



# Charter Township of Garfield

Grand Traverse County

3848 VETERANS DRIVE

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# RESIDENTIAL SWIMMING POOL REQUIREMENTS



**NEGATIVE EDGE.** See “Vanishing edge.”

**NONENTRY AREA.** An area of the deck from which entry into the pool or spa is prohibited.

**ON GROUND STORABLE POOL.** A pool which can be disassembled for storage or transport. This includes portable pools with flexible or nonrigid walls that achieve their structural integrity by means of uniform shape, a support frame or a combination thereof, and that can be disassembled for storage or relocation.

**OVERFLOW GUTTER.** The *gutter* around the top perimeter of the pool or spa, which is used to skim the surface.

**[A]OWNER.** Any person, agent, firm, or corporation having a legal or equitable interest in the property.

**[A]PERMIT.** An official document or certificate issued by the authority having jurisdiction that authorizes performance of a specified activity.

**POOL.** See “Public swimming pool” and “Residential swimming pool.”

**POWER SAFETY COVER.** A pool cover that is placed over the water area and is opened and closed with a motorized mechanism activated by a control switch.

**PUBLIC SWIMMING POOL (Public Pool).** A pool, other than a *residential* pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee, or concessionaire, regardless of whether a fee is charged for use. Public pools shall be further classified and defined as follows:

**CLASS A, COMPETITION POOL.** A pool intended for use for accredited competitive aquatic events such as Federation International De Natation (FINA), USA Swimming, USA Diving, USA Synchronized Swimming, USA Water Polo, National Collegiate Athletic Association (NCAA), or the National Federation of State High School Associations (NFHS).

**CLASS B, PUBLIC POOL.** A pool intended for public recreational use that is not identified in the other classifications of public pools.

**CLASS C, SEMI-PUBLIC POOL.** A pool operated solely for and in conjunction with lodgings such as hotels, motels, apartments, or condominiums.

**CLASS D-1, WAVE ACTION POOL.** A pool designed to simulate breaking or cyclic waves for purposes of general play or surfing.

**CLASS D-2, ACTIVITY POOL.** A pool designed for casual water play ranging from simple splashing activity to the use of attractions placed in the pool for recreation.

**CLASS D-3, CATCH POOL.** A body of water located at the termination of a manufactured waterslide attraction. The body of water is provided for the purpose of terminating the slide action and providing a means for exit to a deck or walkway area.

**CLASS D-4, LEISURE RIVER.** A manufactured stream of water of near-constant depth in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices.

**CLASS D-5, VORTEX POOL.** A circular pool equipped with a method of transporting water in the pool for the purpose of propelling riders at speeds dictated by the velocity of the moving stream of water.

**CLASS D-6, INTERACTIVE PLAY ATTRACTION.** A manufactured water play device or a combination of water-based play devices in which water flow volumes, pressures or patterns can be varied by the bather without negatively influencing the hydraulic conditions for other connected devices. These attractions incorporate devices or activities such as slides, climbing and crawling structures, visual effects, user-actuated mechanical devices, and other elements of bather-driven and bather-controlled play.

**CLASS E.** Pools used for instruction, play or therapy and with temperatures above 86°F (30°C).

**CLASS F.** Class F pools are wading pools and are covered within the scope of this code as set forth in Section 405.

Public pools are either a diving or non-diving type. Diving types of public pools are classified into types as an indication of the suitability of a pool for use with diving equipment.

**TYPES VI-IX.** Public pools suitable for the installation of diving equipment by type.

**TYPE O.** A non-diving public pool.

**RECESSED TREADS.** A series of vertically spaced cavities in a pool or spa wall creating tread areas for step holes.

**RECIRCULATION SYSTEM.** See “Circulation system.”

**[A]REPAIR.** The restoration to good or sound condition of any part of a pool or spa for the purpose of its maintenance or to correct damage.

**RESIDENTIAL.** For purposes of this code, *residential* applies to detached one and two family dwellings and townhouses not more than three stories in height.

**RESIDENTIAL SWIMMING POOL (Residential Pool).** A pool intended for use which is accessory to a *residential* setting and available only to the household and its guests. All other pools shall be considered public pools for purposes of this code.

