6 TYPICAL ELECTRICAL HAZARDS IN THE WORKPLACE

WHAT'S AT STAKE?

Electrical shock is a leading cause of workplace fatalities. Nearly every day there are approximately one electrocution, 10 disabling injuries and 100 electrical shocks reported.

WHAT'S THE DANGER?

There are four main electricity related injuries:

1. Electrocution.
2. Shock, which is caused when contact is made with a live wire or equipment that is not grounded, allowing the current to flow through the body.
3. Electrical burns, one of the most serious, painful and disfiguring of all burns. Typically, these burns occur on the hands and feet where the current enters and exits the body.
4. Secondary injuries, which usually result from the effects of shock, such as being thrown to the ground or off a ladder, causing indirect injuries.

Example

An appliance repairman was electrocuted when he was testing a defective washing machine. He was running the machine to determine the problem before attempting repairs. He had one hand on the control dial and the other hand on a water faucet at the sink next to the machine. It appears the wiring in the washing machine had been damaged during an earlier attempt at repairs. This defect in the wiring caused the control dial to be energized. Touching the faucet provided a path to ground, electrocuting the repairman.

HOW TO PROTECT YOURSELF

To reduce your risk of electrical injury, it's important to understand the many electrical hazards that can exist in a workplace. These are among the most common:

1. **Inadequate wiring**. This hazard exists when a conductor is too small to safely carry the current flowing through it, such as using a portable tool with an extension cord that has a wire too small for the tool. The tool will draw more current than the cord can handle, causing overheating and a possible fire.
2. **Overloads**. If too many devices are plugged into a circuit, the current will heat the wires to a very high temperature, which may cause a fire. If the wire insulation melts, arcing may occur and cause a fire in the area where the overload exists, even inside a wall.
3. **Ground faults**. Electrical currents flow in a circuit. If there is a fault opening in the circuit and the circuit is not grounded, a person can become part of the circuit by touching a wire or holding the energized equipment, such as an electrical drill.
4. **Overhead power lines**. Most people don't realize that overhead power lines are usually not insulated.
5. **Live parts**. Some electrical equipment is "live," meaning you can come into direct contact with the current. These should be guarded against accidental contact, with entrances marked with conspicuous warning signs.
6. **Inappropriate use of temporary wiring**. Temporary wiring is more susceptible to being damaged than fixed wiring due to aging, rough edges near doors and windows, staples or fastening used to hold it in place, abrasion from adjacent materials, and activities in the nearby area. Improper use of flexible cords can cause shocks, burns or fire.

CONCLUSION

Electrical repairs should be carried out only by persons who are qualified and authorized to do so. However, it's everyone's job to be alert to potential hazards and to report problem areas immediately so that they can be repaired.

QUIZ

1. Name two of the four electricity-related injuries.
   _____
   _____
   _____

2. It is fine to use any old extension cord with a portable tool that draws a lot of power.
   - True
   - False

3. Secondary injuries, such as falling off a ladder, are quite common when a worker receives an electrical shock.
   - True
   - False

4. When working outdoors with ladders, poles or other objects, workers need to be constantly vigilant for _____.

WHAT WOULD YOU DO?

A co-worker's office is a rat's nest of papers and clutter. Worse yet, she is using an adaptor plug with six different appliances plugged into, including a radio, her computer, two lights and who knows what else. You don't want to nag her, but your concerns about an electrical fire putting everyone out of work have fallen on deaf ears. You don't want to get her in trouble, but you've got to do something.

What would you do?

_____
_____
_____
_____
_____
_____

BEFORE THE TALK

- Print Attendance Sheet to pass around.

Be prepared to discuss:

- Safe work practices and policies passed around pertaining to workplace safety with respect to electrical shock.
- Reporting procedures relating to workers who suffer injuries from electrical shock at their location.

Other:

- Collect some examples of how outdoor workers have been electrocuted as a result of contacting a power line with a ladder, pole or piece of machinery and share some of these tragic stories with your workers.
- Bring to your meeting a cheap extension cord and an adaptor plug that allows multiple cords to be plugged into an outlet. Prepare to discuss some of the hazards associated with their use.
- Search online for “electrical overload” and print off some of the images of dangerous situations.
- Remind your workers that electricity and water should never mix and how using electrical items in damp or wet conditions can be deadly.
- Print off some materials on electrical safety around the home and share these handouts with your workers.
- Invite a fire prevention officer from your local fire department to speak to your workers about some nasty electrical fires the department has had to attend.

NOTES

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AFTER THE TALK

Provide follow-up to workers who did poorly on the quiz.

Names:_____

_____

Date: _____

Observed workers

Task(s):_____

_____

_____

Date: _____

Refresher training

Topic(s): _____

Date: _____

Other (describe): _____

Meeting date: _____

Location: _____

Conducted by: _____

ANSWERS:

1. Electrocution, shock, electrical burns and secondary injuries.
2. False
3. True
4. Overheated power lines

ATTENDANCE

INSTRUCTOR: _____ **DATE:** _____

SAFETY TALK: _____