

Question of the Month

Interrupting rating is the highest current at a rated voltage that a device is identified to interrupt under standard test conditions. Per the NEC, if a circuit breaker is not marked with an interrupting rating, what is the interrupting rating of that breaker?

Note from the Chief

During the month of October, the department will be accepting proposals for revisions to WAC 296-46B, as well as applications for the Technical Advisory Committee (TAC). This rulemaking is primarily to update department rules due to adoption of the 2014 National Electrical Code. The 2014 NEC is now available and a [free read-only version](#) is available for viewing on the NFPA website. The [Special Edition Electrical Currents](#) newsletter published in August provided information about how to submit a proposal and apply for the TAC, as well as a schedule outlining important dates for the rulemaking process. When the proposal acceptance period is over, the department will compile the proposals and post them on the [Rule Development page](#) of our website.

The electrical construction work picture is improving. Electrical inspection workload is increasing at a rate that has exceeded the department's projections. Inspection response times are increasing causing delays for our customers waiting for inspections on their projects. We have taken steps to become more efficient in our work and we will continue to look for ways to improve our process and eliminate waste. The department's expenditures are limited to the amount allotted by the legislature, and we are currently assessing our allotment to determine whether there is sufficient funding to bring back additional inspectors to help with the increasing workload. The department cut inspection staff by approximately thirty-five percent during 2009 and 2010 when the economy went into recession. The improving work picture is good news. We are preparing to seek legislative approval to bring back inspectors to help improve our ability to respond to our customers' expectations for inspections and compliance work. Our compliance efforts help to level the playing field for legitimate contractors by combating the underground economy and contractors who take unfair competitive advantage by violating the electrical laws.

Public Hearing for Comments on Proposed Electrical Rule Change

The Department will hold a public hearing to receive comments about a proposed rule change to chapter 296-46B-920 WAC, pertaining to scope of work requirements for load bank testing and preventative maintenance. The hearing will be held at 1 p.m. on Monday, October 14, 2013, at the [L&I building](#), 7273 Linderson Way SW, Room S119, Tumwater, WA. For more information, visit the [Rule Development](#) page of our website.

New Payment Option for Online Electrical Licensing and Certification Transactions

When using our [online](#) system, businesses and individuals can now make payments for electrical licensing and certification fees using Electronic Check. How does the Electronic Check payment option work? It simply makes a one-time withdrawal from your checking account.

For your convenience, replacement licenses and certificates are now available through our online system.

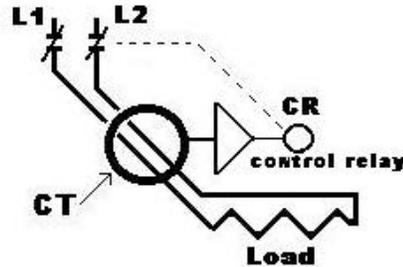
Safety Tip of the Month!

Call a licensed electrical contractor or your landlord if you have:

- Frequent problems with blowing fuses or tripping circuit breakers.
- A tingling feeling when you touch an electrical appliance.
- Discolored or warm wall outlets.
- A burning or rubbery smell coming from an appliance.
- Flickering or dimming lights.
- Sparks from an outlet.

How Does a GFCI Circuit Work?

GFCI (ground fault circuit interrupter) protected circuits are prevalent in the electrical industry and having a thorough understanding of their operation is essential. The basic function of a GFCI is to monitor the current delivered to the load. If the amount of current delivered is more than the amount of current received back (by 4 to 6 milli-amperes), the GFCI trips disconnecting all power from the load. This method is based on Kirchhoff's Current Law ($I_{in} - I_{out} = 0$), stating the sum of the current in a closed loop must equal zero. The most common way to achieve this monitoring is with a CT (current transformer).



When current flows through a wire, it develops a magnetic field in one direction and an opposite magnetic field when the current flows in the opposite direction. When these two fields come in close proximity to each other, they cancel each other out if they are equal, and opposite, in field polarity. When the current in L1 (supply) and the current in L2 or neutral (return) are equal, there is no net magnetic field present. With no magnetic field present, the CT will produce no current, telling the GFCI sensor circuit that the circuit is balanced with no ground fault current.

While GFCIs are effective tools to improve safety for personnel, GFCIs cannot provide personnel protection in all cases, such as direct contact between the line and neutral, caution is necessary anytime a power source is available. Monthly checks of GFCI products are required to verify that the device is operating properly. If upon testing the GFCI is found to be defective, it must be replaced. Defective ground fault circuit interrupters may allow current to flow in the circuits they are installed in even when the ground fault sensing capability of the device is no longer functioning.

Flexible Metal Conduit Not Permitted for Use in Wet Locations

Changes to 2008 NEC 348.12(1), removed the words “unless the conductors are approved for the specific conditions and the installation is such that liquid is unlikely to enter raceways or enclosures to which the conduit is connected”. Uses not permitted 348.12(1), now states “In wet locations”.

The former condition requiring the conductors or cable to be suitable for wet locations was easy to comply with because wet location cables and conductors are available. However, installing flexible metal conduit in such a manner as to assure water does not enter other connected raceways or enclosures is more difficult; and the interpretation could be subjective.

The revision in 2008 removed the allowance of flexible metal conduit in wet locations all together.

Ugly Installations: Online readers - click on the picture to open larger images. Major violations: NEC 110.3 – Improper use of the reused enclosure. NEC 110.12 (A) - Unused openings not sealed.

Answer to Question of the Month: 5000 amperes - NEC 240.83 (C) Every circuit breaker having an interrupting rating other than 5000 amperes shall have its interrupting rating shown on the circuit breaker. Note: If the marked interrupting rating of the breaker exceeds the marked short circuit rating of the end-use equipment, such as a panelboard, in which the breaker is installed, the interrupting rating of the overall combination is still considered to be the lesser rating marked on the end-use equipment.



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