**TYPES I-V.** *Residential* pools suitable for the installation of diving equipment by type.

**TYPE O.** A non-diving *residential* pool.

**RETURN INLET.** The aperture or fitting through which the water under positive pressure returns into a pool.

**RING BUOY.** A ring-shaped floating buoy capable of supporting a user, usually attached to a throwing line.

**ROPE AND FLOAT LINE.** A continuous line not less than 1/4 inch (6 mm) in diameter that is supported by buoys and attached to opposite sides of a pool to separate the deep and shallow ends.

**RUNOUT.** A continuation of water slide flume surface where riders are intended to decelerate and come to a stop.

**SAFETY COVER.** A structure, fabric, or assembly, along with attendant appurtenances and anchoring mechanisms, that is temporarily placed or installed over an entire pool, spa or hot tub and secured in place after all bathers are absent from the water.

## SECTION 304 FLOOD HAZARD AREAS

**304.1 General.** The provisions of Section 304 shall control the design and construction of pools and spas installed in *flood hazard areas*.

**[BS] 304.2 Determination of impacts based on location.** Pools and spas located in *flood hazard areas* indicated within the *International Building Code* or the *International Residential Code* shall comply with Section 304.2.1 or 304.2.2.

**Exception:** Pools and spas located in riverine *flood hazard areas* that are outside of designated floodways and pools and spas located in *flood hazard areas* where the source of flooding is tides, storm surges or coastal storms.

**[BS] 304.2.1 Pools and spas located in designated floodways.** Where pools and spas are located in designated floodways, documentation shall be submitted to the code official that demonstrates that the construction of the pools and spas will not increase the design flood elevation at any point within the jurisdiction.

**[BS] 304.2.2 Pools and spas located where floodways have not been designated.** Where pools and spas are located where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool or spa and any associated grading and filling, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

**[BS] 304.3 Pools and spas in coastal high-hazard areas.** Pools and spas installed in coastal high-hazard areas shall be designed and constructed in accordance with ASCE 24.

**[BS] 304.4 Protection of equipment.** Equipment shall be elevated to or above the design flood elevation or be anchored to prevent flotation and protected to prevent water from entering or accumulating within components during conditions of flooding.

**304.5 GFCI protection.** Electrical equipment installed below the design flood elevation shall be supplied by branch circuits that have ground-fault circuit interrupter protection for personnel.

## SECTION 305 BARRIER REQUIREMENTS

**305.1 General.** The provisions of this section shall apply to the design of barriers for pools and spas. These design controls are intended to provide protection against the potential drowning and near drowning by restricting access to such pools or spas. These requirements provide an integrated level of protection against potential drowning through the use of physical barriers and warning devices.

### **Exceptions:**

1. Spas and hot tubs with a lockable safety cover that complies with ASTM F 1346.
2. Swimming pools with a powered safety cover that complies with ASTM F 1346.

**305.2 Outdoor swimming pools and spas.** Outdoor pools and spas and indoor swimming pools shall be surrounded by a barrier that complies with Sections 305.2.1 through 305.7.

**305.2.1 Barrier height and clearances.** Barrier heights and clearances shall be in accordance with all of the following:

1. The top of the barrier shall be not less than 48 inches (1219 mm) above grade where measured on the side of the

barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.

2. The vertical clearance between grade and the bottom of the barrier shall not exceed 2 inches (51 mm) for grade surfaces that are not solid, such as grass or gravel, where measured on the side of the barrier that faces away from the pool or spa.

3. The vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall not exceed 4 inches (102 mm) where measured on the side of the required barrier that faces away from the pool or spa.

4. Where the top of the pool or spa structure is above grade, the barrier shall be installed on grade or shall be mounted on top of the pool or spa structure. Where the barrier is mounted on the top of the pool or spa, the vertical clearance between the top of the pool or spa and the bottom of the barrier shall not exceed 4 inches (102 mm).

**305.2.2 Openings.** Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

**305.2.3 Solid barrier surfaces.** Solid barriers that do not open shall not contain indentations or protrusions that form handholds and footholds, except for normal construction tolerances and tooled masonry joints.

**305.2.4 Mesh fence as a barrier.** Mesh fences, other than chain link fences in accordance with Section 305.2.7, shall be installed in accordance with the manufacturer's instructions and shall comply with the following:

1. The bottom of mesh fence shall be not more than 1 inch (25 mm) above the deck or installed surface or grade.

2. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not permit the fence to be lifted more than 4 inches (102 mm) from grade or decking.

