



**City of Urbandale**  
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[www.urbandale.org](http://www.urbandale.org)  
Building Department 515-278-3930



## Swimming Pool Handout

### Definition

**Pool** - A swimming pool is any structure intended for swimming, recreational bathing or wading that is capable of containing water over 24 inches deep. This includes in-ground, above-ground and on-ground pools, hot tubs, spas and fixed-in-place wading pools but excludes manmade lakes or ponds created through the collection of storm water or drainage runoff. Urbandale Ordinance 150.03 (35)

**PERMANENT Pool** - Those that are constructed in the ground or partially in the ground and meeting either of the two qualifications

- Those that are capable of containing more than 42in. of water
- Those that are installed indoors, regardless of depth

#### Electrical Requirements NEC 680 Parts I & II

1. Must have a disconnecting means that must be readily accessible and not less than 5ft. away, and within sight of the pool. Cord-and-plug equipment shall be permitted. NEC 680.13
2. If a flexible cord is used to connect the pool equipment it may not exceed 3ft. in length
3. Pumps that are listed for "Use with Storable Pools Only" may not be used with a permanent pool
4. The requirements of NEC 680.26 regarding equipotential bonding must met. See Equipotential Bonding on page two
5. Overhead service conductors must be a minimum of 22.5 ft. above the water level and 14.5 ft. above the area around the pool to a distance to 10ft. from the pool edge
6. GFCI Protection and Clearances
  - The pool equipment must be GFCI protected
  - Provide at least one receptacle, locate it at least 6ft away and no more than 20 ft. of the inside walls of the pool. Must be less than 6.5 ft. above grade.
  - All receptacles within 20 ft. of pool must also be GFCI protected
  - Switches must be at least 5ft away and GFCI protected if within 10 ft.
  - Luminaries and fans must comply with NEC 680.43. GFCI protected if within 12 ft. but must not be less than 7.5 ft. from water surface

**STORABLE Pool**- Those constructed on or above grade and meeting either of the two qualifications

- Those that are capable of containing less than 42in. of water
- Those that have non-metallic, molded polymeric, or inflatable walls

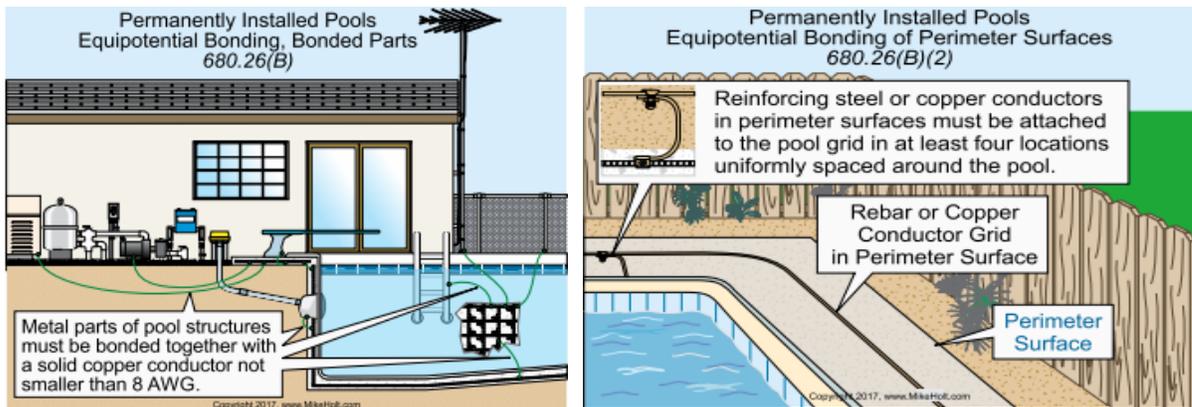
#### Electrical Requirements NEC 680 Parts I & III

1. Must have a disconnecting means that shall be readily accessible, not less than 5ft. away, and within sight of the pool. Cord-and-plug equipment shall be permitted NEC 680.13
2. The type of pump suitable for use with storable pools has a 25 ft. flexible cord and attachment plug
3. Cord connected pool filter pumps must be provided with a GFCI that is an integral part of the attachment plug or located in the power supply cord with-in 12" of the attachment plug
4. Overhead service conductors must be a minimum of 22.5ft. above the water level and 14.5ft. above the area around the pool to a distance to 10ft. from the pool edge.
5. GFCI Protection and Clearances
  - Receptacles may not be located less than 6ft. from the inside walls of a pool.
  - All receptacles within 20 ft. of pool must be GFCI protected
6. Equipotential Bonding – This is typical of permanent pool installations, not required for storable pools

## Equipotential Bonding for Pools (Typical of permanent pool and spa installations, not required for storable pools)

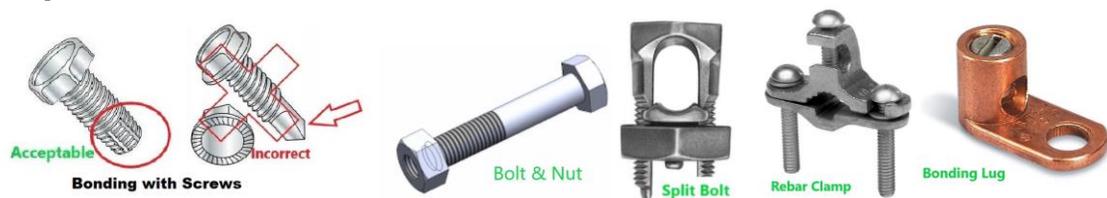
Proper bonding of pools is critical and must be installed as prescribed by **NEC 680.26**. The bonding conductor is not required to be extended or attached to remote panel boards, service equipment, or electrodes. The following list of items must be bonded together using solid copper conductors, insulated covered, or bare not smaller than 8 AWG or by other means as permitted by the NEC. There are several types of listed connections permitted to bonded parts together. NEC 250.8.

