

# Hopewell Township Supplemental Electrical Code Sheet #3

## Pool Requirements and Common Field Encountered Violations

Dear Homeowner/Contractor,

This informational sheet is provided in order to help homeowners and contractors on some common questions and field-encountered violations. This list is not totally inclusive and is not intended for design purposes. The National Electrical Code Article 680 "Swimming Pools, Fountains, and Similar Installations" is made up of twenty nine pages with links to Chapter one "General", Chapter Two "Wiring Methods", and Chapter Three "Wiring Methods and Materials". When in doubt, obtain the services of a N.J. Licensed Electrical Contractor.

The definition of a permanently installed pool is generally defined as any pool of a depth of 42 inches, in the ground and/or above grade with or without electricity. The preceding and following requirements are required in accordance with the N.J. UCC Regulations.

**Before you dig call: 1-800-272-1000 in order to locate Underground utility's**

### **WIRING METHODS**

Wiring methods are generally in some type of approved raceway outdoors. (PVC conduit, Ridged steel conduit, and other approved raceways) This raceway shall be buried at a minimum depth of six inches for Ridged Steel conduit and **eighteen inches for PVC** conduit. (Exception 24 inches under driveways)

Underground wiring is not permitted within 5 feet of inside edge of pool with the exception of wiring that supports pool equipment.

**PVC conduit is not approved for supporting equipment and device boxes.** Use secondary support such as pressure treated 4x4 and/or galvanized steel support. Ridged steel conduit is approved for support of boxes.

All branch circuits for pool lights and/or new panel-boards that service pool equipment must be in a approved raceway back to the main service panel. (Exception: may terminate in an existing sub-panel) Pool motors are required to be in an approved raceway outdoors and underground.

**Load circuits of Ground fault protected circuits shall not occupy raceways, boxes or enclosures containing circuits that are not ground fault protected**

### **RECEPTACLES**

All Receptacles within 20 feet of the inside edge of the pool require ground fault protection. **At least one convenience receptacle is required**, no closer than 10 feet from inside edge of Pool and no further than 20 feet from inside edge of pool. (ground fault protected)

### **POOL PUMPS**

Disconnecting Means:

A twist lock receptacle with a maximum 3-foot long cord with ground fault protection maybe utilized for the pool pump. This receptacle must not be installed any closer than 5 feet from inside edge of pool.

A hard-wired switch with approved cover may be utilized for the disconnecting means requirement; this may be supplemented with an approved flexible raceway such as Liquidtight Flexible Metal Conduit to pump motor.

A #12 wire is the minimum size of a grounding conductor for the pump motor. This ground wire is required to be insulated and green in color. It is not permitted to tape a bare wire green and/or tape a black wire green

## **BONDING**

The following items are required to be bonded together: All metallic parts of pool, all forming shell and mounting bracket of light fixtures, Metal part of electrical equipment associated with pool circulating system. (such as electric motors, metal filters, panel board, ancillary equipment.

In addition, all metal (over 4 inches) including siding, ac units, fences and the like that are within 5 feet of inside edge of pool are required to be bonded to the bonding grid.

Bonding shall utilize a minimum #8 solid copper wire bare, insulated, and terminated with pressure connectors of copper, brass, copper alloy or stainless steel. This bond wire shall be connected to all equipment listed above in order to form a bonding grid. (The intention is to bring all metal parts near the pool at the same equal potential (voltage) in order to significantly reduce shock hazard between metal parts)

In addition to above, a equipotential bonding grid is required under all conductive decking around pool. (concrete, pavers and the like) This must extend 3 feet from pool around entire perimeter. It must designed with 8cu in 12x12 sections and/or an listed assembly. (See attached NJ DCA interpretations.)

## **POOL LIGHTS**

Pool lights are to be approved for the intended use by a recognized listing Company

Pool lights must be installed with a approved deck box, deck box is to mounted a minimum 8 inches above the highest water level and a minimum of 4 feet from pool edge.

Three grounding/Bonding conductors are required should you elect to utilize PVC conduit for pool light. They are one #8 copper outside conduit from grid to Niche, one #8 copper inside conduit from Niche to deck box, and one minimum #16 ground part of factory assembled light fixture cord.

### **Generally**

No electrical equipment is permitted with 5 feet of pool edge. Most equipment within 20 feet requires ground fault protection.