



SCHAEFER NEWS

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ELECTRICAL

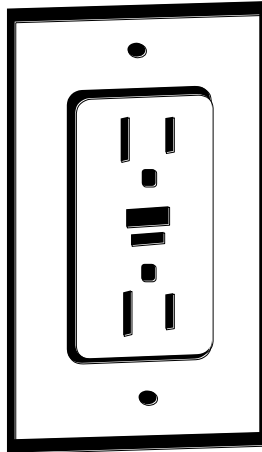
Electrical hazards in the home are responsible for thousands of injuries and deaths every year. This can be greatly reduced by simple precautions. Many can be performed by a handy homeowner, some are just common sense, and others are simple repairs that can be done by a qualified electrician.

GFCI - Ground Fault Circuit Interrupter.

The most familiar GFCI to the homeowner is the outlet like the one shown in the figure to the right. There are also GFCI breakers located in the circuit panel. There are other similar protection devices built into certain appliances (e.g. hair dryers). These will be mentioned later in this article

Since the late 1980's, building codes have required GFCI protection in places like kitchens, baths, garages, basements, exterior outlets and other similar areas of the home where electrical fixtures or appliances could come in contact with water or moisture. During the 1970's GFCI protection was required in fewer locations in the home, typically the baths and exterior outlets. For the most part, GFCI protection was not required before the 1970's. This means that homes built before the late 1980's are only partially protected (or not protected at all) by GFCI's unless upgrades have been performed. GFCI devices are simple to install and have saved many lives.

HOW A GFCI WORKS - A GFCI device senses a loss of current in the circuit. When the current flow differs from the current returning (by a very small amount), the GFCI switches off the power. You may still feel a shock because you are the object drawing the current flow; however, the power is shut off so quickly you will not receive a serious or life threatening injury.



EXAMPLE - A toaster might have a loose or damaged connection causing a bare wire to touch the metal casing. The casing would then be charged with electricity. If you were to touch a grounded object such as your kitchen faucet and the toaster at the same time, if the toaster was plugged into a GFCI outlet it would sense the current loss and shut off the power before you sustained a serious injury.

TESTING - Like other mechanical devices, a GFCI can fail, therefore they should be tested on a monthly basis. A GFCI outlet may be working by providing electricity while at the same time the GFCI protection may have failed. Follow these simple steps to test your GFCI devices.

- 1 Plug in a light and turn it on. The light should be on
- 2 Push the "Test" button of the GFCI receptacle. The light should go off
- 3 Push the "Reset" button. The light should go on



NOTE: You may find a GFCI outlet in the kitchen on one side of the sink but on the other side you see a normal 3 prong outlet. You may also find a GFCI outlet in one bath while other baths have normal outlets. Sometimes these other normal outlets are connected to and protected by the GFCI outlet you see. To determine which outlets are protected, plug a light into the normal outlets and follow the instructions above for testing. When a GFCI outlet is tripped, the electricity in all other outlets protected by it will shut off.

OTHER PROTECTION DEVICES:

As mentioned above, sometimes there are GFCI breakers that are installed in the branch circuit panel or subpanels. They function in the same manner as the GFCI outlet; however, they also protect the circuit wire they are connected to. These breakers should also be tested to insure they are working properly. Each GFCI breaker has a test button.

Follow the same testing methods as mentioned above by plugging in a light in the protected area, then push the test button on the breaker.

Remember, when most breakers are tripped, the switch is in a tripped position between on and off. To reset the breaker you must push the switch to the off position first, then back to the on position.



Some appliances such as hair dryers come with protection devices built into them.

Typically it has a larger box-like plug. Some of these devices are GFCIs, others may be appliance leakage circuit interrupters - ALCI, or immersion detection circuit interrupters - IDCI. They work differently but are all designed to shut off the power under abnormal conditions. This does not mean that it is acceptable to drop one of these appliances into the water and then retrieve it. To be safe, trip the breaker to that circuit and unplug the appliance first before removing it.

Some more knowledgeable homeowners may have the expertise to install GFCI protection devices in the home. However, if you are not completely confident in your electrical knowledge and skills, we recommend that you hire a qualified licensed electrician to do this work.

SAFETY RECOMMENDATIONS:

- Circuits to any electrical fixture or component should be shut down before repairs or upgrades are conducted.
- Do not work with or around electricity if your hands and/or feet are damp.
- Call a licensed electrician if you are unsure.
- Do not remove cords from outlets by pulling on the cord.
- Make sure plugs fit securely into outlets without forcing. Never overload your outlets.
- Do not try to put out electrical fires with water. Homes should be equipped with a type “C” household halon extinguisher. Baking soda can be used in an emergency for small fires.
- Do not cut the third prong or grounding prong off a plug to fit into a two prong outlet.
- Replace missing or broken outlet and switch covers.
- Make sure all cords are in good condition. Do not nail or staple them into place. Do not run cords under carpets and rugs or through walls.
- Extension cords should not be overloaded. Never use them on a permanent basis. If additional circuitry is needed call an electrician to install it.
- All light fixtures should have bulbs with the wattage designed for that fixture
- Do install oversized fuses or breakers in your panel to prevent the fuse from blowing or the breaker from tripping. This could overheat the wire and cause a fire.
- Repair or replace any appliance that repeatedly blows a fuse, trips a breaker or causes shock.
- Outdoor electrical power equipment (e.g. mowers, trimmers, leaf blowers etc.) should not be used in the rain, on wet grass or any other wet conditions. Use extension cords rated for outdoor use and always inspect the cords and plugs for defects.
- During electrical storms do not use the telephone except in emergencies. Do not use appliances such as hair dryers, radios and toasters. Always have batteries handy for radios and flashlights. Do not take baths or showers during an electrical storm. Use surge protectors for electronic devices and appliances.