

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. 1. Spas and hot tubs with a lockable *safety cover* that complies with ASTM F 1346.
2. 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. 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. 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. 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. 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 have openings 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. 1. The bottom of the mesh fence shall be not more than 1 inch (25 mm) above the deck or installed surface or grade.
2. 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. 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. 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. 5. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 305.3.
6. 6. Patio deck sleeves such as vertical post receptacles that are placed inside the patio surface shall be of a nonconductive material.
7. 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.

BASIC POOL WIRING REQUIREMENTS

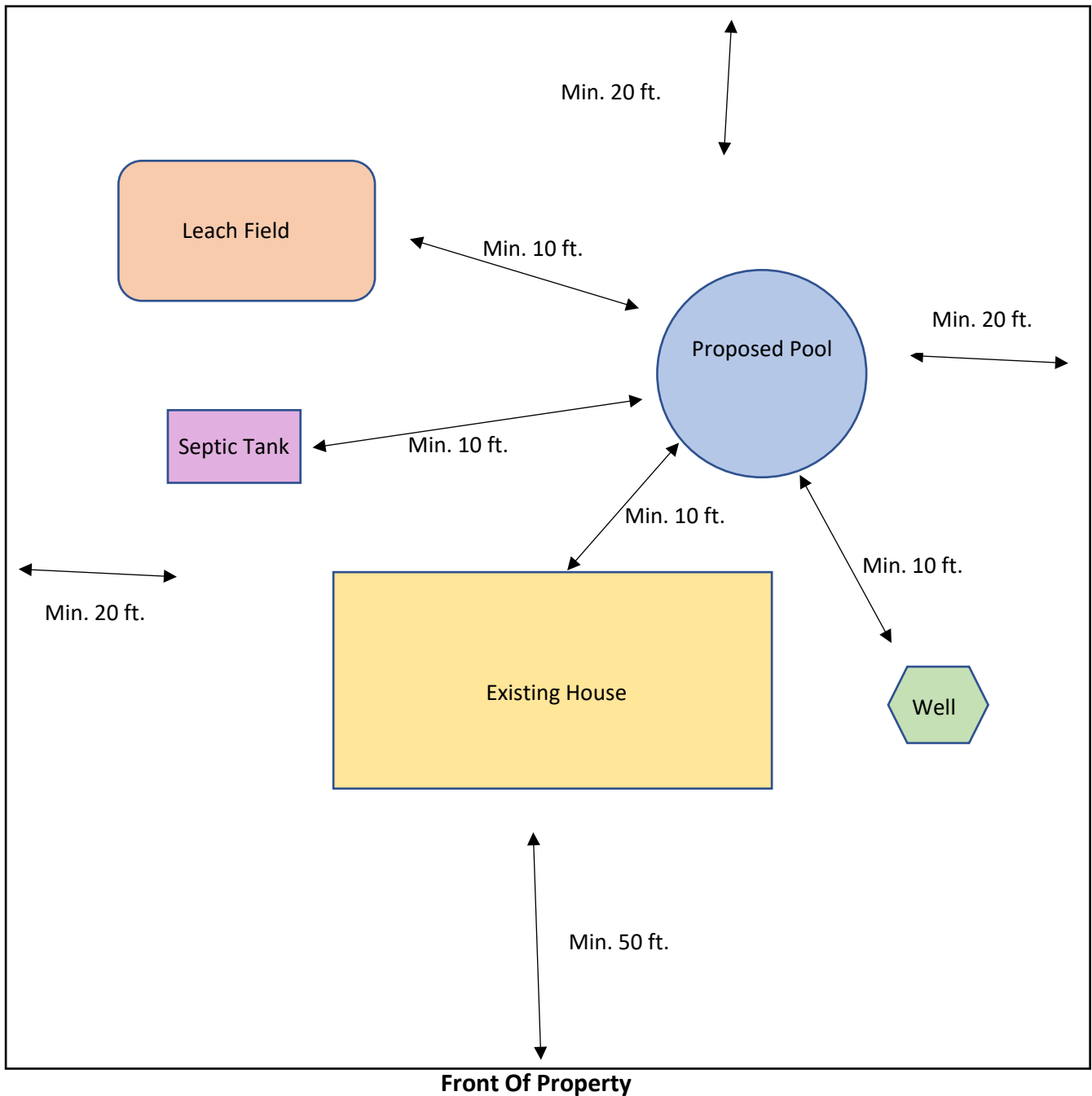
1. A number 8 or larger solid copper wire bonding wire is required between all metallic parts of the pool structure, pump motor, and other metallic parts within 5 feet of the inside wall of the pool. Walls of a metal pool structure or the reinforcing steel of concrete pool shall be used as the bonding grid. **NEC Section 680.26.**
2. A 125 volt, 15 or 20 amp general purpose GFCI receptacle within 6 to 20 feet of the inside wall of pool. **NEC Section 680.22 (A) (3).**
3. A single locking type 125 volt GFCI receptacle for the circulation and/or sanitation system is permitted – no less than 6 feet (1.83M) from the inside wall of the pool with a weather tight “in use” type cover. **NEC Section 680.22A1.**
4. Wiring to the pool pump motor shall comply with **NEC 680.21 (A) (1) thru (5).**
5. Wiring to the pump motor and associated equipment must be installed in an electrical conduit with the minimum cover as required by **NEC Table 300.5** (ie. 12 inches for 120 volt GFCI protected in PVC conduit) **NEC Table 680.10.**
6. Wiring to the pump motor must be done with 3 conductors, including a green insulated copper grounding conductor, minimum size of 12 **NEC Section 680.21 (A) (1).**
7. U.F. type, direct burial wire, **CANNOT** be used for a pump motor circuit. **NEC Section 680.21 (A) (1).**
8. Any of the wiring methods recognized in Chapter 3 of the 2008 NEC shall be permitted to be used in the interior of one family dwelling units for the pump motor circuit, **NEC 680.21 (A) (4).**
9. The flexible cord, if used for the pump motor, cannot exceed 3 feet in length, with number 12 copper grounding conductor. **NEC 680.21 (A) (3).**
10. All electrical outlets (receptacle or direct connect) shall be protected, including pool motors, protected by GFCI's (120V or 240V) **NEC 680.22 (A) (4).**
11. Perimeter surfaces with rebar or wire mesh shall be bonded in four uniformly spaced points around the perimeter of the pool. **NEC 680.26 (B) (2).**
12. An intentional pool water bond must be a minimum of 9 square inches shall be installed in direct contact with the water. **NEC 680.26 (C).**
13. All pool wiring shall conform to Article 680 of the 2017 National Electric Code.
14. Equipotential Bonding for above ground pools **NEC 680.26 (B), (2), (B)** is a #8 bare solid wire that surrounds the pool 18” to 24” out from the pool and 4” to 6” deep. It bonds to the pool in 4 equally spaced points around the perimeter. Sheet metal screws are not permitted see **NEC 250.8** non-conductive pools do not require bonding. As part of the equipotential bonding the Pool water must be bonded starting from the pump and typically terminates in the skimmer with a 9 sq in corrosion-resistant metal plate.

