Anderson County
Building and Codes Department
401 E. River Street, Anderson, SC 29624 • (864) 260-4158 • Fax (864) 260-4795

SWIMMING POOL REQUIREMENTS AND GUIDELINES

All swimming pools located in Anderson County must conform to the following requirements per The 2012 IBC section 3109 "Swimming Pool Enclosures and Safety Devices", The 2012 IRC Chapter 42 Swimming Pools, 2011 National Electric Code Article 680 and the **2009 International Energy Conservation Code (IECC). – *SEE ADDED SECTION ON THE 2009 IECC* *which goes into effect January 1st, 2013.***

All swimming pools must be enclosed by barrier/gates meeting the requirements of the above referenced codes prior to being filled with water. All barriers/gates will be inspected at the time of the final pool inspection. **A final inspection will not be performed until these requirements are in place.** This attachment is to be used only as a guideline and is not intended to be all inclusive.

If the installation of the Fence is by anyone other than the permit holder, it is the responsibility of the Homeowner to make sure the Fence is in place before the final inspection is done and that it meets all requirements. The Pool Fence Affidavit must be submitted at the time of permit issuance. It is required to be filled out, signed and notarized. The form is available on our website.

Failure to comply with these requirements will result in the issuance of fines.

1. A permit is required prior to beginning construction.

2. Receptacles on the property shall be located between 6 feet and 10 feet from the inside walls of the pool.

3. Where a permanently installed pool is located at a dwelling unit, at least one 125-volt receptacle shall be located a minimum of 6 feet from and not more than 20 feet from the inside wall of the pool.

4. All 125-volt receptacles located within 20 feet of the inside walls of a pool shall be protected by a ground fault circuit interrupter. **Outlets supplying pool pump motors rated 15 or 20 amps, 125 volts through 240 volts single phase, whether by receptacle or direct connection, require GFCI protection.**

5. **Outdoor Locations:** Lighting fixtures, lighting outlets, and ceiling fans shall not be installed over the pool or over the area extending 5 feet horizontally from the inside walls of a pool unless no part of the lighting fixture or ceiling fan is less than 12 feet above the maximum water level.

6. **Indoor Locations -** Same as Outdoor Locations in item # 5 except if: a) Luminaires are totally enclosed. b) GFCI is installed in the branch circuit supply the luminaires or ceiling fans. c) Distance from bottom of luminaire or ceiling fan to the maximum water level is not less than 7 feet 6 inches.

7. The following parts shall be bonded together for protection against electrical shock: ***Note: Also see Equipotential Bonding Grid Requirements.***

a) All metallic parts of the pool structure, including the reinforcing metal of the pool shell, coping stones, and deck.
b) All forming shells and mounting brackets of a no-niche fixture.
c) All metal fittings within or attached to the pool structure.
d) Metal parts of electrical equipment associated with pool water circulating system, including pump motors.
e) Metal parts of equipment associated with pool covers, including electric motors.
f) Metal-sheathed cables and raceways, metal piping, and all fixed metal parts that are within 5 feet horizontally of the inside walls of the pool, and within 12 feet above the maximum water level of the pool, or any observation stands, towers, or platforms, or from any diving structures, and that are not separated from the pool by a permanent barrier.

8. Steel tie wires shall be considered suitable for bonding the reinforced steel together.

9. Welding or special clamps shall not be required. These tie wires shall be made tight. These parts shall be connected to a common bonding grid with a solid, copper conductor, insulated, covered, or bare, not smaller than No. 8. Connection shall be made by pressure connectors or clamps of stainless steel, brass, copper, or copper alloy. The common bonding grid shall be permitted to be any of the following:

a) The structural reinforcing steel of a concrete pool where the reinforcing rods are bonded together by steel tie wires or the equivalent.
b) The wall of a bolted or welded metal pool.
c) A solid, copper conductor, insulated, covered or bare, not smaller than No. 8.

10. The following equipment shall be grounded:

a) Wet-niche and no-niche underwater lighting fixtures.
b) Dry-niche underwater lighting fixtures.
c) All electrical equipment located within 5 feet of the inside wall of the pool.
d) All electrical equipment associated with the re-circulating system of the pool.
e) Junction boxes.
f) Transformer enclosures.
g) Ground-fault circuit interrupters.
h) Panelboards that are not part of the service equipment and that supply any electrical equipment associated with the pool.

