

## SAFETY MEETING TOPIC

This form shall be completed and kept on file

Job Name \_\_\_\_\_ Location \_\_\_\_\_ Job No. \_\_\_\_\_  
Meeting Leader \_\_\_\_\_ Title \_\_\_\_\_  
Date Held \_\_\_\_\_ Place \_\_\_\_\_ Time \_\_\_\_\_  
Subject of Meeting PROTECTION FROM ELECTICITY

Exposure to electrical circuits is an unavoidable part of the construction industry. Avoiding contact with the exposed parts is critical to your safety. Electricity can create conditions that can result in severe bodily harm and/or property damage. Equipment, tools, wires and control devices have been designed to protect workers and equipment. The following information about these protective measures will help you work safely with electricity.

### GROUNDING

Grounding is one method of providing protection. There are two types of grounds; service and equipment grounding. Service grounds are placed at the generator or transformer and at the service entrance. This ground is used to protect machines, tools and insulation from damage. Equipment grounds are used on tools and equipment to prevent injury from heavy electrical surges.

Electricity always seeks a path to the ground. If a good path to the ground can be found through the body, shock occurs. If equipment is not grounded, a large amount of electricity will force its way through circuits and cause damage. Proper grounding will create a good electrical path to the earth. In many cases, this will prevent electricity from traveling through workers or equipment circuits.

**Never break the ground prong off of equipment or extension cords.** The ground path must be permanent and continuous. It should be able to carry any current safely. This will allow overcurrent devices to operate.

### INSULATION

Insulation is used on wires and energized parts of an electrical circuit to protect you from contact. Tools should also be insulated. An insulator is any material with a high resistance to electrical current. Different insulators have different resistances. The insulator being used should have enough resistance for the voltage it must protect against. If you use Personal Protective Gear to guard against electrical shock, it's important that it is rated appropriately. Labels on tools and protective equipment will indicate their protective rating and if it meets standard requirements such as ANSI standards.

### GUARDING

Live electrical parts of equipment operating at 50 or more volts may be guarded by location. Guarding must ensure that the dangerous locations are assessable only to qualified workers. Permanent partitions, screens or other devices can be used as barriers to prevent accidents. If you are unqualified (not having proper electrical training) never go beyond these barriers. Learn to recognize locations designed to keep you away from hazardous electricity. Indoor

electrical installations of 600 volts or more are supposed to be protected by metal enclosures, a vault, or other equally effective means. A lock may be used to secure such locations. Always observe posted caution signs.

## OVERHEAD AND UNDERGROUND POWER LINES

Overhead and underground lines are a form of guarding by location. However, certain operations can bring workers dangerously close to the hazard. Prior to digging, which may be needed to expose foundation walls for repairs or lay trenches for pipes, the power company should be contacted for assistance.

You **MUST** always ensure that proper clearance between equipment such as ladders or scaffolds and overhead lines is observed. The general rule is to keep any part of the body, equipment or vehicle 10 feet away from lines which carry up to 50,000 volts (50 kilovolts) of electricity. Above 50,000 volts, an additional 4 inches for every 10,000 volts (10 kv) should be added to the 10 foot minimum. If you were to carry a ladder upright under a 70,000 volt (70 kv) line, the clearance from the end of the ladder to the line must be 10 feet 8 inches. The voltage of overhead lines should be identified before they are approached.

If a vehicle with a lift is being used and the work involves activities in the vicinity of powerlines, extra precautions must be observed. The vehicle should be grounded, and the utility company should be contacted to move, cover or deenergize the lines. When grounding vehicles, ground stakes are driven deeply into the earth and barricades are used to keep other workers away. Only authorized employees are allowed beyond the barriers and even they should avoid contact with the vehicle. A hazard exists at the vehicle and area where the ground is made.

## CIRCUIT PROTECTION

Fuses, circuit breakers and ground-fault circuit interrupters are three common types of circuit protectors. Fuses and circuit breakers are designed to automatically break the circuit when it is unsafe. Common causes for blown fuses and tripped circuit breakers are:

- A bare wire touches a ground;
- Overloading circuits with too many lights, tools, etc; and
- Defective parts in tools and equipment

Before a fuse is replaced or the circuit breaker is restored to its "ON" position, the cause of the problem must be determined and corrected. Fuses must be replaced with one of the proper size and rating.

Ground-Fault Circuit Interrupters (GFCI) are designed to limit electric shock. They are not an overcurrent device. They are designed to break the circuit if there is an equipment malfunction. GFSIs work by limiting electric shock based on a current-and-time duration. Current is stopped before an amount of current is allowed to pass for a length of time that would produce serious injury. On construction sites where ground fault interrupters are not used, an assured equipment grounding program will be used. In this program a "Test Record" is maintained and a "Color Code" tag on the cord is used to show the month the test was performed. This color code will be reviewed before you begin work at sites where the program is used.

## SAFE WORK PRACTICES

Simple work practices can be followed to avoid electrical hazards. These include:

- Using an effective lockout-tagout procedure;
- Inspecting all tools and equipment for defects in insulation;
- Using OSHA approved grounded, heavy duty moisture resistant cords rated for the voltage and current in use;
- Placing cords properly to avoid trip hazards and areas where traffic could cause excessive wear on the cord;
- Insuring proper connection of plug and receptacle;
- Disconnecting plug and receptacle by pulling on the plug;
- Never disconnecting electrical equipment by pulling on the cord;
- Keeping cords away from heat and water;
- Never using electric tools in wet areas;
- Keeping ladders a safe distance from electric lines;
- Storing tools in a dry place;
- Keeping tools clean, oiled and in good repair;
- Keeping electricity away from flammables and combustibles;
- Using the safety release switches on tools;
- Never attempting to repair electrical tools or equipment unless you are qualified to do so.