Attention Pool Builders

Arizona State Law requires pool builders to provide **pool safety information** to any homeowner, renter or lessee who enters into a contract to construct a swimming pool or contained body of water. The notice shall contain barrier requirements (pool enclosure requirements) and pool safety recommendations. (ARS 36-1681)

This document contains the Town of Queen Creek's **barrier requirements** (with illustrations and explanations) and can also be found on the Town's website.

Pool safety recommendations from the Arizona Department of Health Services are listed below. You can find these recommendations on their website.

- Never leave a child unattended in the pool or pool area.
- Because flotation devices and swimming lessons are not substitutes for supervision, a child should always be watched when in or around the pool area.
- CPR/CCR instructions and the 911 emergency number (or local emergency number) should be posted in the pool area.
- A phone should be located in the pool area or easily accessible in case of an emergency.
- All residential pool owners should attend water rescue and CPR/CCR classes. Lifesaving equipment should be easily accessible and stored n the pool area.
- All gate locks and latches should be checked regularly to insure they are working properly.
- A gate should never be left propped open.
- All items that could be used to climb a pool barrier should be removed from around the barrier.
- In an emergency:
    - Shout for help;
    - Pull the child from the water;
    - Call 911 (or local emergency number) for help; and
    - After checking the child's airway and breathing, immediately begin CPR/CCR if necessary.

APPENDIX G
SWIMMING POOLS, SPAS AND HOT TUBS
(Requirements, Detail Examples and Commentary)

❖ *A young child can get over a pool barrier if the barrier is too low or if the barrier has handholds or footholds for a child to use when climbing. A successful pool barrier prevents a child from getting OVER, UNDER, or THROUGH and keeps the child from gaining access to the pool except when supervising adults are present.*

Drowning is the second leading cause of accidental death in the home for children under five years of age. It has been the number one cause of accidental deaths in the home for that age group in a number of states, including Arizona, California, Florida and Texas. The use of effective residential swimming pool barriers is the best way to reduce these tragic losses.
This appendix chapter sets forth the regulations for swimming pools, hot tubs and spas. The primary focus of the provisions is the need for an effective barrier surrounding the water area to reduce the potential for young children to gain uncontrolled access. Section AG101 establishes the scope of the chapter. Section AG102 defines those terms specific to this appendix chapter. Section AG103 identifies specification standards for the design and construction of swimming pools. Section AG104 identifies specification standards for the design and construction of spas and hot tubs. Section AG105 discusses barrier requirements for swimming pools, hot tubs and spas. Section AG106 contains provisions for entrapment protection for suction outlets. Section AG107 indicates the abbreviations for standards- writing organizations, and Section AG108 specifies the various standards used in this appendix chapter.

SECTION AG101 - GENERAL

AG101.1 General. The requirements of this appendix shall apply to the design and construction of swimming pools, spas, hot tubs and barriers installed in or on the lot of a one- or two-family dwellings.

The purpose of these requirements is to provide an integrated level of protection against potential swimming pool drowning through the use of physical barriers and warning devices. It is not intended as a substitute for adult supervision of children.

❖ *This section provides the scope of the appendix chapter on swimming pools, spas and hot tubs. It regulates the design and construction of such facilities where they are located inside a dwelling unit or on the lot of a one- or two-family dwelling.*

This is also a clarification of the general purpose of the requirements and a finding of the US Congress TITLE XIV—POOL AND SPA SAFETY (15 USC 8001), ***SEC. 1402. FINDINGS.***
(3) Adult supervision at all aquatic venues is a critical safety factor in preventing children from drowning.

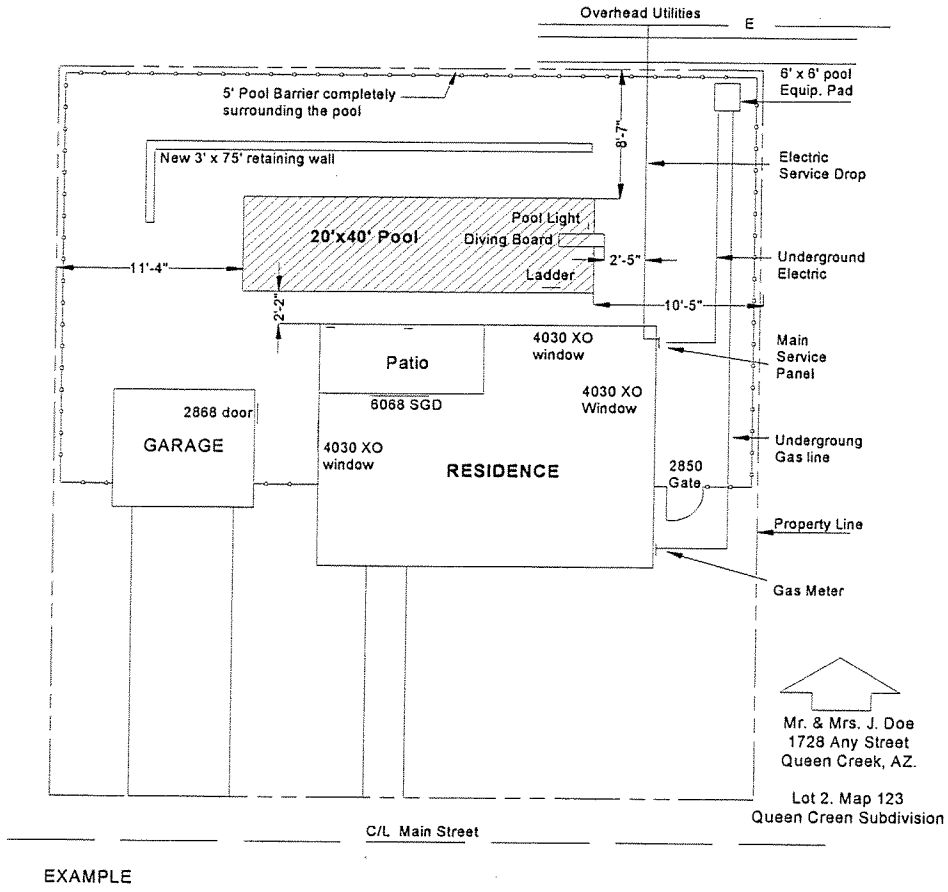
AG101.2 A person, on entering into an agreement to build a swimming pool or contained body of water shall give the buyer, lessee or renter a notice explaining safety education and responsibilities of swimming pool ownership as approved by the State's department of health services.

❖ *This language is within ARS 36-1681.*

AG101.3 All swimming pool plans are required to identify the location of the required swimming pool barrier, the height of the fencing, and all details necessary to show compliance with the requirements within this appendix. When plans are submitted for a swimming pool permit, they must show at a minimum, the following:

1. An accurate outline of the swimming pool, hot tub or spa,

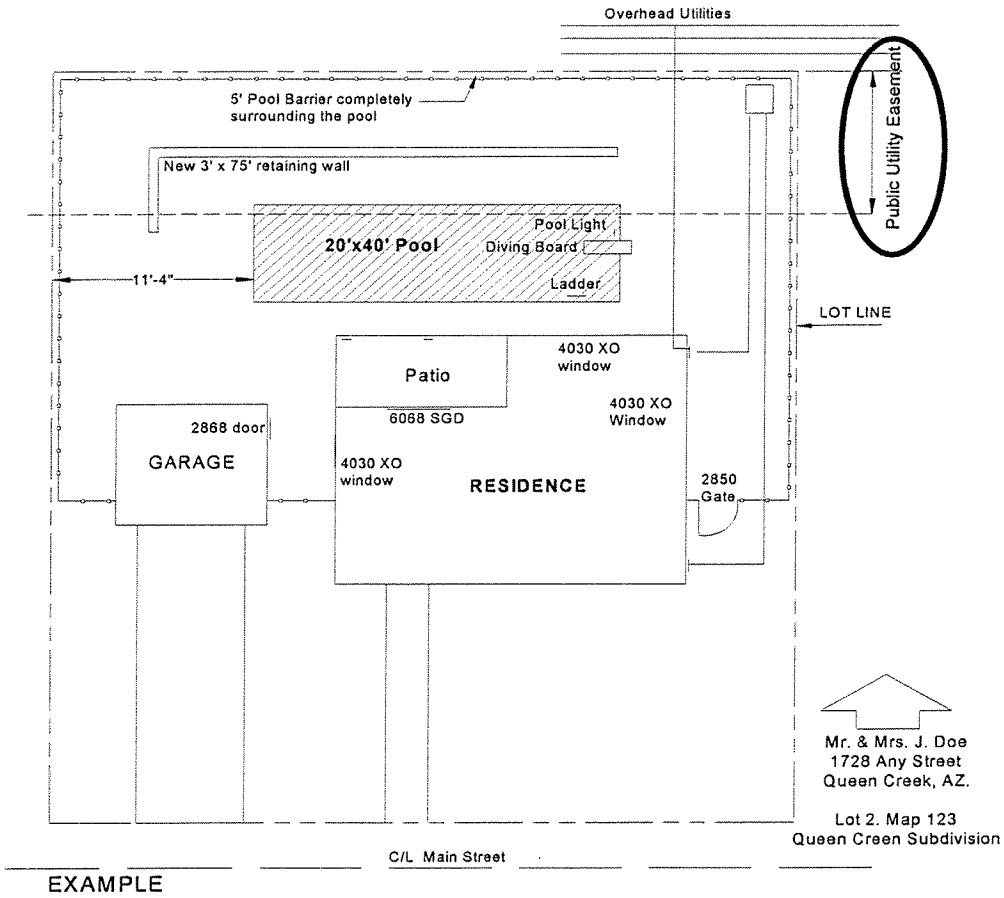
2. Location of the swimming pool (including accessory rock formations, slides and waterfalls) with dimensions to each lot line, dwelling and any accessory structure and equipment location.
3. Location of any exterior openings (including doors, windows, pet doors, etc.) into the area of the swimming pool
4. Location and height of the swimming pool barrier and barrier gate(s)
5. Details of the construction of the barrier to include materials, size of all openings within the barrier, etc.
6. All necessary information required to show compliance with this Appendix.



