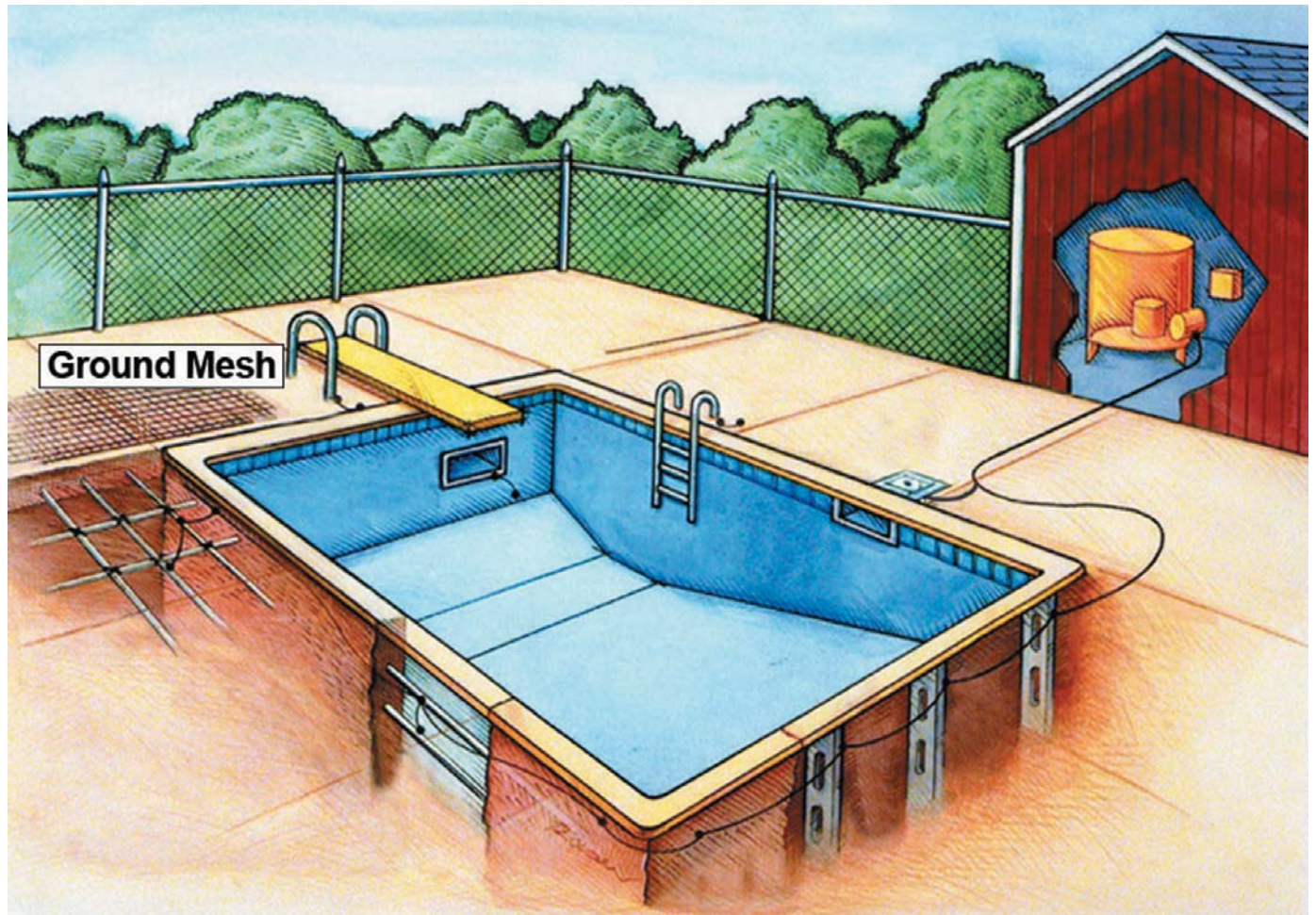


DON'T GO DEEP INTO POOL GROUNDING WITHOUT QUOTING THE GROUND MESH

By Peter Therrien, FCI-BURNDY Products



Before you even get your feet wet with your next pool grounding job, it's more important than ever to make the installation of ground mesh part of your project description and quote. The reason for this heightened level of importance is the added emphasis on pool grounding in the updated 2005 National Electrical Code (NEC).

