

WHAT IS ARC FLASH?

Arc Flash occurs when the phase conductors are shorted and ionization of the air occurs. When this happens, the arc faults create large amounts of heat that can severely burn human skin and set clothing on fire. At this time molten metal is also thrown from the fault location in a radial direction potentially injuring workers. The heat during this event can reach or exceed 35,000°F.



WHAT IS AN ARC FLASH LABEL?

The 2005 NEC states in Section 110.16 that "Switchboards, panelboards, industrial control panels, and motor control centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing or maintenance while energized shall be field marked to warn qualified persons of potential electrical arc flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing or maintenance of the equipment"



WHAT DOES OSHA & NFPA SAY?

"... Employers who select and require their employees to use protective clothing as stated in the NFPA 70E standard are deemed in compliance." U.S. Department of Labor Occupational Safety & Health Administration

OSHA Part 1910.132(d)(1) – "The Employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). ..."

OSHA Part 1910.132 (d)(1)(I) – "Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;..."

OSHA Part 1910.132(d)(2) – "The employer shall verify that the workplace hazard assessment has been performed through a written certification that: identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and which identified the document as a certification of hazard assessment."

OSHA Part 1910.335(1)(I) – "Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate.."

NFPA 70E-2004, Part II, 2-1.3.3 states that a flash hazard analysis must be performed in order to determine the level of hazard and appropriate PPE for given tasks.

IS THIS BEING ENFORCED?

Yes, Contractors and Facilities in both Ohio and Michigan have been cited and fined for non-compliance.

WHAT IS A QUALIFIED PERSON?

OSHA/70E Define a "Qualified Person" as "One familiar with the construction and operation of the equipment and hazards involved"

NFPA 70E Part II Ch. 1 1-5.4.1

" The decision-making process necessary to determine the degree and extent of the hazard and personal protective equipment and job planning necessary to perform the task safely."

This means your employees need to be trained in how to determine what levels of PPE will be needed to perform an individual task or they may not be considered "Qualified", which could restrict their access within the Flash Protection Boundary.



WHAT IS A FLASH PROTECTION BOUNDARY?

It is the minimum safe distance from an energized part requiring no PPE.
Up to 600V 4Feet
Above 600V The distance at which the incident energy level equals 1.2 cal/cm² (or 1.5 cal/cm² if the fault clearing time is 0.1 seconds or faster)

NFPA 70E, 2004 Edition

WHAT INDUSTRIES DOES THIS APPLY TO?

This applies to almost any industry that has electrical equipment such as:

- Industrial
- Healthcare
- Commercial
- Retail
- Education
- Institutional
- Any Industry that uses Power

WHAT TYPES OF EQUIPMENT DOES THIS APPLY TO?

- Medium & High Voltage Switchgear
- Metal Clad Switchgear
- Meter Bases and Banks
- Motor Control Centers
- Motor Starters
- Industrial Control Cabinets
- Panelboards
- Switchboards
- Transformers
- Distribution Panels
- All live Equipment over 50 Volts

WHAT TASKS WOULD BE INVOLVED?

- Infrared Thermography
- Troubleshooting
- Voltage Testing
- Applying Safety Grounds
- Load Testing
- Insertion or Removal of Circuit Breakers
- Insertion or Removal of Starters
- Installation or Removal of Bolted Covers
- Operating a Breaker or Switch
- More tasks defined in NFPA 70E

NFPA 70E & ELECTRICAL ARC FLASH

IT CAN HAPPEN IN AN INSTANT



ARE YOU PREPARED?