TOOL BOX TALKS

Ground Fault: Circuit Interrupters

What does OSHA say about Ground-Fault Circuit Interrupters? All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. Actually, to make the job as safe as possible GFCI would be used whenever we're using electric tools. Review these tips:

WORKSAFE TIPS

HOW GFCIs WORK

- Designed to prevent fatal electric shock.
- A shock is felt when electricity uses your body
- as path-to-ground.

- A "ground-fault" occurs when there is a break in the ground path from a tool or electrical system.
- Ground-fault is the MOST COMMON electrical shock hazard.
- Ground-faults occur as a result of "leaking" electricity.
- Leakage current occurs when an electrical current escapes from its intended path.
- When the body provides this "path to ground" burns, injury and death can occur.
- The GFCI compares the amount of current going to and returning from equipment along the circuit conductors.
- The GFCI senses any loss of current.
- If a loss of current is sensed by the GFCI, it quickly shuts off the power.
- Takes a fraction of a second – a shock may still be felt, but the continuous current will be shut down.

THE DANGERS OF ELECTRIC SHOCK

The severity of an injury depends on the amount of electrical current and the length of time the current passes through the body.

> Example: One-tenth of an amp passing through the body for 2 seconds can cause death.

Currents over 10 mA (milliamps) can cause muscle freezing, and in many cases can cause a tighter grip on tools.

This continued grasping of an electrified tool can cause paralysis of the lungs. This "freezing" is what makes shocks through handheld tools so dangerous.

If you can't let go of the tool, the amperage will continue to flow through the body. Heart paralysis can occur at 4 amps and tissue is burned at greater than 5 amps.

Voltage over 600 volts causes internal hemorrhage & violent muscle contractions. Remember that when working at height an electrical shock can also result in a dangerous fall.

Example of a GFCI from Lab Safety Supply

www.lss.com

UNSAFE! Knockout quad box in a job-made extension cord.

Tool Box Talk

Date of Discussion_____

Instructor_____

Attendees:

1._____

2._____

3._____

4._____

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Follow-up Items