

Electrical Safety



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Electrical fires-fires directly caused by the flow of electric current or by static electricity-are one of the most important types of structure fires. These are the words of Vito Babrauskas, of Fire Science and Technology, Inc. (See below) The mechanisms that lead to fires caused by electricity and the importance of eliminating them from a construction site are sometimes taken for granted.

Because electricity is a common form of energy is also often taken for granted. However as industry and commerce draw heavily on electricity to power processes and machines the number of fires caused by electrical equipment can increase. Certain safety precautions are often overlooked. Sometimes equipment is misused or abused.

To ensure electrical safety, there are four Golden rules that should be followed:

CORRECT - installation
Use
Inspection
maintenance

The physical mechanism that will cause a fire from electricity varies from those practices that are extremely dangerous to some actions that may appear to be borderline safe. The layman usually regards electrical fires as being one of two types. They are short-circuits and overloads. The reality is quite different

Electrical equipment should never be used on a jobsite unless the individual user has been properly trained in the use of the appliance.

Overloading, insulation breakdown, poor connections and broken conductors are often reasons for creating heat. As mentioned in other materials in this system, the three sides of the fire triangle are fuel heat and air. Proper consideration of safety requirements associated with electrical equipment is extremely important

| Mechanism (Cause) | Level of importance |
|----------------------------------------------------|----------------------------|
| Poor connection | Most important |
| Arcing across a carbonized path | |
| Arcing in the year | |
| Excessive thermal insulation | |
| Overload | |
| Dielectric breakdown in solid or liquid insulators | Least important |
| Miscellaneous phenomena | |

The importance of maintenance our regular inspection cannot be over emphasized.

1. Maintenance consists largely of the following activities by employees
2. Detecting and eliminating overloading;
3. Removing faulty or damaged equipment immediately
4. Assuring that all terminals and connections have been tightened properly
5. Replacing any wiring where the insulation has been penetrated abraded or damaged
6. Discontinuing use of any electrical equipment that is producing sparks
7. Preservation of grounding connections when appropriate preservation of ventilation around all motors and equipment that are operating
8. Checking fuses and assuring that visual indicator lights are still working checking on any device that it appears to be overheating

Workplace Tips -

The following tips should be considered when using electrical equipment:

Plan every job and think about what could go wrong before goes wrong

Use the right tools for the job

Isolate electrical equipment from any potential fuels

Minimize hazards for your working area by guarding or establishing a perimeter that limits approach

If you have to work on electrical equipment do so only when it's de-energized and unplugged.

Wear the appropriate protective clothing and equipment required for the job check.

Double check safety regulations when ladders or any other parts of vehicle or mechanical equipment are going to be operating in your same vicinity.

Make sure all equipment and extension cords bear the mark of an independent testing lab such as UL

Protect flexible cords and cables from physical damage any time accordance been cut broken cracked or abraided needs to be repaired.

Minimize use of extension cords.

Do not operate in wet environments.

If you're working around electrical equipment make sure the other tools use our non--conductive.

Conclusion

Any time an employee is using electrical equipment they should be monitoring its use and maintenance. If there is any potential danger to electrical equipment should be taken out of service immediately and repairs or disposal accomplished quickly. In other materials we have discussed housekeeping.

Housekeeping relates to electricity in the sense that electrical overheating can easily ignite finally divided particles or light fuels. This can result in an ignition and unless attacked instantly by extinguishers can grow to a catastrophic event.

All individuals who are dealing with electricity and the use of power tools should be familiar with the notification processes to alert the local fire department in the event of the fire. No delays should be tolerated in the event of an ignition

For additional research review the following locations -

The national electrical code (NEC) or NFPA standard 70Is the standard for safe installation of electrical wiring and equipment.

<https://www.google.com/#q=electrical+fire+safety+industrial>

NFPA standard 70E

<http://www.iafss.org/publications/fss/9/3/view>

Research on Electrical Fires: The State of the Art

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<http://www.esfi.org/> the electrical safety foundation international(ES FI) is a 501(c)(3) organization dedicated to promoting electrical safety in the home school and workplace.

Train the Trainers Guide to Electrical Safety for General Industry www.wpsac.org