11. The following areas require ground fault circuit interrupters:

a) All outside outlets require GFCI protection.
b) Lighting fixtures and lighting outlets installed in the area extending between 5 feet and 10 feet from the inside wall of the pool.
c) Power for a water pump motor.
d) In the branch circuit supplying fixtures operating at more than 15 volts.
e) Underwater lighting fixtures operating at more than 15 volts.
f) Electrical equipment including power supply cords (on storable pools).

12. All in ground and above ground pools shall be completely enclosed by a fence at least 4 feet in height or a screen enclosure. Openings in the fence shall not permit the passage of a 4" diameter sphere. The fence or screen enclosure shall be equipped with self-latching and self closing gates. The fence ***must*** be in place at the time the pool is filled with water.

SECTION 3109
SWIMMING POOL ENCLOSURES AND SAFETY DEVICES

3109.1 General. Swimming pools shall comply with the requirements sections 3109.2 through 3109.5 and other applicable code sections of this code.

3109.2 Definition. The following term is defined in Chapter 2:

SWIMMING POOLS.

3109.3 Public swimming pools. Public swimming pools shall be completely enclosed by a fence not less than 4 feet in height or a screen enclosure. Openings in the fence shall no permit the passage of a 4 inch diameter sphere. The fence or screen enclosure shall be equipped with self-closing and self-latching gates..

3109.4 Residential swimming pools. Residential swimming pools shall comply with Sections 3109.4.1 through 3109.4.3.

> **Exception:** A swimming pool with a power safety cover or a spa with a safety cover complying with ASTM F 1346 need not comply with Section 3109.4

3109.4.1 Barrier height and clearances. The top of the barrier shall be at least 48 inches above grade measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches measured on the side of the barrier that faces away from the swimming pool. Where the top of the pool structure is above grade, the barrier is authorized to be at ground level or mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches.

3109.4.1.1 Openings. Openings in the barrier shall not allow passage of a 4-inch-diameter sphere.

3109.4.1.2 Solid barrier surfaces. Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

3109.4.1.3 Closely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches, the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1 ¾ inches in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 ¾ inches in width.

3109.4.1.4 Widely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches or more, spacing between vertical members shall not exceed 4 inches. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 ¾ inches in width.

3109.4.1.5 Chain link dimensions. Maximum mesh size for chain link fences shall be a 2 ¼ inch square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to no more than 1 ¾ inches.

3109.4.1.6 Diagonal members. Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be no more than 1 ¾ inches.

3109.4.1.7 Gates. Access gates shall comply with the requirements of Sections 3109.4.1.1 through 3109.4.1.6 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. Release mechanisms shall be in accordance with Sections 1008.1.8 and 1109.13. Where the release mechanism of the self-latching device is located less than 54 inches from the bottom of the gate, the release mechanism shall be located on the pool side of the gate at least 3 inches below the top of the gate, and the gate and barrier shall have no opening greater than ½ inch within 18 inches of the release mechanism

3109.4.1.8 Dwelling wall as a barrier. Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:

1. Doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and its screen are opened. The alarm shall sound continuously for a minimum of 30 seconds immediately after the door is opened and be capable of being heard throughout the house during normal household activities. The alarm shall be equipped with a manual means to temporarily deactivate the alarm for a single opening. Such deactivation shall last no more than 15 seconds. In dwellings not required to be accessible, Type A or Type B units, the deactivation switch(s) shall be located at 54 inches maximum and 48 inches minimum above the threshold of the door.
2. The pool shall be equipped with a power safety cover which complies with ASTM F 1346.
3. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the administrative authority, shall be accepted so long as the degree of protection afforded is not less than the protection afforded by Section 3109.4.1.8, Item 1 or 2.

2012 International Building Code (IBC)

3109.4.1.9 Pool Structure as barrier. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps either shall be capable of being secured, locked or removed to prevent access, or the ladder or or steps shall be surrounded by a barrier which meets the requirements of Sections 3109.4.1.1 through 3109.4.1.8. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter sphere.

3109.4.2 Indoor swimming pools. Walls surrounding indoor swimming pools shall not be required to comply with Section 3109.4.1.8.

3109.4.3 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

3109.5 Entrapment avoidance. Suction outlets shall be designed and installed in accordance with ANSI/APSP-7

2009 International Energy Conservation Code (IECC)
(Affective January 1st, 2013)

403.9 Pools (Mandatory). Pools shall be provided with energy conserving measures in accordance with Sections 403.9.1 through 403.9.3.

