Key Risk
| a Berkley Company

SafetyConnection

Electrical Safety

Primary types of electrical accidents include:

- Electrocution – Death due to electrical shock.
- Electrical Shock – Injury caused when electric current passes through the body.
- Burns
- Falls

There were more than 450 occupational fatalities caused by electrical injuries from 2011 to 2013. Of those deaths, nearly half were caused from an indirect exposure such as a fall.

Common Electrical Hazards include:

- **Improper Grounding** – The most common OSHA electrical violation is improper grounding of equipment wires. A portable tool may become ungrounded if the ground prong is removed or broken off. Grounding creates a physical electrical connection with the earth and reduces the chances of shock or electrocution.
- **Exposed Electrical Parts** – Equipment or electrical panels with exposed wires are dangerous and should never be used. All exposed wires should be reported.
- **Inadequate Wiring** – The correct sized wire must be selected based off the amount of electrical current expected in a circuit. The wire needs to be able to handle the current safely without heating up or tripping the circuit breaker.
- **Overhead Power Lines** – Usually not insulated, overhead power lines pose a very serious hazard to workers. All tools and equipment should be kept at least 10 feet away from any overhead power lines. Over half of all electrocutions are caused by direct contact with energized power lines.
- **Damaged Insulation** – Insulation is usually made of plastic or rubber that covers the wires and acts as a barrier from shock or electrocution. Tools and extension cords should be regularly checked for damaged insulation and their use stopped if damage is detected. You should never attempt to repair a damaged cord with electrical tape.
- **Overloaded Circuits** – These circuits can produce heat, arcing and fire. Plugging too many cords into a single receptacle can cause an overload.
- **Wet Conditions** – Wet conditions act as an easy path for electrical current and increase the risk of electrical shock. Workers should always avoid using tools in wet location. High humidity, perspiration and wet clothing should be avoided when working with electricity.
- **Damaged Tools/Equipment** – Damaged tools should never be used and should be reported immediately to a supervisor.

Electrical Safety & Accident Prevention:

- **Personal Protective Equipment (PPE)** – PPE for most electrical hazards include rubber or insulated gloves, insulated clothing and nonmetal hardhats. PPE should be fitted properly to each employee and checked to make sure its electrical protection rating matches with the work being performed.
- **Tool Use and Inspection** – Tools and their cords should be checked for cracks, damaged insulation, broken or missing ground pins, frayed line cords and loose parts. Always unplug tools when making adjustments (i.e. blades, bits or adjusting guards).
- **Ground Fault Circuit Interrupters (GFCI)** – A GFCI is a fast acting circuit breaker that senses small imbalances in the circuit caused by current leakage to the ground. OSHA requires that GFCIs be used on all construction sites.
- **Lockout/Tag Out** – When working with electricity, turning the equipment off is not enough as someone could turn the equipment back on without the worker knowing. To prevent this, the power switch must be locked in the off position. The switch should also be tagged to let others know why the switch is off. All those required to work on electrical equipment must be trained in lockout/ tag out procedures specific to that site.
- **Double Insulated Tools** - Feature two separate insulation systems to help protect against electrical shock from internal malfunctions. Double insulation tools have no provision for grounding (no third grounding prong), and are equipped with a polarized two-prong plug. The symbol used to indicate if a tool is double insulated is a square within a square.

- Pull the Plug NOT the Cord – Pulling the cord or carrying a tool by the cord puts strain on the wire and can cause the stripping of insulation and could potentially damage the ground pin.
- Never Replace Cords - Do not use extension cords as a replacement for fixed or permanent wiring.

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For more information please contact your Risk Management Specialist or email us at riskmanagement@keyrisk.com.

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