

2023 NEC® Amended to require equipotential bonding grid in pool decks, REMOVING the allowance for a single wire

The NFPA places ALL liability for safety on the Local Authority Having Jurisdiction! This may come as a surprise to most people, but when the NFPA disclaimer is referenced, it is very clear. If you are an Inspector, ensure that the pool and deck are constructed compliant with the 2023 NEC® as amended by TIA 1687.

After the 2023 NEC was adopted by the members of the NFPA, too many new pool installations experienced unsafe, high levels of voltage on the pool decks, and the NFPA was notified. Also the 2021 US Coast Guard report was published, which included several incidents of the most severe injury from stray & contact voltage presenting on pool decks that were unprotected by equipotential bonding grid of either steel or copper. Therefore, the members of the NFPA took action and the 2023 National Electrical Code was amended. TIA1687 REMOVED the allowance for a single wire, as the single wire has been proven to be completely inadequate and leaves an unsafe installation. View the TIA on the NFPA website:

Nfpa.org, select “codes and standards” in red bar, select “list of codes and standards” in blue writing, scroll down and select “NFPA 70®” in blue writing, scroll down under “current and prior editions” and keep scrolling under “Standards Council Decisions” and select the blue “VIEW” for “Decision No. 23-1 on Agenda Item 23-3-8, regarding TIA No. 1687 on 680.26”

This TIA removes the unsafe option to install a single copper wire to act as an equipotential bonding grid. You now must install a bonding grid in one of three ways for all areas that can be considered pedestrian walkways, but a single wire can be used in areas such as infinity edges/rock formations/waterfalls (ie., areas that are not pedestrian), use the single wire to CONNECT sections of grids only.

The three acceptable methods are:

1. Use minimum #3 rebar tied in a 12” x 12” grid, chaired to be fully embedded in the paving.
2. Use minimum ASTM 6x6-W2.0 x W2.0 welded wire sheet, chaired to be fully embedded in the paving.
3. Use minimum # 8 solid bare copper wire grid, welded in a 12” x 12” grid. Embedding not required, can be installed on or in the earth or paving.

Whichever grid is chosen, it must be connected to the pool shell at four (4) places spaced uniformly apart if the shell is conductive, such as gunite/rebar or steel wall for vinyl liner. The grid must be placed no more than 6” below finished surface, and cover the first 3’ from the inside edge of the pool.

CMI’s EquiBond, equipotential bonding grids are constructed from #8 AWG 99.99% pure solid copper bare wire, welded in 12” x 12” spacing, and are 3’ wide. Stock lengths are 100’, 125’, and 150’ long, but custom lengths are always possible. Each Grid also contains engineered drawings and product information, 16 metal stakes, and 20 pcs. of #8 Direct Burial Split bolt. The quantity of 20 is developed from 4 corners with 4 connections at each corner, and 4 more for connecting the bond wire to the shell spaced equal distance apart. Everything needed to be installed by one person.

CMI’s copper EquiBond grid does not need to be chaired and embedded in the paving, it can be installed in the paving or the earth, or on top of the earth. This is especially useful with paver decks, as the copper grid can be placed right at the top of the fine sand and the pavers installed directly onto it and the

sand as usual. Because it is constructed from pure copper, it will not rust or erode, and over great lengths of time, will provide proper protection against stray and contact voltage.

CMI's staff includes members of the NFPA and IAEE. We attend national, section, chapter, and department meetings, are always willing to answer questions and provide training.