COUNTY OF RIVERSIDE
BUILDING AND SAFETY DEPARTMENT

Mike Lara
Director

Guidelines for complying with Article 670.26(C), EQUIPOTENTIAL BONDING GRID FOR SWIMMING POOLS AND DECKS AND SPAS

What is an Equipotential Bonding Grid?

Briefly, an equipotential bonding grid is a metallic grid that establishes an equipotential plane (or Faraday Cage) around the pool and deck. All metallic parts of the pool shell, coping stones, and deck, shall be bonded. The equipotential plane puts all points on the plane at an equal potential to equalize voltage and current that passes through the plane. This protects the person standing on the deck or in the water from feeling stray current which may circulate in the ground, due to the multiple grounded utility systems, or stray currents associated with electric supply to the pool equipment.

Pool Shell – Vinyl Liner and Fiberglass pool shells protect the swimmer from these stray currents because the shells are non-conductive, but does not protect the perimeter surface. Concrete (or Gunite) pool shells are conductive but when supported by an equipotential grid (structural steel or copper grid) it provides a safe environment for public and meets the minimum code requirements of the 2007 California Electrical Code.

Pool Deck – A deck constructed with a non-conductive surface will provide protection to the swimmer standing on the deck. However, a deck constructed from concrete or pavers will not protect the person standing on the deck, unless it contains structural steel reinforcement, bonded with the usual tie wires, or a copper wire grid. A paver deck must utilize either a concrete sub-pad with structural steel reinforcement, or a copper wire grid constructed as specified in 2007 California Electric Code, Article 680.26(C). The perimeter surface shall extend under paved walking surfaces for 3 feet horizontally beyond the inside walls of the pool. When structural reinforcing steel is utilized, the steel shall be installed 2 inches above adjacent grade. The slab shall have a minimum thickness of 4 inches. A bonding inspection and approval is required prior to placement of the concrete. Bonding of perimeter surfaces shall be provided as specified in 680.26(B)(1) and shall be attached to the pool reinforcing steel or copper grid at a minimum of four points uniformly spaced around the perimeter of the pool. The connections for the bonding grid for nonelectrical parts shall be made in accordance with Article 250.8 of the California Electrical Code.

3 ways to construct the equipotential bonding grid as per 2007 California Electrical Code:

1) Structural reinforced steel. The structural reinforcing steel of a concrete pool where the reinforcing rods are bonded together by the usual steel tie wires or

2) Bolted or welded metal pools. The wall or a bolted or welded metal pool.

3) Alternate Means. This system shall be permitted to be constructed as specified in (a) through (c):

(a) Materials and Connections. The grid shall be constructed of minimum 8 AWG bare solid copper conductors. Conductors shall be made as required by 680.26(D).

(b) Grid Structure. The equipotential bonding grid shall cover the contour of the pool and the pool deck extending 3 feet horizontally from the inside walls of the pool. The equipotential bonding grid shall be arranged in a 12 inch by 12 inch network of conductors in a uniformly spaced perpendicular grid pattern with tolerance of 4 inch.

(c) Securing. The below-grade grid shall be secured within or under the pool and deck media.