

## SAFETY MEETING TOPIC: Electrical Safety

OSHA Standard: 1926.400 Electrical

Electricity has long been recognized as a serious workplace hazard, exposing employees to electric shock, electrocution, burns, fires, and explosions. In 1999, for example, 278 workers died from electrocutions at work, accounting for almost 5 percent of all on-the-job fatalities that year, according to the Bureau of Labor Statistics. What makes these statistics more tragic is that most of these fatalities could have been easily avoided.

Operating an electric switch is like turning on a water faucet. Behind the faucet (or switch) there is a source of water (or electricity) with a way to transport it, and pressure to make it flow. The faucet's water source is a reservoir or pumping station. A pump provides enough pressure for the water to travel through the pipes. For electricity the source is the power generating station. A generator provides the pressure (voltage) for the electrical current to travel through electric conductors (wires).

Volts – the electrical pressure (measure of electrical force)

Amps – the volume or intensity of the electrical flow

Watts – the power consumed

There are "clues" that electrical hazards exist. For example, if a GFCI keeps tripping while you are using a power tool, there is a problem. Don't keep resetting the GFCI and continue to work. You must evaluate the "clue" and decide what action should be taken to control the hazard.

### Electric Shocks

The effects of an electric shock on your body can range from a faint tickle (1 milliamp) to cardiac arrest and probable death at 10,000 milliamps. The severity of the shock depends on three factors:

1. How much current flows through your body (measured in amperes)
2. What path the electric current takes.
3. How long you are a part of the circuit.

There are a number of other conditions that indicate a hazard:

- Tripped circuit breakers and blown fuses show that too much current is flowing in a circuit. This could be due to several factors, such as malfunctioning equipment or a short between conductors. You need to determine the cause in order to control the hazard.
- An electrical tool, appliance, wire, or connection that feels warm may indicate too much current in the circuit or equipment. You need to evaluate the situation and determine your risk.
- An extension cord that feels warm may indicate too much current for the wire size of the cord. You must decide when action needs to be taken.
- A cable, fuse box, or junction box that feels warm may indicate too much current in the circuits.
- A burning odor may indicate overheated insulation.
- Worn, frayed, or damaged insulation around any wire or other conductor is an electrical hazard because the conductors could be exposed. Contact with an exposed wire could cause a shock. Damaged insulation could cause a short, leading to arcing or a fire. Inspect all insulation for scrapes and breaks. You need to evaluate the seriousness of any damage you find and decide how to deal with the hazard.

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