

## Question of the Month

How quickly is a ground fault circuit interrupter (GFCI) designed to trip?

## Note from the Chief

**Inspector Training – No inspections on December 10 and 11** - There will be no inspections scheduled in L&I's jurisdiction on December 10 and 11. To best prepare our inspectors for the 2014 National Electrical Code, which becomes effective in July of 2014, 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. Together, we can work through this; please let your customers know and plan for your inspections accordingly.

**WAC Rule Revision** – During October, the Department solicited rule change proposals and applicants for the Technical Advisory Committee (TAC). The proposals are posted on the [Rule Development](#) page of our website. The committee members represent a fair cross section of electrical stakeholders, and will meet to review all rule change proposals and provide advice to the department on December 19 at 8:30 a.m. in the Orcas Room of the [Tacoma Rhodes Center](#). Thank you to everyone who submitted proposals and TAC applications. Your participation in the rule development process plays a valuable part in the effort to [keep Washington's citizens safe and working](#).

## No Access For Inspection

The number one correction issued by electrical inspectors continues to be for no access for inspection. These unsuccessful inspection attempts are a drain on everyone's resources. Currently, 90% of inspections are made within 48 hours; our statewide target is 94%. Together, we can improve inspection response times by assuring inspections can be completed on the first attempt. Inspections in single-family homes where the homeowners both work can be challenging. In all occupied buildings, the contractor must ensure the customer is aware that they have requested an inspection and inform the customer of any special instructions communicated to the inspector in the inspection request comments field. Many contractors who work in this market provide their customer a flyer that describes the inspection process and informs the customer of their responsibility to help ensure the inspection process is completed.

The worst-case scenario for the department, and a contractor, occurs when someone is waiting at their house for an inspector without confirmation that an inspection will happen. If the contractor includes a specific comment with their internet inspection request, instructing the inspector to arrange access prior to inspection, the inspector will call the customer as instructed. If there is no answer, the inspector will leave a message requesting a call back. If the customer fails to return the inspector's call, the following day the inspector will make one more attempt to arrange access by contacting the customer. When a contractor's customer fails to respond to the inspector's calls, the responsibility for arranging access shifts back to the contractor. The inspector will write a correction for no access and call the contractor to inform them that they were not able to gain access for inspection and let the contractor know that they need to coordinate another inspection request with their customer.

If a customer is not responsive to the inspection process, many contractors immediately send the customer a certified letter or other confirmed method informing the customer that if they fail to communicate with the inspector and

## Safety Tip of the Month!

Ground fault circuit interrupters save lives.

The correct way to check a GFCI is to use the test button on the GFCI. Push the test button, plug in a device, assure the device does not operate, push the reset button, the device should turn on. Testing should be done monthly.

This holiday season use GFCI protection on all your outdoor decorations.

arrange the inspection, they are accountable – penalties could include possible loss of power, citation, etc. The contractor should talk with the local inspection supervisor and communicate all actions being taken to ensure that the inspection will be made. If the contractor makes a good faith effort in coordinating inspection access, L&I will shift its focus to the customer in an attempt to complete the inspection process. Once an inspector arranges for an inspection with a customer, the inspector will do everything possible to make the inspection. If the inspector is delayed for any reason, the inspector will make every effort to contact the customer as soon as possible to explain the situation and make other arrangements. Contractors should work with their customers to help reduce the number of no access inspections to eliminate the frustration, time, and money wasted by everyone on these inspections.

## Replacing or Repairing an Equipment Supply Whip larger than 120 Volts and 20 Amps is not Class B Permit Eligible

Recently, the department has received several questions regarding whether or not an equipment supply whip can be replaced or repaired with a like-in-kind furnace change out using a Class B permit. [WAC 296-46B-908\(10\)](#) is very specific about what can be done using a Class B permit. If the electrical work requiring a permit is not described in this section, a Class B permit is not allowed. WAC 296-46B-908(10) (b) (iii) states Class B work includes “An electric/gas/oil furnace not exceeding 240 volts and 100 amps when the furnace is connected to an existing branch circuit.” Alteration of or replacement of an equipment supply whip larger than 20 amps and 120 volts is not Class B eligible work, a regular electrical work permit is required.

## Ground-Fault Circuit Interrupter vs. Ground-Fault Protection for Equipment

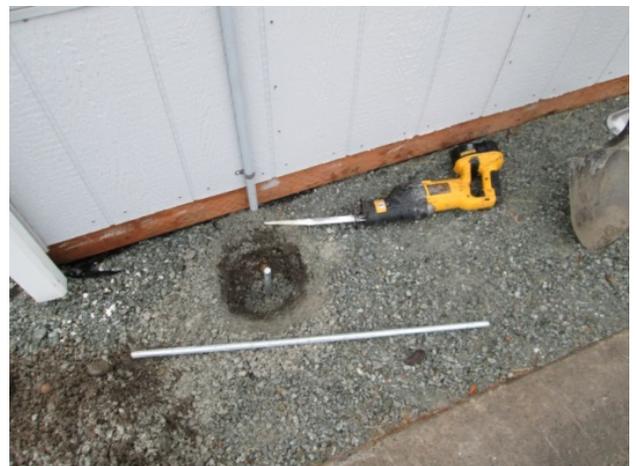
As defined by the NEC a Ground-Fault Circuit Interrupter (GFCI) is a device intended for the protection of personnel that functions to deenergize a circuit or portion thereof within an established period of time when a current to ground exceeds the values established for a Class A device. Ground-Fault Protection of Equipment (GFPE) is a system intended to provide protection of equipment from damaging line-to-ground fault currents by operating to cause a disconnecting means to open all ungrounded conductors of the faulted circuit. This protection is provided at current levels less than those required to protect conductors from damage through the operation of a supply circuit overcurrent device.

A GFCI is a device intended for the protection of personnel and designed to open a circuit at a lower current and duration threshold than is harmful to a person. The NEC requires GFCI protection when exposure to an electrical ground fault is a greater risk (e.g., exposure to water; locations such as kitchens, bathrooms, outdoors, indoor wet locations, and equipment for swimming pools, hydromassage bathtubs, and hot tubs.

GFPE is intended to protect equipment not personnel. The current and duration thresholds are much higher than GFCI. These devices and/or systems are designed to protect equipment from ground faults that may damage equipment but may not trip the normal overcurrent protection device.

**Ugly Installations:** Online readers - click on the picture to open larger image. Violation: Cutting off a ground rod. NEC 250.53G requires that rod and pipe electrodes “be installed such that at least 2.44 m (8 ft.) of length is in contact with the soil”. The use of short ground rods is a serious code violation, and the installer, contractor, and administrator will be subject to citations and possible suspension.

**Answer to Question of the Month:** 1/40th or 0.025 of a second. In a properly operating circuit, the electrical current going to and returning from an electrical device is equal. If it is not equal, current is flowing back to the source on a return path that it should not be, possibly through the user. A GFCI will sense this unbalance and disconnect power from the circuit. A difference of current as small as four milliamperes (mA) will cause a GFCI to trip in as little as 1/40th of a second.



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.