RESIDENTIAL SWIMMING POOL INSTALLATION GUIDE

CITY OF BEACHWOOD, OHIO

BUILDING DEPARTMENT

25352 Fairmount Blvd.
216-292-1914

GENERAL REQUIREMENTS

1. If you belong to a Homeowner's Association, check with them to discuss their Regulations prior to submitting plans to the Building Department.

2. All pools shall comply with Beachwood Codified Ordinances (BCO) 1335 and the 2018 International Swimming Pool and Spa Code. These may be viewed online at www.BeachwoodOhio.com

3. Pools shall be located in the rear yard at least 10' from the rear property line and comply with side yard setbacks as established by BCO 1113.05.

4. Pools may not be placed in any easement.

5. In-ground Pools require a new topographic map that details the existing and proposed elevations of the pool area. They shall bear the seal of a Professional Surveyor and requires the approval of the Engineering Department.

6. The following information shall be submitted with the application:

   A. Four (3) copies of an overhead view of where the pool is placed on the property. For in-ground pools, new signed topographical maps required.

   B. Two (2) copies of specifications for any of the following installed items— Pool, ladder, pump, filter, heater, electrical, auto-cover, in pool lighting.

GENERAL REQUIREMENTS

REQUIRED POOL INSPECTIONS

1) Electrical Underground - conduit in place, wiring may or may not be installed, prior to backfill.
2) Pool Gas supply- Prior to backfill. (if applicable)
3) Pool Bonding (metal parts, conductive pool shells, perimeter surfaces, electrical equipment, pool water) - Prior to backfill. This may be multiple inspections due to installation process.
4) Pool Concrete Deck Pre-pour. (if applicable)
5) Electrical Final– all devices in place, power on.
6) Heat Final– (if applicable)
7) Building Final– Barrier Requirements - Any portion of an above pool that measures less than 48" from the top rail of the pool to grade requires a barrier to prevent accidental entry. Fenced yards require self-closing, self-latching devices on all gates. Spa and hot tubs equipped with a lockable safety cover and pools equipped with a powered safety cover complying with ASTM F1346 are not required to comply with ISPSC barrier requirements
8) Grading Final– if topography has been changed from original. (if applicable)

2019 Residential Code of Ohio 108.1 - "...It shall be the duty of the owner or the owner's authorized representative (contractor) to cause the work to re-main accessible and exposed for inspection purposes…".

ELECTRICAL REQUIREMENTS

This is not an all inclusive list of the requirements of the 2023 National Electrical Code (NEC) Article 680 (Swimming Pools, Fountains and Similar Installations). However the following information is a basic overview of Article 680.

DEFINITIONS

PACKAGED SPA / HOT TUB - A factory fabricated unit consisting of water-circulating, heating and control equipment mounted on a common base, intended to operate a spa or hot tub. Equipment can include pumps, air blowers, heaters, light controls, sanitizer generators and so forth.

PERMANENTLY INSTALLED POOLS - Those that are constructed in the ground or partially in the ground, and all others capable of holding water in a depth greater than 42”, and all pools installed inside a building, regardless of water depth , whether or not served by electrical circuits of any nature.

STORABLE POOLS - Those that are constructed on or above the ground and are capable of holding water to a maximum depth of 42” or a pool with nonmetallic, molded polymeric walls or inflatable walls regardless of dimension.

ELECTRICAL REQUIREMENTS

1. Placement of pools shall maintain clearances from overhead conductors, communication cables and underground wiring. **NEC 680.8**

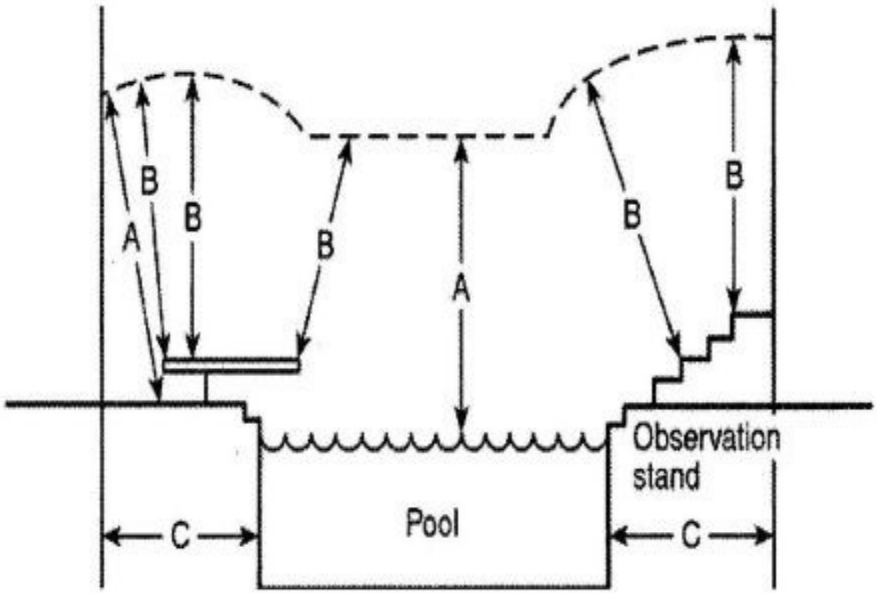

Figure 680.8(A) Clearances from Pool Structures

Table 680.8 Overhead Conductor Clearances

		Insulated Cables, 0–750 Volts to Ground, Supported on and Cabled Together with a Solidly Grounded Bare Messenger or Solidly Grounded Neutral Conductor		All Other Conductors Voltage to Ground			
				0 through 15 kV		Over 15 through 50 kV	
	Clearance Parameters	m	ft	m	ft	m	ft
A.	Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft	6.9	22.5	7.5	25	8.0	27
B.	Clearance in any direction to the observation stand, tower, or diving platform	4.4	14.5	5.2	17	5.5	18
C.	Horizontal limit of clearance measured from inside wall of the pool	This limit shall extend to the outer edge of the structures listed in A and B of this table but not to less than 3 m (10 ft).					