Specifically, the change in the NEC Article 680.26 (C) (3) (b) sub-titled "Grid Structure" was designed to eliminate the risk of voltage gradients and stray currents in pools that can cause disorientation, drowning and potentially even death. The article specifically focuses on the equipotential bonding of pools not constructed using conventional

steel rebar and concrete or gunite, and includes epoxy-coated-rebar, fiberglass and plastic pools. Because these specific pool types don't use steel rebar for reinforcement, they are deemed to not have an effective conductive-bonding grid.

Here is how the newly revised article describes the application of this grid:

"The equipotential bonding grid shall cover the contour of the pool and the pool deck extending 1 meter (3 feet) horizontally from the inside walls of the pool. The equipotential bonding grid shall be arranged in a 300 millimeter (12 inches) by 300 millimeter (12 inches) network of conductors in a uniformly spaced perpendicular grid pattern with tolerance of 100 millimeter (4 inches)."

The article specifies that the grid needed when a steel-rebar grid is unavailable shall feature a solid copper conductor. This alternative-bonding grid has to be constructed of minimum 8 AWG bare, solid-copper conductors, covering the contour of the pool and extending horizontally into the pool decking by a minimum of three feet.

Find a connector provider that meshes with your needs.

Two or three companies currently offer a prefabricated wire mesh that complies with the NEC requirements and allows for the grounding of all metal components, pool/spa motors and electrical equipment.

According to the new Article, the

conductors within the mesh have to bond to each other at all points of crossing, and connections must be made in accordance with the requirements in Section 250.8. In stating this, the Article largely leaves the type of connectors used to install the grid up to the discretion of the contractor and the requirements of the specific job. It is important to always consult local inspectors to determine if there is any additional local governance dictating connector types; however, it is wise to remain familiar with the breadth of options, as the onus of responsibility often falls on the contractor.

The grounding can be accomplished using any one of three types of connectors, all of which are available from FCI-BURNDY Products, a leading manufacturer and provider of connector solutions: exothermic, compression or mechanical.

Exothermic connections are accepted by 80 percent of the country's specifying engineers and do not require the procurement of any expensive tools. Additionally, exothermic connections create a strong molecular bond between two conductors. From an engineering standpoint, this is perceived as a particularly reliable method, as the finality of a 3,500 degree graphite mold is absolute. Molecular welds are virtually impervious to high current surges; in fact, they have a current carrying capacity that can be higher than that of the conductors themselves. What's more, molecular welds will not loosen or corrode, which can be very cost-effective in the long-term.

In summary, exothermic is inexpensive but durable and requires little training. In open area applications under fair weather conditions, the exothermic



method is an efficient, affordable means to complete the task.

Compression connections utilize precisely matched connectors, tools, and die sets to create a highly reliable and inspectable connection. These grounding systems provide electrical contractors with a multitude of connector combinations and enable them to install a variety of conductors to ground rods, rebar, and other conductors. Despite an initial investment in tooling, compression connections are well suited for pool grounding applications, boasting an inherently safe installation process that does not

produce or react with heat, smoke or other particles and eliminates the need for special "hot" permits that are sometimes required. Compression connections are impervious to adverse weather or environmental conditions, and offer users almost no restriction on connection location.

Mechanical connections such as split bolts are inexpensive, readily available and easy to install, making them a reasonable solution to consider for the wire mesh connection. In most residential applications, mechanical grounding is an efficient means of getting the job done.

DIVE IN WITH ONE SOURCE.

When specifying any grounding connection, it is helpful to seek out companies that offer all three methods of grounding. For example, certain applications may require an exothermic method for one connection and a mechanical connection for another. Having a one source supplier saves a considerable amount of time.

Also, companies that offer all three options can offer an unbiased opinion about which method best suits your ultimate needs

(those that may extend beyond the job in question), without pressuring you into selecting an option that doesn't fit.

These connection methods vary in terms of cost and time, but it's safe to say that no matter which wire mesh grounding method you go with, it will add at least 5 or 6 hours to the installation process and a substantial dollar amount to the price of the pool. So if you don't want get in over your head on a pool grounding job, it's easy to see why it's important to quote the ground mesh and suitable connections as part of your project bid.