

COMMONWEALTH ELECTRICAL INSPECTION SERVICE INC.
Bruce Fairweather, USN, Ret. Inspector IAEI Certified Inspector
518 567 7400 or Email @ losscontrol@fairpoint.net
Permits issued after May 12 2020

**ELECTRICAL CODE RULES BASED ON 2017 N.F.P.A -70
RESIDENTIAL CODE OF New York STATE 2020**

**ALL IN-GROUND POOLS AND ABOVE GROUND POOLS CAPABLE OF HOLDING 42" OR
MORE OF WATER ARE CONSIDERED PERMANETLY INSTALLED POOLS**

1. Circuit for pump motor shall not have less than **# 12 AWG insulated copper grounding** wire, and to be in conduit, except when entering building can change to NM cable **680.21(A) (1-4)** If using 15 amp breaker 14 gauge wire for hot and neutral, the ground wire must be #12.
2. All receptacles supplying circulation and sanitation system equipment must be at least six feet from the inside wall of the pool and must be of the grounding type and GFCI protected. **680.22 (A) 2**
3. Pump motor cord **shall not exceed 3'** and shall have a grounding wire of not smaller than # **12 AWG copper. 680.7**
4. Circuit line for pump motor shall be a continuous circuit going directly to panel box and **shall have no other outlets. 430-22(A)**
5. A receptacle used unattended in a wet location shall have a **watertight inuse cover. 406.8 (B)(1)**
6. All underground UF wire and PVC conduits must be 18" deep, unless circuit is protected by GFCI upstream then 12" deep. **300.5** Only electric specific to the pool is allowed less than 5" feet to the water's edge and must be **18" deep** and be installed in a approved raceway. **680.10**
7. **Required Receptacle Location.** At least one 15A or 20A, 125V receptacle must be located not less than 6 ft and not more than 20 ft from the inside wall of a permanently installed pool. This receptacle must be located not more than 6½ ft above the floor, platform, or grade level serving the permanently installed pool.
9. All metal parts must be **bonded together with a No. 8 or larger solid copper wire** must be used. (Motor, ladders pool frame, diving board, lights, etc.) **680-22 / E4104.1**
A minimum of 9 square inches of metal must be in water to bond water.
Also must be bonded to bonding ring #10
10. **Perimeter equipotential bonding ring** all pools shall have #8 CU 18 -24 inches from edge of pool and 4- 6 inches deep in the dirt. **680.26 (B)(2)** (Your typical above ground)
11. **Inground pools with conductive shells require special bonding of all metal parts and bonding at all four corners. Consult with the pool installer for specifics.**
12. When bonding pool frame or any metal parts to main bonding wires or wire mesh, you must use **non-corrosion clamps. 680-22(A) (B) / E4104.1**
13. For dry niche, wet niche, no niche lighting fixtures. **680-20, 680-25 (B) / E4106**
14. For any lighting fixtures outside of pool. **680-6 (b) (1) (2) (3) / E4103.4.3**

NOTE: A building permit is required in **ALL** localities, secure permits **before starting.**

Pool Pre-inspection check list

Complete / review this list before calling for an inspection.