ELECTRICAL REQUIREMENTS

1. **WIRING METHODS** - The branch circuits for pool associated motors / equipment shall be installed in rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride conduit (PVC), reinforced thermosetting resin conduit, or Type MC cable listed for the location. Romex (NM Cable) is prohibited after wiring leaves the building.

2. UNDERGROUND WIRING METHODS - Compliance with **NEC 300.5** shall be required.

Depth measured from top of pipe to grade:
18" - PVC
6" - Rigid metal pipe

3. EQUIPMENT GROUNDING CONDUCTOR(S) - Any wiring method employed shall contain an **insulated copper equipment grounding conductor** sized in accordance with **NEC 250.122** but shall **not be smaller than 12AWG**.

4. RECEPTACLE OUTLETS - Shall comply with the following:

A. Required, Location - Where a permanently installed pool is installed, no fewer than one (1) 125volt, 15 or 20 ampere receptacle on a general purpose branch circuit shall be located not less than 6 ft. From, and not more than 20 ft. from, the inside wall of the pool. This receptacle shall not be located more than 6 ft.6 in. above the floor, platform or grade serving the pool. **NEC 680.22(A)(1)**

B. Circulation / Sanitation System (Pump)- Receptacles that provide power not less than 6 ft. from the inside walls of the pool if they meet all of the following conditions:

(1) Are of the grounding type
(2) Have GFCI protection
NEC 680.22(A)(2)

ELECTRICAL REQUIREMENTS

RECEPTACLE OUTLETS CONTINUED

C. GFCI Protection - Outlets serving pool motors shall be provided with GFCI protection complying with **680.5(B) or (C).**

All receptacles rated 125 volts through 250 volts, rated 60 amps or less, located within 20 ft. of the inside wall of pool shall be provided with GFCI protection complying with **680.5(B) or (C).**

5. POOL BONDING - The parts specified herein (Conductive pool shells, perimeter surfaces, metallic components, underwater lighting, metal fittings, electrical equipment and fixed metal parts) shall be bonded together using solid copper conductors, insulated covered, or bare not smaller than 8 AWG or with rigid metal conduit of brass or other identified corrosion resistant metal. Connections to bonded parts shall be made in accordance with **NEC 250.8.** The 8 AWG bonding conductor shall not be required to be extended or attached to remote panelboards, service equipment or electrodes. **NEC 680.26(B)**

6. PERIMETER BONDING - The perimeter surface shall extend 3 ft. horizontally beyond the inside walls of the pool and shall include **unpaved surfaces** as well as poured concrete surfaces and other types of paving. Bonding to perimeter surfaces shall be provided and attached to pool reinforcing steel or copper conductor grid at a minimum of four (4) points uniformly spaced around the perimeter of the pool. **For non-conductive pool shells, bonding at four (4) points shall not be required. Bonding shall consist of a bare 8 AWG conductor installed 18”-24” horizontally from the inside walls of the pool following the contour of the perimeter surface & 4” - 6” below sub-grade. NEC 680.26(B)(2)**

THIS CONDUCTOR SHALL NOT BE CONCEALED PRIOR TO INSPECTION.

7. WATER BOND - An intentional bond of 9 sq.in. minimum of conductive material shall be installed in contact with the pool water. The device shall bare a **UL** or other approved listing agency marking. **NEC 680.26(C)**

BARRIER REQUIREMENTS

Outdoor pools and spas and indoor pools shall be surrounded by a barrier that complies with the International Swimming Pool and Spa Code (2018 ISPSC).

BARRIER HEIGHT AND CLEARANCES

1.The top of the barriers shall not be 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' 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. (grass, mulch)

3. The vertical clearance between grade and the bottom of the barrier shall not exceed 4 inches for grade surfaces that are solid. (concrete)

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.

OPENINGS

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

GATES

Access gates 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.

LATCHES

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

CLEAR ZONE

There shall be a clear zone of not less than 36 inches 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.

BARRIER REQUIREMENTS

Outdoor pools and spas and indoor pools shall be surrounded by a barrier that complies with the International Swimming Pool and Spa Code (2018 ISPSC).

STRUCTURE WALL AS BARRIER

Where the 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 the wall, one of the following **shall be required:**

1. Operable windows having a sill height of less than 48 inches above the door 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 alarm in accordance with UL2017.

2. A safety cover that is *listed* and *labeled* in accordance with ASTM F1346 is in place when the pool is not in use.

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.

DECKS AROUND POOLS

Where a deck surrounds a pool, in full or in part, the “Structure Wall as Barrier” rules shall apply. Page 9 & 10 outline the requirements for decks encompassing a pool.

BARRIER REQUIREMENTS

A self-closing/self-latching gate is required at the top or bottom of stairs leading to a pool. Gate must be 4' tall from grade or last step riser. If deck connects to house, alarms required for doors and windows as described on page 10.

This is NOT a compliant deck around pool.

ABOVE GROUND SWIMMING POOL BARRIERS

INGROUND SWIMMING POOL BARRIERS

UL 2017 WATER HAZARD ALARM