Pool Setback Requirements:

- Side & back of property lines 20 ft. minimum
- Front property line or any other property line that faces a street or right-of-way 50 ft. minimum
- House foundation 10 ft. minimum
- Well 10 ft. minimum
- Septic Tank 10 ft. minimum
- Leach field 10 ft. minimum

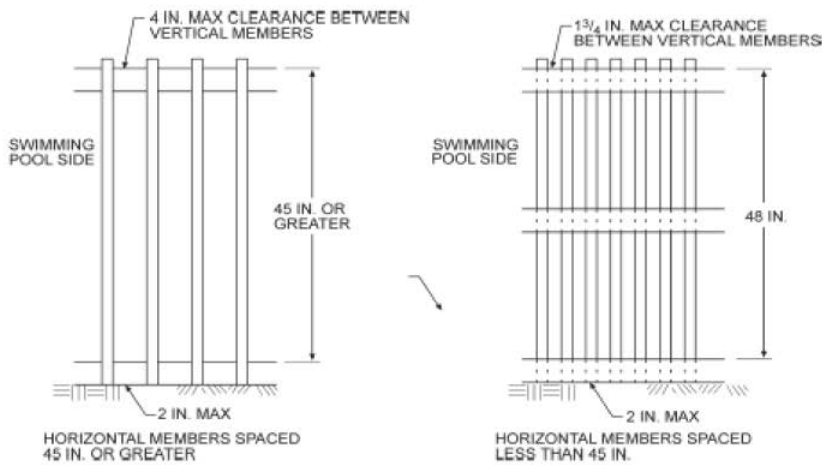
***** (35ft. minimum for inground pools from down-slope of leach field) *****

