

Article Three

Navigating Arc Flash Safety Standards for Industrial Facilities

One of the biggest risks industrial electrical workers face is the potential for an arc flash incident. An arc flash occurs when electrical energy is suddenly released through the air due to a phase-to-ground or phase-to-phase fault. The extreme heat and explosive force from an arc flash can lead to severe burns, fires, and shrapnel injuries.

To protect workers, industrial facilities must adhere to strict arc flash safety standards set by NFPA 70E and other regulatory bodies. Here are some key requirements that electrical contractors should understand:

Arc Flash Risk Assessments

Detailed studies are essential to determine the arc flash incident energy levels throughout an electrical system. This assessment considers available fault currents, the settings and characteristics of overcurrent protective devices, and working distances. The data collected helps define the necessary personal protective equipment (PPE) levels.

Arc Flash Labeling

Once the risk assessment is complete, every electrical component that could potentially cause an arc flash—such as switchgear, panelboards, and control panels—must be clearly marked with hazard risk category labels. These labels specify the PPE required when working near exposed energized conductors.

PPE Requirements

Based on the calculated incident energy exposures, workers interacting with energized equipment must wear arc-rated clothing and appropriate PPE. This includes establishing electrically safe work conditions and ensuring proper PPE is in place before starting any tasks.

Electrical Safety Program

Facilities should implement a comprehensive electrical safety program that includes arc flash training, defines procedures for energized work permitting, mandates the use of voltage-rated tools, and establishes approach boundaries around exposed live parts.

While these arc flash standards are designed to minimize risks, they also add complexity to electrical work in industrial settings. Electrical contractors must carefully follow NFPA 70E guidelines regarding PPE, safe work practices, risk assessments, and equipment labeling.

As plants expand or upgrade their electrical systems, it's crucial to reassess arc flash hazards to keep workers safe. Industrial electrical contractors play a vital role in conducting these assessments, providing the necessary PPE, and advising on electrical safety programs to ensure compliance with arc flash safety standards.