

GFCI Receptacles

The GFCI

GFCI stands for Ground Fault Circuit Interrupter. A ground fault circuit interrupter is an inexpensive electrical device that, if installed in household branch circuits, could prevent over two-thirds of the approximately 300 electrocutions still occurring each year in and around the home. Installation of the device could also prevent thousands of burn and electric shock in-juries each year.

The GFCI is designed to protect people from severe or fatal electric shocks. Because a GFCI detects ground faults, it can also prevent some electrical fires and reduce the severity of others by interrupting the flow of electric current.



A typical receptacle-type GFCI outlet. Note the TEST and RESET buttons

Where GFCIs Should Be Considered

In homes built to comply with the National Electrical Code (the Code), GFCI protection is required for most outdoor receptacles (since 1973), bathroom receptacle circuits (since 1975), garage wall outlets (since 1978), kitchen receptacles (since 1987), and all receptacles in crawl spaces and unfinished basements (since 1990).

Owners of homes that do not have GFCIs installed in all those critical areas specified in the latest version of the Code should consider having them installed. For broad protection, GFCI circuit breakers may be added in many panels of older homes to replace ordinary circuit breaker. For homes protected by fuses, you are limited to receptacle or portable-type GFCIs and these may be installed in areas of greatest exposure, such as the bathroom, kitchen, basement, garage, and outdoor circuits.

A GFCI should be used whenever operating electrically powered garden equipment (mower, hedge trimmer, edger, etc.). Consumers can obtain similar protection by using GFCIs with electric tools (drills, saws, sanders, etc.) for do-it-yourself work in and around the house.

Testing the GFCI

GFCIs should be tested after installation to make sure they are working properly and protecting the circuit. GFCIs should also be tested monthly to make sure they are working properly and are protecting you from fatal shock.

To test the receptacle GFCI, first plug a nightlight or lamp into the outlet. The light should be on then, press the "TEST" button on the GFCI. The GFCI's "RESET" button should pop out, and the light should go out.

If the "RESET" button pops out but the light does not go out, the GFCI has been improperly wired. Contact an electrician to correct the wiring errors.

If the "RESET" button does not pop out, the GFCI is defective and should be replaced.

If the GFCI is functioning properly and the lamp goes out, press the "RESET" button to restore outlet power.

Installing the GFCI

Three common types of ground fault circuit interrupters are available for home use:

Receptacle Type

This type of GFCI is used in place of the standard duplex receptacle found throughout the house. It fits into the standard outlet box and protects you against "ground faults" whenever an electrical product is plugged into the outlet. Most receptacle-type GFCIs can be installed so that they also protect other electrical outlets further "down stream" in the branch circuit.

Circuit Breaker Type

In homes equipped with circuit breakers rather than fuses, a circuit breaker GFCI may be installed in a panel box

to give protection to selected circuits. The circuit breaker GFCI serves a dual purpose - not only will it shut off electricity in the event of a "ground-fault," but it will also trip when a short circuit or an over-load occurs. Protection covers the wiring and each outlet, lighting fixture, or appliance served by the branch circuit protected by the GFCI in the panel box.



Portable Type

Where permanent GFCIs are not practical, portable GFCIs may be used. One type contains the GFCI circuitry

in a plastic enclosure with plug blades in the back and receptacle slots in the front. It can be plugged into a receptacle, and then the electrical product is plugged into the GFCI. Another type of portable GFCI is an extension cord combined with a GFCI. It adds flexibility in using receptacles that are not



protected by GFCIs.

Circuit breaker and receptacle-type GFCIs may be installed in your home by a qualified electrician. Receptacle-type GFCIs may be installed by knowledgeable consumers familiar with electrical wiring practices who also follow the instructions accompanying the device. When in doubt about the proper procedure, contact a qualified electrician. Do not attempt to install it yourself.

The portable GFCI requires no special knowledge or equipment to install.

“The GFCI Tripped and I Didn’t Know!”

It’s not always easy to find a tripped GFCI receptacle. Maybe it’s located behind a refrigerator, or in a far corner of the basement. New construction rules are also calling for GFCI-protected circuits for sump pumps — and it’s a real problem if one of those trips and you aren’t aware of it!

For situations like this, you can install a new GFCI receptacle with an audible alarm. This way, if the circuit trips, you will hear it! The loud buzz will alert you that the circuit has tripped.

These receptacles are available in 15-amp and 20-amp versions, and are installed just like any regular receptacle.



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