

# WIRING REQUIREMENTS FOR SWIMMING POOLS

2011 National Electrical Code

## PERMANENTLY INSTALLED SWIMMING POOLS;

National Electrical Code definition are those pools that are constructed or partially in the ground all others pools capable of holding water with a depth greater than 42" inches..

### 1) Pool Pump Receptacle (Outlet) and Wiring Methods

- a. For permanent pools pump motor receptacle shall located between 6' to 10' feet from the inside pool wall, the receptacle must be a single twist-lock outlet, and always a GFCI (Ground Fault) protected. Article 680.22(A)(1)
- b. The outdoor pump receptacle must have a weatherproof cover that can be closed when the pump cord is plugged in. Article 406.9(B)(1)
- c. The electrical circuit line for a permanently installed pool pump motor must go directly to a panel box, and is to be isolated from all other receptacles. Article 110.3
- d. The wire for the pump motor shall not be less than #12 AWG insulated copper and must be in conduit Article 680.21(A)(1)
- e. In the interior of a one family dwelling Type NM cable may be used. Article 680.21(A)(4)
- f. The cord on the pump must be 3' long max. and a minimum of #12 AWG. Article 680.21(A)(5)

#### Conduit depth

- Electrical PVC at least 18" deep. (12" if all conductors are GFCI protected, rated 120 volts or less with maximum overcurrent protection of 20 amps)
- Metal conduit\*- at least 6" deep. \*

\*wires used in conduit must be single strand wire, (ex: THWN,XHHN Etc. NO NM or UF cable in conduit)

### 2) Convenience Receptacle (outlet) and Wiring Methods

- a. At least one (1) 15 – 20 ampere convenience receptacle must be located no closer than 6' feet but no further than 20' feet from the outside of the pool wall. May be existing and/or wired with any approved wiring method. Article 680.22(A)(3)
- b. Convenience receptacle shall separate from the pool pump receptacle wiring. Article 110.3
- c. Convenience receptacle must be GFCI (Ground Fault) protected. 680.22(A)(4)
- d. Convenience receptacle shall an in use (bubble) cover where located outdoors. 406.9(B)(1)

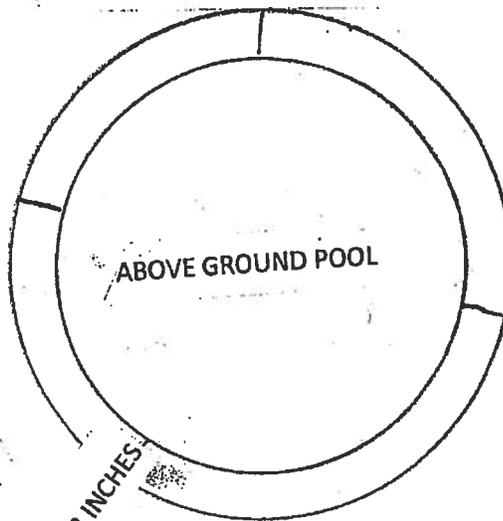
### 3) Bonding The Pool

- a. All metal parts must be bonded together using a #8 (or larger) solid copper wire.
- b. Conductive pool shells must be bonded in a minimum of four (equal) points uniformly spaced around the pool.
- c. Above ground pools must have a #8 (or larger) solid copper wire buried 4" - 6" below finished grade with such bond wire placed from 18" – 24" from the inside pool wall around the pool, (equipotential bonding) that which starts and returns/ terminates at the pool pump.
- d. Bonding points or attachment must use listed non-corrosive beaver tooth lugs.
- e. A minimum of nine (9) square inches of metal must be provided to bond the water.

### 4) Other

- a. All permanently and seasonal pools with a water depth greater than 24" inches as well all outdoor located spas and hot tubs require building permits. Permanently installed pools require permanent electrical wiring and are to be inspected.
- b. Pools alarms are required. [ UL Listed or tested]
- c. Circulating equipment must be controlled by an energy saving timer.

BEAVER TOOTH LUGS AT 4 LOCATIONS



RING OF #8 SOLID COPPER WIRE

4 TO 6 INCHES BELOW GRADE

18 TO 24 INCHES FROM EDGE OF POOL

POOL PUMP



# 12 POOL PUMP CORD/MAX 3 FT LONG

48 INCHES



POST 6 FT FROM POOL

TWIST-LOCK RECEPTACLE

CONVENIENCE RECEPTACLE

TRENCH 18" DEEP/PERHAPS 12"

PVC CONDUIT IN TRENCH

#12 MINIMUM BLK/WHT/GREEN THWN WIRE OR EQUIVLENT

TIME CLOCK FOR PUMP