



# ELECTRICAL CURRENTS

Newsletter from the Office of the Chief Electrical Inspector

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Vol. 11 No. 10

October 2008

## ● 2008 NEC Inspector Training – No Inspections Will be Scheduled For November 5 and 6, 2008

There will be no electrical inspections scheduled in L&I jurisdiction on November 5<sup>th</sup> and 6<sup>th</sup>. To prepare for the December 31, 2008, adoption of the 2008 National Electrical Code (NEC) and electrical rules (WAC 296-46B), we will have all of our inspectors in two days of training in the Olympia area. The National Fire Protection Association (NFPA) has agreed to provide NEC training for L&I electrical code enforcement officials and all city electrical authorities having jurisdiction (AHJs) during this two-day presentation.

The NFPA publishes the National Electrical Code (officially known as publication: NFPA 70). NFPA is a commercial national provider of NEC training to all parts of the electrical industry. At the request of the provider, we must limit attendance to L&I and city electrical inspectors only.

## ● Operation Of Equipment Undergoing Field Evaluation Or Engineering Evaluation

When necessary, to expedite the installation of un-listed equipment that is being evaluated for electrical safety, the electrical rules allow the equipment to be temporarily energized during the evaluation process. This is only allowed if there is a formal field or engineering evaluation in progress. A field evaluation firm must have an approved request to do the evaluation. An engineering evaluation firm must have notified L&I that they are reviewing the equipment.

The request to operate such equipment (per WAC 296-46B-901(20)) must come directly from the **equipment owner (end-user)**, not the electrical contractor, equipment manufacturer, distributor, or vendor. The request must document the (L&I issued) field evaluation number or contract with the approved engineering firm to verify safety evaluation is actively in process. For each item to be energized the request must clearly identify the equipment manufacturer, model #, serial #, electrical ratings, equipment location, and the specific number of days requested for temporary operation.

## ● Supervision Of Individuals With Training Certificates

All individuals with a standard (E1) training certificate must be supervised while performing electrical work.

When the electrical work is in the scope of the 03A, 06B, 07A, 07B, 07C, 07D, 07E, or 10 certification limits, the individual must be supervised 100% of the time until they get the minimum 720 or 1000 hours of experience and **pass** their examination. When working exclusively in their specialty, they may work the remaining hours (1280 or 1000, but not more than two years) with a 0% supervision (E2) training certificate until they qualify for full certification.

Trainees performing all other types of electrical work must be supervised 75% of the time **on each jobsite**. There is a frequent misinterpretation that electrical trainees are allowed to work 2 hours (25%) anywhere without supervision each day and then go to a jobsite where supervision is provided. The Electrical Board has previously ruled on this issue and determined that trainees on a jobsite for only one hour must have their supervising electrician(s) on the same site not less than 45 minutes.

There is an unsupervised (E1) training certificate available for individuals in the last six months of an approved (01) journeyman electrical construction trade apprenticeship or training school. They must claim not more than 4000 combined hours of specialty experience and not less than 3000 hours of (01) journeyman experience supervised in a one-to-one ratio. The special certificate is issued one-time, for one six-month period to qualified individuals. Specific details of are in WAC 296-46B-965(13).

WAC 296-46B-965(15) makes provision for one additional unsupervised trainee status in a very specific situation. It states, "Electrical trainees may work unsupervised when installing HVAC/R thermostat cable when the HVAC/R system consists of a single thermostat in one- and two-family dwelling units where line voltage power has not been connected to the dwelling's electrical system." Individuals working in this

### Safety Tip of the Month!

Don't make the mistake of treating the grounded (neutral or white) conductor as if it's safe. Do not open it while energized. It is part a circuit under load and can cause shocks, injuries, and data loss, or damage equipment with sensitive electronic controls.

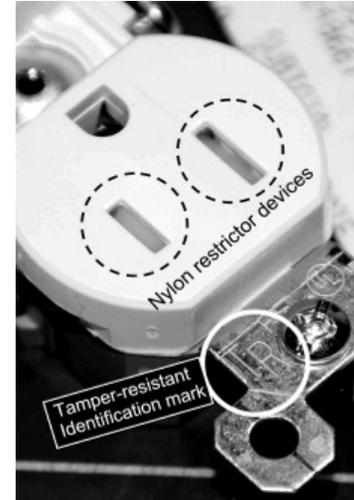
unsupervised status are not making any advancement in their electrical careers. The unsupervised experience will never be applicable to qualification for electrical certification exams.

### ● More On Changes Coming With The 2008 NEC

The public hearings on chapter 296-46B WAC revision proposals are completed and all comments have been received. We are still on track for adoption of the 2008 NEC on December 31, 2008. The purchase date of the electrical work permit will determine which version of the Code will be enforced. If you want to have the 2005 NEC applied to your installation, then you must **purchase the permit on or before the effective date of the new rules** (December 31, 2008). For plan reviewed jobs, the determining date for the design (and therefore the installation) is the **date the plans are received and accepted for review**.

### ● New in the 2008 NEC – Article 406.11 Tamper-Resistant Receptacles in Dwelling Units

We believe the changes in this article will have the largest economic impact on many industry stakeholders. It was mentioned last month, but worth further discussion. This type of device will be required for all 125-volt, 15- and 20- ampere receptacles installed in all dwelling unit locations covered in NEC 210.52. Built in restriction devices prevent a single object from being inserted in the grounded or ungrounded conductor receptacle slots. The restriction devices allow the simultaneous insertion of objects into both slots (like a two-bladed, ungrounded male lamp plug). The illustration shows both the nylon restrictors and the distinctive “TR” identification stamped into the metal strap.



Manufacturer's representatives stated to the Technical Advisory Committee and Electrical Board that distributors will cooperate with their contractor customers in return and exchange of old stock. They claim to have adequate stock of new weather-resistant and GFCI versions of these tamper-resistant devices as well. These will also have distinctive markings in addition to the “TR.” Non-tamper-resistant receptacle stock may still be used in many non-dwelling unit locations.

### ● New in the 2008 NEC – Article 210.4 Multiwire Branch Circuits-(B) Disconnecting Means and (D) Grouping

This article now states in subsection (B), “*Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.*” This can be accomplished with multi-pole overcurrent devices or listed handle ties on single-pole devices.

Circuit designers (contractors, engineers, electricians) using multiwire branch circuits in office environments will be faced with losing the ability to disconnect (or isolate faults in) the individual circuits. To maintain this type of separation previously allowed under the 2005 NEC, individual branch circuits must be installed. If you want individual circuit separation, this means additional grounded circuit conductors, raceway space, and potential conductor de-rating (for fill) must be considered in your designs.

A new subsection (D) added to this article requires, “*The ungrounded and grounded conductors of each multiwire branch circuit shall be grouped by wire ties or similar means in at least one location within the panelboard or other point of origination.*” There are exceptions for conductors in raceways unique to the multiwire circuit or cable assemblies that make the grouping obvious.

### ● Electrical Question of the Month

**This Month's Question:** For a flexible cord supported pendant receptacle box, what is the maximum lateral displacement from a suitable strain-relief or tension take-up device to the permanent junction box that supplies the flexible cord? **A) 2 feet, B) 4½ feet, C) 6 feet, D) no limit.**

**Last Month's Question:** The maximum overcurrent protective device that can be used to protect conductors enclosed in 1/2" liquid tight flexible metal conduit, while still permitting the flex to be used as the equipment grounding conductor is \_\_\_\_\_ amperes or less. **A) 20, B) 30, C) 60, D) 80. The answer is A) 20 [NEC 250.118(6)].**