MEDIA FACT SHEET

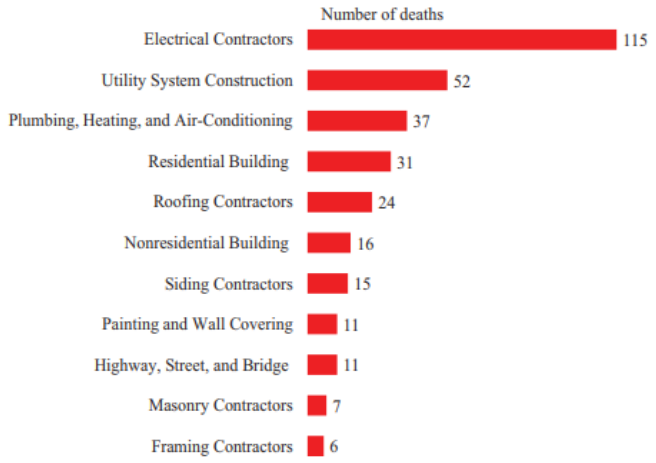
ELECTROCUTION – RISKS AND PREVENTION

CPWR
THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

The Problem for Construction Workers

Electrocution is one of the leading causes of death on construction sites.[1] In 2016, 82 of the 991 total construction fatalities were caused by electrocution – more deaths than in any other industry.[2]

Electrocution results when a person is exposed to a lethal amount of electrical energy. Exposure to electricity can also cause burns, shocks, arc flash/arc blast, fire, explosions, and falls.[3] Damaged tools and equipment, contact with overhead power lines, wet conditions, overloaded circuits, exposed electrical parts, or improper grounding and wiring, can all expose workers to electrical hazards.[4] The graph below shows the number of electrocutions by construction subgroup between 2011 and 2015.[5]



Injuries and Fatalities are Preventable

The Occupational Safety and Health Administration (OSHA) has a number of standards related to electrical safety, but in general, employers are required to[4]:

- Train workers regarding electric hazards and about the available protective measures. Workers need to be fully informed about the risks and the measures they will take to prevent them.
- Enforce lock-out/tag-out practices. This requires that energy sources be shut down before servicing machines/equipment. The energy source is then locked and tagged to prevent it from being turned back on while the equipment is being serviced.
- Use ground fault circuit interrupters (GFCIs) on all temporary wiring **OR** have a written assured equipment grounding conductor program (AEGCP) on the job site, outlining specific procedures for equipment inspections, tests, and test schedules.
- If working near power lines, have them de-energized and grounded by the power company. Otherwise, other protective measures must be provided, such as personal protective equipment (PPE). Workers must always be kept at least 10 feet away.
- Isolate and guard electric equipment to ensure workers do not accidently come into contact with its live parts.
- Ensure the path to ground from circuits, equipment, and enclosures is permanent and continuous. The ground pin on a plug, for instance, should never be removed. Otherwise, the current can travel through a worker's body.
- Maintain all power tools and equipment and ensure they are safe to use.
- Have flexible cords that are 3-wire type so they can be grounded, and rated for hard or extra-hard usage to prevent them from becoming damaged.

CPWR Research and Resources

- **Electrical Safety Hazard Alert Card** – a brief, image-driven handout to help workers who are not electricians understand electrical hazards and how to work safely. Available in English and Spanish.
- **Electrical Safety Toolbox Talks** – short discussion guides for use by foremen or supervisors to raise worker awareness and discuss site-specific actions to identify and address electrical hazards:
  - ◊ **Electric Power:** English and Spanish
  - ◊ **Electric Wiring:** English and Spanish
  - ◊ **Extension Cord Safety:** English and Spanish
- **Quarterly Data Report** – Electrocutions and Prevention in the Construction Industry
- **Electronic Library of Construction Occupational Safety & Health (eLCOSH)** – Why Are So Many Construction Workers Being Electrocuted?

Other Resources

- Electrical – OSHA's main website for electrical safety.
- Controlling Electrical Hazards – OSHA, 2002
- Electrical Safety – National Institute for Occupational Safety and Health's [NIOSH] main website for electrical safety.

About CPWR

CPWR - The Center for Construction Research and Training [CPWR] is a 501(c)3 non-profit dedicated to reducing injuries, illnesses, and fatalities in construction, and currently serves as NIOSH's National Construction Center. Through research, training, and service programs, CPWR works in partnership with industry stakeholders, safety and health professionals, academics, and key government agencies, to identify and find solutions for occupational hazards and improve the safety and health of construction workers. For more information, please visit: www.CPWR.com

References

[1]Occupational Safety and Health Administration [OSHA], 2017. *Commonly Used Statistics.* https://www.osha.gov/oshstats/commonstats.html

[2]U.S. Bureau of Labor Statistics. *Census of Fatal Occupational Injuries (CFOI) - Current and Revised Data.* https://www.bls.gov/iif/oshcfoi1.htm. Accessed March 15, 2018. The data is for the private sector construction industry.

[3]OSHA, 2002. *Controlling Electrical Hazards*. https://www.osha.gov/Publications/osha3075.pdf

[4]OSHA, 2011. *Construction Focus Four: Electrocution Hazards.* https://www.osha.gov/dte/outreach/construction/focus_four/electrocution/electr_ig.pdf

[5]CPWR, 2017. *Electrocutions and Prevention in the Construction Industry.* Quarterly Data Report. https://www.cpwr.com/sites/default/files/publications/Quarter3-QDR-2017.pdf

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