403.9.1 Pool Heaters. All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.

403.9.2 Time Switches. Time switches than can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar and waste-heat-recovery pool heating systems.

403.9.3 Pool Covers. Heated pools shall be equipped with a vapor-retardant pool cover on or at the water surface. Pools heated to more than 90^0 F (32^0C) shall have a pool cover with a minimum insulation value of R12.

Exception: Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.

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POOL FENCE AFFIDAVIT

As owner of the property located at _____

_____

I am aware of the requirements for the enclosure of a pool in accordance with Section 3109 of the International Building Code (IBC) titled SWIMMING POOL ENCLOSURES AND SAFETY DEVICES, which has been adopted by Anderson County, and take full responsibility as the property owner for ensuring the pool fence is constructed in accordance with these requirements.

All swimming pools must conform to the 2012 International Building Code (IBC). All swimming pools must be enclosed by barrier/gates. All doors with direct access to the pool, where the wall acts as a barrier, shall be equipped with an alarm. All barrier/gates/alarms will be inspected at the time of the final pool inspection. The barrier/gates/alarms must be in place before the final inspection of the pool is requested. ***A $20.00 re-inspection fee will be charged to the permit holder if the barrier/gates/alarms are not installed at the time of final inspection. Failure to comply with these requirements may result in fines exceeding $1,000.00 per day per occurrence.***

In addition, the pool shall not be used until Anderson County has conducted and approved all applicable inspections**.**

_____ _____
Owner's Name (Print) ***Owner's Phone #***

_____ _____
Owner's Signature ***Date***

The foregoing was acknowledged before me this _____ day of _____

_____ _____
Notary Signature **My Commission Expires**

Equipotential Bonding of Permanently Installed Swimming Pools

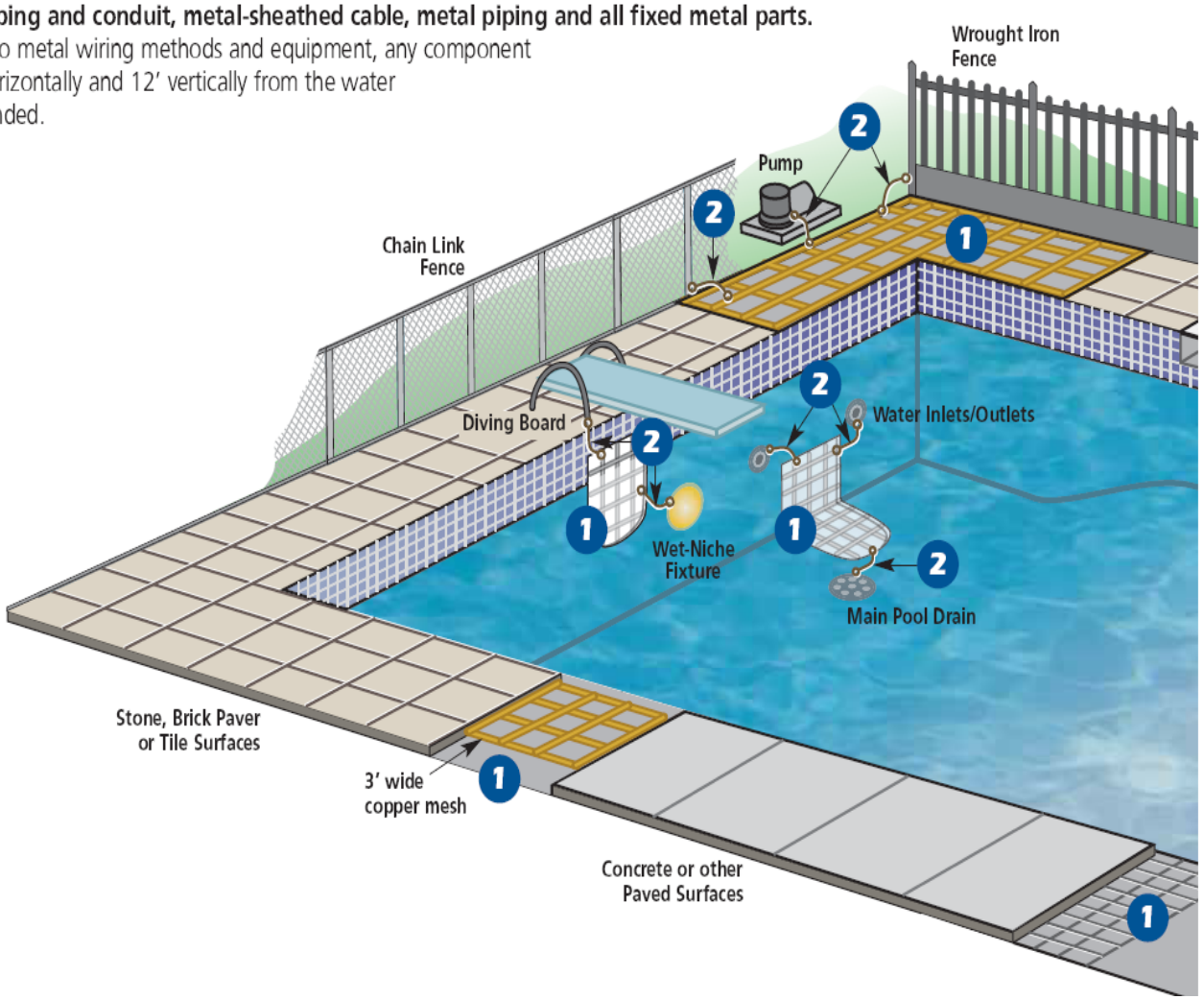
The requirements for bonding and grounding permanently installed indoor and outdoor swimming pools are provided in Article 680 "Swimming Pools, Fountains and Similar Installations" of the 2011 Edition of the National Electrical Code (NEC®).

