

Toolbox Safety Topic

Basic Electrical Safety

Electrocution is one of the leading causes of death in the workplace. More than half of these deaths are caused by two things: defective electrical equipment or failure to follow safe procedures. Even if an electric shock doesn't kill you, it can still cause serious injuries, such as burns, damage to muscles and internal organs, and heart attack. A shock also can be powerful enough to knock you down, causing injury from falling.

Electricity flows from one point to another by means of a conductor. A conductor is any material that allows electricity to flow through it. Good conductors include most metals (copper, silver, lead, aluminum, etc.), water and other liquids, and you (the human body is made mostly of water). Materials that do not conduct electricity are called insulators. Good insulators include rubber, dry wood, glass, and fiberglass.

One of the most basic safeguards against electrical hazards is to provide a conductor to carry current into the ground, instead of to another conductor (such as you). This is called grounding, and it is accomplished through such means as a 3-pronged plug.

What are some common electrical hazards in our work area? *(Give employees an opportunity to respond. Some examples are listed below.)*

- electrical cords that are damaged or have broken insulation
- loose electrical connections
- electric cords or connections near water or other liquids
- electric tools that spark, shock, or smoke because they are damaged
- improper or absent grounding
- exposed permanent wiring
- damaged outlets

Note: Discuss what can be done to correct the hazard(s) and assign responsibility at this time so that hazards can be corrected (or improved) before the next meeting.

Here are some guidelines for avoiding electrical hazards.

1. Do NOT use damaged or defective cords or electric tools. Examples include damaged insulation, loose wiring, 3rd prong (grounding wire) missing, frame of tool cracked or broken.
2. Never disable a grounding system by removing the grounding prong on a cord so it will fit into a 2-prong outlet, disconnecting grounding wires, or improperly wiring an outlet.
3. Be especially careful using metal equipment (ex. screw driver, pliers, wrenches, etc.) near sources of electric current.
4. Wear insulating clothing when working with electricity (ex. rubber gloves).
5. Don't use electrical equipment near water (rain, spills, wet hands, etc.)
6. Use only waterproof cords in outdoor areas.
7. Use an extension cord of adequate size to prevent current overload (extension cord should be the same size or larger as the appliance you are plugging into it).
8. Leave all electrical repair or specialized electrical work to "qualified" workers.
9. Use GFCI's (ground fault circuit interrupters) to protect yourself from shock.

Suppose there is an accident involving electricity, what would you do? *(Give employees an opportunity to respond, then discuss the procedure below.)*

1. Don't touch the person! Current may still be present and could flow into you.
2. Turn off the power source, if possible, by unplugging the cord, turning the power switch off, flipping the circuit breaker, etc. (If the power can't be turned off, move the victim from the source of current with a NONCONDUCTING object - dry wood pole, fiberglass rod, etc.)
3. Call 9-1-1 for medical and fire response.
4. Use a fire extinguisher that is a class "ABC", "BC", or "C", but only if you have had proper training (never use water). Otherwise, leave the area and let the professionals handle it.
5. Cover any burns with a sterile dressing and wait for medical assistance.

Any questions?

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Date: _____

Meeting Conducted By: _____ Title: _____

Attendees

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