

## **GFCI—Ground Fault Circuit Interrupter—Prevents Electrical Shocks**

What is an electrical shock? How much power does it take to be electrocuted? How to prevent electrical accidents in the home? You will want the answers, especially if you have ever experienced an electric shock: Your hand or some other part of your body comes in contact with a source of electrical current and your body “completes the circuit” between the source and the ground. The result? An electrical shock.

An unintended path between an electrical source and a grounded surface is called a “Ground Fault,” which means that the electricity or current is leaking or flowing elsewhere than its intended use (such as a hair dryer, electric mixer, lamp or appliance). The path that the current takes to ground is critical. If it’s a piece of equipment, the equipment could be damaged or destroyed. If it’s you, your child or your pet, serious injury, even death could result.

### ***How much voltage is dangerous?***

You might think that a shock of 1,000 volts is more deadly than 100V. But that’s not necessarily so. Electrocution can occur with ordinary household voltages of 110V or less.

The real measure of a shock’s intensity is the amount of current or amperage that travels through your body, rather than the strength of the source of current. In fact, any current over 10 milliamps (0.01 amp) can produce a painful to severe shock; currents between 100 mA and 200 mA (0.1 to 0.2 amp) are lethal.

### ***How to protect your home and family?***

A ground fault circuit interrupter or GFCI is an electrical device that protects people by detecting potentially dangerous ground faults and quickly shutting off the power. In essence, the GFCI device monitors the balance between the current leaving the GFCI device and the current returning to it. If the difference between the outgoing and returning current is equal to or less than 5 milliamps (5/1000 of 1.0 amp), then everything is OK and the device stays on. Any imbalance greater than 5 milliamps will disconnect the power and prevent the potentially fatal shock.

### ***What locations need a GFCI installation?***

Most local communities follow the National Electrical Code (NFPA) requirements (<http://www.nfpa.org>).

Per NFPA article 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel

Dwelling Units: All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in (1) through (8) shall have ground-fault circuit-interrupter protection for personnel.

1. Bathrooms
2. Garages
3. Outdoors
4. Crawl spaces — at or below grade level
5. Unfinished basements
6. Kitchens — where the receptacles are installed to serve the countertop surfaces
7. Laundry, utility and wet bar sinks — where the receptacles are installed within six feet (6') of the outside edge of the sink
8. Boathouses

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.

### ***Other hazards***

A GFCI should be used whenever operating electrically powered garden equipment (mower, hedge trimmer, edger, etc.).

Consumers need the protection of GFCIs when using electric tools (drills, saws, sanders, etc.) for do-it-yourself work in and around the house.

In contemporary homes, schools, park districts, health clubs, etc., there may be other areas where GFCI would be required, such as near swimming pools, in pool houses, near hot tubs and whirlpools, in greenhouses near water supplies. And for older or historic buildings, it is important to upgrade with GFCI and to revise wiring, outlets and indoor and outdoor light fixtures for modern health and safety codes.

### ***How and when to test GFCI***

All GFCIs should be tested once a month to make sure they are working properly and are protecting you from fatal shock. GFCIs should be tested after installation to make sure they are working properly and protecting the circuit.

- To test the receptacle GFCI, first plug a light into the outlet. The light should be on, and 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 a qualified 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 light goes out, press the "RESET" button to restore power to the outlet and the light should go back on.

Romitti Electric Corporation, [www.Romitti.com](http://www.Romitti.com), offers a Free 12-Point Home Electrical Service Visual Inspection. Romitti serves Chicago's suburban North Shore communities and is family owned and operated. Call 847-831-4471 for your appointment.