EXAMPLE

❖ *The information requested is based on the existing Building Code Ordinance in effect. This is a clarification for use by customers submitting plans for approval to help expedite the review and construction process. .... To obtain a permit, the applicant shall first file an application therefore in writing on a form furnished by the department of building safety for that purpose. Such application shall: ..... Similar requirements have been in the building codes since before the 2000 editions of the building codes.*

AG101.4 If there are public utility easements, access easements or other easements affecting the subject lot, the swimming pool, decking and pool equipment shall not violate, disturb or encroach into such easements unless approved in writing by the Town and the other affected parties (persons and entities) to such easements.



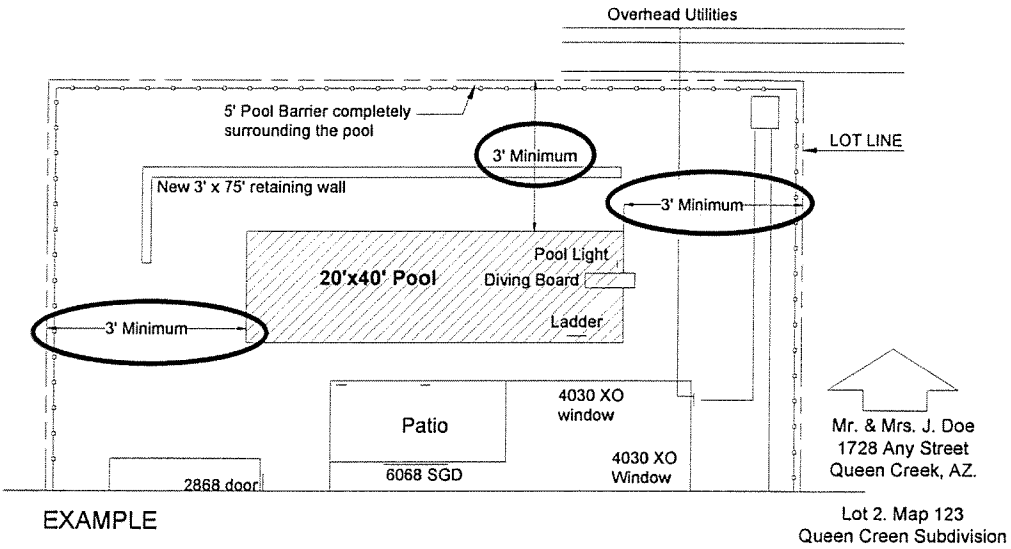
EXAMPLE

❖ *This is for clarification to help expedite the review and construction process. The submittal should indicate these items for purposes of reviewing swimming pools, spas and hot tubs to determine the permission to encroach into or through such easements, etc.*

AG101.5 The general design, materials, and appearance of the required Swimming Pool Barrier shall meet the requirements of the adopted Zoning Ordinance, however, in all cases shall meet the minimum safety requirements of this appendix.

❖ *Mainly for clarification that the pools shall meet the zoning ordinance for accessory structures which describes fencing, locations of structures, etc. and the safety requirements of the building codes. (example: a view fence may not meet both requirements).*

AG101.6 The swimming pool water's edge shall be set back from all lot lines a distance of not less than three (3) feet.



❖ *The 3' was a determination/clarification by the Community Development Director in 2004 that the "3' setback referred to in the previous ordinance 47-94 pertained to the location of the pool.*

AG101.7 Since the requirements of this appendix are not retroactive, swimming pools constructed prior to the effective date of this appendix, need only comply with the required swimming pool barrier requirements in effect at the time of permit issuance unless the swimming pool or swimming pool barrier is subsequently altered. All residential swimming pools or swimming pool barriers installed, altered, modified or expanded after the effective date of this appendix shall meet or exceed the requirements within this appendix.

❖ *This is a clarification for legal purposes. Existing approved pools shall be permitted to continue without change. Similar requirements have been in the building codes since before the 2000 editions of the building codes.*

SECTION AG102 - DEFINITIONS

AG102.1 General. For the purposes of this appendix, the terms herein used shall be defined as follows:

❖ *Definitions are included for reference purposes (clarification) in order to apply the requirements and explanatory purposes when construction of pools are contemplated. This section clarifies the terminology used in this appendix chapter. The terms take on specific meanings, often different from the way they are typically used. No change in the way the valley is typically making a determination as to defining the structure. Similar requirements have been in the building codes since before the 2000 editions of the building codes and similar to the U.S. Consumer Product Safety Commission's pool barrier guidelines.*

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

❖ *These two terms have essentially the same meaning. If a side of a swimming pool projects above the adjacent ground level, the pool is referred to as an above-ground pool. If the bottom of the pool rests on the ground with no portion recessed except for leveling purposes, it is referred to as an on-ground pool. The important factor in both situations is that access to the pool surface is elevated and requires a vertical ascent (from at least one side) to gain access to the water. A swimming pool situated on the ground or located above the ground is in the same category as other similar facilities such as spas, hot tubs and in-ground pools. All such facilities are simply regulated as swimming pools.*

All commentaries are indented below the code text and begins with the symbol ❖

BARRIER. A permanent fence, wall, building wall or combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool. As used within this appendix, permanent shall mean "not being able to be removed, lifted or relocated without the use of tools".

❖ *Any system of components that encloses a swimming pool to the degree that access is obstructed is a barrier. Enclosure components include the exterior wall of the dwelling unit, a fence and any doors or gates included as a portion of the enclosure. Any construction or natural element that does not surround the pool will allow access at some point. The vast majority of provisions in this appendix chapter relate to the installation of a complying barrier to restrict access to swimming pools, spas and hot tubs. Left unprotected, these facilities present the potential for drownings and near-drownings.*

HOT TUB. See "Swimming pool."

❖ *Typically regarded as a small soaking tub, a hot tub is defined as a swimming pool and is regulated in the same manner as spas and the various types of swimming pools. Hot tubs often are equipped to introduce bubbles or jets of water into the tub.*

IN-GROUND POOL. See "Swimming pool."

❖ *An in-ground pool is a swimming pool in which the top of the pool structure is roughly at the same elevation as the adjoining surface surrounding the pool. Unlike an above-ground or on-ground pool, the pool construction itself does not limit access to the pool. A swimming pool constructed in the ground is in the same category as similar facilities such as spas, hot tubs, above-ground pools and on-ground pools. All such facilities are simply regulated as swimming pools.*

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.

❖ *Where a pool is located on the property of a single-family dwelling, two-family dwelling, or one-family townhouse, it is "residential." The scope of the provisions in this appendix chapter coincides with this definition.*

SPA, NONPORTABLE. See "Swimming pool."

❖ *Typically regarded as a whirlpool tub, a spa is defined as a swimming pool and is regulated in the same manner as hot tubs and the various types of swimming pools.*

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.

❖ *Typically regarded as a whirlpool tub, a spa is defined as a swimming pool and is regulated in the same manner as hot tubs and the various types of swimming pools.*

SWIMMING POOL. Any structure intended for swimming or recreational bathing that is designed to contain water 18" inches or more in depth. This includes in-ground, above-ground and on-ground swimming pools, hot tubs and spas.

❖ *To be considered a swimming pool for the provisions of this appendix chapter, the structure used for swimming or recreational bathing must be more than 18 inches (610 mm) deep. Hot tubs, spas, in-*

ground pools, on-ground pools and above-ground pools are included in this definition if they are the minimum depth prescribed.

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

❖ *Where a swimming pool is located in a enclosed structure, fully surrounded by walls, it is an indoor pool. Of critical concern is the easy access afforded to children by an indoor pool.*

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

❖ *Where a swimming pool is not fully enclosed, as is required in the definition of an indoor pool, it is an outdoor swimming pool. A pool that may be partially inside and partially outside is defined as an outdoor pool because it is not completely surrounded by a structure.*

SWIMMING POOL, PUBLIC OR SEMI-PUBLIC. Any swimming pool which is not accessory to Residential as defined herein.

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 AG108.

❖ *The requirements of ANSI/NSPI-5 regulating residential in-ground swimming pools are applicable to all in-ground pools regulated by this appendix chapter.*

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 AG108.

❖ *The requirements of ANSI/NSPI-4 regulating residential above-ground and on-ground swimming pools are applicable to all such pools regulated by this appendix chapter.*

AG103.3. Public or Semi-public swimming pools. Shall comply with State and County Requirements.

❖ *The Swimming Pools Program is part of the Water & Waste Management Division of the Environmental Services Department of Maricopa County and is responsible for approving and regulating public and semi-public pools, wading pools or special use pools, spas and artificial and semi-artificial bathing lakes. Public and semi-public pools, spas and bathing lakes are typically owned and operated by municipalities or businesses such as hotels, apartment complexes, homeowner's associations, churches, schools and other government, non-profit or commercial enterprises.*

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 AG108.

❖ *The requirements of ANSI/NSPI-3 regulating permanently installed residential spas are applicable to all nonportable spas and hot tubs.*

This is mainly for clarification and reference for designers. This section sets forth the full names and addresses of organizations that develop standards referenced in this appendix chapter. The abbreviations for the names of the organizations are used throughout the code text. Similar requirements have been in the building codes since before the 2000 editions of the building codes.

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 AG108.

❖ *The requirements of ANSI/NSPI-6 regulating residential portable spas are applicable to all such spas.*

This is mainly for clarification and reference for designers. This section sets forth the full names and addresses of organizations that develop standards referenced in this appendix chapter. The abbreviations for the names of the organizations are used throughout the code text. Similar requirements have been in the building codes since before the 2000 editions of the building codes.

