



LOSS CONTROL NEWSLETTER

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Electrical Hazards

Last month, we looked at struck-by hazards from the construction industry's "Fatal Four." In this issue, we focus on electrical hazards. According to the Occupational Safety and Health Administration (OSHA), in 2017 there were 71 electrocution deaths and many more injuries from burns and electrical shocks.

Some of the major electrical hazards you may be exposed to on a construction jobsite include:

- **Contact with overhead or buried power lines.** Always assume that power lines are energized, and never touch one – the covering on overhead power lines protects them from adverse weather, but it will not protect you if touched. Working on a ladder or an aerial lift in the vicinity of a power line also puts you at risk. Even if you are not touching the line directly, you can still be electrocuted. Be careful not to let equipment approach a power line too closely.
- **Improper use of extension cords.** When used incorrectly or when extension cords have damaged wiring and loose connections, they can cause fires, shocks and burns, and can damage equipment. Do not use extension cords as a replacement for permanent wiring; they are designed for temporary use. Inspect cords before each use to be sure they are in good condition and are not frayed, cracked or punctured. When in use, check if the cord is hot to the touch; if so, it's overloaded and should be disconnected. Using one long cord instead of several shorter cords connected together can avoid overheating and a potential fire.
- **Exposure to energized equipment (arc flash/blast).** An arc flash happens when electricity travels through the air from one conducting surface to another or to the ground. This can happen when circuit breakers and disconnects are opened and closed, when exposed electrical equipment is touched with a tool, or when equipment fails. If the air is rapidly heated, a powerful blast can be created. The most effective way to prevent an arc flash from energized electrical equipment is to create what is known as an "electrically safe work condition." That means de-energize or disconnect and lock out/tag out the power source before starting any maintenance or repair work.

continued on page 2



Electrical Hazards *continued*

Electrical hazards pose the risk of the following types of injuries:

- **Burns** are a common electrical injury and occur when current flows through tissue or bone, generating heat that causes damage. These can be severe and often require immediate medical attention. There are also arc flash burns from the intense heat generated from an arc flash, and thermal contact burns caused by touching equipment or wiring that is hot.
- **Shock** is the body's reflex response to current passing through it when it becomes part of an electrical circuit. The severity of a shock depends on the path the current takes through the body, the magnitude of the current, the length of time of the exposure, and whether the skin is wet or dry (current flows easier through wet skin).
- **Electrocution** occurs when the body is delivered a fatal amount of current.

Choosing the Right Hard Hat for the Job

Hard hats are typically made of high-density plastic, so they remain lightweight and strong enough to protect against common hazards at construction sites. Hazards that hard hats protect against include impact or penetrating injuries caused by falling or flying objects, and shocks and burns caused by electrical hazards. All hard hats are classified based on the level of protection they provide against these hazards.

Impact Protection

Hard-hat impact protection is divided into two categories: Type I and Type II. Type I hard hats reduce the force of impacts to the top of the head, such as from a dropped hammer. Type II hard hats reduce the force of impacts to the top or sides of the head, such as from contact with a side beam.

Electrical Protection

Electrical protection is designated as Class G, Class E or Class C. **Class G hard hats** (aka general hard hats) are designed to reduce the danger of exposure to low-voltage conductors, offering protection up to 2,200 volts. **Class E hard hats** (aka electrical hard hats) reduce the danger of exposure to high-voltage electrical shocks and burns, offering protection up to 20,000 volts. **Class C hard hats** (aka conductive hard hats) are not designed for electrical resistance; they are designed for lightweight comfort and impact protection.

If you have any questions or need assistance regarding workplace safety, please contact your independent insurance agent or the Auto-Owners Loss Control Helpline at 855.586.5388, or send an email to LossControlSupport@aoins.com.

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