3. The fence shall be designed and constructed so that it does not allow passage of a 4-inch (102 mm) sphere under any mesh panel. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not be more than 4 inches (102 mm) from grade or decking.

4. An attachment device shall attach each barrier section at a height not lower than 45 inches (1143 mm) above grade. Common attachment devices include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye-type latch incorporating a spring-actuated retaining lever such as a safety gate hook.

5. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 305.3.

6. Patio deck sleeves such as vertical post receptacles that are placed inside the patio surface shall be of a nonconductive material.

7. Mesh fences shall not be installed on top of onground residential pools.

**305.2.5 Closely spaced horizontal members.** 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 (1143 mm), the horizontal members shall be located on the pool or spa side of the fence. Spacing between vertical members shall not exceed 13/4 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 13/4 inches (44 mm) in width.

**305.2.6 Widely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal 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 vertical members, the interior width of the cutouts shall not exceed 13/4 inches (44 mm).

**305.2.7 Chain link dimensions.** The maximum opening formed by a chain link fence shall be not more than 13/4 inches (44 mm). Where the fence is provided with slats fastened at the top and bottom which reduce the openings, such openings shall be not more than 13/4 inches (44 mm).

**305.2.8 Diagonal members.** Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not more than 13/4 inches (44 mm). The angle of diagonal members shall be not greater than 45 degrees (0.79 rad) from vertical.

**305.2.9 Clear zone.** There shall be a clear zone of not less than 36 inches (914 mm) between the exterior of the barrier and any permanent structures or equipment such as pumps, filters and heaters that can be used to climb the barrier.

**305.2.10 Poolside barrier setbacks.** The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge.

**305.3 Gates.** Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

**305.3.1 Utility or service gates.** Gates not intended for pedestrian use, such as utility or service gates, shall remain locked when not in use.

**305.3.2 Double or multiple gates.** Double gates or multiple gates shall have at least one leaf secured in place and the adjacent leaf shall be secured with a self-latching device. The gate and barrier shall not have openings larger than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the latch release mechanism. The self-latching device shall comply with the requirements of Section 305.3.3.

**305.3.3 Latches.** Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from grade, the release mechanism shall be located on the pool or spa side of the gate not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

**305.4 Structure wall as a barrier.** Where a wall of a dwelling or structure serves as part of the barrier and where doors or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor and doors shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be listed and labeled as a water hazard entrance alarm in accordance with UL 2017. In dwellings or structures not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located 54 inches (1372 mm) or more above the finished floor. In dwellings or structures required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

2. A safety cover that is listed and labeled in accordance with ASTM F 1346 is installed for the pools and spas.

3. An approved means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

### **305.5 Onground residential pool structure as a barrier.**

An onground residential pool wall structure or a barrier mounted on top of an onground residential pool wall structure shall serve as a barrier where all of the following conditions are present:

1. Where only the pool wall serves as the barrier, the bottom of the wall is on grade, the top of the wall is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, the wall complies with the requirements of Section 305.2 and the pool manufacturer allows the wall to serve as a barrier.

2. Where a barrier is mounted on top of the pool wall, the top of the barrier is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, and the wall and the barrier on top of the wall comply with the requirements of Section 305.2.

3. Ladders or steps used as means of access to the pool are capable of being secured, locked or removed to prevent access except where the ladder or steps are surrounded by a barrier that meets the requirements of Section 305.

4. Openings created by the securing, locking or removal of ladders and steps do not allow the passage of a 4-inch (102 mm) diameter sphere.

5. Barriers that are mounted on top of onground residential pool walls are installed in accordance with the pool manufacturer's instructions.

**305.6 Natural barriers.** In the case where the pool or spa area abuts the edge of a lake or other natural body of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between the natural body of water shoreline and the pool or spa.

**305.7 Natural topography.** Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier approved by the governing body shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirements of Sections 305.2 through 305.5.

## **SECTION 306 DECKS**

**306.1 General.** Decks shall be designed and installed in accordance with the *International Residential Code* or the *International Building Code*, as applicable in accordance with Section 102.7.1, except as provided in this section.

