2021 INTERNATIONAL SWIMMING POOL AND SPA CODE
Permanent inground residential swimming pools

801.1 Scope

The provisions of this chapter shall govern permanent inground residential swimming pool. Permanent inground residential swimming pools shall include pools that are partially or entirely above grade. This chapter does not cover pools that are specifically manufactured for above-ground use and that are capable of being disassembled and stored. This chapter covers new construction, modification, and repair of inground residential swimming pools.

EXPLANATION: Permanent inground residential pools are not necessarily completely site constructed. They can be fabricated by the manufacturer, in part or in whole, brought to the site, and lowered into an excavation or placed in its permanent location. The key point to make is that even though built in a factory and job site assembled, permanent in-ground residential pools are not manufactured with the intent to be disassembled, stored, or reassembled elsewhere. Once installed, permanent inground residential pools will be as permanent as any other permanent building structure, until the pool structure is demolished.

801.2 General

Permanent inground residential pools shall comply with the requirements of Chapter 3.

Section 301 General

301.1 Scope

The provisions of this chapter shall govern the general design and construction of public and residential pools and spas and related piping, equipment, and materials. Provisions that are unique to a specific type of pool or spa are located in Chapters 4 through 10.

301.1.1 Application of Chapters 4 Through 10

Where differences occur between the provisions of this chapter and the provisions of Chapters 4 through 10, the provisions of Chapters 4 through 10 shall apply.

Section 302 Electrical, Plumbing, Mechanical and Fuel Gas Requirements

302.1 Electrical

Electrical requirements for aquatic facilities shall be in accordance with the 2020 NFPA 70portion of the 2022 Connecticut State Building Code. Exception: Internal wiring for portable residential spa and portable residential exercise spa.

302.2 Water Service and Drainage

Piping and fittings used for water service, makeup and drainage piping for pools and spas shall comply with the International Plumbing Code. Fittings shall be approved for *installation with the piping installed.*

302.3 Pipe, Fittings and Components

Pipe, fittings, and components shall be listed and labeled in accordance with NSF 50 or NSF 14. Plastic jets, fittings, and outlets used in public spas shall be listed and labeled in accordance with NSF 50.

Exceptions:

1. Portable residential spa and portable residential exercise spas listed and labeled in accordance with UL 1563 or CSA C22.2 No. 218.1.
2. Onground storable pools supplied by the manufacturer as a kit that includes all pipe, fittings, and components.

302.4 Concealed Piping Inspection

Piping, including process piping, that is installed in trenches, shall be inspected prior to backfilling.

302.5 Backflow Protection

Water supplies for pools and spas shall be protected against backflow in accordance with the International Plumbing Codes or the International Residential Code, as applicable in accordance with Section 102.7.1.

Section 303 Energy

303.1 Energy Consumption of Pools and Permanent Spas

The energy consumption of pools and permanent spas shall be controlled by the requirements in Sections 303.1.1 through 303.1.3.

303.1.1 Heaters

The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater, mounted on the exterior of the heater or external to and within 3 feet of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

303.1.2 Time Switches

Time switches or other control methods that can automatically turn off and on heaters and pump motors according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exception:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar-or waste-heat recovery pool heating systems.

303.1.3 Covers

Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other approved vapor-retardant means in accordance with Section 104.12.

Exception: Where more than 70 percent of the energy for heating, computed over an operating season, is from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

Section 305 Barrier Requirements

305.1 General

The provisions of this section shall apply to the design of barriers for restricting entry into areas having pools and spas. Where spas or hot tubs are equipped with a lockable safety cover complying with ASTM F1346 and swimming pools are equipped with a powered safety cover that complies with ASTM F1346, the areas where those spas, hot tubs or pools are located shall not be required to comply with Sections 305.2 through 305.7.

305.1.1 Construction Fencing Required

A temporary enclosure shall be installed for in ground swimming pools and spas from the time that construction occurs up to the time that the permanent barrier is completed. The temporary enclosure shall be a minimum of 4 feet in height, shall have no openings that will allow passage of a 4-inch sphere and shall be equipped with a positive latching device on any openings.

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 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 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 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 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.

305.2.2 Openings

Openings in the barrier shall not allow passage of a 4-inch-diameter 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. The bottom of the mesh fence shall be not more than 1 inch 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 from grade or decking.
3. The fence shall be designed and constructed so that it does not allow passage of a 4-inch sphere under any mesh panel. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not be greater than 4 inches from grade or decking.
4. An attachment device shall attach each barrier section at a height not lower than 45 inches 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.

305.2.4.1 Setback for Mesh Fences

The inside of a mesh fence shall be no closer than 20 inches to the nearest edge of the water of a pool or spa.

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, the horizontal members shall be located on the pool or spa side of the fence. Spacing between vertical members shall not exceed 1-3/4 inches in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1-3/4 inches 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 or more, spacing between vertical members shall not exceed 4 inches. Where there are decorative cutouts within vertical members, the interior width of the cutouts shall not exceed 1-3/4 inches.

