

# Electrical Safety



Electricity is a serious occupational hazard. Nearly all employees are exposed to electrical energy during their work day but many workers are unaware of its potential or its presence, which makes them more vulnerable to the dangers of electricity. Electricity is an integral part of our modern world, and sometimes it is easy to forget just how dangerous it can be.

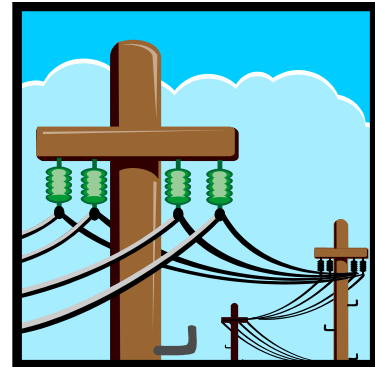
Roughly 3,600 disabling electrical contact injuries occur every year in the United States, along with another 4,000 non-disabling injuries. It can shock you, damage sensitive equipment, ignite combustible materials and even kill.

Electrical injuries consist of four main types:

- electrocution (fatal)
- electric shock
- burns
- falls caused as a result of contact with electrical energy

Electrocutions rank fourth (9%) in causes of industrial fatalities, behind traffic, violence and construction. The National Safety Council estimates 600 people die every year of electrical causes. Most of these accidents involve low voltage (600 volts or less).

## Electric safety tips from OSHA:



- Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated.
- Never touch a fallen overhead power line. Call the electric utility company to report fallen electrical lines.
- Stay at least 10 feet away from overhead wires during cleanup and other activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires.
- If an overhead wire falls across your vehicle while you are driving, stay inside the vehicle and continue to drive away from the line. If the engine stalls, do not leave your vehicle. Warn people not to touch the vehicle or the wire. Call or ask someone to call the local electric utility company and emergency services.
- Never operate electrical equipment while you are standing in water.
- Never repair electrical cords or equipment unless qualified and authorized.
- Have a qualified electrician inspect electrical equipment that has gotten wet before energizing it.
- If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
- Always use caution when working near electricity.



## Avoid the following unsafe acts when working with electricity:

- ❖ Failure to utilize lockout/tagout (LOTO): de-energize, lockout & tagout hazards during maintenance, repair or inspections.
- ❖ Using defective and unsafe tools.
- ❖ Using tools or equipment too close to energized parts.
- ❖ Not draining off stored energy in capacitors.
- ❖ Using 3-wire cord with a 2-wire plug.



- ❖ Removing the third prong (ground pin) to make a 3-prong plug fit a 2-prong outlet. This removes the electrical ground so you can then become the path to the ground.
- ❖ Overloading outlets with too many appliances.



- ❖ Using the attached electrical cord to raise or lower equipment or pull the plug from the outlet.

- ❖ Not verifying power is off when making a repair (drilling into a 110 Volt a.c. line can kill).
- ❖ Working in an elevated position near overhead lines.

## Common causes of unsafe equipment:

- ✓ Loose connections
- ✓ Faulty insulation
- ✓ Improper grounding (removal of 3rd prong)
- ✓ Use of "homemade" extension cords
- ✓ Defective parts
- ✓ Unguarded live parts such as bare conductors or exposed terminals
- ✓ Metal parts of equipment may become energized when connected by cord or plug. Capacitance may cause up to 55% of line voltage to be stored on the casing of metal tools.
- ✓ Special care is also need in wet or damp locations - water and electricity are a bad combination. If the wire is frayed or damaged, a fatal electrical shock can result.



It is always smart to be cautious around electricity. If you haven't been trained to repair electrical equipment, take it to someone who has the knowledge and training. Know your limitations and accept them! Doing anything less could cost you your life.