1. ____ Have building permit available we will need permit number and may have to sign permit. Varies with local municipality.
2. Pool pump: ____ Receptacle for pool pump no closer than 6 feet from water's edge. ____ Watertight Extra-Duty cover*. ____ Pump cord 12 gauge wire no longer than 3 feet with water tight connector at pump. All equipment must be GFCI protected.
3. ____ Convenience receptacle located between 6 and 20 feet. GFCI Protected with Watertight Extra-Duty cover*.
4. ____ Ditch open in a few spots ____ 12 inches deep if GFCI protected wires. ____ 18 inches if not. ____ PVC conduit with 3 THHN-THWN conductors (Black, White, Green) Green must be #12 AWG wire for pool pump. ____ UF wire ok for Convenience receptacle.
5. ____ All metal parts bonded to pump with #8 solid CU wire.
_____ If no metal parts. Is water bonded by 9 sq. in. of metal?
6. ____ Perimeter equipotential bonding all pools #8 solid CU 18 -24 inches from pool edge 4-6 inches deep and bonded to pool pump lug.
7. ____ All existing receptacles within 20 feet of pool must be GFCI Protected. ____ None can be closer than 6 feet.
8. ____ All ground wires must be mechanically fastened in junction boxes with wire nuts or other approved fasteners. ____ Metal boxes must be bonded to grounding wires. NO GROUND RODS.
9. ____ If a breaker is used for pool pump make sure it is a Ground fault GFCI not Arc Fault AFCI. A blank face GFCI can be used also.
It can be a dual purpose AFCI /GFCI breaker.
10. ____ Town will look for circuit timer, pool alarm and fence.
 - * Will state "Extra-duty" on cover.

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Storable above ground pool

2017 NEC CODE PERMITS AFTER 5-12-2020

First we need to point out the difference between a storable pool and a permanently installed pool. The pool must not be capable of containing water depth exceeding 42" or of metal sides or this pool would not meet the NEC definition of a storable pool. A pool cannot be installed inside a structure of any kind, and meet the NEC definition of a storable pool.

A pool that is of plastic and has a maximum water depth of less than 42" will meet the NEC definition of a storable pool. A pool that is made of nonmetallic and inflatable, material no matter the maximum depth of the water or size of the pool will meet the definition of a storable pool. A pool that is less than 42" deep and with plastic sides and is capable of being deflated or disassembled then stored away if this pool has not been installed within a structure such as a wood deck or in a house will meet the definition of a storable pool.

Check the listing and instructions that came with the pool. If it has a 20 foot or longer cord on the pump it is typically a storable pool.

NEC Article 680.2 Storable Swimming, Wading, or Immersion Pools; or Storable/Portable Spas and Hot Tubs.

"Swimming, wading, or immersion pools that are intended to be stored when not in use, constructed on or above the ground and are capable of holding water to a maximum depth of 1.0 m (42 in.), or a pool, spa, or hot tub constructed on or above the ground, with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension."

Placement will be the same as pools

Electrical Requirements

The only electrical requirements to a storable above ground pool are as follows: If electric is required to supply a pool filter pump motor, or a pool low voltage underwater light fixture listed and labeled for use with a storable pool that is 42" deep or less, NEC Article 680.4, then your pool equipment must be served by a GFCI protected receptacle with an in-use bubble shield type weatherproof receptacle cover plate located at least 5' but not more than 20' from the water's edge, NEC Article 680.12 and NEC Article 680.31 and NEC Article 680.6.A.3 supplying the electric to the pool pump motor, or low voltage underwater light. NEC Article 680 part C The pool pump of a storable pool must be a listed double insulated pool pump motor. NEC Article 680.30 that's it! This pool may even be just plugged directly into an outside weatherproof GFCI protected dwelling receptacle designed for general use.

Extension cords are not allowed for any pools.

Table B.1(b) NEC GFCI Protection Requirements (for Dwelling Units) — Listed by NEC Edition