305.2.7 Chain Link Dimensions

The maximum opening formed by a chain link fence shall be not more than 1-3/4 inches. Where the fence is provided with slats fastened at the top and bottom that reduce the openings, such openings shall be not greater than 1-3/4 inches.

305.2.8 Diagonal Members

Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not greater than 1-3/4 inches. The angle of diagonal members shall be not greater than 45 degrees from vertical.

305.2.9 Clear Zone

The required barrier height shall exist around the entire perimeter of the barrier and for a distance of 3 feet measured horizontally from the outside of the required barrier, free of structures, equipment or similar objects.

305.3 Doors and Gates

Doors and gates in barriers 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 doors and 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 Doors and Gates

Doors and gates not intended for pedestrian use, such as utility or service doors and gates, shall remain locked when not in use.

305.3.2 Double or Multiple Doors and Gates

Double doors and gates or multiple doors and gates shall have not fewer than one leaf secured in place and the adjacent leaf shall be secured with a self-latching device.

305.3.3 Latch Release

For doors and gates in barriers , the door and gate latch release mechanisms shall be in accordance with the following:

1. When door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located above the finished floor or ground surface in accordance with the following:

1.1 At public pools and spas, not less than 52 inches and not greater than 54 inches.

1.2 At residential pools and spas, not less than 54 inches.

2. Where door and gate latch release mechanisms are of the self-locking type such as where the lock is operated by means of a key, an electronic opener, or the entry of a combination into an integral combination lock, the lock operation control and the latch release mechanism shall be located above the finished floor or ground surface in accordance with the following:

2.1 At public pools and spas, not less than 52 inches and not greater than 54 inches

2.2 At residential pools and spas, not less than 54 inches

3. At private pools, where the only latch release mechanism of a self latching device for a gate is located on the pool and spa side of the barrier , the release mechanism shall be located at a point that is at least 3 inches below the top of the gate.

305.3.4 Barriers Adjacent to Latch Release Mechanisms

Where a latch release mechanism is located on the inside of a barrier, openings in the door, gate and barrier within 18 inches (457 mm) of the latch shall not be greater than 1/2 inch in any dimension.

305.4 Structure Wall as a Barrier

Where a wall of a dwelling or structure serves as part of the barrier and where doors, gates 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 above the indoor finished floor, doors and gates 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.
2. In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches above the finished floor.
3. In dwellings that are required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches and not less than 48 inches above the finished floor.
4. In structures other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches and not less than 48 inches above the finished floor.
5. A safety cover that is listed and labeled in accordance with ASTM 1346 is installed for the pools and spas.
6. 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.

323.4 Pool Alarm

Pursuant to section 29-265a of the Connecticut General Statutes, no building permit shall be issued for the construction or substantial alteration of a residential swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool. As used in this section, "pool alarm" means a device that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a swimming pool.

809.2 Entry and Exit

Pools shall have a means of entry and exit in all shallow areas where the design water depth of the shallow area at the shallowest point exceeds 24 inches. Entries and exits shall consist of one or a combination of the following: steps, stairs, ladders, treads, ramps, beach entries, underwater seats, benches, swim outs and other approved designs. The means of entry and exit shall be located on the shallow side of the first slope change.

809.3 Secondary Entries and Exits

Where water depth in the deep area of a pool exceeds 5 feet, a means of entry and exit as indicated in Section 809.2 shall be provided in the deep area of the pool.

Exception: Where the required placement of a means of exit from the deep end of a pool would present a potential hazard, handholds shall be provided as an alternative for the means of exit.

809.4 Over 30 Feet in Width

Pools over 30 feet in width at the deep areas shall have an entry and exit on both sides of the deep area of the pool.

809.5 Pool Stairs

The design and construction of stairs into the shallow end and recessed pool stairs shall conform to Sections 809.5.1 through 809.5.3.

809.5.1 Tread Dimension and Area

Treads shall have a minimum unobstructed horizontal depth of 10 inches and a minimum unobstructed walking surface area of 240 square inches.

809.5.2 Riser Heights

Risers, other than the top and bottom riser, shall have a uniform height of not greater than 12 inches. The top riser height shall be any dimension not exceeding 12 inches for the width of the walking surface. The bottom riser height shall be any dimension not exceeding 12 inches. The top and bottom riser heights shall not be required to be equal to each other or equal to the uniform riser height. Riser heights shall be measured at the horizontal centerline of the walking surface area.

809.5.3 Additional Steps

In design water depths exceeding 48 inches, additional steps shall not be required.

Substitute House Bill No. 5070

Public Act No. 99-140

An Act Concerning Alarms for New Swimming Pools.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

(NEW) (a) As used in this section, "pool alarm" means a device which emits a sound of at least fifty decibels when a person or an object weighing fifteen pounds or more enters the water in a swimming pool.

(b) No building permit shall be issued for the construction or substantial alteration of a swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool.