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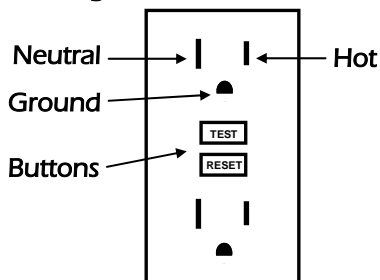
May 23th, 6:30 pm American Society of Home Inspectors (AHSI) Meeting at Buster's BBQ in Tigard.

Inspection Update available by email and on the web

The *Inspection Update* is available monthly via email. To request email delivery, contact jay@carsonconstruction.com.

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Figure 1. GFCI Outlet



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It's no shock: Inspectors always look for GFCI outlets

Whenever I point out a GFCI outlet during an inspection, my client usually gives me a blank nod or a quizzical stare. These responses are in part due to my casual use of the term "GFCI," although I'm not sure that "Ground Fault Circuit Interrupter" would clarify matters much. Most people realize that GFCI outlets reduce the potential for electrocution, but few know how they work, where they should be located, or how to test them.

Measuring electrical imbalances

GFCIs are an inexpensive safety device that have been required in new construction and remodeling since the 1970's. A GFCI works by comparing the electrical current in the "hot" and "neutral" wires in a circuit (see Fig. 1). When an appliance is plugged into an outlet and working correctly, the amount current coming from the hot and returning to the neutral is equal. If the two currents are unequal, it means that some current is "leaking out" of the circuit and finding its way to ground. This leak could deliver a serious shock if the electricity was to travel through a person. When a GFCI detects an imbalance in the current, it immediately shuts down the circuit, stopping the leakage and eliminating the danger.

Even though an outlet may be GFCI protected, electrical hazards still exist. A person can receive a shock from a GFCI outlet if the electricity flows through them from the hot wire and back to the neutral wire. In this case, no current is leaking out of the circuit to ground, there is no imbalance, and the GFCI will not trip. This could happen when handling appliances with damaged cords, switches or cases, or if you accidentally touch the brass prongs on a plug as you plug it in.

Identifying GFCI protected outlets

The most obvious and most common protected outlets are true GFCI outlets that have the "test" and "reset" buttons on their face (see Fig. 1). However, when

wired properly, standard outlets downstream of a GFCI outlet may also be protected, and occasionally a CFGI circuit breaker is used to protect all the standard outlets on an entire circuit. While this is common, it's rare that these standard outlets are properly labeled "GFCI." Determining which outlets in a home are GFCI protected by trial and error can be a time consuming task. However, GFCI protection is not needed throughout a house.

Location, location, location

GFCI protected outlets should be located in wet or damp areas (like kitchens and bathrooms), in unfinished basements, in garages, and exterior outlets. These are all areas where people use hand-held appliances and could become grounded through water, concrete, or directly to the earth itself. GFCIs are not recommended for outlets that service refrigerators or freezers, because the cost of spoiled food outweighs the risk of shock from these stationary appliances.

Testing

It is recommended that all GFCI outlets be tested monthly by pressing the test button on the device. This should trip the outlet (you'll hear a click) and the reset button will pop out. Press the reset button to restore power. If the test button fails to trip the device, or the reset button cannot be pushed back in, the device may need to be replaced.

A word on retrofitting older homes

Because GFCIs work by comparing the hot and neutral currents, a ground wire is not required for them to function properly. This means GFCIs can be installed in older homes with 2-wire electrical systems, even knob and tube wiring.

Please take a moment to note the GFCIs in your home. If you cannot find any, you should consult with a licensed electrician. Installing GFCIs is usually an inexpensive upgrade that could save a life.