

## 2019 California Electrical Code, Section 680.26

### What is Equipotential Bonding for Swimming Pools?

Establishing an electrically safe environment in and around permanently installed swimming pools requires the creation of an equipotential grid. The sole purpose of an equipotential grid is to create an area with no significant difference in voltage between objects that can be touched simultaneously. Examples of objects at a pool that can be touched simultaneously include the concrete decking, ladders, handrails, light fixtures, drains, and the pool water. An equipotential grid is created by intentionally connecting all these objects together electrically, otherwise known as bonding them together.

### What parts of a swimming pool require bonding?

Section 680.26(B) of the 2019 California Electric Code (CEC) requires bonding of all the metal structures, fittings and parts that are horizontally within five feet of the pool wall and vertically within twelve feet above the maximum water level of the pool.

The following parts require bonding:

- Reinforcing metal of the pool shell, coping stones and deck
- Perimeter surfaces by bonding to the reinforcing steel of the pool at a minimum of 4 points uniformly spaced around the perimeter of the pool
- Metal conduits, metal door frames and metal window frames within five feet of the inside pool wall
- Metal forming shells and mounting brackets of lighting fixtures
- Metal items and fittings for hand rails, ladders, metal drains and diving boards
- Metal casings of electrical equipment such as pump motors, pool water heaters and equipment associated with pool covers
- Fixed metal parts within 5' horizontally and 12' vertically of water's edge

### Equipotential Bonding Grid

Bonding just the metal parts around the pool to each other may not provide a complete equipotential plane. For this reason, Section 680.26(B)(1)(a),(b) of the 2019 CEC requires connecting the metal parts to a common 12" x 12" x 3' wide bonding grid (typically #3 rebar forming the pool shell) that covers the entire contour of the pool. The equipotential grid is required to extend horizontally under the perimeter surfaces for not less than three feet from the inside face of the pool wall (**#3 rebar if encased in concrete or a copper conductor # 8, 12" x 12" grid if under pavers or unpaved surfaces**) attached per the above requirements. Additionally, an intentional water bond of a minimum conductive surface of 9 square inches installed in contact with the pool water. This bond may consist of the above bonded parts. Welded wire fabric shall not be used.

