

Madani, Mo

From: Holland, Bryan <Bryan.Holland@nema.org>
Sent: Tuesday, September 29, 2015 9:46 AM
To: Jeff Blair; Madani, Mo; Bigelow, Joe
Cc: Richmond, Jim
Subject: Joint TAC Meeting - Follow-Up Information (Pool Lighting)

Good Morning FBC Staff,

I hope you are all doing well today...

The following information is provided in response to the Joint TAC meeting held yesterday morning:

The requirements of the NEC & FBC-R, as written, provides practical safeguarding of persons and property from hazards arising from the use of electricity. There is no substantive evidence that the events in South Florida that led to the shock and electrocution of several children last year was a result of ineffective or unsafe code requirements. There is also no evidence that the requirement in Section 454.1.4.2.3 of the FBC-B that limits underwater lighting to 15V & 300W constitutes a safer and less hazardous installation.

From the 2011 National Electrical Code & 5th Edition FBC-R, E4206.4:

680.23(A)(1) Luminaire Design, Normal Operation. *The design of an underwater luminaire supplied from a branch circuit either directly or by way of a transformer or power supply meeting the requirements of this section shall be such that, where the luminaire is properly installed without a ground-fault circuit interrupter, there is no shock hazard with any likely combination of fault conditions during normal use (not relamping).*

The requirement above is ensured through the evaluation and certification of all underwater lighting products under the UL 676 standard. (I was a member of the UL 676 STP for three years) It is virtually impossible to be shocked or electrocuted by underwater lighting products when properly installed and maintained.

The code even addresses existing pool lighting systems that operate at more than the low voltage contact limit:

680.23(A)(3) GFCI Protection, Relamping. *A ground-fault circuit interrupter shall be installed in the branch circuit supplying luminaires operating at more than the low voltage contact limit such that there is no shock hazard during relamping. The installation of the ground-fault circuit interrupter shall be such that there is no shock hazard with any likely fault-condition combination that involves a person in a conductive path from any ungrounded part of the branch circuit or the luminaire to ground.*

This requirement has been in the NEC since 1975.

And finally, the code reiterates the above requirements by ensuring that only LISTED products are used for the installation of pool lighting systems at pools:

680.23(A)(8) Compliance. *Compliance with these requirements shall be obtained by the use of a listed underwater luminaire and by installation of a listed ground-fault circuit interrupter in the branch circuit or a listed transformer or power supply for luminaires operating at not more than the low voltage contact limit.*

According to the CDC, an average of 3,800 persons are unintentionally killed by drowning in a body of water in the US each year*. Approximately half of these deaths occur in swimming pools. 50 children under the age of 15 drowned in a swimming pool in 2014. 488 persons were drowned in a swimming pool in 2013.

According to the CPSC, an average of 53 persons are killed by electrocution associated with consumer products each year in the US. Pool electrocutions account for 1 death per year on average.**

The CPSC has reports of 14 deaths related to electrocutions in swimming pools from 2003 to 2014***

In 2012, 440 Florida residents drowned. There were an additional 343 hospitalizations for non-fatal drowning. Children 1–4 make up 13% of the deaths and 44% of the hospitalizations.****

* <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6119a4.htm>

** <http://www.cpsc.gov/PageFiles/108404/2008electrocutions.pdf>

*** <http://www.cpsc.gov/en/Safety-Education/Safety-Guides/Sports-Fitness-and-Recreation/ Pools-and-Spas/Dont-Swim-with-Shocks/>

**** <http://www.floridahealth.gov/statistics-and-data/florida-injury-surveillance-system/ documents/data-fact-sheets/drowning-2012.pdf>

A proposal to modify the Florida Residential Code to the voltage and wattage limitation outlined in the Florida Building Code or to the Low Voltage Contact Limit as defined by the National Electrical Code will likely not result in a safer installation or reduce the number of injuries or deaths associated with swimming pools. Again, there have been no reported injuries or deaths associated with ANY swimming pool electrical equipment when installed in compliance with the code and product installation instructions.

Please share the above information with the Electrical and Swimming Pool TACs. Thank you for your time and consideration.

Have a nice day & take care,

Bryan



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