

## 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 ELECTRICITY AND THE BODY

Never assume that electricians are the only workers exposed to electrical hazards. As an employee in the construction industry you can be faced with a job that requires you to work near live electrical parts of equipment. As such, you must be provided with training on the hazards you may face in the workplace. As a fifth leading cause for occupational death, electricity qualifies as a workplace hazard. Additionally, OSHA has established specific standards which set training requirements for qualified and unqualified workers. Unless they have received proper training, most construction employees would be considered unqualified workers with regard to electricity.

### ELECTRICITY

Electricity is the flow of electrons through a conductor. This flow is called current. It is measured in units called amps. It can be compared to the flow of water through pipes. Turning on a faucet opens the flow of water. Turning on a switch opens the flow of electrons. However, electricity needs a complete path in order to flow. It must travel from the source of electrons, through a path and return, usually to the ground.

The source of electric power is the power generating station. The electric current is transported through conductors (usually wires). The pressure is provided by a generator and is measured in units called volts.

The material through which the electricity flows opposes the flow. This is called resistance. Resistance is measured in units called ohms. Resistance is determined by the type of material, its thickness and length. For example, copper offers little resistance. It is a good conductor. Some materials like air, porcelain and dry wood offer great resistance. These are called insulators.

All three factors, voltage, current and resistance are related. A large voltage may cause a great current, but a matching resistance will reduce the current or prevent it. When selecting protective devices or equipment, the resistance of the material must be appropriate for the voltage used or worked on. In many cases air is the protective material. The greater the distance, the more air or resistance. For this reason, workers should always observe clearance distances.

### THE BODY AS A CONDUCTOR

The human body may become a conductor or part of the electrical path when:

- Contacting both wires of an electric circuit;
- Contacting one wire of an energized circuit and the ground;
- A metallic part becomes energized while the person is in contact with that part and the ground.

The body's resistance to electricity varies. If a person's electrical resistance is low, a large current may flow through their body even at a low voltage. For example, moisture lowers resistance. If their skin is wet or a cut exposes body tissue, even 12 volts will push enough current through to cause an uncomfortable shock. At 110 volts enough current will pass through the body to cause death. Extreme caution must be used when working in or near wet areas. Workers should not be misled by low voltage. The amount of current through a person's body causes injury or death.