**306.2 Slip resistant.** Decks, ramps, coping, and similar step surfaces shall be slip resistant and cleanable. Special features in or on decks such as markers, brand insignias, and similar materials shall be slip resistant.

**306.3 Step risers and treads.** Step risers for decks of public pools and spas shall be uniform and have a height not less than 3 ¼ inches (95 mm) and not greater than 7 ½ inches (191 mm). The tread distance from front to back shall be not less than 11 inches (279 mm). Step risers for decks of residential pools and spas shall be uniform and shall have height not exceeding 7 ½ inches (191 mm). The tread distance from front to back shall be not less than 10 inches (254 mm).

**306.4 Deck steps handrail required.** Public pool and spa deck steps having three or more risers shall be provided with a handrail.

**306.5 Slope.** The minimum slope of decks shall be accordance with Table 306.5 except where an alternative drainage method is provided that prevents the accumulation or pooling of water. The slope for decks, other than wood decks, shall be not greater than ½ inch per foot (1 mm per 24 mm) except for ramps. The slope for wood and wood/plastic composite decks shall be not greater than ¼ inch per 1 foot (1 mm per 48 mm). Decks shall be sloped so that standing water will not be deeper than ⅛ inch (3.2 mm), 20 minutes after the cessation of the addition of water to the deck.

**306.6 Gaps.** Gaps shall be provided between deck boards in wood and wood/plastic composite decks. Gaps shall be consistent with *approved* engineering methods with respect to the type of wood used and shall not cause a tripping hazard.

**306.6.1 Maximum gap.** The open gap between pool decks and adjoining decks or walkways, including joint material, shall be not greater than ¾ inch (19.1 mm). The difference in vertical elevation between pool deck and the adjoining sidewalk shall be not greater than ¼ inch (6.4 mm).

**306.7 Concrete joints.** Isolation joints that occur where the pool coping meets the concrete deck shall be watertight.

**306.7.1 Joints at coping.** Joints that occur where the pool coping meets the concrete deck shall be installed to protect the coping and its mortar bed from damage as a result of the anticipated movement of adjoining deck.

**306.7.2 Crack control.** Joints in a deck shall be provided to minimize visible cracks outside of the control joints caused by imposed stresses or movement of the slab.

**306.7.3 Movement control.** Areas where decks join existing concrete work shall be provided with a joint to protect the pool from damage caused by relative movement.

**306.8 Deck edges.** The edges of decks shall be radiused, tapered, or otherwise designed to eliminate sharp corners.

**306.9 Valves under decks.**

Valves installed in or under decks shall be accessible for operation, service, and maintenance. Where access through the deck walking surface is required, an access cover shall be provided for the opening in the deck. Such access covers shall be slip resistant and secured.

**306.9.1 Hose bibbs.**

Hose bibbs shall be provided for rinsing down the entire deck and shall be installed in accordance with the International Plumbing Code or International Residential Code, as applicable in accordance with Section 102.7.1, and shall be located not more than 150 feet (45 720 mm) apart. Water-powered devices, such as water-powered lifts, shall have a dedicated hose bibb water source.

**Exception:** Residential pools and spas shall not be required to have hose bibbs located at 150-foot (45 720 mm) intervals or have a dedicated hose bibb for water-powered devices.

**TABLE 306.5  
MINIMUM DRAINAGE SLOPES FOR DECK SURFACES**

<b>SURFACE</b>	<b>MINIMUM DRAINAGE SLOPE (INCH PER FOOT)</b>
Carpet	½
Exposed aggregate	¼
Textured, hand-finished concrete	⅛
Travertine/brick-set pavers: public pools, or spas	⅜
Travertine/brick-set pavers, residential pools, or spas	⅛
Wood	⅛
Wood/plastic composite	⅛

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

## SECTION 307 GENERAL DESIGN

**307.1 General.** The provisions of this section apply to all pools and spas.

**Exception:** The provisions of Sections 307.3 through 307.6 do not apply to listed and labeled portable residential spas and listed and labeled portable residential exercise spas.

**307.2 Glazing in hazardous locations.** Hazardous locations for glazing shall be as defined in the International Building Code or the International Residential Code, as applicable in accordance with Section 102.7.1 of this code. Where glazing is determined to be in a hazardous location, the requirements for the glazing shall be in accordance with those codes, as applicable.

