

# WHY USE WATERPROOF CONNECTORS IN OUTDOOR APPLICATIONS?

## KNOW THE CODE!

### UL 486D CONNECTIONS ARE REQUIRED IN ALL WET AND DAMP LOCATIONS ACCORDING TO THE NATIONAL ELECTRICAL CODE.

- Install according to the National Electrical Code
- Avoid costly reworks due to failed inspections and/or warranty issues
- Avoid corrosion
- Avoid electrical failures
- Reduce the risk of burnouts and fires
- Finish the job with confidence

#### REFERENCES

1. NEC 2011

Article 100 Definitions: Listed, Location, Wet.  
Articles 110.14, 300.5 (B), 300.5 (E), 300.9, 310.10 (C)(3), 314.30, 410.10, 675.17

2. NEC 2008

Article 100 Definitions: Listed, Location, Wet.  
Articles 110.14, 300.5 (B), 300.5 (E), 300.9, 310.8 (C)(3), 314.30, 410.10, 675.17

3. Sealed Wire Connector System  
UL 486D Scope 1.1

See full code explanations in 'NEC Code References to UL 486D Uses in Wet Locations'

# NEC Code References to UL 486D Uses in Wet Locations

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## **NEC 2011 Article 100**

"Listed. Equipment, materials, or services included in a list ...whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose."

## **NEC 2011 Article 100**

"Location, Wet. Installations underground or in concrete slabs or... in unprotected locations exposed to weather."

### **Explanation**

...conductors contained (inside raceways in a wet location or underground) would be required to be suitable for wet locations."

## **NEC 2011 Article 110.11**

Unless the equipment is listed for the operating environment, "no conductors or equipment shall be located in damp or wet locations..."

## **NEC 2011 Article 110.14**

"(B) Splices. ...All splices and joints and the free ends of the conductors shall be covered with an insulation equivalent to that of the conductors or with an insulating device identified for the purpose."

## **NEC 2011 Article 300.5**

"(B) Wet Locations. The interior of enclosures or raceways installed underground shall be considered to be a wet location. ...(conductors and cables underground) shall be listed for use in wet locations and shall comply with 310.10(C). ... (splices and connections underground) shall be approved for wet locations."

### **Explanation**

"...all raceways and enclosures installed underground be classified as a wet location." Conductors installed underground need to comply with 310.10(C) which details what conductors are required in a wet location.

## **NEC 2011 Article 300.5**

"(E) Splices and Taps. ... (direct-buried) splices or taps shall be made in accordance with 100.14(B)."

### **Explanation**

Sealed or waterproof wire connectors are listed for underground splicing and they restore the insulation integrity of the spliced conductors.

## **NEC 2011 Article 314.30**

"(C) Enclosed Wiring. All enclosed conductors and any splices (within a handhole enclosure)... shall be listed as suitable for wet locations."

## **NEC 2011 Article 410.10**

"(A) Wet and Damp Locations. Luminaires installed in wet or damp locations shall be installed such that water cannot enter or accumulate in wiring compartments, lampholders, or other electrical parts."

Luminaires in wet locations must be marked, "Suitable for Wet Locations." Luminaires installed in damp locations must be marked, "Suitable for Damp Locations" or "Suitable for Damp Locations."

### **NEC 2011 Article 300.9**

When considering the interior of raceways in wet, above grade locations, "...the interior of the raceways shall be considered to be a wet location." The conductors and cables within these raceways must comply with 310.10(C).

#### **Explanation**

In regards to above grade raceways in wet locations, "the insides of these raceways are definitely considered wet locations..."

### **Charlie Trout from "Code Question of the the Day" February 23, 2011, Published by NECA Standards and Safety:**

"NEC 300.9 applies to raceways in above grade wet locations and considers the interior of these raceways to be a wet location requiring conductors and cables to comply with 310.10(C). The interior of the junction box is subject to the same condensation effects as the interior of the raceway."

### **NEC 2011 Article 310.10**

"(C) Wet Locations. Insulated conductors and cables used in wet locations shall comply with one of the following:

- (1) Be moisture-impervious...
- (2) Be types MTW, RHW, RHW-2...
- (3) Be of a type listed for use in wet locations"

### **NEC 2011 Article 675.17**

With regards to Electrically Driven or Controlled Irrigation Machines, "External plugs and connectors on the equipment shall be of the weatherproof type."

### **Sealed Wire Connector Systems**

UL 486D

1 Scope

"1.1 The requirements in this standard cover sealed wire connector systems, including insulating caps, covers, resins, tubing, and tapes provided with, or for use with, specific wire connectors. These systems are intended for wet or damp locations, and other installations such as direct burial, below grade, or above grade where protected from direct exposure to sunlight."