SECTION AG105 - BARRIER REQUIREMENTS

AG105.1 Application. The requirements of this appendix shall apply to the design and construction of required barriers for swimming pools, spas and hot tubs. These design regulations are intended to provide public health and safety by providing protection against drowning and near-drowning by restricting access to swimming pools, spas and hot tubs. There are no exemptions for households without children.

❖ *This section describes the provisions for barriers around residential swimming pools, hot tubs and spas. A swimming pool or similar facility creates an attractive temptation to children, including very young children and infants who do not know how to swim. The installation of an effective barrier can help reduce the number of children who die or are injured as the result of open access to a swimming pool, spa or hot tub.*

AG105.1.1 All swimming pools, spas and hot tubs installed in or on the lot of a one- or two-family dwelling on or after the effective date of the ordinance adopting this appendix shall be enclosed by a permanent barrier, as set forth in this appendix.

❖ *This section clarifies when the provisions and need for barriers around residential swimming pools, hot tubs and spas are needed. Similar language is within ARS 36-1681 and the U.S. Consumer Product Safety Commission's Pool Barrier Guidelines.*

AG105.1.2 It is the responsibility of the property owner and any other person in responsible charge of a swimming pool to insure that the required swimming pool barrier, including all gates, doors, locks, latches and any other portions of the barrier, are maintained in a safe and good working order at all times. No person shall alter or remove any portion of a swimming pool barrier except to maintain, repair, reconstruct or replace the barrier in compliance with the provisions of this appendix.

❖ *The new ordinance includes language for clarification concerning alterations or removal to reinforce that the barrier needs to comply with the requirements of the ordinance at all times, even when remodeling/revisions/etc. are underway.*

AG105.1.3 No swimming pool, spa or hot tub shall be filled in whole or in part with water unless the swimming pool barrier has been installed in accordance with this appendix and approved by the building official or authorized designee.

❖ *Clarification that the safety barrier is to be in installed before the pool is filled. This is a check and balance item that regulates the safety aspects of installation.*

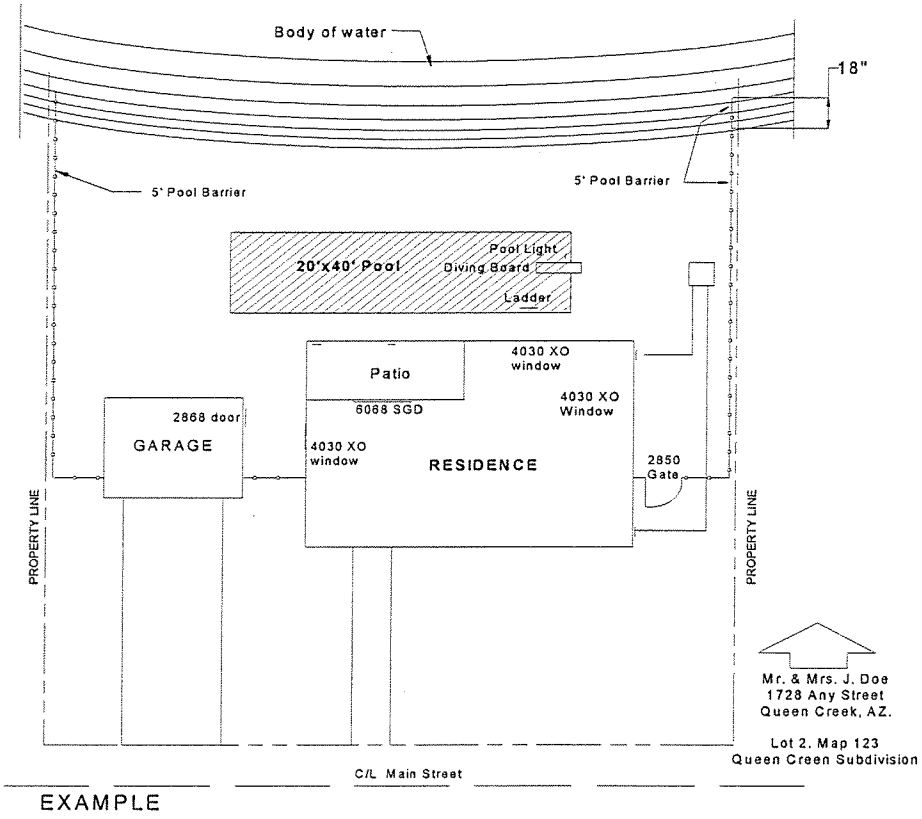
AG105.1.4 Plastic mesh or any other fence (proposed barrier) defined by the manufacturer as a temporary or removable fence, even if indicated as a swimming pool barrier, are deemed unsuitable for the purposes of this Appendix regardless of any modifications proposed to make said fence compliant.

❖ *Clarification. The authors of the building codes(ICC) have stated that temporary or removable barriers do not meet the intent of the pool barrier requirements. Pool barriers shall be permanent in nature. This paragraph clarifies that such structures are non-compliant.*

AG105.2 Outdoor swimming pool. Any outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa shall be completely surrounded by a barrier which shall comply with the following:

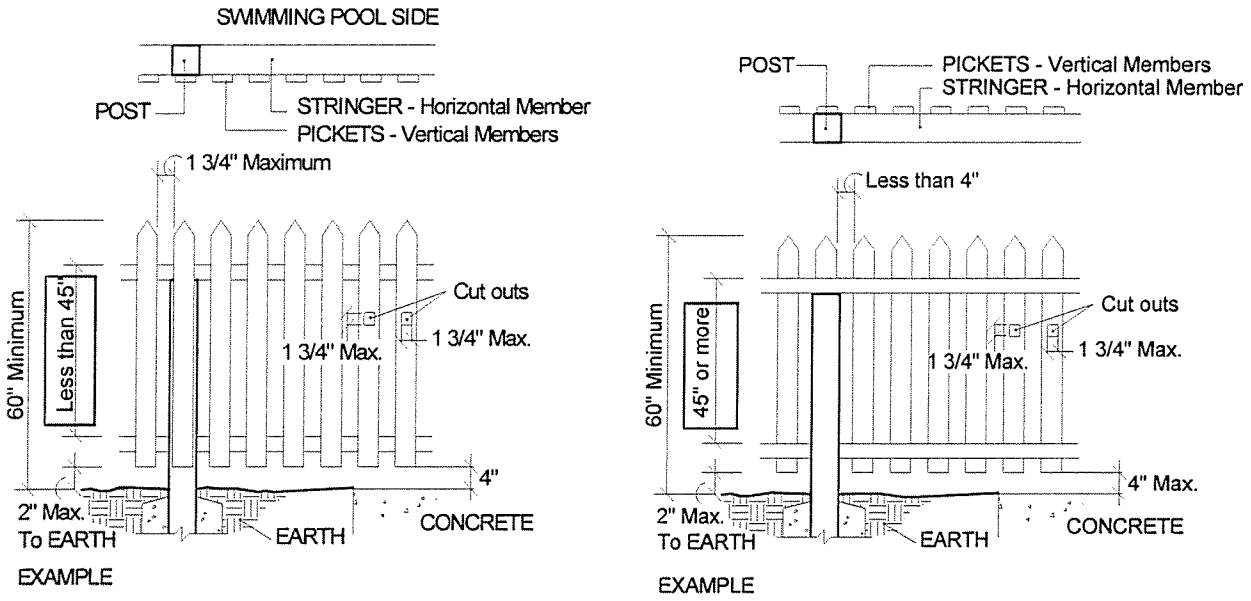
❖ *Clarification. This is a general statement for the items that follow. ARS 36-1681 and the U.S. Consumer Product Safety Commission's pool barrier guidelines has the similar intent.*

1. In the case where the rear yard of a detached one- or two-family dwelling or townhouses abuts the edge of a lake or body of water and where no public access is permitted or allowed along the shoreline, and where side yard fences extend to and beyond the water's edge a minimum of eighteen (18) inches, no rear yard barrier will be required between the shoreline or body of water and the swimming pool.



❖ *Clarification. When this issue arises the requirements can be used to determine the extent of the barrier requirements. This requirement comes from a jurisdiction with these lot designs and indicates the necessity for situations that exist where this situation exists.*

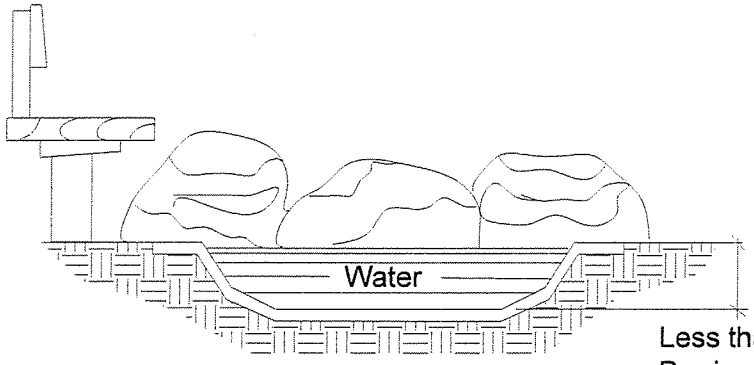
2. Where wood fences are permitted by the Town Code, wood fencing used as swimming pool required barriers, shall meet the requirements of this appendix.



❖ *Clarification to indicate that if using a wood fence the requirements are the same as any other structure used as a barrier*

3. Any fence/wall used for the required barrier shall not contain any openings or protrusions that might be used for foothold climbing purposes.

4. All fish ponds and other contained bodies of water, either above or below ground level, that are designed to contain water eighteen (18) inches or more in depth, shall conform to the location and barrier requirements for swimming pools.