**307.3 Materials.** Pools and spas and appurtenances thereto shall be constructed of materials that are nontoxic to humans and the environment; that are generally or commonly regarded to be impervious and enduring; that will withstand the design stresses; and that will provide a watertight structure with a smooth and easily cleanable surface without cracks or joints, excluding structural joints, or that will provide a watertight structure to which a smooth, easily cleaned surface/finish is applied or attached. Material surfaces that come in contact with the user shall be finished, so that they do not constitute a cutting, pinching, puncturing or abrasion hazard under casual contact and intended use.

**307.3.1 Beach pools.** Clean sand or similar material, where used in a beach pool environment, shall be used over an impervious surface. The sand area shall be designed and controlled so that the circulation system, maintenance, safety, sanitation, and operation of the pool are not adversely affected.

**307.3.2 Compatibility.** Assemblies of different materials shall be chemically and mechanically compatible for their intended use and environment.

**307.4 Materials and structural design.** Pools and spas shall conform to one or more of the standards indicated in Table 307.4. The structural design of pools and spas shall be in accordance with the International Building Code or the International Residential Code, as applicable in accordance with Section 102.7.1 of this code.

**TABLE 307.4  
RESERVOIRS & SHELLS**

MATERIAL	STANDARD
Fiberglass reinforced plastic	IAPMO Z124.7
Plastic	IAPMO Z124.7
Stainless steel (Types 316, 316L, 304, 304L)	ASTM A 240
Tile	ANSI A108/A118/A136.1
Vinyl	ASTM D 1593

**307.4.1 Installation.** Equipment for pools and spas shall be supported to prevent damage from misalignment and settling and located so as to allow access for inspection, servicing, removal, and repair of component parts.

**307.5 Freeze protection.** In climates subject to freezing temperatures, outdoor pool and spa shells and appurtenances, piping, filter systems, pumps and motors, and other components shall be designed and constructed to provide protection from damage from freezing.

**307.6 Surface condition.** The surfaces within public pools and spas intended to provide footing for users shall be slip resistant and shall not cause injury during normal use.

**307.7 Colors and finishes.** The colors, patterns, or finishes of the pool or spa interior shall not obscure objects or surfaces within the pool or spa.

**Exception:** Residential pools and spas.

**307.8 Roofs or canopies.** Roofs or canopies over pools and spas shall be in accordance with the International Building Code or International Residential Code, as applicable in accordance with Section 102.7.1 and shall be constructed so as to prevent water runoff into the pool or spa.

**307.9 Accessibility.** An accessible route to public pools and spas shall be provided in accordance with the International Building Code. Accessibility within public pools and spas shall be provided as required by the accessible recreational facilities provisions of the International Building Code.

Accessibility for pools and spas accessory to detached one- and two-family dwellings and townhouses not more than three stories in height shall be provided where required by the International Residential Code.

## SECTION 308 DIMENSIONAL DESIGN

**308.1 Floor slope.** The slope of the floor from the point of the first slope change to the deep area shall not exceed one unit vertical in three units horizontal (33-percent slope).

**Exception:** Portable residential spas and portable residential exercise spas.

**308.2 Walls.** Walls shall intersect with the floor at an angle or a transition profile. Where a transitional profile is provided at water depths of 3 feet (914 mm) or less, a transitional radius shall not exceed 6 inches (152 mm) and shall be tangent to the wall and is permitted to be tangent to or intersect the floor.

**Exceptions:**

1. Portable residential spas and portable residential exercise spas.

2. Onground storable pools.

**308.3 Shape.**

This code is not intended to regulate the shape of a pool or spa other than to take into account the effect that a given shape will have on the safety of the occupants and to maintain the minimum required level of circulation to ensure sanitation.

**308.4 Waterline.**

The design waterline shall have a maximum construction tolerance at the time of completion of the work of plus or minus 1/4 inch (6.4 mm) for pools and spas with adjustable weir surface skimming systems, and plus or minus 1/8 inch (3.2 mm) for pools and spas with nonadjustable surface skimming systems.





