



Electricity

Understand Electrical Safety

Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electrical shock, electrocution, burns, and res. Using safe work practices while working on or near de-energized electrical parts can decrease your chances of being injured from electricity.

How can it hurt me?

You can receive a shock when a part of your body becomes part of an electric circuit. An electric shock can cause serious injury or sometimes even death. You will get a shock if you touch:

- both wires of an electric circuit.
- one wire of an energized circuit and the ground.
- part of a machine which is “hot” because it is contacting an energized wire and the ground.

Exposure Effects

The effects of an electric shock on the body can range from a tingle where the body touches the circuit to immediate cardiac arrest. A severe shock can cause more damage than can be easily seen.

Safety Rules

The following rules apply to all electrical equipment:

- Maintain electrical equipment-inspect tools, cords, grounds, and accessories. Have problem equipment repaired or replaced immediately.
- Use safety features like three-pronged plugs, double-insulated tools, and safety switches. Ensure machine guards are in place and that lockout/tagout procedures are followed. Install or repair equipment only if you're qualified and authorized to do so.
- Keep electric cables and cords clean and free from kinks. Never carry equipment by the cord.
- Use caution when working with electricity around water, damp surfaces, ungrounded metal, or any bare wires. Wear approved rubber gloves when working with live wires or ungrounded surfaces. Rubber-soled shoes or boots should be worn when working on damp or wet surfaces.
- Avoid wearing jewelry or metal objects (ring, watches, etc.) when working with electricity.

Good work habits soon become second nature. Don't take chances with electricity. One mistake could cost you your life.

Are You Qualified for Electrical Safety?

Electricity is an integral part of our lives both at home and in the workplace. In 1994, the Bureau of Labor Statistics reported that 346 deaths were attributed to contact with electric current. Using safe work practices while working on or near de-energized electrical parts can decrease your chances of being injured from electricity.

Workers who work on or near de-energized electrical parts require training on how equipment is de-energized and locked/tagged out, how to safely work on or near de-energized parts, and what safeguards to use.



TOOLBOX TALKS/SAFETY TALKS

Training & Education

Electrical Currents

Electrical currents travel in closed circuits through conducting materials. You can receive a shock when a part of your body becomes part of an electric circuit. An electric current enters the body at one point and exits at another. High-voltage shocks can cause serious injury or sometimes even death.

You will get a shock if you touch:

- Both wires of an electric circuit.
- One wire of an energized circuit and the ground.
- Part of a machine which is “hot” because it is contacting an energized wire and the ground.

Exposure Effects

The effects of an electric shock on the body can range from a tingle where the body touches the circuit to immediate cardiac arrest. A severe shock can cause more damage than what can be seen.

Safety Rules

The following rules apply to all electrical equipment:

- Ensure your electrical equipment is maintained properly. Regularly inspect tools, cords, grounds, and accessories. Repair only if you are authorized to do so. Otherwise, arrange to have problem equipment repaired or replaced immediately.
- Ensure you use safety features like three-pronged plugs, double-insulated tools, and safety switches. Ensure machine guards are in place and that lockout/tagout procedures are followed.
- Install or repair equipment only if you’re qualified and authorized to do so.
- Keep electric cables and cords clean and free from kinks. Never carry equipment by the cord.
- Avoid touching water, damp surfaces, ungrounded metal, or any bare wires if you are not protected. Wear approved rubber gloves when working with live wires or ungrounded surfaces. Rubber-soled shoes or boots should be worn when working on damp or wet surfaces.
- Avoid wearing jewelry or metal objects (ring, watches, etc.) when working with electricity.

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One mistake could cost you your life.

OSHA’s Top Five Electrical Violations

Accidents involving electricity are one of the top four killers at construction sites. Each year, approximately 17% of all construction fatalities are a result of an electrical accident. This tool box talk highlights the recent top five electrical safety violations. This is a good place to start when working with electricity and the problems found at typical job sites.



TOOLBOX TALKS/SAFETY TALKS

Training & Education

#1 Ground fault protection

Electrical circuits and equipment must be protected by either ground fault circuit interrupters or an assured equipment grounding conductor program to protect employees on construction sites.

Ground fault electrical shocks are the most common electrical job site hazard. This rule is designed to take away that hazard.

#2 Temporary wiring

Temporary electrical power and lighting wiring methods may be of a class less than would be required for a permanent installation. Except as specifically modified in §1926.405(a)(2) of the construction regulations, all wiring must meet the requirements for permanent wiring. Temporary wiring must be removed immediately upon completion of construction or the purpose for which the wiring was installed.

#3 Path to ground

The path to ground from circuits, equipment, and enclosures must be permanent and continuous. Temporary wiring and extension cords are a major part of the construction jobsite. Interrupted equipment grounds are an invitation to disaster.

#4 Flexible cords and cables – Identification, splices, and terminations

The OSHA regulations cover the requirements for flexible cords and cables. This is OSHA's term for extension cords. Covered is requirements for:

- identifying the grounded conductor (usually green).
- flexible cord marking requirements (i.e., SJO, STO, etc.).
- requirements for splicing/repairing extension cords.
- strain relief requirements.

#5 Installation and use of equipment

Listed, labeled, or certified equipment must be installed and used in accordance with instructions included in the listing, labeling, or certification.

At times, electrical equipment is installed or used in a manner for which it was not designed. A good example is the multi-receptacle outlet box. It is designed to be mounted but is sometimes fitted with a power cord and placed on the floor to provide power for various tools.

When not installed, tested, inspected, and used properly, electrical equipment can be deadly. Do not use electrical equipment that is obviously bad.



Fifteen Things to Remember When Working With Electricity

- Keep_ water and electricity far apart.
- Make sure all equipment is properly grounded and plugged into grounded circuits.
- Inspect all electrical equipment, tools, cords and outlets for defects. Only use equipment that's in good working order. Report any unsafe conditions you may find.
- Never wear metal jewelry or headgear when working with electrical parts.
- Always wear protective equipment such as rubber gloves, sleeves and boots.
- Use nonconductive or double-insulated tools.
- Keep electrical cords and cables clean and free from kinks.
- Never carry equipment by its cord.
- Never use worn or frayed extension cords.
- Be aware of flammable or corrosive chemicals and follow your company's procedures for operating electrical equipment in their vicinity.
- Use ground fault circuit interrupter (GFCI) outlets.
- Keep clear of energized parts.
- Keep conductive materials, such as steel wool, metallic cleaning cloths and some chemical solutions, away from sources of electricity.
- Be aware of lockout/tagout procedures to keep electrical equipment turned off during maintenance and repairs.
- Never fasten extension cords with staples or hang them from nails or wire; it can damage the cord's

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