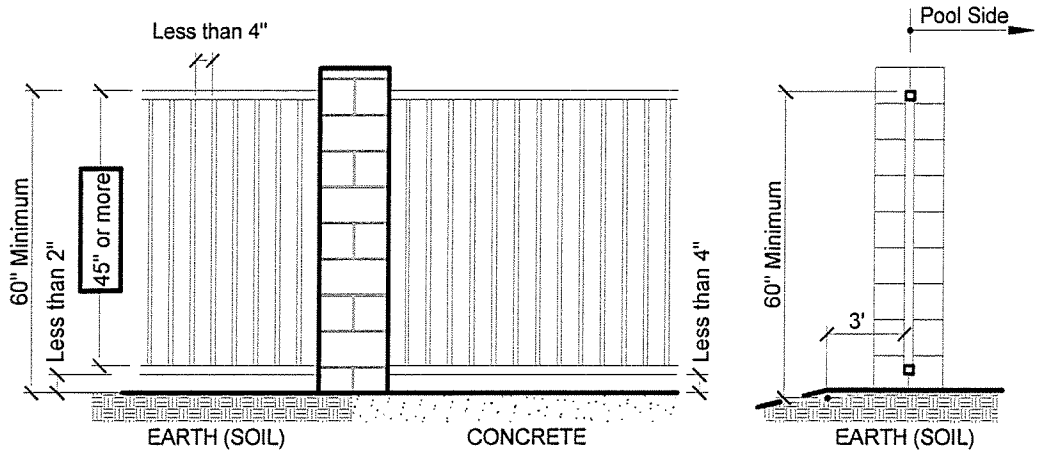
❖ *ARS 36-1681 indicates 18" or more in depth. The ARS states 18" and 8' and intended for swimming. All three must be met before a barrier is required. The 18" is for clarification that no matter what length the container is that 18" is the criteria for safety issues. Neither the IRC or the US Consumer Product Safety Commission Pool Barrier Guidelines have a length requirement, only a depth requirement.*

5. Irrigation and storm water retention facilities and the water features in public parks and golf courses are exempt from the barrier requirements of this Appendix.

❖ *ARS 36-1681 includes as exemptions:*
1. A system of sumps, irrigation canals, irrigation, flood control or drainage works constructed or operated for the purpose of storing, delivering, distributing or conveying water.

2. Stock ponds, storage tanks, livestock operations, livestock watering troughs or other structures used in normal agricultural practices.

6. The top of the barrier shall be at least 60 inches above grade measured on the side of the required barrier which faces away from the swimming pool at the highest point of elevation within three (3) feet measured horizontally from the required barrier. The maximum vertical clearance between grade (soil) and the bottom of the required barrier shall be a maximum of 2 inches measured on the side of the required barrier which faces away from the swimming pool. The maximum vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall be a maximum of 4 inches measured on the side of the required barrier which faces away from the swimming pool.



EXAMPLE

❖ *Preventing a child from getting through a pool barrier can be done by restricting the sizes of openings in a barrier and by using self-closing and self-latching gates. To prevent a young child from getting through a fence or other barrier, all openings should be small enough so that a 4-inch diameter sphere cannot pass through. This size is based on the head breadth and chest depth of a young child.*

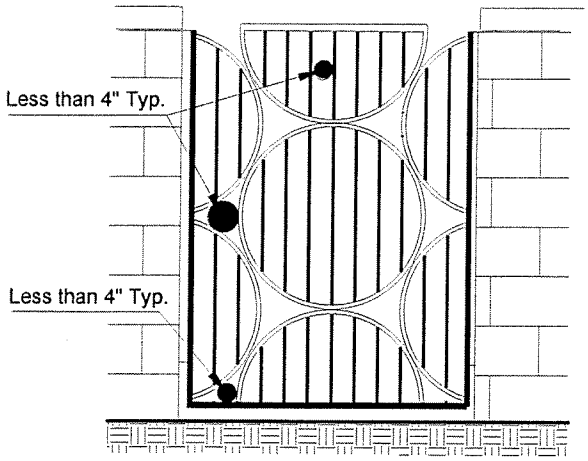
The barrier height of 60 inches is intended to meet the Arizona Revised Statutes 36-1681B1 height above the ground and is based on reports that document the ability of children to climb over barriers.

Clarification and safety requirements. Similar requirements have been in the building codes since before the 2000 editions of the building codes. The 2" requirements have been part of the Town's handout before 2001. The 4" has been a requirement of the IRC as far back as the 2000 edition, the U.S. Consumer Product Safety Commission's pool barrier guidelines, Town's zoning ordinance and ARS 36-1681

7. The poolside of the required barrier shall not be less than (20") twenty inches from the water's edge.

❖ *The 20" dimension is intended to meet the requirements of Arizona Revised Statutes 36-1681B5.*

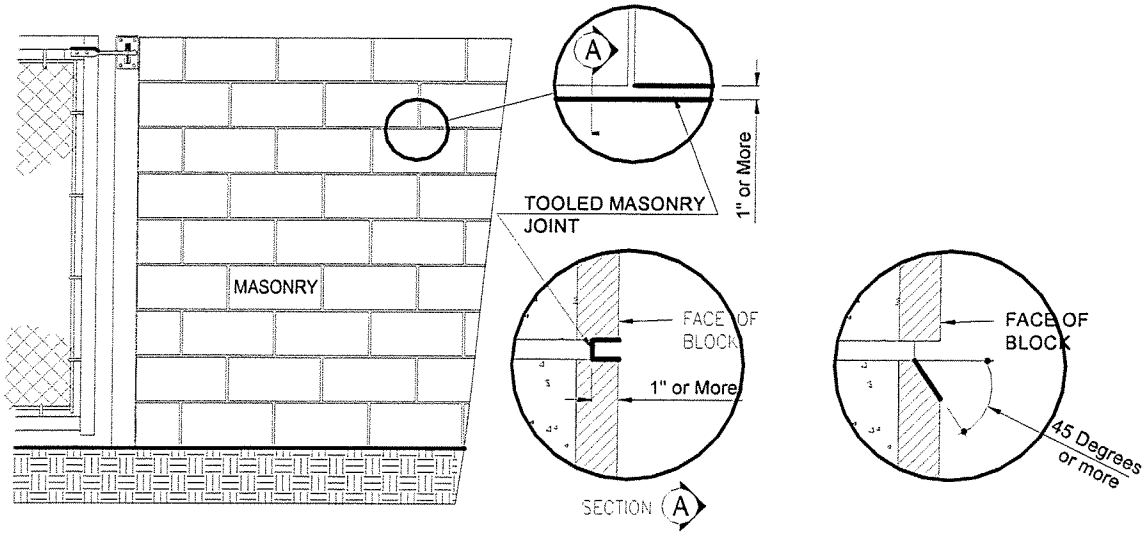
8. Openings in the required barrier shall not allow passage of a 4-inch-diameter sphere.



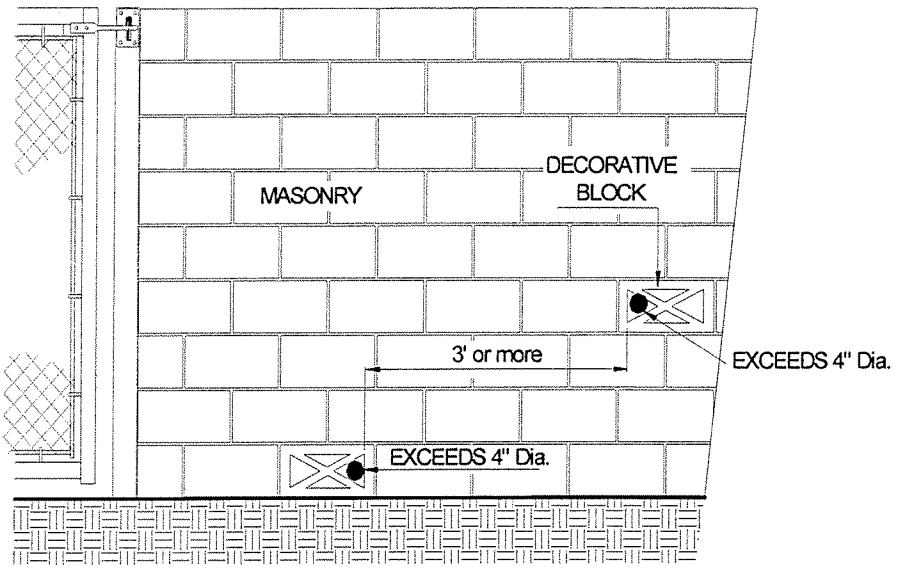
EXAMPLE

❖ *The basis for the 4-inch (102 mm) criterion is the same as for guard construction per IRC Section R312. It is based on studies of the body measurements of children 13 to 18 months old.*

9. Solid barriers which do not have openings, such as but not limited to a masonry, stucco or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints. Indentations of 1" deep x 1" high or protrusions of 1 inch or more shall be considered as exceeding the normal construction tolerances unless the bottom of the indention or top of the protrusion is beveled at a 45 degree angle from the face of the indention or protrusion back to the vertical face of the indention or protrusion. Where solid barriers have openings such as drainage blocks or similar items, the maximum opening width or height of the opening shall be of such a configuration as not to allow a 4 inch diameter sphere to pass through. Where openings exceed the 4" diameter, a minimum of 3' measured horizontally from an adjacent opening in the barrier is permitted.



