Washington State Department of Labor & Industries

Electrical Currents

Newsletter from the Office of the Chief Electrical Inspector

Ron Fuller, Chief Electrical Inspector **Vol. 15 No. 7** **July 2012**

Question of the Month

You have calculated the load for a feeder at 733,200 volt-amps, of which 388,800 is continuous load. What is the minimum ampacity for the 480V 3-phase feeder conductors to supply this load?

Note From The Chief

During this past year, we have improved our service in several areas. We responded to 93% of inspection requests within 48 hours and reduced our plan review turnaround time from 3.6 to 2.0 weeks. Our Correction Reduction Initiative – consisting of over 700 electrical contractors – has seen contractors reduce their number of corrections per inspection by 19% from the previous year.

Safety Tip of the Month!

Major appliances (refrigerators, dryers, washers, stoves, air conditioners, etc.) and space heaters should be plugged directly into a wall receptacle outlet. Extension cords and plug strips should not be used. Here is a good ***Video*** on the subject.

During this past year, compared to Fiscal Year 2011, the department's electrical inspectors, auditors, and E-Core team issued 754 more citations – 4,136 – for violations identified by our stakeholders as representing the underground economy – no electrical contractor license (1,204), no electrician certificate (1,133), and no permit (1,799). This represents an increase of 22% more than issued in FY 11. Focusing our compliance efforts helps better address our customers' expectations regarding compliance enforcement in the underground economy, helping maintain a level competitive playing field for legitimate electrical contractors, and keeping Washington's electrical installations safe.

Our focus, during the next year, will remain on these items. We expect to continue to improve our service to the electrical industry.

José Manjares has joined our ECORE team and will be working from our Yakima office. He will primarily cover the area from Oregon to Canada through central Washington. If you would like to join us in the battle against the underground economy, you can make a big difference by watching for and reporting illegal electrical activity. Stay competitive; you may report violators at ***Report Electrical Law Violations***, by contacting a ***Local L&I Office***, or the ECORE team:

- Central Washington, José Manjares - Jose.Manjares@lni.wa.gov 509-454-3769 (office) or 509-263-3583 (cell)
- Puget Sound, Jack Oxford - Jack.Oxford@lni.wa.gov 206-835-1130 (office) or 360-471-0796 (cell)
- NW Washington, Rand Jones - Rand.Jones@lni.wa.gov 206-515-2773 (office) or 360-561-0440 (cell)
- SW Washington, Bob Matson - Bob.Matson@lni.wa.gov 360-902-4987 (office) or 360-471-0588 (cell)
- Eastern Washington, Phil Jordan - Phillip.Jordan@lni.wa.gov 509-324-2542 (office) or 360-471-0691 (cell)

Electrical Plan Review Fee Procedure Changes July 1

As of July 1, 2012, all fees for plan review submittal, handling/shipping, and 35% of the estimated electrical permit fee for the project are required to be paid at the time the plans are submitted for review.

The department will verify the correct permit fee during the plan review process. If the permit fee used to calculate the 35% was incorrect and/or if the review required excessive time to complete, the department will bill the submitter for the balance due when the review is completed. The department will return all plans to the submitter when the review is completed. The department will return the plans along with a billing statement if the plans are received without the initial payment. If you have any questions about the plan review process, please direct them to Electrical Plan Review at 360-902-5246. Information is also available on the ***Electrical Plan Review*** page of our website.

Grounding Permanently Installed Generators – Part 2 (Nonseparately Derived Systems)

A generator having a solidly connected grounded conductor (not switched) in the transfer switch is not a separately derived system. See NEC 250.20(D), FPN No. 1. Nonseparately derived systems do not require a separate grounding electrode.

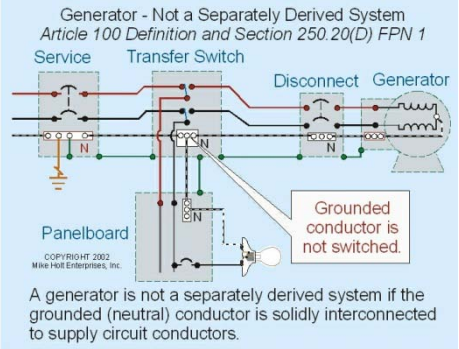

Image provided courtesy of Mike Holt Enterprises www.Mikeholt.com

NEC 250.35(B) contains the requirements for providing an effective ground-fault current path between the generator and the first disconnecting means. Normally, the first disconnecting means will be factory installed on the generator frame. An equipment bonding jumper between the generator and the first disconnect will be installed as part of the listed generator assembly by the manufacturer.

If the first disconnecting means is not part of the listed generator assembly, an equipment bonding jumper must be installed. The bonding jumper size will depend upon the location of the generator overcurrent device:

- NEC 250.35(B)(1) - The bonding jumper installed on the supply side of the overcurrent device must be sized in accordance with 250.102(C) based upon the size of the generator conductors.
- NEC 250.35(B)(2) - The bonding jumper installed on the load side of the overcurrent device must be sized in accordance with 250.102(D) based upon the rating of the overcurrent device.

You must install an equipment grounding conductor between the generator disconnect and the transfer switch enclosure. The equipment grounding conductor must run with the feeder conductors and:

- May be any of the types listed in NEC 250.118; and
- Must be sized in accordance with NEC 250.122 based upon the size of the overcurrent device protecting the generator feeder conductors.

A sign must be placed at the service location. This sign will indicate the type and location of the standby power source. An additional sign is required at the meter base if the service disconnect(s) and the meter base are not within sight and within 5 ft. of each other in accordance with ***WAC 296-46B-700***, ***701***, and ***702***.

In addition, NEC 700.8(B), 701.9(B), and 702.8(B) require that if the grounded conductor connection to the grounding electrode conductor is remote from the alternate power source, a sign must be located at the grounding location identifying all alternate power sources connected at that location. Signs must be an "identification plate" in accordance with ***WAC 296-46B-100***.

Ugly Installations

If viewing this document online, you may click on the picture to open a larger image in another window.

Violations: Too many corrections to list. The inspector should write only one correction for WAC 296-46B-906(7)(b) - Trip fee for requesting inspection when not ready. See *Note from the Chief* in the ***March 2011*** *Electrical Currents* newsletter. The installer is subject to citation and possible suspension or revocation of license/certification per ***WAC 296-46B-990*** and the inspector will begin the process for ordering a power disconnection.

Answer to Question of the Month:

NEC 215.2(A)(1): Total load = noncontinuous load + 125% of continuous load. (733,200 – 388,800) + (388,800 X 1.25) = 830,400 volt-amps; 3 phase current = volt-amps ÷ (V X √3); 830,400 ÷ (480 X 1.73) = 1000 amperes.

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/***