EXAMPLE PLOT PLAN:



POOL ENCLOSURE REQUIREMENTS

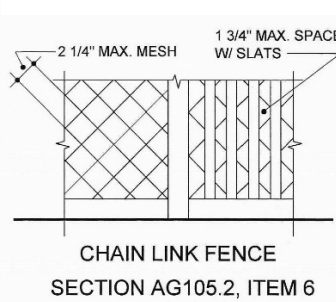
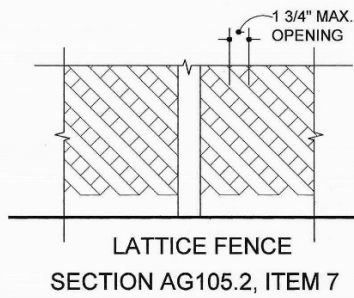
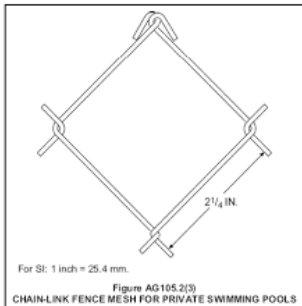
PICKET FENCE ENCLOSURE:



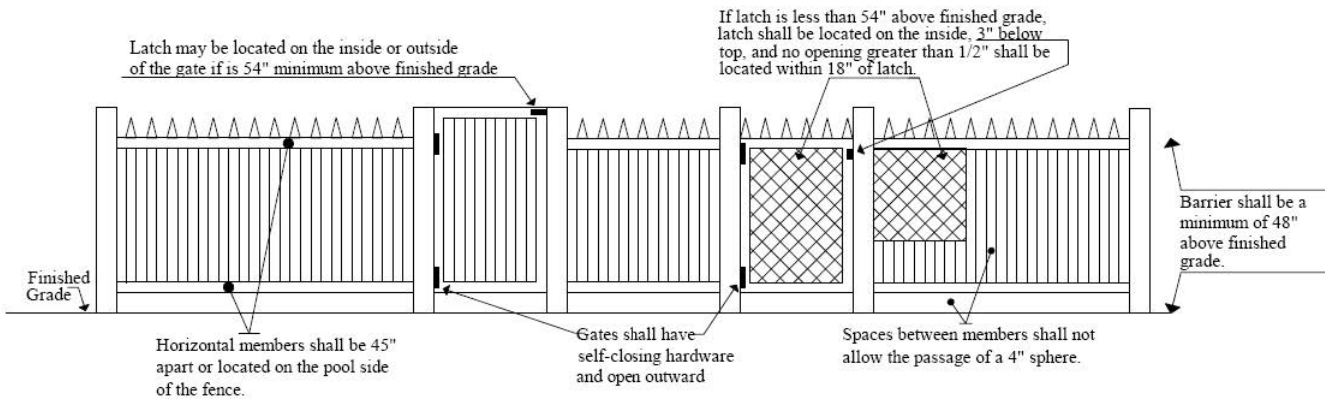
For SI: 1 inch = 25.4 mm.

Figure AG105.2(2)
PRIVATE SWIMMING POOL BARRIER CONSTRUCTION

CHAIN LINK OR LATTICE ENCLOSURES:



ACCESS GATES:



**** FOR ABOVE GROUND POOLS A REMOVABLE LADDER IS AN ACCEPTABLE ALTERNATIVE TO AN ENCLOSURE PROVIDED THE LADDER CAN BE SECURELY LOCKED OR REMOVED TO PREVENT ACCESS.****

ACCESS GATES FOR POOL DECKS

Above-ground Pool with adjacent deck with stairs to ground level shall be protected with an Access Gate as described below

