



## ● This Month's Question of the Month

In a dwelling with a 120/240-volt, 200 ampere service there are three separately controlled heating units at 1,000 watts each. The calculated heating load using the NEC optional method is \_\_\_\_\_. **A)** 6,000 volt-amperes, **B)** 4,000 volt-amperes, **C)** 2,400 volt-amperes, **D)** 1,950 volt-amperes. *See the correct answer on page 2.*

## ● Note From The Chief

L&I has been receiving complaints from contractors and inspectors about having to be the primary quality control for contractors and their assigned administrators/master electricians that do not verify the electrical work done by their electricians is up to code and safe before calling for inspection.

RCW 19.28.361 makes the installer – contractor and electrician – personally responsible and liable for any injury or damage to a person or property for any defect in the electrical installation. The RCW goes on to say that the inspector is not responsible for the safety of the installation.

Inspectors do not inspect each termination, piece of wire, wire connector, or other device or equipment. The inspector is not on the job to create a “punch list” of items that need repairing or witness testing required by the NEC or other codes (e.g. fire alarm testing, ground fault testing, etc.). However, the inspector may test the final installation of devices like receptacle polarity, ground fault circuit interrupters, and arc-fault protection devices.

The inspector's job is to quickly do a quick visual inspection to assure that the contractor and assigned administrator/master electrician has done the quality control work for their installations. The inspector is not expected to and will not be able to find every correction in an electrical installation. To find every possible problem in an electrical installation would essentially require the inspector to personally perform the complete installation.

Inspectors and your customers expect to be able to inspect each installation without encountering significant safety problems – no corrections. Of the 117,560 inspections made this year, only 21,173 – 18% – had corrections written. Remarkably, only 20% of all electrical contractors caused 74% of all reinspections. Because the contractor failed to be responsible for the quality of their electricians' work, and corrections were issued which resulted in the need for a reinspection. All contractors, administrators, and electricians should do their part in reducing the number of corrections the inspector encounters. Your reduction of corrections will save everyone time and money.

## ● Outdoor Generator Disconnecting Means

There is some confusion as to the intent of WAC 296-46B-225(2) regarding the requirements for a feeder disconnecting means when an outdoor generator is used to supply a building. The Washington Administrative Code 296-46A was changed in 2001, to clarify that a feeder disconnecting means installed within 15' of a building was to be considered “in/on the building” and not subject to the requirements of NEC 225 for outside feeders. This change moved the feeder disconnection requirement to NEC 215, essentially eliminating the requirements of NEC 225 for outdoor feeders.

2008 NEC 700.12(B)(6), 701.11(B)(5), and 702.11 were changed to require the disconnecting means for an outdoor generator installed within sight of a building that is used as the building disconnecting means to meet the requirements of NEC 225.36 – service rated. Because of the original intent of the WAC rule, a service rating will not be required for these disconnecting means.

The Electrical Program will propose a rule change to again clarify the intent of the WAC – that a feeder disconnecting means, located within 15' of the building, is considered to be on/in the building and subject to the

### Safety Tip of the Month!

GFCI receptacles have been shown to reduce the danger of electrocution, especially in locations where contact with water is likely.

They must be tested to ensure they still work. With a device plugged into the receptacle, press the TEST button. The device should not work. Press the RESET to restore power to the outlet.

requirements of NEC 215 – in the next technical WAC change process. At this time, a feeder disconnecting means installed in a readily accessible location on an outdoor generator located within 15' of the building does not have to be service rated. The WAC will be open for proposals in the fall of 2010.

### ● Fee Training Series – Single/2-Family Residential New Construction

This is the first in a series of articles on selecting the appropriate permit fees for your work. Many permit purchasers use incorrect fee lines for determining the cost of their electrical permit. This series of articles will break down permit purchasing into some of the more common types of permit purchases.

WAC 296-46B-906(1), Residential, is separated into six sections – (a) single/2-family new construction, (b) multi-family new construction, (c) single/multi-family altered services/feeders, (d) single/multi-family circuits only, (e) mobile/modular homes and parks, and (f) mobile home park sites. WAC 296-46B-906(1)(a) is the primary section to use when determining the permit fees for your new residential electrical project.

Single and 2-family new construction fees are primarily based upon the square footage of the unit(s) plus the square footage for an attached garage. You should use the dwelling square footage listed on the building plans approved by the building official for your basic calculation plus the exterior wall square footage for the attached garage. For example, if your house has a total of 1,305 square feet, the fee is \$101.30 (\$76.70 for the 1<sup>st</sup> 1,300 square feet plus \$24.60 for the additional 5 square feet). An additional \$24.60 is required for each 500 square feet or portion of that is over the initial 1,300 square feet.

Section (1)(a) also includes additional fees for outbuildings, swimming pools/spas, and septic systems. These fees are separated into two categories – those inspected “*at the same time*” and those “*inspected separately*.” “*At the same time*” means all wiring is to be ready for inspection during the initial – *first* – inspection. “*Inspected separately*” means the wiring is not ready for inspection during the initial inspection. For example, if the house described above had a septic system inspected after the initial inspection, an additional septic fee of \$50.60 would be required, bringing the total fee to \$151.90.

Outbuildings are structures that serve a “*direct accessory*” function required to support the residence, such as a pump house or storage building. Outbuilding does not include buildings used for commercial or other purposes (e.g. hobby buildings, workshops, etc.). Using the outbuilding fees in (1)(a) for these structures is incorrect. Fees for buildings and other wiring not serving a direct accessory function to the dwelling or when the dwelling is not built will be covered in later articles.

If a dwelling building permit has not been issued by the building official, Section (1)(a) fees cannot be used for outbuildings, pools/spas, or septic systems. The fees in Section (1)(b) should be used for outbuildings, pools/spas, or septic systems when the dwelling is not on the property. If a dwelling building permit and an electrical permit for the dwelling has been issued, but the dwelling is not ready for inspection, the fees in Section (1)(a) for “*inspected separately*” should be used for outbuildings, pools/spas, or septic systems.

Additional progress inspection, generator, emergency inspections, thermostat and other miscellaneous fees may also apply and would need to be added to the permit. These are found in section (5) Miscellaneous. For example, the described house would have an additional fee of \$70.30 (WAC 296-46B-906(5)(g) & 906(1)(c)(i) if a permanent generator 200 amperes or smaller is also installed.

The total fee must not be less than the number of progress inspection units (1/2 hour interval of inspection time or any part of) times the progress inspection fee rate from section (8) - \$38.20. For instance, the house described above with the generator may have up to 5 progress inspections without additional progress fees being required - \$222.20 / \$38.20 = 5.8 progress inspection units. This fee does not support a 6<sup>th</sup> trip. If a 6<sup>th</sup> inspection unit is needed, an additional progress inspection unit fee of \$38.20 will be required before the inspection is made.

If “*trip*” fees are assessed per WAC 296-46B-906(7), they do not count as a permit fee covering progress inspections. Trip fees are penalty fees that are separate from the regular permit for any type of installation.

### ● Answer to This Month’s Question of the Month:

D) 1,950 volt-amperes (see NEC 220.82)