What is Equipotential Bonding?

Article 680.26 details the bonding requirements for permanently installed swimming pools in order to "eliminate voltage gradients in the pool area as prescribed." Bonding the metallic parts in and around the pool area prevents differences of potential from developing in the event of an electrical equipment fault and reduces the possibility of electric shock. The area created by bonding the metallic parts together is known as an equipotential plane.

The NEC requires bonding all of the following metallic parts in a permanently installed swimming pool with a #8 AWG solid or larger conductor.

- **Concrete reinforcing steel and all metallic structural components.** Uncoated reinforcing steel and all other metallic structures.
- **Underwater lighting.** All metallic parts (housings and mounting brackets).
- **Metal fittings.** Metal fittings for pipes, drains and water inlets.
- **Electrical equipment.** All metal parts of any electrical equipment associated with the pool including pumps and recirculating equipment, heaters and blowers and automatic covers.
- **Metallic tubing and conduit, metal-sheathed cable, metal piping and all fixed metal parts.** In addition to metal wiring methods and equipment, any component within 5′ horizontally and 12′ vertically from the water must be bonded.



Equipotential Bonding Grid

All of the bonded parts in or around the swimming pool must be attached to an equipotential bonding grid. This grid must extend 3′ beyond the inside surface of the pool under concrete, stone or other paved walking surfaces. This grid can consist of the following:

- **Reinforcing Steel.** Uncoated reinforcing steel of a concrete pool (poured or sprayed, with painted or plaster coatings) can be used as the equipotential bonding grid.
- **Copper Grid.** A grid constructed with a minimum of #8 AWG bare solid copper conductors with 12″ x 12″ spacing.

Pools made of non-conductive materials (fiberglass composite, vinyl lined polymer or other non-conductive materials) do not require an equipotential grid that covers the full contour of the bottom and sides of the pool, however an equipotential grid is still required around the perimeter of the pool extending 3′ beyond the sides of the pool.

