

Stephen Thornton, Chief Electrical Inspector

Vol. 18 No. 11

November 2015

Question of the Month – What is the maximum length of single-circuit lighting track (rated at 20 amperes, 120 volts) that may be connected to a 20 ampere, 120-volt circuit in a store? – See correct answer on page 2

Inspector Training – No inspections on December 8th and 9th

There will be no inspections scheduled in L&I's jurisdiction on December 8th and 9th. The department will be holding a two day training for all L&I inspectors. We regret the inconvenience this may cause to our customers who rely on timely inspections. We have found that a statewide approach to training improves consistency and is the most efficient use of our limited training budget. Please let your customers know and plan for your inspections accordingly.

2-Step Verification Provides Stronger Security for Our Customers' Online Information

Attention SecureAccess Washington (SAW) users of the [Electronic Permit and Inspection System](#): L&I is enhancing its systems to better protect your personal information. The update requires your participation. In the near future, you will be prompted to update your online security profile to enable a new feature called 2-Step Verification. Learn more about 2-Step Verification and how it works by visiting <http://lni.wa.gov/News/files/TwoStepVerificationFAQ.asp>.

Communications Cables Installed in Indoor Wet Locations

Communications wires, cables, raceways, and cable routing assemblies installed in buildings must be listed in accordance with National Electrical Code® (NEC®) 800.113(A). The listing requirement also applies to installations described in NEC® Articles 820, 830, and 840. There is a provision for limited installation of unlisted communications cables in buildings as specified in NEC® 800.48. This allows unlisted outside-plant communications cables to be installed in building spaces other than risers, ducts, plenums, and other spaces used for environmental air, under specific conditions. The cable must enter the building from the outside, the length of the cable within the building, measured from its point of entrance must not exceed 50 ft., and the cable must be terminated in an enclosure or on a listed primary protector.

There is confusion about what it means for the cable to “enter the building from the outside”. The cable must originate from (or extend to) a location outside the exterior building walls. This does not apply to a cable that runs from one point inside a building (e.g., a communications closet), down under a slab-on-grade, and emerges in another interior location or a floor box located inside the building. Installation of unlisted cables inside a building creates a hazard in that the cables are not evaluated for flame propagation and smoke characteristics.

A conduit below an interior building floor slab in contact with the earth is a wet location (see NEC® 100 definition – “Location, Wet”). The department is revising a position stated in an article that appeared in the [April 2013](#) newsletter. Further research has shown that currently, there is only one manufacturer of listed communications cable that will approve their cable for installation in underground conduits that are subject to prolonged exposure to water. As an alternative, installers have turned to installing unlisted outside-plant cable in buildings to floor boxes and other interior locations in violation of NEC® 800.113(A). NEC® Article 800 does not require cables installed in interior underground

Safety Tip of the Month

In the coming months, be prepared for deteriorating driving conditions. Rain, fog, ice, and snow are on the way. Slow down and increase your following distance to help compensate for decreased traction and visibility. Make sure your windshield wipers work well and wiper fluid is full. To help prepare for winter driving, see the [Winter Driving](#) page on the WA State Department of Transportation website.

conduits to be suitable for use in wet locations, but it does require all cables installed in buildings to be listed. Until listed communications cables that are suitable for use in wet location underground conduits become more widely available, or the NEC® changes, L&I will view this as a performance issue and not regulate the suitability of the cable for use in wet locations.

For installation of cables that are installed in wet locations inside a building, such as to interior floor boxes, the department will make an allowance for use of unlisted outside-plant cable under the following conditions only. The unlisted cable must be installed in rigid metal conduit (RMC), intermediate metal conduit (IMC), or below a concrete floor slab. PVC conduit is permitted under the slab, but must transition to RMC or IMC before emerging from the slab. Unlisted cables must be terminated in a metal enclosure or floor box, and transition to a listed cable before emerging from the enclosure. The provision in NEC® 800.48 for up to 50 feet of unlisted cable to be installed within a building does not apply to this situation because the cable does not enter the building “from the outside”. This allowance is based on the definition in 800.2 for “Point of Entrance” – *The point within a building at which the communications wire or cable emerges from an external wall, from a concrete floor slab, from rigid metal conduit (RMC), or from intermediate metal conduit (IMC).*

When Is A Building Weatherproof Enough To Install Dry Location Wiring and Equipment?

Neither the National Electrical Code® nor the electrical rules (WAC [296-46B](#)) require a specific level of construction completion before wiring and equipment installation may begin. The Code does recognize that a normally dry location may be subject to dampness or wetness while a building is under construction. However, this does not allow Type NM and other cables and equipment not rated for wet locations to be subjected to water damage during the construction process. The minimum requirements for a building to be considered dry are when the wall and roof sheathing are installed and the roof is completely covered by a waterproof membrane such as roofing felt. Flat roofs must be watertight. If wind driven rain is likely, contractors would be wise to cover the rough openings or have windows in place before wiring or installing equipment. If dry location wiring or equipment gets wet by any method, the inspector may require wiring or equipment to be replaced prior to approval as described in WAC [296-46B-110](#)(2) and the National Electrical Manufacturer’s Association’s (NEMA’s) *Evaluating Water-Damaged Electrical* publication.

NEMA’s *Evaluating Water-Damaged Electrical Equipment* is available for download at no charge at www.nema.org/stds/water-damaged.cfm. It provides advice on the safe handling of electrical equipment and wiring that has been exposed to water. These guidelines must be treated as manufacturer’s installation instructions. (See the [August 2005](#) edition of this newsletter for details regarding Type NM cable.)

Ugly Picture: *Click on the picture to open a larger image.* Look closely into the dirt. This conduit riser for an outbuilding feeder transitions to black plumbing drain pipe and elbow once it goes underground. An electrical contractor unsuccessfully tried to pull out the feeder conductors because an equipment-grounding conductor was not installed creating objectionable current flow on the TV coax shield. Luckily, this was discovered before the “plumbing pipe” was dug up and someone tried to cut into it to repair it. The grounding electrode and grounding electrode conductor connection are also not code compliant. Code violations: NEC® 300.3(A), 250.6, 250.32(B)(1), 250.53(G), and 250.70. If such an installation were to be made by a licensed electrical contractor or certified electrician, they could expect to receive a notice of intent to suspend their license/certificate from the department shortly after it was discovered.



Answer to Question of the Month: There is no limit to the length of track that may be installed. A sentence was added to 2014 NEC 410.151(B) which states: The load calculation in 220.43(B) shall not be required to limit the length of track on a single branch circuit, and it shall not be required to limit the number of luminaires on a single track.

This document may contain hyperlinks to internet web pages. To access this PDF document online, go to:

<http://www.ElectricalCurrents.lni.wa.gov>

Electrical Section Internet Address: <http://www.ElectricalProgram.Lni.wa.gov/>

This document is available in alternative formats to accommodate persons with disabilities. For assistance, call 1-800-547-8367. (TDD/TTY users, please call 360-902-5797.) Labor & Industries is an Equal Opportunity employer.