# GFCIs AT WORK AND HOME

Definition: GFCI = Ground Fault Circuit Interrupter. The GFCI is a fast-acting circuit breaker that senses small imbalances in an electrical circuit caused by the electrical current leaking to ground. If this imbalance occurs, the GFCI shuts off the electricity within a fraction of a second.

How it works: The GFCI device continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical circuit path. Whenever the amount "going" differs from the amount "returning" by approximately 5 milliamps, the GFCI interrupts the electric power by closing the circuit within as little as 1/40 of a second.

What a GFCI Can and Can Not do: It *does provide protection against the grounding fault*--which is the most common form of electrical shock hazard. A grounding fault occurs when a "hot" wire comes into contact with a grounded enclosure. If you happen to be in contact with the grounded enclosure of an electrical tool when a ground fault occurs, you will be subject to a shock unless a GFCI device is in use, and functioning as intended. The GFCI *will not protect you from line-to-line contact* hazards (i.e., holding two "hot" wires or a hot and a neutral wire in each hand).

Where GFCIs are needed in construction work: Your employer is required to provide approved ground-fault circuit interrupters for all 120-volt, single phase, 15-and 20-ampere receptacle outlets being used on construction sites that are not a part of the permanent wiring of the building or structure. Since extension cords are not part of the permanent wiring, any electrical tools or equipment plugged into extension cords must be protected by a GFCI device.

Insulation around flexible extension cord conductors can be damaged through hard usage or excessive wear. If the "hot" wire conductor of the extension cord were to come into contact with the grounding wire conductor, a ground fault would occur. GFCIs should certainly be used in wet environments. When a cord connector is wet, hazardous current leakage can occur to the grounding conductor and to anyone who picks up that connector if they also provide a path to ground. An alternative method of protection is the *Assured Equipment Grounding Program*. This method is achieved by establishing a direct ground for the equipment and doing a continuity check of the equipment and cords being used.

Where GFCIs are needed at home: The shock hazards of a grounding fault are not isolated to just your work place. A grounding fault may occur at home in areas such as bathrooms, kitchens, garages, and basements. You need to be vigilant and make sure that the circuits you are "plugged" into are protected by GFCIs whenever using electrical tools or equipment in potentially wet environments. Most local building codes require receptacles in potentially wet locations, such as near sinks in bathrooms and kitchens, to be equipped with a GFCI device. It is also recommended that you use a GFCI device whenever you have any concerns about the integrity of the tool, equipment, or cord system.

Actions you should take for electrical safety: Always make sure the tools and cords you use are in good working condition and inspect them regularly for any visible damage. Failure in the insulation or grounding protection of your tools or cords could result in ground faults. Use GFCI devices. Take a little extra care so that you will not have a SHOCKING experience.

| Date: | Company Name: | |
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| Project Number/Name: | Meeting Location: | Person Conducting Meeting: |

**Items Discussed:** _____

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**Problem Areas or Concerns:** _____

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**Attendees:** _____

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**Comments:** _____

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