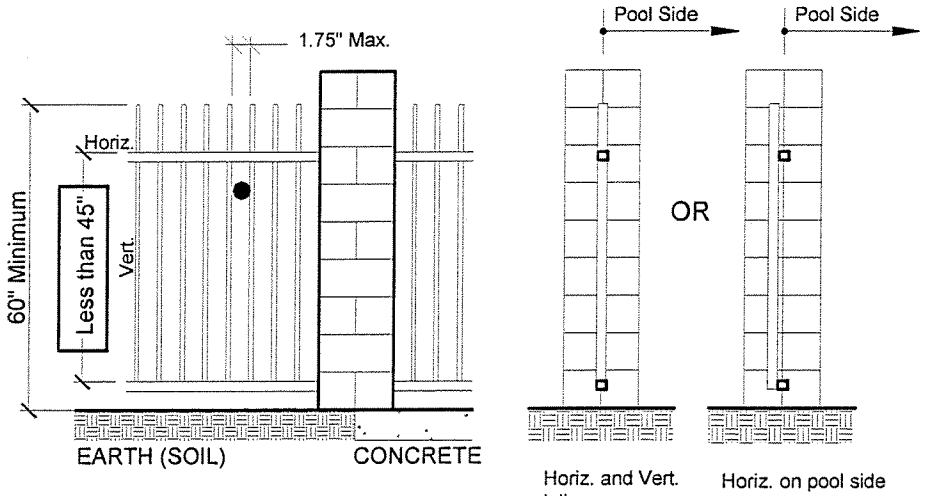
EXAMPLE EXCEEDS ALLOWANCE MEETS ALLOWANCE



EXAMPLE

❖ *This provision reduces the potential for gaining a foothold and climbing the barrier. Clarification. ARS 36-1681 and the U.S. Consumer Product Safety Commission has general requirement, dimensions added for guidance. 7 5/8" is normal block height which leaves room for a 3/8" mortar joint (building code referenced) to equal an 8" normal height for blockwork. 1" is used for clarification and reference. 45 degree is used as an angle not easily grasped.*

10. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches, the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1.75 inches in width. Where there are decorative cut outs within vertical members, spacing within the cutouts shall not exceed 1.75 inches in width.

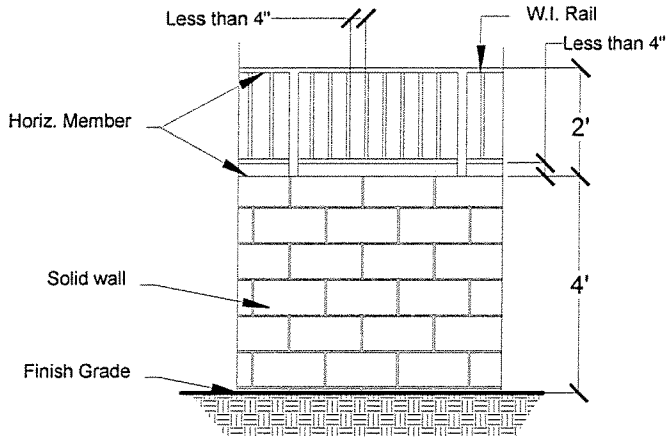


EXAMPLE

❖ *The more stringent 1.75-inch (44 mm) provision for spacing between vertical members applies when the spacing between horizontal members is less than 45 inches (1143 mm). It acknowledges the potential for a child to gain both a handhold and a foothold on closely spaced horizontal members and reduces the potential for a child to gain a foothold by limiting the space between the vertical*

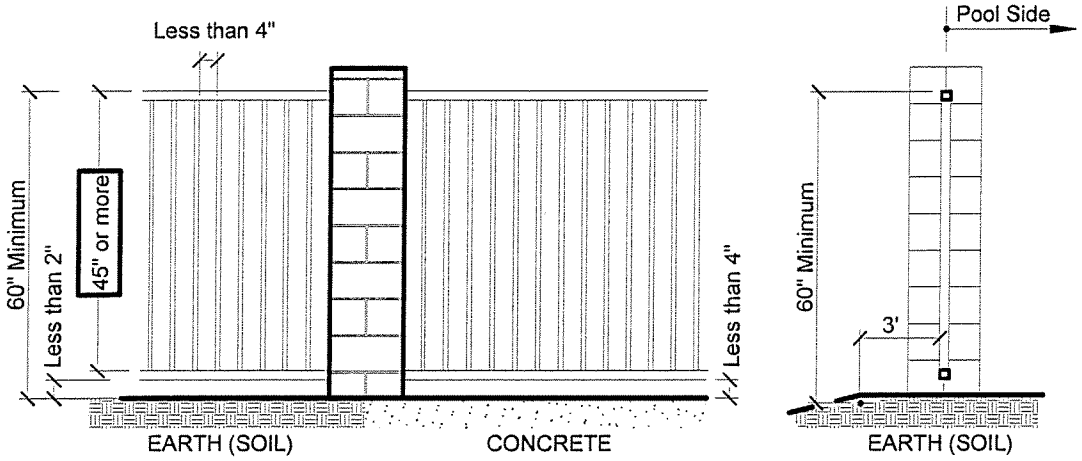
members on the same barrier. If the horizontal members are spaced less than 45 inches (1143 mm) apart, they must also be located on the swimming pool side of the fence so that they are not available to be used to climb the barriers.

Clarification. U.S. Consumer Product Safety Commission, ARS 36-1681, Building codes 2000 editions and before have these requirements.



EXAMPLE - view fencing

11. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches or more, spacing between vertical members shall not exceed 4 inches. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches in width.



EXAMPLE

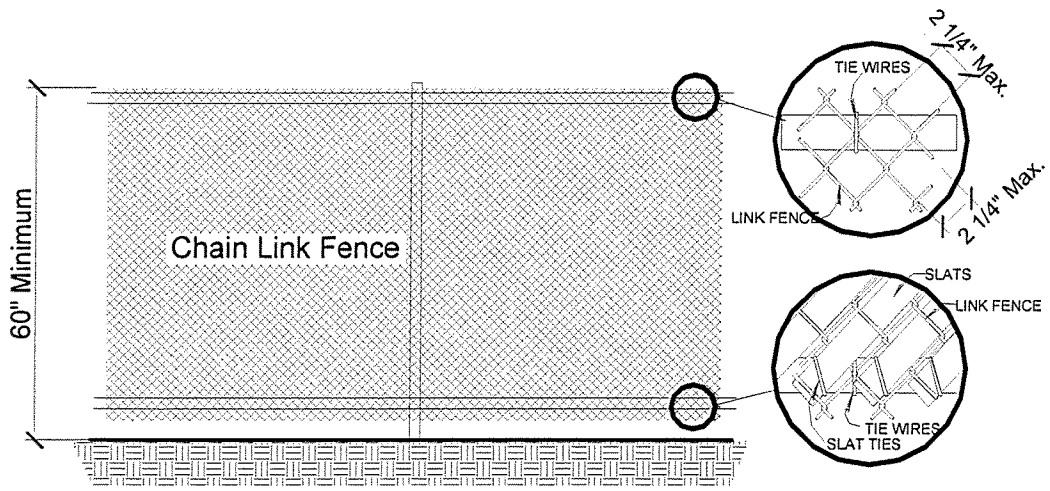
❖ *If the distance between the tops of the horizontal members is more than 45 inches, the horizontal members can be on the side of the fence facing away from the pool. The spacing between vertical members should not exceed 4 inches. This size is based on the head breadth and chest depth of young child and is intended to prevent a child from passing through an opening. Again, if there are any decorative cutouts in the fence, the space within the cutouts should not exceed 1-3/4 inches.*

The 4" is within ARS 36-1681, US Consumer Product Safety Commission Pool Barrier guidelines and the International Residential Code (requirement goes back to at least the 2000 IRC.)

A determination of the Building official and the Community Development Director in 2001 which indicated that a conflict existed between ARS 36-1681, the zoning ordinance and ordinance 47-94

and concluded that the top surfaces of the horizontal members shall be at least 45". This 45" and the 1.75" goes back to at least the 2000 IRC. Requirement is also within the US Consumer Product Safety Commission pool safety guidelines.

12. Where chain link fences are permitted by Town ordinance, the maximum mesh opening size for chain link fences shall be a 2.25-inch 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.



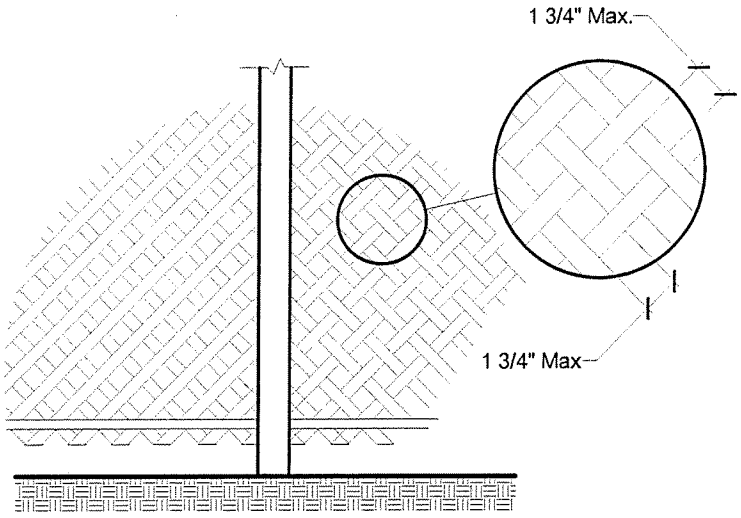
If chain link dimensions are larger than shown above, then slats may be woven into the chain link mesh and fastened at the top or bottom. Verify if chaiin link fencing is permitted within the Zoning Ordinance

EXAMPLE

❖ *The 2 1/4-inch (57 mm) dimension is intended to reduce the potential for a child to gain a foothold. The mesh size is permitted to be larger than 2 1/4-inches (57 mm) square if slats are used to reduce the mesh opening to 1 3/4 inches (44 mm) in order to decrease the potential for a child to obtain a foothold or handhold.*

Chainlike fences are addressed and clarifies safety requirements that are within the US Consumer Product Safety Commission Pool Safety Guidelines and the International Residential Code (Chain link requirement goes back to at least the 2000 IRC.) and ARS 36-1681

13. 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 3/4 inches.



