

Navigating Arc Flash Safety Standards for Industrial Facilities

One of the most hazardous risks industrial electrical workers face is the potential for an arc flash incident. An arc flash is the sudden release of electrical energy through the air when a phase-to-ground or phase-to-phase electrical fault occurs. The extreme heat and explosive force from an arc flash can cause severe burns, fire damage, and shrapnel injuries.

To protect workers, industrial facilities must comply with strict arc flash safety standards defined by NFPA 70E and other regulatory bodies. Here are some key requirements industrial electrical contractors need to understand:

Arc Flash Risk Assessments Detailed studies must be performed to determine the arc flash incident energy levels throughout an electrical system based on available fault currents, overcurrent protective device settings/characteristics, and working distances. This data is used to define required personal protective equipment (PPE) levels.

Arc Flash Labeling After the risk assessment, each electrical component capable of an arc flash event like switchgear, panelboards, and control panels must be field marked with appropriate hazard risk category labels specifying the PPE required for working near exposed energized conductors.

PPE Requirements Based on the calculated incident energy exposures, arc-rated clothing and PPE must be used by any worker interacting with energized equipment. This includes switching electrically safe work conditions with proper PPE before beginning tasks.

Electrical Safety Program Facilities must adopt a comprehensive electrical safety program that provides arc flash training, defines energized work permitting procedures, requires use of voltage rated tools, and mandates approach boundaries around exposed live parts.

While these arc flash standards aim to minimize risk, they create additional complexity for electrical work in industrial environments. Electrical contractors must carefully follow NFPA 70E requirements around PPE, safe work practices, risk assessments, and equipment labeling.

As plants expand or upgrade electrical gear over time, reassessing arc flash hazards is critical to keep workers protected. Industrial electrical contractors play a vital role in performing the studies, providing the PPE, and advising on electrical safety programs to maintain strict arc flash safety compliance.

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