall be equipped with a powered safety cover in compliance with ASTM F1346; or
   - 9.2. All doors with direct access to the pool through that wall shall be equipped with an alarm which pro-duces an audible warning when the door and its screen, if present, are opened. The alarm shall sound continuously for a minimum of 30 seconds immediately after the door is opened and be capable of being heard throughout the house during normal house-hold activities. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as touchpad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation shall last for not more than 15 seconds. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or
   - 9.3. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the governing body, shall be acceptable so long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above.
10. Where an aboveground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then:
    - 10.1. The ladder or steps shall be capable of being secured, locked or removed to prevent access, or
    - 10.2. The ladder or steps shall be surrounded by a barrier which meets the requirements of Section AG105.2, Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

AG105.3 Indoor swimming pool. All walls surrounding an indoor swimming pool shall comply with Section AG105.2, Item 9.

AG105.4 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

AG105.5 Barrier exceptions. Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG107, shall be exempt from the provisions of this appendix.

SECTION AG106
ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS

AG106.1 General. Suction outlets shall be designed to produce circulation throughout the pool or spa. Single outlet systems, such as automatic vacuum cleaner systems, or other such multiple suction outlets whether isolated by valves or otherwise shall be protected against user entrapment.

AG106.2 Suction fittings. All Pool and Spa suction outlets shall be provided with a cover that conforms with ANSI/ASME A112.19.8M, or a 12″ × 12″ drain grate or larger, or an approved channel drain system.

Exception: Surface skimmers

AG106.3 Atmospheric vacuum relief system required. All pool and spa single or multiple outlet circulation systems shall be equipped with atmospheric vacuum relief should grate covers located therein become missing or broken. Such vacuum relief systems shall include at least one approved or engineered method of the type specified herein, as follows:

1. Safety vacuum release system conforming to ASME A112.19.17, or
2. An approved gravity drainage system

AG106.4 Dual drain separation. Single or multiple pump circulation systems shall be provided with a minimum of two (2) suction outlets of the approved type. A minimum horizontal or vertical distance of three (3) feet shall separate such outlets. These suction outlets shall be piped so that water is drawn through them simultaneously through a vacuum relief-protected line to the pump or pumps.

AG106.5 Pool cleaner fittings. Where provided, vacuum or pressure cleaner fitting(s) shall be located in an accessible position(s) at least (6) inches and not greater than twelve (12) inches below the minimum operational water level or as an attachment to the skimmer(s).

SECTION AG107
ABBREVIATIONS

AG107.1 General.

ANSI—American National Standards Institute
11 West 42nd Street, New York, NY 10036

ASTM—American Society for Testing and Materials
1916 Race Street, Philadelphia, PA 19103

NSPI—National Spa and Pool Institute
2111 Eisenhower Avenue, Alexandria, VA 22314

SECTION AG108
STANDARDS

AG108.1 General.

ANSI/NSPI

ANSI/NSPI-3-99 Standard for Permanently Installed Residential Spas AG104.1

ANSI/NSPI-4-99 Standard for Above-ground/On-ground Residential Swimming Pools AG103.2

ANSI/NSPI-5-99 Standard for Residential In-ground Swimming Pools AG103.1

ANSI/NSPI-6-99 Standard for Residential Portable Spas AG104.2

ANSI/ASME A112.19.8M-1987 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathing Appliances AG106.2

ASTM

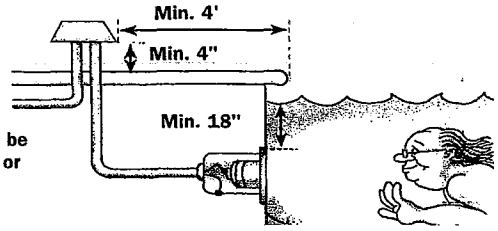
ASTM F 1346-91 (1996) Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs AG105.2, AG105.5

ASME

ASME A112.19.17 Manufacturers Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub and Wading Pool AG106.3