EXAMPLE

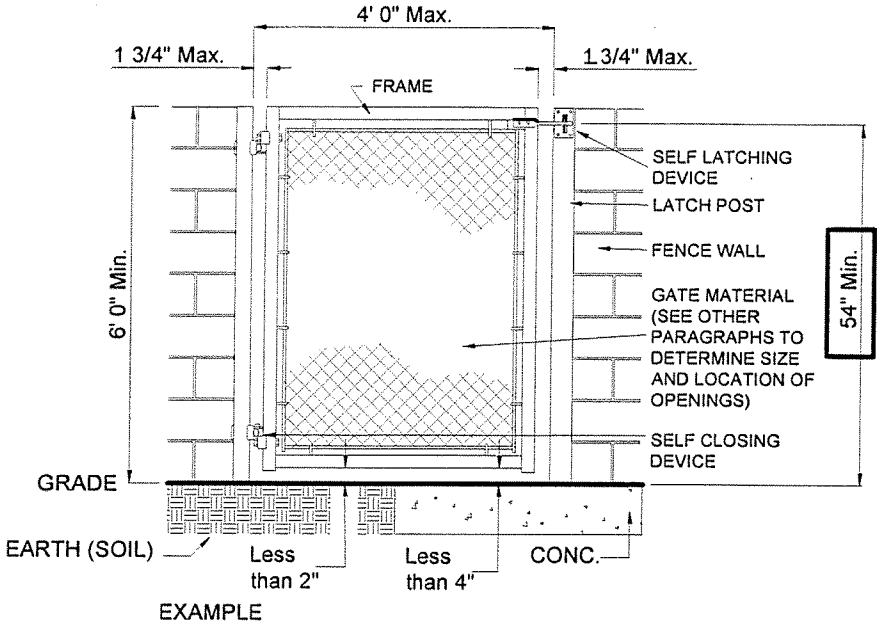
❖ *A slightly larger opening is permitted for barriers composed of diagonal members other than chain link fences, on the basis that such barriers would be more difficult to gain a foothold and handhold on than a chain link fence. The 1 3/4-inch (44 mm) dimension is consistent with examples above.*

Clarification. U.S. Consumer Product Safety Commission, Building codes 2000 editions and before have similar requirements.

14. Every opening up to 4' in width in a required pool barrier shall be provided with a minimum five (5) foot high self-closing access gate, which is at least (5) feet high measured from the adjacent grade and all access gates shall open outwards away from the swimming pool and shall have a self-latching device or lock in good condition.

❖ *The New ordinance gives guidance to issues encountered in the field and to gates exceeding 4' which the building codes address will have closing issues based on size and weight. Access gate requirement goes back to at least the 2000 IRC, the 5' height is within ARS 36-1681 and a determination of the Building official and the Community Development Director in 2001 which also indicated that a conflict existed between ARS 36-1681, the zoning ordinance and ordinance 47-94 and concluded that the fence shall be not less than 5'*

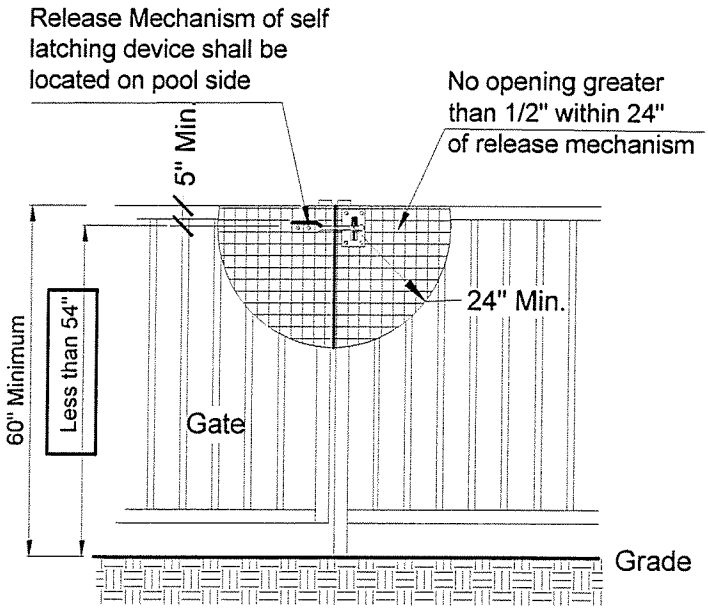
15. Pedestrian access gates shall comply with the requirements of AG105.2, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the swimming pool and shall be self-closing and have a self-latching device. Gates other than Pedestrian access gates shall have a self-latching device and shall be secured by a padlock or similar device which requires a key, electric opener or integral combination.



❖ *Clarification. The U.S. Consumer Product Safety Commission Pool Safety Guidelines, ARS 36-1681, Building codes 2000 editions and before have similar requirements.*

Where the release mechanism of the self-latching device is located less than 54 inches from grade, the release mechanism and openings shall comply with the following:

a. The release mechanism shall be located on the pool side of the gate at least 5 inches below the top of the gate and
b. The gate and barrier shall have no opening greater than 0.5 inch within 24 inches of the release mechanism



EXAMPLE

❖ *Gates: There are two kinds of gates which might be found on a residential property. Both can play a part in the design of a swimming pool barrier.*

All commentaries are indented below the code text and begins with the symbol ❖

Pedestrian Gates:

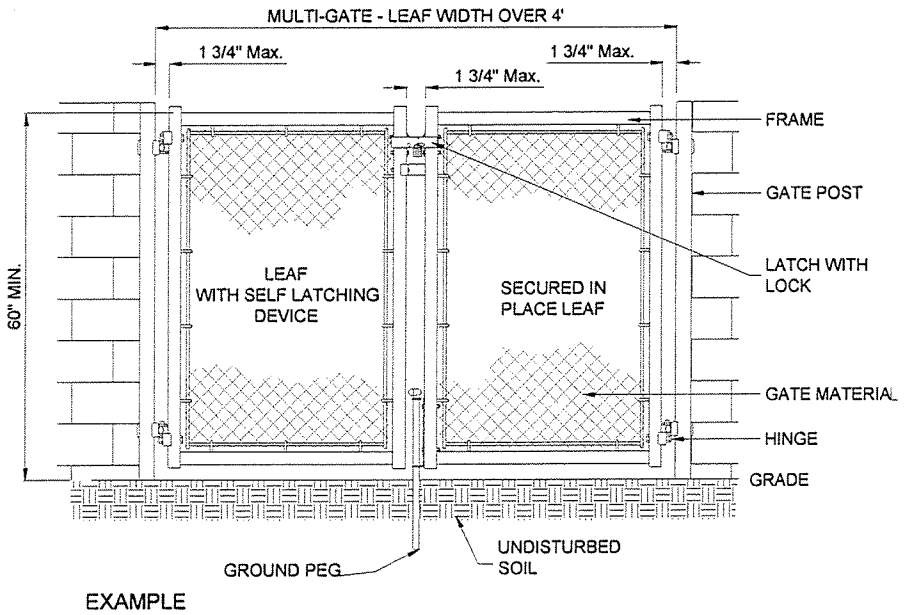
These are the gates people walk through. Swimming pool barriers should be equipped with a gate or gates which restrict access to the pool. A locking device should be included in the gate design. Gates should open out from the pool and should be selfclosing and self-latching. If a gate is properly designed, even if the gate is not completely latched, a young child pushing on the gate in order to enter the pool area will at least close the gate and may actually engage the latch.

A gate represents the same potential hazard relative to climbing as do the other portions of the barrier; therefore, it must be constructed in accordance with applicable items above.

Additionally, because the gate also represents a potential breech of the barrier because the gate can be opened, the code provides prescriptive details for the construction and operation of the gate. A self-closing pedestrian gate must open away from the pool because if the latch fails to operate, a child pushing on the gate will not gain immediate access to the pool. Pushing on the gate may also engage the latch. Large, nonpedestrian gates are not required to be self-closing because of prohibitive cost and maintenance concerns coupled with the fact that these gates are typically operated by persons other than small children. The 54-inch (1372 mm) latch height requirement limits the potential for small children to reach and activate the latch. If the latch is located lower than 54 inches (1372 mm), the code's prescriptive location requirements preclude the latch from being activated by small children who are not on the pool side of the gate.

This gives more specific direction and clarifies the safety issues determined. Self closing and opening requirements goes back to at least the 2000 IRC. The 5" and the 24" are requirements of ARS 36-1681

17. Gates for openings of four (4) feet or greater leaf width must be secured with a self-latching device and be kept locked. Double gates or multiple gates shall have at least one leaf secured in place and the adjacent leaf shall be secured with the self-latching device.

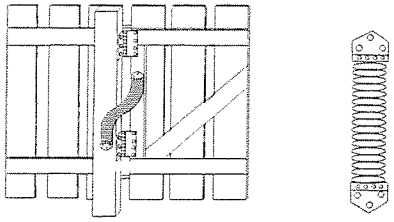


EXAMPLE

❖ *Clarification. The U.S. Consumer Product Safety Commission Pool Safety Guidelines, ARS 36-1681, Building codes 2000 editions and before have similar requirements. The building code has indicated that a door/gate 4' or more in width, based on the weight, can have problems opening and closing on its' own.*

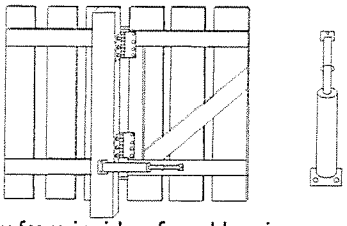
Then following are devices defined as self-closing "which will cause any gate to return to a closed position without the aid of a push or pull from a person".

A pedistrian gate must close automatically to prevent unauthorized entry into the pool area. Self-closing devices must be kept in good repair. Illustrated below are three commonly used types of closers designed to close the gate automatically.



