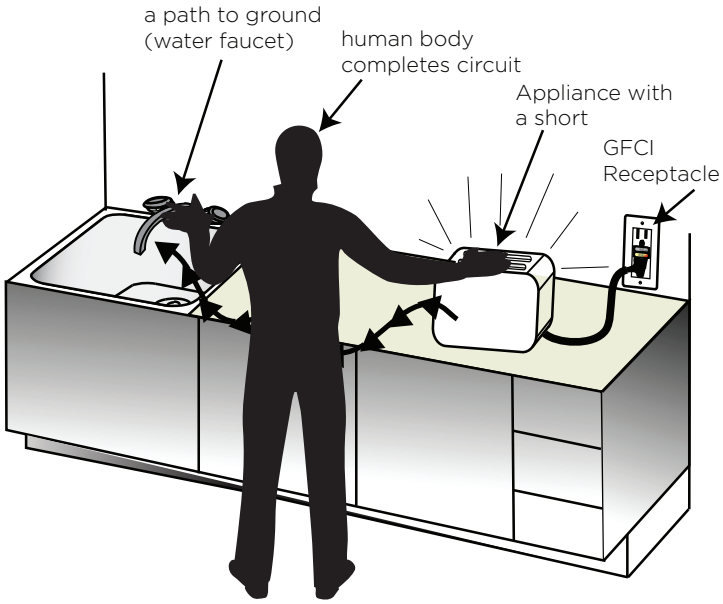
Ground Fault Circuit Interrupter

A ground fault circuit interrupter, or GFCI, is an inexpensive electrical safety device that can protect you and your family from a serious electric shock.

Have you ever had an electric shock? While it is an unpleasant experience, it is not usually fatal. However, given the right conditions, the same shock could be very nasty! If your body makes a solid connection to the ground, the conditions exist for a nasty shock. Here are two examples of a solid ground connection:

- **If you are physically standing or touching the ground outside**
- **If you touch something conductive, such as any part of the plumbing system in your house, that is also touching the ground outside**



In other words, if you decide to operate your hedge trimmer in your bare feet and you get a shock, you will get a very bad shock.

How Can a GFCI Help?

A GFCI is a special electrical receptacle that protects you from a serious electrical shock in situations such as the ones described above. The GFCI monitors the electrical current leaving from and returning to the receptacle. The current leaving the receptacle should be the same amount as the returning current. If the current returning is less, the missing current could be passing through somebody's body to the ground. The GFCI detects the mismatch and shuts off the electrical receptacle in a split second.

Where Should GFCI Receptacles Be Located?

GFCI receptacles should be installed in any area that presents a risk of an electric shock with a direct path to the ground. In other words, anywhere you might touch the ground or anywhere where you might touch a part of the plumbing system. Some smart GFCIs locations are:

- **Exterior receptacles**
- **Kitchen counter receptacles** (In some homes, it is difficult to upgrade the kitchen counter receptacles to GFCI due to the wiring configuration)
- **Bathroom receptacles**
- **Garage receptacles**
- **Receptacles in unfinished basements**

This is not a complete list. Areas near swimming pools, hot tubs, and so on should also include this type of receptacle.

GFCIs are not perfect and can "nuisance trip" when connected to certain types of electrical equipment. For this reason, exceptions to the suggested (or required) locations for GFCIs exist. For example, a dedicated receptacle would be a better choice for a freezer in your garage since the potential for nuisance tripping of the GCFI is high and might go undetected for days, leading to spoiled food.

Remote GFCI

A single GFCI receptacle may be protecting other receptacles in the circuit, even if the other receptacles are not GFCIs. The non-GFCI receptacle is remotely protected.

Remote GFCIs sometimes cause confusion for home owners in the following ways:

- **A home owner thinks the bathroom, for example, does not have a GFCI because the receptacle looks like a standard one. The standard receptacle under the protection of a remote GFCI should have a sticker indicating its GFCI protection. The problem is, the sticker does not stick forever.**
- **A standard receptacle that does not appear to work in a bathroom or kitchen may actually be attached to a remote GFCI receptacle that has nuisance tripped. Before calling an electrician, check the GFCI receptacles in other bathrooms and in other locations around the house.**

Testing

GFCIs are easy to test and should be tested every month. Simply press the test button on the receptacle. You should hear a pop as the reset button pops out a little. To reset, just press the reset button. If the GFCI fails to trip, or if you are unable to reset it, it is time for an electrician to replace it.

Special breakers can also provide GFCI protection to the entire circuit. These breakers can be installed instead of GFCI receptacles. The GFCI breaker should also be tested monthly. You will recognize this breaker from the test and reset button.

GFCIs can help prevent serious electric shock. If your home does not have GFCIs, it's an excellent and inexpensive safety upgrade.