

# Electricity - Grounding

Electricity has long been a hazard for all industries. Construction workers are more susceptible to electrical hazards mainly because of the location of their work. A wet workplace poses an additional threat of shock or electrocution; in fact the ground fault electrical shock hazard is the most common. This safety talk will discuss what is required on the job site to reduce electricity hazards and how to keep Mother Nature from intervening with your work.

## Management Directive

Discuss temporary and permanent electrical connections, as well as, the hazards associated with electricity.

## Temporary Electrical Connection

Most of the construction process is powered by the temporary electricity pole located somewhere on the job site. Usually the pole is somewhere near other utilities or along the road, sometimes across the road. Protecting your source of power is the first key to working safely.

- Protect your temporary pole with a weather resistant cover
- Construct your pole so that wind or other weather conditions don't damage it
- Place the pole in a location where it will not be damaged by vehicle traffic

**Note:** In the Memphis area the MLGW does not provide a GFI at the temporary pedestal.

## What Is Required by OSHA?

OSHA requires the installation of a ground fault circuit interrupter (GFCI) on all jobsites. Fuses, circuit breakers, and GFCI's all work together to protect you, they do so by regulating the amount of circuit flow to devices automatically. The GFCI will trip the breaker off if the amount of circuit flow entering or leaving the device your using varies. The trip occurs almost instantaneously to protect you, not as a nuisance. If the connection continues to trip, inspect your tool, connection, and source for any damage. Don't just continue to use the tool or device and keep resetting the breaker.

## Grounding

There are two kinds of grounding:

1. Service or system grounding where one wire acts as the neutral conductor and is grounded. This type of guarding is designed to protect the equipment itself.
2. Equipment ground is the current from the equipment to ground. This protects the user of the equipment from shock.

## Guarding Electrical Parts

All "hot" electrical parts of 50 volts or more should be protected by a guard. Mainly this is to prevent any accidental contact a worker might have with the live parts.

## Generators

If a temporary pole hasn't been installed, a generator might be used to power the construction site. Generators should also be protected by GFCI's if over 5kW, or 5000 watts. Most generators of that size come equipped with a GFCI, but if you need to add one a "pigtail" connection is sufficient as long as the protection comes before the tool is plugged in.

## Remodel Work

OSHA requires the use of GFCI's whenever temporary electricity is used. OSHA defines any connection where an extension cords is used as a temporary electrical connection. Therefore if work is being performed on a home that is being remodeled with the use of an extension cord, a GFCI is required.

Locate the GFCI closest to the power source and before any extension cords are attached to keep the cord from creating the ground fault. A GFCI is not needed if you are plugging the tool or equipment directly

into a grounded outlet. Portable GFCI's are available and can easily attach to an outlet or piece of equipment.

**Safety Review Quiz**

1. What does GFCI stand for?
2. What are some things to consider when erecting a temporary pole?
3. What should you look for when inspecting electrical equipment?
4. At what wattage is a GFCI needed on a generator?
5. **T/F** A GFCI is not needed when working on grounded outlets in an existing structure

**Electricity Sign-Off Sheet**

Company Name: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_

Safety Topic: \_\_\_\_\_

Instructor: \_\_\_\_\_

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