1. **Conductive Pool Shells** - concrete with painted or plaster coatings are considered to be conductive. Vinyl liners and fiberglass composite shells are considered to be non-conductive materials. NEC 680.26 (1)
2. **Perimeter Surfaces** - with-in 3ft. of the water including paved and un-paved surfaces. Bonding must be achieved by properly installed re-bar or other approved means and must attached to conductive pool shells at a minimum of 4 places. Non-conductive pools shells are not required to be bonded at the four points. NEC 680.26 (2)
3. **Metallic Components** - all metallic parts of the pool structure including rebar, handrails and ladders
4. **Underwater Lighting** - all metal forming shells and mounting brackets of no-niche fixtures
5. **Metal Fittings** - with-in or attached to the pool structure
6. **Electrical Equipment** - associated with the pool including pump motors and metal parts of pool covers
7. **Fixed Metal Parts** - with-in 5ft. horizontal and 12ft. vertical of the water including metal fences, metal doors and metal window frames



8. **Grounding and Bonding-** Bonding connections shall be in compliance with NEC 250.8 (no self-drilling screws) Thread cutting screws are acceptable.

### Examples:



9. **Pool Water** – Where a pool does not have any of the above Bonded Parts in contact with the pool water, it is necessary to install a conductive element. A device listed as a means to provide this contact with pool water. NEC 680.26(C)

### Examples:



## Location

Property corner pins need to be located prior to first inspection. If the property corner pins cannot be found by the owner or contractor, it is the applicant's responsibilities to have a registered land surveyor establish the corner pins. Swimming pools shall be set back a minimum of 10 ft. from all property lines, as measured to the closest edge of the water, pool equipment or any structures such as decks, equipment sheds, slides, diving boards, ect. appurtenant to the pool, and shall not be located within any front setback or street side yard setback that zoning requirements do not allow to be fenced. Urbandale Ordinance. 160.36

## Access barrier required IBC 3109.4.1

One or more of the following methods must be provided to prevent access to the hot tub or spa

1. **Safety cover as a barrier** - A power safety cover complying with ASTM F 1346
2. **Fence as a barrier** - A minimum 48in. high non-climbable fence. See barrier handout
3. **Pool Structure as a barrier** - Must be minimum 48in above grade. See barrier handout
4. **Dwelling as a barrier** - See barrier handout - *Residential Swimming Pool Fences and Safety Devices*

Information on Access barriers, see handout link [Residential Swimming Pool Fences and Safety Devices](#)

## Discharge

- Salt water pools must drain and discharge to the sanitary sewer per DNR regulations.
- Chlorinated pools may drain to the sanitary sewer or discharge onto the homeowner's yard provided the chlorine has dissipated to a minimal level similar to drinking water. De-chlorinated drainage from pools and spas onto yards must not affect neighboring properties or flow across public walks. Discharge rates to the sanitary sewer must be reviewed and approved by Urbandale Engineering before a pool permit is issued.

See separate handout [Draining Pools and Spas](#)

## Additional permits may be required

- **Deck permit** - a deck permit and plan review is required for a pool deck. – See references below for link
- **Fence permit** - a fence permit is required if planned. – See references below for link
- **Electrical permit** - are required when applicable
- **Plumbing permit** - are required when applicable

## Before you dig

Call "One Call" for utility locations before you dig at 811. Utility locations are typically completed within 48 hours of your request. Underground utility location prior to digging is required by state law. This service is free of charge.

## Required Inspections

1. **Foundation** (to verify approved placement ) - property corner pins are required to be located prior to inspection
2. **Electric Rough-In** - installation of electrical for pool equipment
3. **Plumbing Rough-In** - observe pool discharge method
4. **Deck footings** -if applicable
5. **Deck framing** - if applicable
6. **Final** ( All applicable permits) - Pool, deck, fence, electric & plumbing

## References

- **Swimming Pools- Dangers of Electrocutation** <https://mikeholt.com/newsletters.php?action=display&letterID=1792>
- **Article 680 – Pools, Spas, Hot tubs, Fountains and Similar**  
[https://www.mikeholt.com/files/PDF/Swimming\\_Pools\\_Spas\\_2017NEC.pdf](https://www.mikeholt.com/files/PDF/Swimming_Pools_Spas_2017NEC.pdf)
- **Swimming Pool Bonding** <https://www.mikeholt.com/swimmingpoolbonding.php>
- **Deck Plan Review and Inspections**  
<https://www.urbandale.org/DocumentCenter/View/4647/Deck-Framing-Design-handout?bidId=>
- **Pools – Residential Fences/Alarms**  
<https://www.urbandale.org/DocumentCenter/View/4657/Pool---Residential-Fences---Alarms-2016?bidId=>