

## STATE BUILDING CODE INTERPRETATION NO: I-04-09

July 6, 2010

The following is offered in response to your email requesting a formal interpretation. This issue would apply to Article 680, of the 2005 National Electrical Code portion of the 2005 State Building Code.

### Question #1:

"Is it the intent of the 2005 State Building Code that Article 680.23 or 680.33 of the 2005 National Electrical Code (NEC) apply to underwater light fixtures that are installed at the factory in a self-contained, packaged spa or hot tub?"

### Answer #1:

No. Article 680.23 *Underwater Lighting Fixtures* and Article 680.33 *Lighting Fixtures* regulate light fixtures that are field installed below the normal water level of the pool. However, these articles also act as a guide for manufacturers of the installation of light fixtures of self-contained, packaged spa or hot tubs.

### Question#2:

"Can NM cable (Romex) be used in the interior of a one-family dwelling to feed a spa or hot tub located outside of the structure when that spa or hot tub contains a factory installed underwater light fixture?"

### Answer #2:

No. Branch circuit wiring to a spa or hot tub that contain an underwater light fixture that is either factory installed or field installed shall comply with Section 680.42 *Outdoor Installations*. This code section states in part: "A spa or hot tub installed outdoors shall comply with the provisions of Parts I and II of this article". Section 680.23(F)(1) *Wiring Methods* requires the use of a raceway or MC cable, therefore, the use of NM cable (Romex) is not permitted. Section 680.23(F)(2) *Equipment Grounding* states in part: "Through-wall lighting assemblies shall be connected to an insulated copper equipment grounding conductor installed with the circuit conductors. The equipment grounding conductor shall be installed without joint or splice". Using a raceway or the use of MC cable is the only way to accomplish having an insulated equipment grounding conductor. Section 680.3 *Other Articles* states in part: "Except as modified by this article, wiring and equipment in or adjacent to pools and fountains shall comply with other applicable provisions of the Code". Section 110.3(B) *Installation and Use* is another applicable section which needs to be complied with. Installation instructions are part of the listing of a piece of equipment. If the installation instructions are more stringent than the Code, then they must be followed. Remember the Code is the minimum standard.

### Question#3:

"Can NM cable (Romex) be used in the interior of a one-family dwelling to feed a spa or hot tub located outside of the structure when that spa or hot tub contains a factory installed underwater LED type light fixture?"

### Answer #3:

No. The requirements noted in Section 680.23(F)(1) would apply in this application.

### Question#4:

"Are fiber optic lights that are installed in a packaged spa or hot tub considered to be "underwater lights" and thereby required to comply with 680.42(C) *Dry-Niche Fixtures*?"

### Answer #4:

No. Fiber optic lights are not considered light fixtures because they do not make electrical contact with the spa or hot tub's water.