Area	Description	NEC Edition
Swimming pools	Underwater lighting	1962
	Receptacles near swimming pools	1971
Bathroom	Receptacles in bathrooms	1975
Fountains	Branch circuits supplying fountain equipment	1975
Outdoor	Outdoor receptacles	1975
Swimming pools	Luminaires and lighting outlets near a swimming pool	1975
	All electric equipment, including power supply cords, used with storable swimming pools	1975
Temporary wiring	Receptacles not a part of the permanent wiring	1975
Garage	Receptacles in garages	1978
	Outdoor installations — receptacles near the inside walls of a pool	1981
Spas and hot tubs	Outdoor installations — nearby luminaires and lighting outlets	1981
	Indoor installations — receptacles located near the inside walls of a spa or hot tub	1981
	Indoor installations — receptacles that provide power for a spa or hot tub	1981
Basement	Receptacles in basements	1987
Boathouses	Receptacles in boathouses	1987
Kitchen	Countertop receptacles within 6 ft of a kitchen sink	1987
Basements, unfinished	Receptacles in unfinished basements	1990
Crawl spaces	Receptacles at or below grade level	1990
Wet bar sinks	Receptacles near wet bar sinks	1993
Kitchen	All countertop receptacles	1996
Appliances	Cord and plug connected appliances subject to immersion	2002
Laundry areas	Receptacles near laundry and utility sinks	2005
Vending machines	Cord-and-plug-connected vending machines	2005
Electric drinking fountains	Electric drinking fountains	2008
Swimming pools	Cord-connected pool filter pumps	2008
	Outlets supplying pool pump motors	2008
Other than kitchens	Receptacles within 6 ft of all sinks	2011
Dwelling unit	Receptacles within 6 ft of all sinks	2014
	Receptacles within 6 ft of bathtubs or shower stalls	2014
Kitchen	Dishwasher outlets	2014
Laundry areas	All receptacles in laundry areas	2014

Note: Exceptions may apply. Refer to the appropriate NEC edition and section.

Table B.1(c) NEC AFCI Protection Requirements (for Dwelling Units) — Listed by NEC Edition

Area	Description	NEC Edition
Bedrooms	Bedroom receptacles	1999*
	Bedroom outlets	2002†
Family rooms	Family room outlets	2008
Dining rooms	Dining room outlets	2008
Living rooms	Living room outlets	2008
Parlors	Parlor outlets	2008
Libraries	Library outlets	2008
Dens	Den outlets	2008
Sunrooms	Sunroom outlets	2008
Recreation rooms	Recreation room outlets	2008
Closets	Closet outlets	2008
Hallways	Hallway outlets	2008
Kitchen	Kitchen outlets	2014
Laundry areas	Laundry area outlets	2014

* 1999 NEC required AFCI protection for circuits with bedroom receptacle outlets effective 1/1/02

† 2005 NEC required listed combination type AFCI devices effective as of 1/1/08

SECTION 6 That the [jurisdiction's keeper of records] is hereby ordered and directed to cause this ordinance to be published.

[NOTE: An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.]

SECTION 7 That this ordinance and the rules, regulations, provisions, requirements, orders, and matters established and adopted hereby shall take effect and be in full force and effect [time period] from and after the date of its final passage and adoption.

Annex D Informational References

D.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

D.1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 70®, *National Electrical Code*®, 2014 edition.

2019 Hot Tub Pre-inspection check list

Complete / review this list before calling for an inspection.

1. ___ Have building permit available we may need permit number and or may have to sign permit. Varies with local municipality.
2. ___ Hot tub GFCI protected. ___ shut off 5 - 50 feet and within sight.
3. ___ Convenience receptacle located between 6 and 20 feet. GFCI protected with bubble style cover.
4. ___ Ditch open in a few spots ___ 240 volt lines 18 inch deep 120 volt 12 inches deep if GFCI protected before going in ground.
5. ___ All metal parts bonded to pump with #8 solid CU wire.
___ Normally done at factory NO GROUND RODS!!
6. ___ If a breaker is used for tub pump make sure it is a Ground fault GFCI not Arc Fault AFCI. A blank face GFCI can be used also.
A dual purpose AFCI / GFCI breaker is also approved.
7. ___ All existing receptacles within 20 feet of tub must be GFCI protected.
___ None can be closer that 6 feet.
8. ___ All ground wires must be mechanically fastened in junction boxes with wire nuts or other approved fasteners. ___ Metal boxes must be bonded to grounding wires.
9. ___ All lights must be approved and listed for the use in the area of the hot tub. GFCI protection may be required.
10. ___ Town will look for locking cover, alarm and fence if needed.