

# Electrical Safety in the Workplace

By Robert J. St. Pierre

**T**he National Fire Protection Association describes an arc flash as “a dangerous condition associated with the release of energy caused by an electric arc.” Arc flash kills between 200 and 300 people every year and over 30,000 nonfatal electrical shock accidents are reported as well. Between five and 10 times a day, somewhere in the United States an arc flash explosion in electric equipment sends burn victims to a special burn center. Most experts agree this number is grossly understated. This phenomenon can occur simply from a worker dropping a tool or from deteriorating insulation on aging conductors; even a small animal can create a momentary fault. More often than not, an arc flash is a result of human error. Incidents often occur when a worker fails to ensure that equipment has been properly de-energized. Never assume anything to be worked on is de-energized. Some significant ways to reduce risk to arc flash exposure is through preventative maintenance, worker training and an effective safety program.

Every employer in America, including healthcare facilities, should already have or be in the process of implementing an NFPA 70E Electrical Safety in the Workplace program. The NFPA 70E was written and designed to further assist OSHA in protecting employees with regard to electrical safety in the workplace. These policies should be instituted by employers as standard operating procedures for everyone working on or even near 50 volts or more. It is important to understand Chapter 4 of the NFPA 70E is intended to serve a very specific need of OSHA and should not be used as a substitute for the National Electric Code. The NEC is intended for those who design, install and inspect electrical installations. The NFPA 70E, on the other hand, is intended for employers, employees and OSHA.

## Can the NFPA cite organizations for violations they have yet to implement?

No. The NFPA 70E was written to assist OSHA; therefore OSHA would be the governing body to levy citations for NFPA 70E violations. OSHA regulations are federal law; therefore OSHA can and will cite you for those violations. They tell facility managers exactly what they have to do, but don't tell them how; that's where the NFPA 70E comes in.

## Some of the most critical procedures in protecting employees and becoming compliant are:

- Establish a facility electrical safety program with clearly defined responsibilities.
- Appoint an electrical safety program manager.
- Conduct an electrical system engineering analysis to determine what degree of arc flash hazard is present. This also is referred to as a Flash Hazard analysis. NFPA 70 E Section 130.3 states, “A flash hazard analysis shall be done in order to protect personnel from the possibility of being injured by an arc flash.”
- Conduct safety training for all workers. This is not just about electricians and engineers, but maintenance personnel and anyone else exposed to greater risk. Section 110.6 reads in part, “employees shall be trained to understand the specific hazards associated with electrical energy. They shall be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with their respective job or task assignments.”
- Ensure there is an adequate supply of properly rated protective clothing and equipment on hand.
- Ensure that you have the proper tools on hand for safe electrical work.
- Apply warning labels to all equipment.
- Properly maintain all electrical distribution system components.
- Update and maintain all electrical distribution documentation.

Remember, creating a safer environment will prevent injuries and lower workers' compensation costs. These procedures are no longer an option and must be addressed to protect everyone. Personal protective equipment, proper tools and worker training are essentials that must be a part of every budget, every year.

At the end of the day, everyone's goal is to go home to their families in good health and without injury. Implementing and following through with a sound electrical safety program will be a giant step toward reaching that goal for everyone.

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