Swimming Pool

General	03 IRC	02 NEC
☐ Service drop above or within 10ft of pool req's clearance of 22 {22½} ft in any direction from water	[T4103.5]	{T680.8}
☐ Underground <5ft from pool RMC, IMC, or RNC only	[4103.6]	{680.10}
Receptacles		
☐ Min 1 recep ≥10ft and ≤20ft from pool walls	[4103.1.2]	{680.22A3}
☐ Receps ≤20ft from pool walls GFCI protected	[4103.1.3]	{680.22A5}
☐ Pump motor recep OK ≥5ft & ≤10ft from pool walls if twist-lock & GFCI-protected	[4103.1.1]	{680.22A1}
☐ If pool less than 10ft from house, recep may be ≥5ft from pool	[Ø]	
Lighting Outlets		
☐ Outdoor lights min 5ft from pool or ≥12ft above	[4103.4.1]	{680.22B1}
☐ GFCI for lights >5ft & <10ft from pool & <5ft above	[4103.4.5]	{680.22B4}
☐ Existing fixt OK <5ft if GFCI protected & >5ft above	[4103.4.3]	{680.22B3}
☐ Indoor lights 7½ft above water OK if enclosed and GFCI.	[4103.4]	{680.22B3}
Bonding & Grounding		
☐ Pool light fixture grounds unspliced except on terminals	[4105.2]	{680.23F2}
☐ Bond together pool shell, metal eqpmt for pumps, pool covers, underwater light forming shell & all metal ≤5ft of pool	[4104.1]	{680.26B}
☐ Bonding wire min solid 8AWG copper	[4104.3]	{680.26C}
☐ Feeders to pool subpanels RMC, IMC, RNC, LFNC EXC	[T4102.1]	{680.25A}
☐ EMT or existing cable within building OK	[T4102.1]	{680.25AX}
☐ EGC min 12AWG exc pool light cord	[4105.2]	{680.23F2}
Underwater Lighting		
☐ GFCI-protected or low-voltage	[4106.4]	{680.23A}
☐ Top of fixture min 18in below water level	[4106.4.2]	{680.23A5}
☐ RNC to underwater lights req's 8AWG insulated bonding conductor	[4105.3]	{680.23B2}
☐ RNC bonding conductor must be encapsulated on forming shell	[4105.3]	{680.23B2
☐ Segregate GFCI-protected from non-GFCI	[4106.3]	{680.23F3}
☐ Junction box L&L for pool light	[4106.8.1]	{680.24A1}
☐ Junction box min 8in above water, 4in above deck	[4106.8.1]	{680.24A2}
☐ Junction box min 4ft from pool edge	[4106.8.1]	{680.24A2}
☐ Wet-niche fixture secured to shell with locking device	[4106.5]	{680.23B5}



Wet-niche pool lights must be on segregated low-voltage or GFCI-protected circuits.

Hot Tub/Spa

General		
☐ Outdoors same rules as swimming pools	[4102.1]	{680.42}
☐ Cord ≤15ft OK for GFCI-protected packaged unit	[4102.2]	{680.42A2}
☐ Bond all metal within 5ft	[4104.1]	{680.26B5}
Indoors		
☐ Min 1 recep min 5ft & ≤10ft from spa	[4103.1.4]	{680.43A}
☐ GFCI-protect all receps ≤10ft from spa	[4103.1.5]	{680.43A2}
☐ No wall switches within 5ft of spa	[4103.2]	{680.43C}

Hydromassage Tubs

☐ Eqpmt accessible without damaging bldg finish	[4109.3]	{680.73}
☐ GFCI protection req'd	[4109.1]	{680.71}
☐ All receps within 5ft req GFCI protection	[4109.1]	{680.71}
☐ 8 AWG bond from metal piping systems to other metal parts EXC L&L double-insulated eqpmt shall not be bonded	[4109.4]	{680.74}