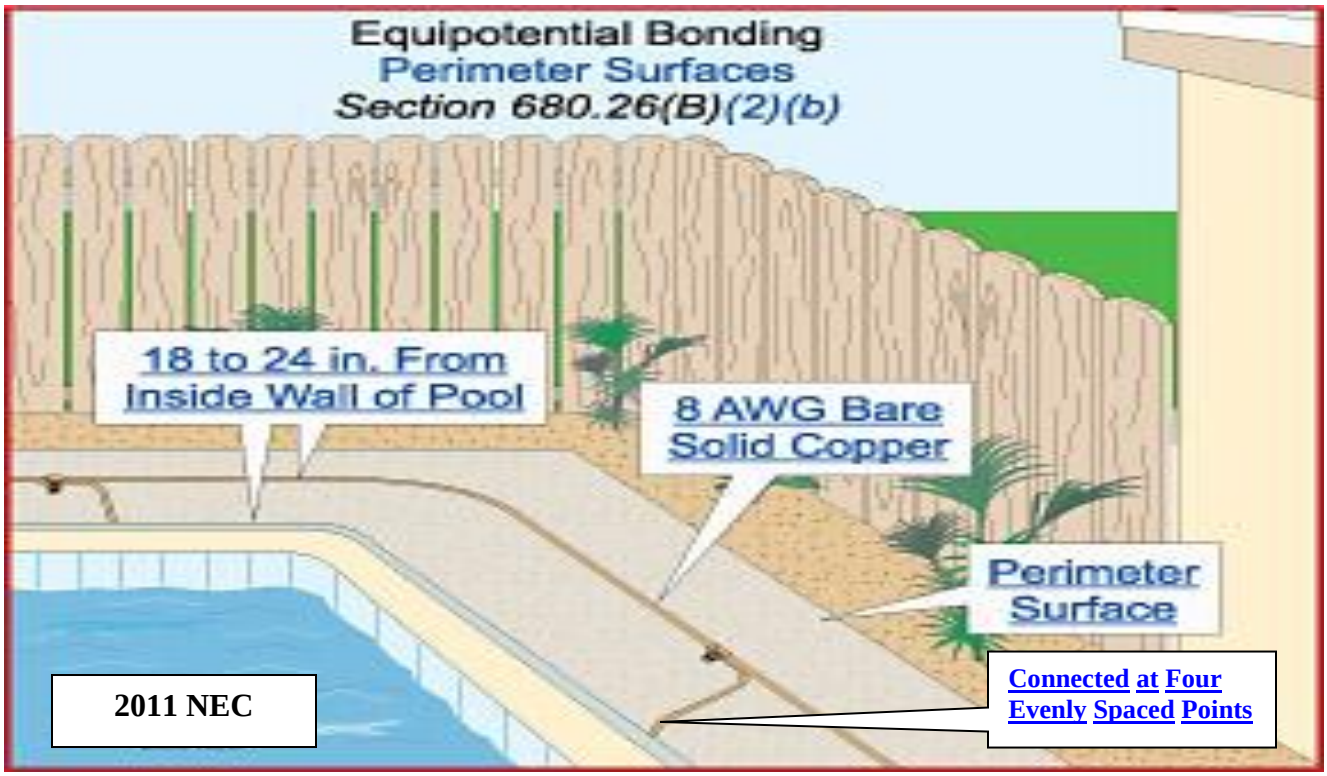
Note: If using Welded Wire Mesh for the 3 foot bonding grid, minimum size accepted is
6x6 10/10 or 6x6 W1.4/W1.4.

Equipotential Bonding	
1	Concrete reinforcing steel per NEC 680.26 (B)(1) **OR** Equipotential grid, #8 AWG or larger solid copper conductor, 12x12 spacing per NEC 680.26(C)(3)
2	Bonding conductor, #8 AWG or larger solid copper, connected per NEC 250.8

The 2011 National Electrical Code (NEC) gives you an alternate method of Equipotential Bonding of Perimeter Surfaces for Non-Conductive Pool Walls (Fiberglass and Vinyl Lined).

680.26(B)(2)(b) Alternate Means. **Where structural reinforcing steel is not available** or is encapsulated in a nonconductive compound, a copper conductor(s) shall be utilized where the following requirements are met:

(1) At least one minimum 8 AWG bare solid copper conductor shall be provided.
(2) The conductors shall follow the contour of the perimeter surface.
(3) Only listed splices shall be permitted.
(4) The required conductor shall be 18 to 24 inches from the inside walls of the pool.
(5) The required conductor shall be secured within or under the perimeter surface 4 to 6 inches below grade.



The perimeter bonding grid can be comprised of structural reinforcing metal (rebar-or welded wire mesh) that is conductive to the perimeter surface and installed in or under the perimeter surface. Where structural reinforcing steel is not available *(Fiberglass or Vinyl Walls)*, a single, bare, solid 8 AWG or larger copper conductor can be installed around the perimeter of the pool in an area measuring between 18 and 24 inches from the inside pool walls. This 8 AWG bonding conductor can be installed in the paving material (ie: concrete) or it can be buried in the subgrade below the paving material not less than 4 inches and not more than 6 inches.

The perimeter surface bonding grid has to be connected at four evenly spaced points around the pool perimeter to the structural steel of a conductive pool shell. Connection between the perimeter bonding grid and nonconductive pool shells is not required.