

## Arc Flash Analysis Benefits

- ✓ Facilitates compliance with Federal and State standards and regulations.
- ✓ Provides a safer working environment by specifying the proper level of ATPV clothing.
- ✓ Quickly and easily evaluates alternatives to establish an optimal system design.
- ✓ Improves safety margins with user-definable arcing fault tolerances.
- ✓ Aids in avoiding potential fines, lost productivity, and increased insurance and litigation costs.
- ✓ Allows for optional overcurrent coordination and equipment evaluation.
- ✓ Provides electrical equipment labeling to meet and exceed NFPA 70E requirements.



**ARC FLASH AND SHOCK HAZARDS ARE PRESENT!  
APPROPRIATE PPE REQUIRED!  
FAILURE TO COMPLY MAY RESULT IN INJURY OR DEATH!**  
Fault Clearing Time: **2,000 sec**  
Barricade Boundary: **9 ft 6 in** Voltage: **480 VAC**  
(Arc Flash/Shock Boundary)

**NOTICE!** Changes in equipment settings, sizes or system configuration will invalidate the calculated incident energy.

Incident Energy: **25 cal/cm<sup>2</sup>** @ **1 ft 6 in**

Required PPE: **Refer to Company Safety Policy**  
Equip. Name: **MDP-1**  
Prot. Device: **Utility Fuse Cut Out**  
Available Fault Current: **5.64 kA** JDRM Engineering Oct 14, 2014

Example  
Label design shall be approved by Owner

## National Consensus Standard

NFPA 70E - Arc Flash Hazard Analysis - An arc flash hazard analysis shall determine the arc flash boundary, the incident energy at the working distance, and the personal protective equipment that people within the arc flash boundary shall use.

## Mandatory Regulations

NEC 110.16 - Arc Flash Hazard Warning

OSHA Regulations (Standards-29-CFR) 1910.331-335 and 1910.302-308 and NFPA 70E

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). If such hazards are present, or likely to be present, the employer shall:....”

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 required 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 identifies the document as a certification of hazard assessment.”

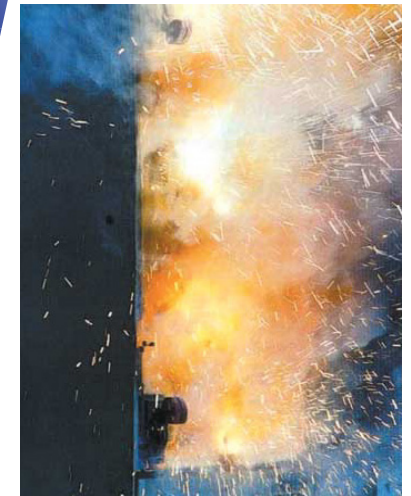
OSHA Part 1910.335(1)(I) – “Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.”

PERRP ORC 4167.04 - "Public employers duty to provide safe employment: (A) Each public employer shall: (1) Furnish to each of his employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm to his public employees."

# ARC FLASH HAZARD ANALYSIS

**Electrical Safety  
Compliance Services**

**Is your company  
protecting its most  
important asset -  
employees?**



  
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## ***Arc Flash – What is it?***

An arc flash is a dangerous condition associated with the explosive release of energy caused by an electrical arc due to either a phase-to-ground or phase-to-phase fault.

Many factors can stimulate either of these faults: dropped tools, accidental contact with electrical systems, conductive dust buildup, improper work procedures, or corrosion.

## ***Arc Flash – Statistics***

Everyday in the United States five to ten arc flash explosions occur.

The abundance of low voltage equipment in commercial and industrial facilities account for the greatest number of arc flash incidents.

Persons in the area of an arc flash explosion can experience severe injuries and loss of life.

## ***Arc Flash – Facility Owners***

How is your company protecting your employees?

Are you compliant with current State and/or Federal laws?

Facility owners along with maintenance and safety personnel should establish procedures to prevent arc flash incidents.

JDRM Engineering can help your facility with electrical safety requirements.

## ***Electrical Safety Services***

### **Arc Flash Hazard Analysis**

(Utilizing SKM Power Tools Software)

Short Circuit Analysis  
and  
Load Studies

Protective Device  
Coordination Studies

Arc Flash Hazard Analysis  
(IEEE 1584)

Electrical Equipment  
and  
Panel Labeling

### **Electrical Safety Seminars**

### **Electrical Safe Work Practices Classroom Training**

### **Electrical Safe Work Practices Written Program**

## ***Arc Flash Compliance Directives***

### **Insurance Carriers**

Insurance carriers require this evaluation and certification to protect employees from harm and a company from liability due to noncompliance of federal law and third party litigation.

### **Mandatory Regulations**

#### **National Electrical Code**

NEC requires field identification of all electrical distribution devices indicating the potential for flash hazards. All new electrical installations covered by the NEC are bound by this requirement.

### **Consensus Standards**

#### **National Fire Protection Association**

NFPA-70E mandates electrical safe work practices for employees. This includes identification of potential electrical hazards and the implementation and training regarding specified personal protective equipment (PPE) for all employees exposed to potential electrical hazards.

### **Federal Law**

#### **Department of Occupation Safety and Health Administration**

It is important to note that OSHA issues citations to companies who do not comply with NEC, NFPA, and OSHA standards.

#### **Mine Safety and Health Administration**

On July 16, 2007 MSHA issued a notice that electrical miners must use "Arc-Flash" PPE according to NFPA 70E.

### **State Law**

**Ohio PERRP - Public Employment Risk Reduction Program**

**Contact JDRM Engineering**

**419.824.2400**

**[jdrm.com](http://jdrm.com)**