Executive Summary of Proposal SW12006 (and Related Proposals SW11975, SW11977, & SW12005)

Problem Statement: Proper Equipotential Bonding of Pools and Decks in the State of Florida will save lives. The National Electrical Code ® 2023 version as amended is considered by the electrical industry as the Minimum Level of Safety. A proposal has been submitted to Lower the level of safety below the minimum level and no longer offer adequate protection for life safety.

A full equipotential bonding grid is created by the steel rebar cage structurally supporting the shell of the pool. The 2023 NEC® as amended requires that grid to be extended 3 feet out underneath the deck. There are three options allowed on this deck portion; 12" x 12" Rebar grid, 6" x 6" W2.0 steel mesh, or 12" x 12" #8 Copper wire grid. This extends the equipotential plane from around the pool shell out 3 feet underneath the deck, which is generally the most conductive portion as that section is the most wet.

You cannot bond a patch of dirt, concrete, or a paver. An equipotential plane must be created to provide protection from stray voltage for a person standing on the deck. From 2008 to 2023 the NEC® allowed a single wire to create this plane, but it failed. Multitude of tests and studies by NEETRAC, ENERNEX, EPRI, and various field events with reports published have proven this true.

After two homeowners in North Carolina installed new pools to the 2020 NEC® standard, stray voltage was presenting on their decks at a high enough level it caused physical harm. Duke Energy, the Chief Electrical Engineer of the state, EPRI, and representatives from the Office of the State Fire Marshal investigated. They had to tear out their newly installed decks, install a bonding grid and another deck, and the problems were solved after significant financial impact. Their attorney sent a legal notice to the NFPA advising them the code they publish was inadequate, and the remedy could simply be raising the level of safety to an adequate level so other pool owners would not experience the same, and no further legal action would be taken.

The Standards Council of the NFPA® assigned a balanced Task Group to study the matter and make a recommendation. The Task Group was equally balanced with 50% of the members adamantly against removing the single wire and requiring a proper grid, and 50% for removing the single wire to create the equipotential plane in the pool deck.

After exhaustive research and studies, the Task Group made a Unanimous recommendation that the single wire option be removed from the NEC and 3 options to construct a bonding grid were given. The conclusion also was that it was Emergency In Nature and needed to be amended immediately, so TIA 23-9 was issued and the NEC® 2023 was amended.

The US Coast Guard Reports that numerous deaths could have been prevented if this proper bonding were in place with 4 deaths and 17 injuries just from five incidents in Jupiter, FL, Palm Springs, FL, North Miami Beach, FL, Celebration, FL, and Hialeah, FL.

At the time of this writing, ALL testing conducted even prior to 2008 and ever since, have shown the single wire to be dangerous, but a grid to be safe. www.floridapoolshock.com contains a 10 minute video of a test

pool in Orlando, simulating a faulted pump and the single wire allowing a potentially lethal current through a wet human standing above a single wire, yet only an almost imperceptible level standing over the bonding grid. It also contains an 8 minute animated explanation of this subject matter by EPRI.

Pool owners experiencing shock on their pools almost always call the utility company. After all, their pool was built and inspected per code, and the power company creates electricity. Most pool builders are simply unaware of the magnitude of this problem and thus state there are no incidents of stray voltage on pools. However, the knowledge is gained when proposals to lower the level of safety below the minimum level are presented. The author of the amendment was the Pool and Hot Tub Alliance representative to Code Making Panel 17 of the NEC®, and initially the most ardent proponent of keeping the single wire as an option. After his participation in the research of the Task Group, he reversed his opinion.

Solution: Reject the proposal to remove TIA 23-9 when adopting the 2023 NEC® and simply adopt it as amended. The incremental cost is $300-500/pool with the three options provided.

Please Protect Floridians and REJECT the Following Proposals Lowering Pool Safety Standards in our State:

SW11975

SW11977

SW12005

SW12006