

## Some Basics about Electrical Safety

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**Introduction:** When it comes to working with electricity, OSHA distinguishes between "Qualified" and "Unqualified" workers. The distinction is simple. **Qualified workers:**

- o Have had special training in how to work safely with electrical equipment
- o Can identify exposed, "live" (that is, energized) parts and their voltage
- o Know what procedures to follow when working with or near live parts.

**Unqualified workers** have not had this training and are not permitted to work with or near live parts. But unqualified workers do need to know:

- o The risks of energized equipment
- o The tasks that can be done only by qualified workers
- o How to avoid electrical hazards.

**Goal:** In your meeting make sure everyone understands, when it comes to electricity, if they are qualified or unqualified workers and to ensure the unqualified workers understand their limitations when it comes to electricity. Also review the content of this safety topic with the workers so they understand some basics about electrical safety.

**How Electricity Works:** In basic terms, electricity flows from one point to another by means of a conductor, which is any material that allows electricity to flow through it. Some materials, like metal, are better conductors than others, like wood and rubber. Materials that do not conduct electricity are called insulators. That's why electrical wires, which are metal, are covered with rubber or similar material, which serves as the insulation. Water and other liquids are also good conductors. Unfortunately, the human body is also a good conductor of electricity, primarily because of the amount of liquid it contains. So if the body contacts another conductor, it will directly receive the current of electricity resulting in an electric shock.

**Electrical Hazards:** Hazards are created when there are opportunities for electric current to flow into the human body. Some hazards to watch out for include:

- o Electrical cords that are damaged or have broken insulation
- o Loose electrical connections
- o Electric cords or connections near water or other liquids
- o Electric tools that spark, shock, or smoke because they are damaged
- o Loss of grounding by using a three-pronged plug in a two-pronged outlet.

**Basic Electrical Safety Checklist:** Basic safety rules/checklist for all workers to follow include:

### **Inspect Cords and Plugs**

- o Check power cords and plugs daily. Discard if worn or damaged. Have any cord that feels more than comfortably warm removed from service and discarded or checked by an electrician.

### **Eliminate Octopus Connections**

- o Do not plug several power cords into one outlet.
- o Pull the plug, not the cord.
- o Do not disconnect power supply by pulling or jerking the cord from the outlet. Pulling the cord causes wear and may cause a shock.

### **Never Break Off the third Prong on a Plug**

- o Replace broken 3-prong plugs and never disable a grounding system.

### **Never Use Extension Cords as Permanent Wiring**

- o Use extension cords only to temporarily supply power to an area that does not have a power outlet.
- o Keep power cords away from heat, water and oil. They can damage the insulation and cause a shock.
- o Do not allow vehicles to pass over unprotected power cords. Cords should be put in conduit or protected by placing planks alongside them.

### **Inspect Power Tools and Cords**

- o Ensure tools are properly grounded or double insulated. The grounded tool must have an approved 3-wire cord with a 3-prong

plug.

- o If the cord is damaged or worn, do not use the power tool.
- o Inspect the power tool before each use to ensure it is not damaged.

**Conclusion:** Electrical safety is a very comprehensive subject and a mistake can kill you. So leave work on energized electrical systems to qualified workers. If you make it a point to follow the basic safety rules/checklist items above, which obviously is not an all-inclusive list, you will be taking a big step toward ensuring your electrical safety. Remember, if anything doesn't look, sound, smell, or work quite right, turn it off and report it immediately. It could save your life.