a wet-niche or no-niche luminaire and the field-wiring chamber of a dry-niche luminaire shall be connected to the equipment grounding terminal of the panelboard. This terminal shall be directly connected to the panelboard enclosure.

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680.26 Equipotential Bonding.

Δ **(A) Performance.** The equipotential bonding required by 680.26(B) and (C) to reduce voltage gradients in the pool area shall be installed for pools with or without associated electrical equipment related to the pool.

The function of equipotential bonding differs from the primary function of bonding to meet the requirements of Article 250. Providing a path for ground-fault current is not the function of the equipotential bonding grid and associated bonding conductors. The only function of the 8 AWG solid copper conductor required by 680.26(B) is equipotential bonding to eliminate the voltage gradient in the pool area. The bonding conductor is not required to extend or connect to any parts or equipment other than those covered in 680.26(B)(1) through (B)(7) and to a pool water bonding element covered in 680.26(C).

Creating an electrically safe environment in and around permanently installed swimming pools requires the installation of a bonding system to establish equal electrical potential (voltage) in the vicinity of the swimming pool. A person who is immersed in a pool or who is lying on or walking on a conductive perimeter surface is susceptible to differences in electrical potential that may be present in the pool area. Bonding reduces possible injurious or disabling shock hazards created by stray currents in the ground or piping connected to the swimming pool. See Exhibit 680.6.

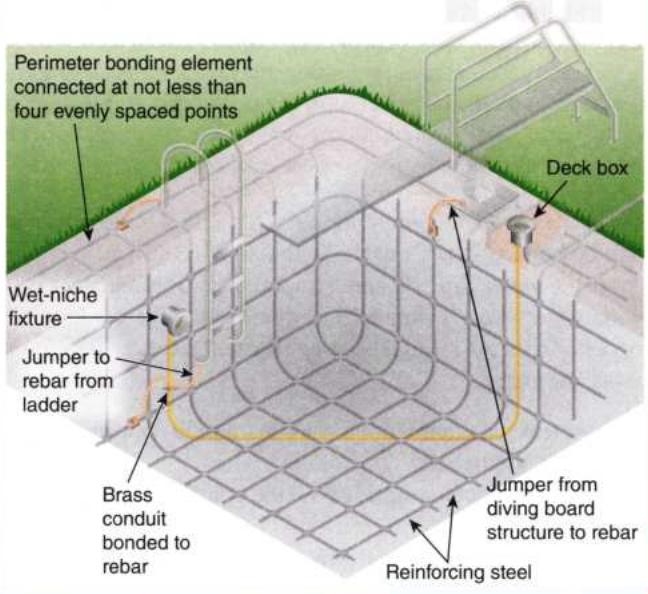

EXHIBIT 680.6 Bonding of conductive metal equipment and parts associated with a swimming pool.

(B) Bonded Parts. The parts specified in 680.26(B)(1) through (B)(7) shall be bonded together using solid copper conductors, insulated, covered, or bare, not smaller than 8 AWG or with rigid metal conduit of brass or other identified corrosion-resistant metal. Connections to bonded parts shall be made in accordance with 250.8. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes.

(1) Conductive Pool Shells. Bonding to conductive pool shells shall be provided as specified in 680.26(B)(1)(a) or (B)(1)(b). Cast-in-place concrete, pneumatically applied or sprayed concrete, and concrete block with painted or plastered coatings shall all be considered conductive materials due to water permeability and porosity. Reconstructed pool shells shall also meet the requirements of this section. Vinyl liners and fiberglass composite shells shall be considered to be nonconductive materials and not subject to these requirements.

(a) *Structural Reinforcing Steel.* Unencapsulated structural reinforcing steel shall be bonded together by steel tie wires or the equivalent. Where structural reinforcing steel is encapsulated in a nonconductive compound, a copper conductor grid shall be installed in accordance with 680.26(B)(1)(b).

Encapsulated reinforcing steel does not provide the conductivity necessary to establish the required common bonding grid around the contour of a conductive pool shell. Therefore, a bonding connection to the encapsulated reinforcing steel, such as epoxy-coated rebar, is not required. However, a copper bonding grid around the contour of a conductive pool shell must be provided and constructed as prescribed in 680.26(B)(1)(b).

In Exhibits 680.6 and 680.7, structural reinforcing steel serves as a common point to which all non–current-carrying metal parts in the pool area are connected. This connection method is one way of satisfying the requirement to bond all metal parts together. Individual pieces of hardware such as the hooks used to attach safety or lane ropes that are less than 4 inches in any dimension and do not penetrate into the pool structure more than 1 inch are not required to be bonded per 680.26(B)(5).

(b) *Copper Conductor Grid.* A copper conductor grid shall be provided and shall comply with the following:

(1) Be constructed of minimum 8 AWG bare solid copper conductors bonded to each other at all points of crossing in accordance with 250.8 or other approved means
(2) Conform to the contour of the pool
(3) Be arranged in a 300 mm (12 in.) by 300 mm (12 in.) network of conductors in a uniformly spaced perpendicular grid pattern with a tolerance of 100 mm (4 in.)
(4) Be secured within or under the pool no more than 150 mm (6 in.) from the outer contour of the pool shell

Δ **(2) Perimeter Surfaces.** The perimeter surface to be bonded shall be considered to extend for 1 m (3 ft) horizontally beyond