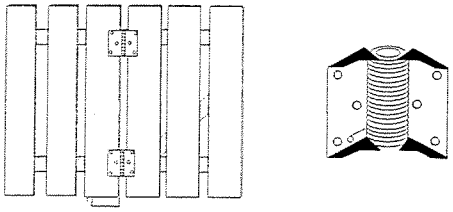
View from inside of pool barrier

TORSION SPRING
(pulls gate closed)



View from inside of pool barrier

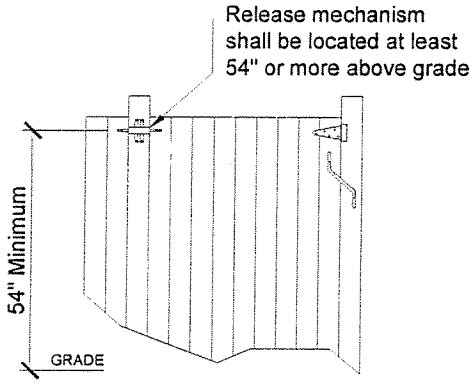
HYDRAULIC CLOSER
(pulls gate closed)



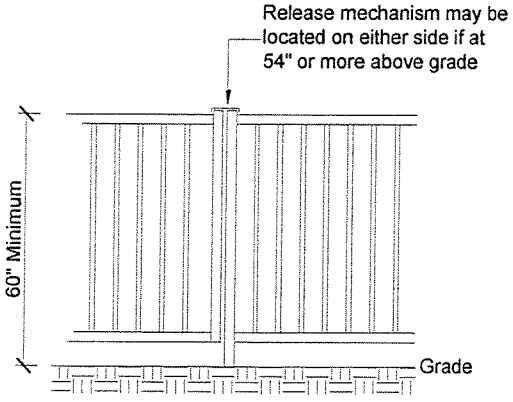
View from outside of pool barrier

SPRING LOADED HINGES
(pushes gate closed)

SELF-CLOSING DEVICES EXAMPLES



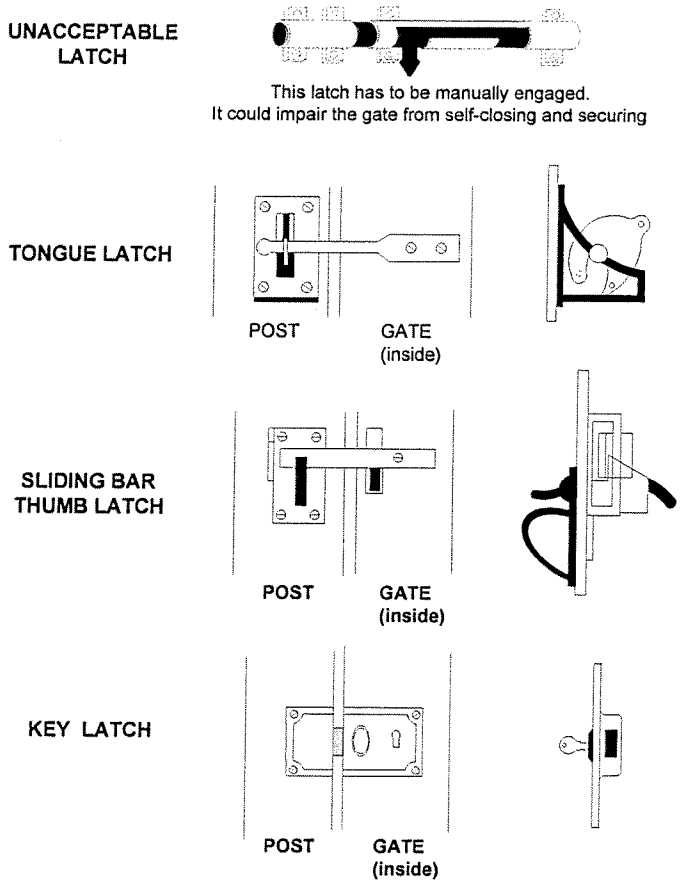
Typical self-latching
gate and spring closer



Release mechanism located
54" or more above grade

GATE LATCHING/RELEASE MECHANISM (example)

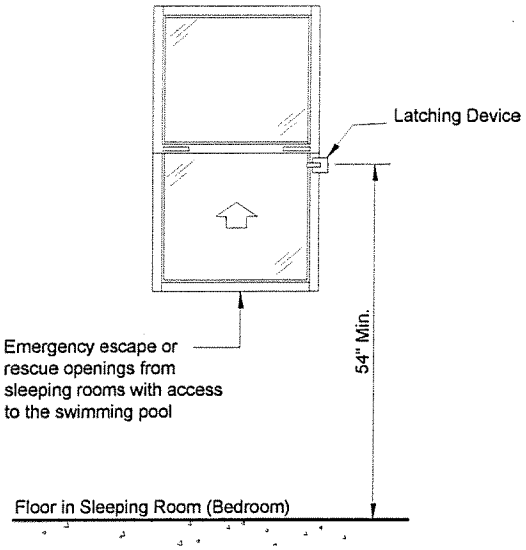
All commentaries are indented below the code text and begins with the symbol ❖



LATCHES (examples)

18. Where a wall of a dwelling or accessory structures serves as part of the barrier one of the following conditions shall be met:

a. From sleeping areas/rooms, emergency escape or rescue openings with access to the swimming pool or other contained body of water which meet the definition of a swimming pool shall be equipped with a latching device not less than fifty-four (54) inches above the floor. Emergency escape and rescue openings shall be operational from the inside as required by the building codes. All other openable dwelling unit or guest room windows with similar access shall be equipped with a screwed in place wire mesh screen, or a keyed lock that prevents opening the window more than four (4) inches, or latching device located not less than fifty-four (54) inches above the floor. All ground level doors or other doors and openings with direct access to the swimming pool or other contained body of water, meeting the definition of a swimming pool, shall be equipped with a self-latching device located not less than fifty-four (54) inches above the floor. Sliding doors shall not form part of a required barrier unless the self-closing and self-latching mechanism is specifically approved by the Building Official for this purpose.



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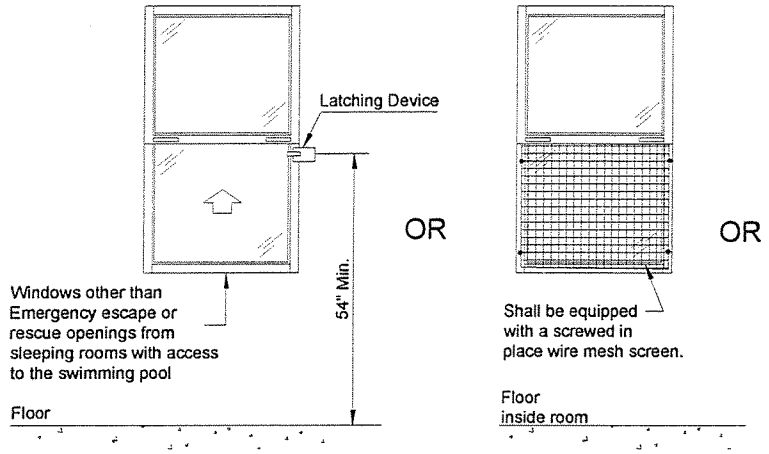

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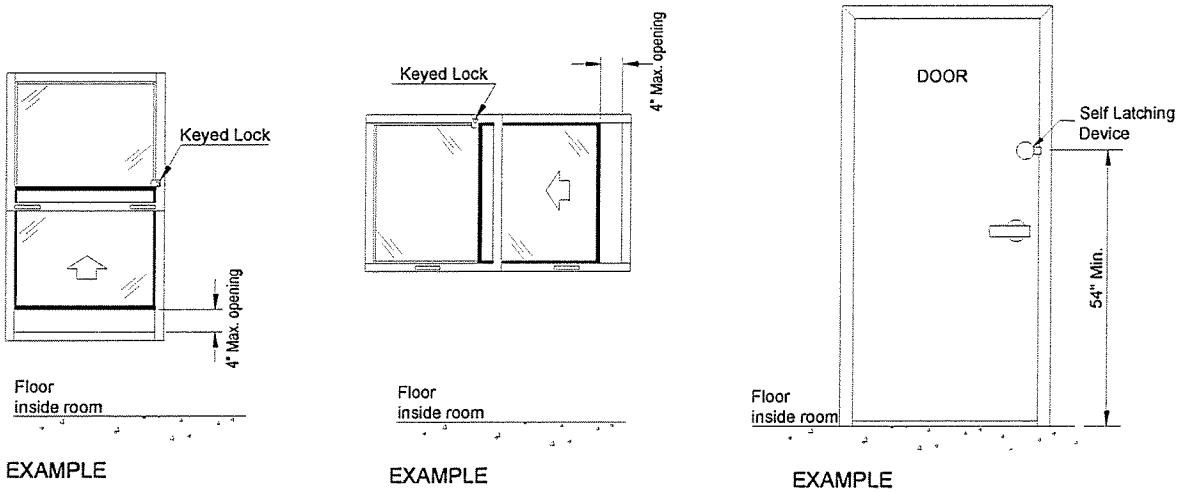


EXAMPLE EXAMPLE EXAMPLE

❖ *This is for clarification based on issues that have come up. The US Consumer Product Safety Commission indicates that self closing and self latching doors may be acceptable. ARS 36-1681 states language similar to above and the IRC requirements has allowed this requirement and goes back to at least the 2000 IRC.*

All commentaries are indented below the code text and begins with the symbol ❖

b. Other openings such as dog doors or similar openings shall meet the requirements of this appendix when the opening has access directly to the pool.

❖ *Clarification. The building code allows for methods that will accomplish the intent for safety when this issue is encountered.*

c. The pool shall be protected by a motorized safety pool cover which requires the operation of a key switch which meets the American Society of Testing and Materials Emergency Standards 13-89 and which does not require manual operation other than the use of the key switch.

