

ARC FLASH BEST PRACTICES

Arc flash is a short circuit through the air. In an arc flash incident, an enormous amount of concentrated radiant energy explodes outward from electrical equipment. It is a serious hazard that can be devastating to those exposed to it. It can also cause lengthy downtime to repair or replace severely damaged equipment. New Jersey PEOSH is now citing and fining employers for failure to protect employees from the dangers of arc flash. For guidelines on best practices for protecting employees, OSHA refers employers to the [NFPA 70E standard, "Standard for Electrical Safety in the Workplace."](#)

The vast majority of arc flash incidents occur when there is a change of state within the panel (i.e. opening the panel doors, removing covers, etc.) or through operator error (dropping tools, touching live components, etc.). Information regarding flash protection boundaries and the appropriate PPE must be communicated to the personnel working on or near the potentially hazardous equipment.

Section 110.16 of the National Electric Code 2023 requires switchboards, panel boards, industrial control panels, and motor control centers to be field-marked to warn personnel of potential electric arc flash hazards. The markings are to be located so they are visible to the personnel before examination, adjustment, servicing, or maintenance of the equipment.

The marking is intended to reduce the occurrence of serious injury or death due to arcing faults to a person who works on or near energized electrical equipment. The warning label should remind a qualified worker who intends to open the equipment for analysis or work that a serious hazard exists and that the worker should follow safe work practices and wear appropriate personal protective equipment (PPE) for the specific hazard.

 WARNING	
Arc Flash & Shock Hazard Appropriate PPE Required	
FLASH PROTECTION Flash Hazard Category: 4 Min. Arc Rating (cal/cm ²): 40 Flash Protection Boundary: 36 PPE: <input checked="" type="checkbox"/> Cotton Underwear <input checked="" type="checkbox"/> FR Shirt and Pants (or FR coverall) <input type="checkbox"/> Full Flash Suit and Hood <input checked="" type="checkbox"/> Hard Hat <input checked="" type="checkbox"/> Safety Glasses or Goggles <input type="checkbox"/> Hearing Protection <input checked="" type="checkbox"/> Leather Gloves and Shoes	SHOCK PROTECTION 220 VAC Shock Hazard When: Cover Is Removed Limited Approach Boundary: 42 Restricted Approach Boundary: 12 Prohibited Approach Boundary: 1 PPE: <input checked="" type="checkbox"/> Class 4 <input checked="" type="checkbox"/> V-Rating <input type="checkbox"/>
Equipment ID: AB19486	

To achieve maximum safety, these labels should be installed on all existing enclosure doors, removable panels, etc. Per NFPA 70E 130.5 (H), labels must include the following information:

- Nominal system voltage
- Arc flash boundary
- At least one of the following:
 - Available incident energy and corresponding working distance or the Arc Flash PPE category
 - Minimum arc rating of clothing
 - Site-specific level of PPE