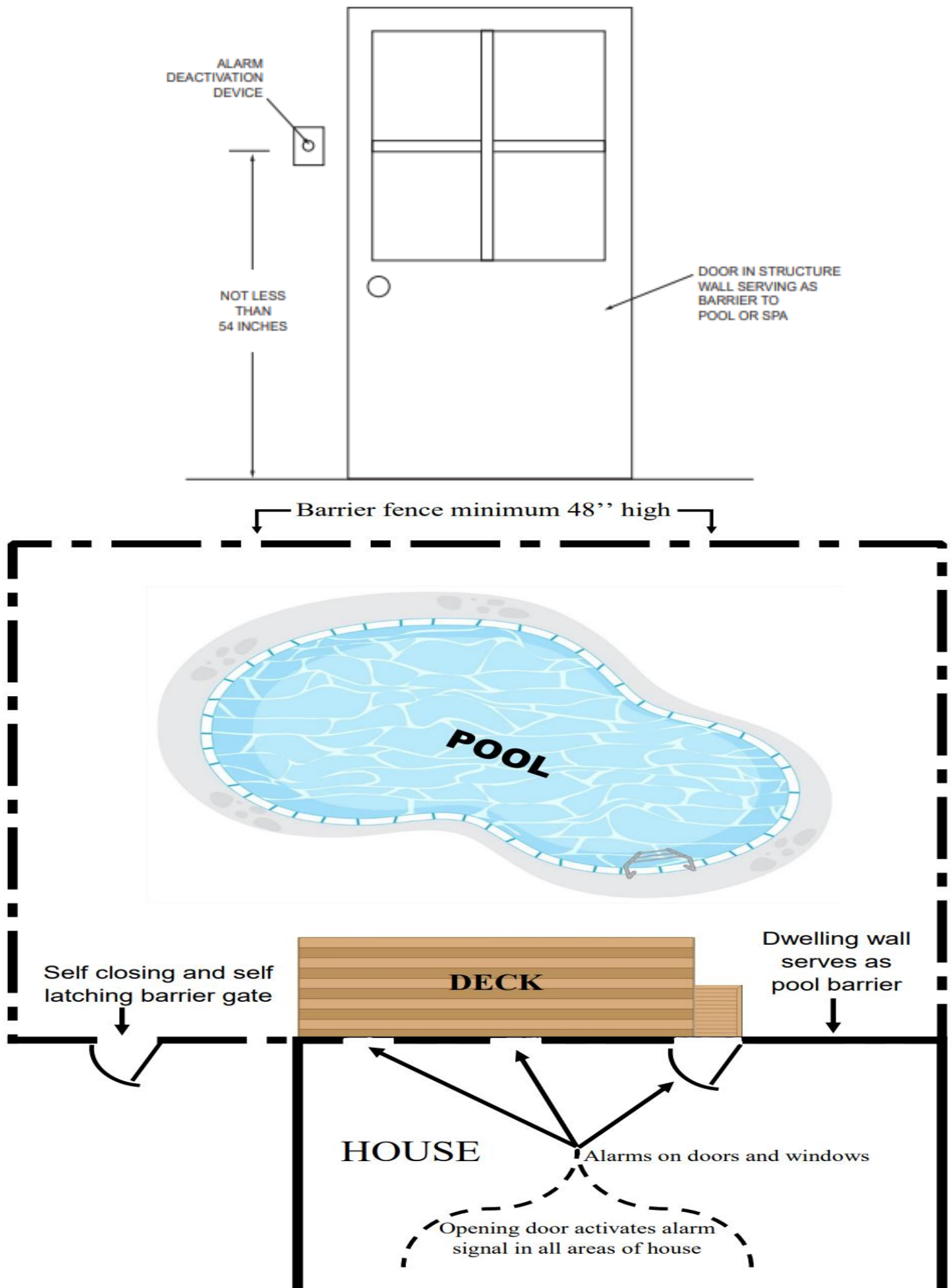


FIGURE 16-4: Pool barrier and door alarm requirements



# INFLATABLE Pool SAFETY WARNING

An average of **280 children under the age of 5 drown each year** in swimming pools, and there are an **increasing number of deaths in inexpensive, inflatable pools.**

Parents need to **be aware that any pool poses a risk to young children.** The sides of inflatable pools are flexible and sometimes slanted or low, so it may be easier for a child to climb inside.

Local building codes may require **barriers like fences** around these pools **to protect young children.**



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

CPSC hotline: 800-638-2772  
and 800-638-8270 (TTY)



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