


Arc Flash Studies and Reviews

⚠ WARNING	
Arc Flash and Shock Risk	
Appropriate PPE Required	
24 in	Arc Flash Boundary
1.9 cal/cm²	Incident Energy at 18 in
PPE	AR Shirt & Pants
480 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
1 in	Prohibited Approach
Location:	MCC-11
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Job#:	Prepared on:
Warning: Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements	

Arc Flash Risk

The Occupational Safety and Health Administration or better known as OSHA, lists electrocutions as one of its top four major fatalities in the construction industry. OSHA also placed electrical safety in its top ten most frequently cited violations. Another deadly phenomenon associated with electricity is a flashover, also called arc flash. This phenomenon occurs when electrical current leaves its intended design path and releases violent amounts of energy. This violent release of energy is translated into an extreme explosion of noise, light, heat and pressure blasts that can result in deadly consequences. The heat given off during an arc flash incident can exceed 35,000 °F, nearly 3.5 times hotter than the surface of the sun! For this reason, the National Fire

Protection Agency (NFPA) developed a standard called NFPA 70E Standard for Electrical Safety in the Workplace. Following the guidelines of NFPA 70E can assist in compliance with OSHA 1910 Subpart S and OSHA Subpart K.

Arc Flash Hazard Labels

As part of an overall electrical safety program, specific equipment must be labeled to inform personnel about the equipment and potential hazards. Article 130 of NPFA 70E outlines the type of equipment to be labeled and the information required to be on the label. Arc flash hazard labels are in place to allow authorized, qualified and competent personnel the information necessary to select the appropriate Personal Protective Equipment (PPE). Arc flash hazard labels are not intended to allow personnel the ability to work with energized equipment or circuits. All energized work must be justified.

Equipment That Require Arc Flash Labels

- Switchboards
- Panelboards
- Industrial Control Panels
- Motor Control Centers
- Meter Socket Enclosures

Preventative Maintenance and Reviews

Preventative maintenance on all electrical equipment is imperative. Circuit breakers that are not regularly tested according to manufacturer specifications may not operate as designed, which could result in longer electrical fault clearing times. It is important to keep in mind that arc flash studies and reviews assume that all equipment is installed, tested and maintained according to the recommendations of the manufacturer.

After an arc flash study has been performed, it is highly recommended that all modifications made to the electrical system be documented. This includes changes made to fuses, circuit breakers, wiring and loads. When it is time to perform a five-year review of the electrical system, this type of documentation will assist the team performing the review. It is important to know that any modifications made to the electrical system may result in changes to the available fault current, which could void the incident energy estimates on existing labels. For this reason, it is recommended that a consultant be contacted to provide recommendations prior to making any changes to the system.