❖ *The IRC requirements has allowed this requirement and goes back to at least the 2000 IRC. The US Consumer Product Safety Commission Pool Barrier Guidelines and ARS 36-1681 indicates a safety cover option.*

d. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the Building Official, shall be acceptable so long as the degree of protection afforded is not less than the protection afforded by items a, b, or c above.

❖ *Clarification. U.S. Consumer Product Safety Commission, Building codes 2000 editions and before have similar requirements.*

e. Above-ground pool structure barriers shall meet the requirements of this appendix.

❖ *When the House Wall Forms Part of the Pool Barrier: In many homes, doors open directly onto the pool area or onto a patio which leads to the pool. In such cases, the wall of the house is an important part of the pool barrier, and passage through any doors in the house wall should be controlled by security measures. The importance of controlling a young child's movement from house to pool is demonstrated by the statistics obtained during a study of pool incidents in California, Arizona and Florida: almost half (46 percent) of the children who became victims of pool accidents were last seen in the house just before they were found in the pool.(Consumer Products Safety Commission).*

Many residential settings with backyard pools use the dwelling as a portion of the barrier required around the pool, such as where the fence bounding the property terminates at the dwelling. This limits access to the pool by unsupervised children around the perimeter of the fence, but there is still a potential for children to access the pool from within the dwelling. Indeed, almost half the children involved in drowning or near-drowning accidents gained access to the pool from the dwelling.

The provisions of this section restrict such access by small children and are applicable to all doors in walls that form a portion of the barrier required around swimming pools.

Protection of such door openings to pool areas can be achieved in any one of the methods described. One alternative does not require protection of the exterior door itself but limits access to the pool by means of a power safety cover. The performance criteria specified when this option is selected assures that the power safety cover is an adequate and reliable barrier to the pool.

Another item permits doors to pool areas to be protected by devices that render the door self-closing and self-latching. Any other requirements would be performance based because the code requires equivalency. One possible criterion could require the release mechanism for the latching device to be located a minimum of 54 inches (1372 mm) above the floor, which is presumed to be beyond the reach of small children. In addition, doors protected by the methods specified should probably open away from the pool area. This is so that if the door failed to latch, a child outside the pool area pushing against the door would cause it to close and not swing to an open position.

All commentaries are indented below the code text and begins with the symbol ❖

The 54" is referenced in ARS 36-1681, the building codes back to the 2000 edition and the US Consumer Product Safety Commission Pool Barrier guidelines also discusses the need for safety requirements of doors from houses.

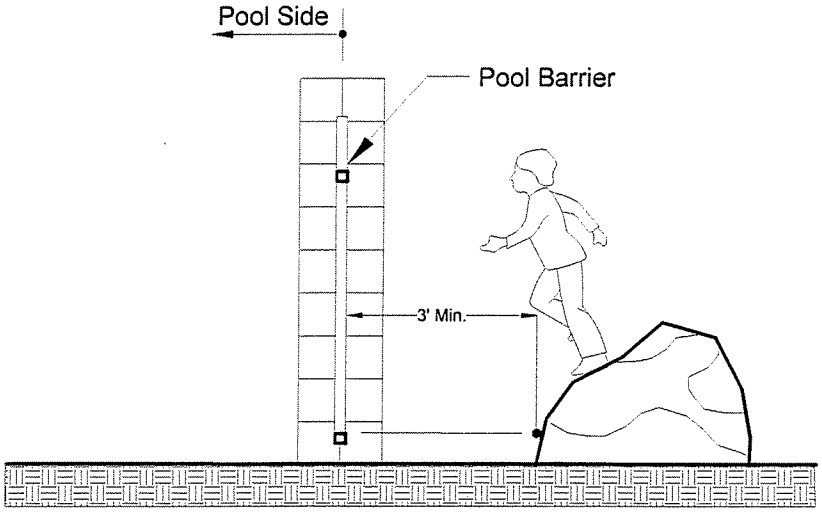
For clarification above ground pools have been required to include a 5' barrier as indicated. The new ordinance clarifies that a 5' barrier is required the meets the same requirements as an in-ground pools.

AG105.3 Indoor swimming pool. All walls surrounding an indoor swimming pool shall comply with the pool barrier requirements of AG105.2.

❖ *Indoor Pools: When a pool is located completely within a structure, the walls that surround the pool should be equipped to serve as pool safety barriers. Indoor pools represent the same hazards as outdoor pools. For this reason, the walls and doors surrounding an indoor swimming pool are regulated in the same manner as an exterior wall of a dwelling where the wall is used as a barrier for an outdoor pool.*

Clarification that indoor pools have the same safety issues as exterior pools. U.S. Consumer Product Safety Commission, ARS 36-1681, Building codes 2000 editions and before have similar requirements.

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. For the purposes of structures, equipment or similar objects, the nearest edge being a minimum of 3' or more horizontal distance away from the required barrier shall be considered adequate for the determination of not being used to climb the barrier.



EXAMPLE

❖ *The purpose of a swimming pool barrier would be defeated if children could climb on benches, planters, pumps and similar permanent features adjacent to the barrier and gain access to the pool area. Therefore, the area adjacent to the barrier must be carefully designed and constructed to avoid such a condition. This provision is performance in character and must be reviewed on a case-by-case basis.*

U.S. Consumer Product Safety Commission, Building codes 2000 editions and before have similar requirements.

All commentaries are indented below the code text and begins with the symbol ❖

Clarification. The 3' has been used by the building codes as a reasonable distance for safety concerns.

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

❖ *The provisions of this appendix chapter are not applicable to spas and hot tubs where an approved safety cover serves as the protective barrier. The requirements of ASTM F 1346 contain a number of criteria so that the safety cover can provide a level of protection that is equivalent to that provided by a swimming pool enclosure barrier. The following requirements are representative of several of the specifications found in the standard:*

1. *There should be a means of fastening the safety cover to the hot tub or spa, such as key locks, combination locks, special tools or similar devices that will prohibit children from removing or operating the cover. The fastening mechanism, design and location are vital components that help prevent a child's entry to the water.*
2. *The safety cover should have a label that provides a warning and message regarding the risk of drowning. The label is also very important for the transfer of information to second ownersand temporary users.*
3. *The cover should have been tested to demonstrate that it is capable of supporting the weight of one child [50 pounds (23 kg)] and one adult [225 pounds (102 kg)] so an adult and a child can be supported during a rescue operation.*
4. *There should be no openings in the cover itself or at any point where the cover joins the surface of the hot tub or spa that would allow a child's head to pass through. The 4-inch (102 mm) spacing for guards in Section R312 and openings in pool enclosures of Section AG105.2 are also applicable.*
5. *Safety covers are to be installed in accordance with the manufacturer's instructions.*

Clarification. U.S. Consumer Product Safety Commission, ARS 36-1681, Building codes 2000 editions and before have similar requirements.

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 other-wise shall be protected against user entrapment.

❖ *Vacuum devices for suction inlet systems in pool water circulation are a safety hazard. Body entrapment or hair entrapment can cause drowning and evisceration. Therefore it is important that protection be provided against possible entrapment at the pool entrances to suction inlets and that vacuum relief be provided for the vacuum system. Sections AG106.2 through AG106.5 contain requirements for the various types of safety devices.*

These are Building codes requirements and requirements of the Virginia Graeme Baker Pool and Spa Safety Act', US Congress Title Xiv—Pool And Spa Safety (15 Usc 8001).

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" x 12" drain grate or larger, or an approved channel drain system.

Exception: Surface skimmers

❖ *ANSI/ASME A112.19.8M requires cover material for pool and spa suction outlets to be tested for structural integrity and for entrapment/entanglement potential. It also requires that the cover be marked with the maximum flow rate for which the cover has been tested. Exceeding the maximum flow rate will increase the potential for a child or small adult being entrapped by the increased suction. The code also allows 18-inch by 23-inch (457mmby 584 mm) drain grates or approved channel drain systems as alternative protection methods. Both of these will provide larger surface areas to maintain the desired flow and will minimize the entrapment hazard because it will be difficult to seal off the entire 2.9 square foot (2694 cm2) area.*

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

❖ *Safety Vacuum Relief Systems (SRVS) are required for all pool and spa circulating systems to serve as a backup safety system in case the suction outlet cover or grate is removed or becomes broken. If the outlet is sealed off, the SRVS will activate and eliminate the high vacuum forces at the drain, avoiding body entrapment. An SRVS is not required if the pool or spa has a gravity drain system instead of a pumped circulation 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.

❖ *The principal reason for installing dual or multiple drain systems is to prevent a single drain opening from being the sole inlet to the suction side of the pump. The installation of additional drains effectively divides the suction between the drains provided the interconnecting piping configuration produces hydraulic balance.*

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).

❖ *Pool cleaner fittings are not required for all pools and spas, but where they are provided, they need to be located below the normal water surface but not more than 12 inches (305 mm) below the surface. This location provides ease of access to the fittings for cleaning and prevents them from contributing to an entrapment situation at the bottom of the pool.*

SECTION AG107
ABBREVIATIONS

❖ *Clarification. This section sets forth the full names and addresses of organizations that develop standards referenced in this appendix chapter. The abbreviations for the names of the organizations are used throughout the code text.*

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

❖ *This section sets forth the full names and addresses of organizations that develop standards referenced in this appendix chapter. The abbreviations for the names of the organizations are used throughout the code text.*

SECTION AG108 - STANDARDS

❖ *This section sets forth the full names and addresses of organizations that develop standards referenced in this appendix chapter. The abbreviations for the names of the organizations are used throughout the code text.*

AG108.1 General.
ANSI/NSPI
ANSI/NSPI-3-99 Standard for Permanently Installed
Residential Spas

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

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

ANSI/NSPI-6-99 Standard for Residential
Portable Spas

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

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

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

UL
UL2017-2000 Standard for General-purpose
Signaling Devices and Systems—with Revisions
through June 2004. . . . . AG105.2