



SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Electrical Safety – Using GFCIs

This year, in the U.S. alone, approximately 800 people will be killed by faulty electrical appliances and power tools; hundreds more will be severely injured. Worn insulation, wire damage, and moisture-induced short-circuits can make these devices as "hot" as the power lines to which they are attached.

The most common electric shock hazard, ground faults, can cause severe electrical shock or electrocution. In normal conditions, electricity runs in a closed circuit; electricity flows out on the "hot" wire and returns on the "neutral" wire, completing the circuit. A ground fault occurs when the electrical current does not complete its circuit and unintentionally flows to the ground. Ground faults can cause fires and are dangerous when they flow through a person to the ground.

Ground fault shocks can happen when a person comes into contact with the "hot" side of an electrical circuit with wet hands or while standing in water or on a wet floor. GFCIs protect against ground faults by measuring the current on the electrical circuit; current in the hot and neutral wires should be equal or close to equal. If a ground fault occurs, the GFCI outlet or GFCI circuit breaker senses the change in current and trips, breaking the circuit and stopping the flow of electricity.

The GFCI does not protect workers from line contact hazards (i.e., a person holding two "hot" wires, a hot and a neutral wire in each hand, or contacting an overhead power line).

Although most portable electric tools have an equipment-grounding conductor and many are double insulated, these methods are not foolproof.

A grounding wire could break, or a cord could become defective. Using a GFCI overcomes these insulation problems.

One disadvantage of this protection is that it is sometimes overly sensitive to moisture and humidity. On rainy or damp days, the GFCI units will occasionally cause what is called "nuisance" tripping. The temptation then is to by-pass the GFCI to get on with our work. This is not only unwise, but a violation of OSHA standards.

OSHA requires GFCI protection on all 120-volt, single-phase, 15- and 20-ampere circuits on work sites, which are not part of the permanent wiring of the building or structure.

With These Things in Mind:

- Be sure that all temporary wiring is installed complete with GFCI protection.
- Do not let anyone tamper with or by-pass the GFCI unit.
- To minimize nuisance tripping, keep cords out of water and use watertight or seal connectors where possible.

- GFCIs must be placed as close to the power source as possible.
- Test GFCI before use.

Inspections:

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.

Visual inspection of the following equipment is required:

- Cord sets;
- Cap, plug, and receptacle of cord sets; and
- Equipment connected by cord and plug.

GFCI inspections should look for external defects such as deformed or missing pins, insulation damage, and indications of internal damage. Damaged or defective equipment should not be used until repaired. Additional inspections are required if an outlet is returned to service following repairs and after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over).

Testing:

GFCIs have test and reset buttons for a reason; a competent person should conduct at least monthly tests and visual inspections, and they should be tested and inspected before each day's use. Records of the competent person's testing must be kept.

Summary:

When using appliances and power tools, think safety. Your life and the lives of your fellow employees may depend on your willingness to provide and enforce the use of ground fault circuit interrupters.

PROTECT YOURSELF FROM ELECTRIC SHOCK...USE SAFETY EQUIPMENT!!

