Subject: 10 Common Causes Of Arc-Flash and Other Electrical Accidents

The most common cause of Arc Flash and other electrical accidents is carelessness. No matter how well a person may be trained, distractions, weariness, pressure to restore power, or over-confidence can cause an electrical worker to bypass safety procedures, work unprotected, drop a tool or make contact between energized conductors. Faulty electrical equipment can also produce a hazard while being operated.

Electrical safety hazards such as exposure to shock and Arc-Flash can be caused by:
1. Carelessness
2. Worn or broken conductor insulation
3. Exposed live parts
4. Loose wire connections
5. Improperly maintained switches and circuit breakers
6. Obstructed disconnect panels
7. Water or liquid near electrical equipment
8. High voltage cables
9. Static electricity
10. Damaged tools and equipment

The severity and causes of electrical hazards are varied, but the best protection is to de-energize equipment before working on it.

No one has ever been killed or injured from an Arc-Flash while working on de-energized equipment. If equipment cannot be de-energized, electrical workers must be “qualified”, trained, wear appropriate personal protective equipment (PPE), and follow all applicable OSHA and NFPA standards. It is important to remember that proper selection and application of overcurrent protective devices (OCPD) will also substantially reduce the hazards.

Both OSHA and NFPA 70E require an Electrical Hazard Analysis prior to beginning work on or near electrical conductors that are or may become energized.

The analysis must include all electrical hazards:
1. Shock,
2. Arc-Flash,
3. Arc-Blast, and
4. Burns.

NFPA 70E Article 110.8(B)(1) specifically requires Electrical Hazard Analysis within all areas of the electrical system that operate at 50 volts or greater. The results of the Electrical Hazard Analysis will determine the work practices, protection boundaries, personal protective equipment, and other procedures required to protect employees from Arc-Flash or contact with energized conductors.

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