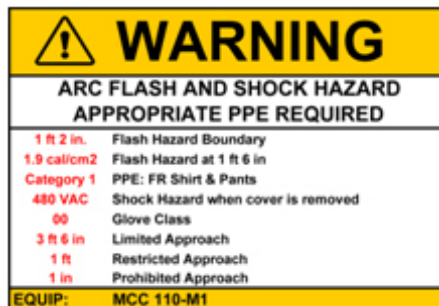


## Arc Flash Hazard Training & Analysis



Eighty percent of electrical-related injuries are burns from arc flash. Most burn injuries are from the ignition of flammable clothing.†



\*For equipment 50 volts or higher

†Consulting-Specifying Engineer Magazine

Arc flash can cause serious injury and even death. Having CH2M HILL's experienced staff perform an arc flash study is the first step toward protection of your employees and contractors. We can model your electrical system, provide warning labels, and conduct arc flash safety training.

### What is Arc Flash?

An arc flash is a rapid explosive discharge of electrical energy that usually results from a short circuit fault. It occurs when insulation and isolation are breached or cannot withstand the voltage.

To avoid these issues, OSHA adopted lockout-related provisions from the national consensus standards and federal standards developed for industry. The General Industry Electrical Installation Standard requires compliance to NFPA 70E (arc flash protection). It supplements existing standards by requiring the development and use of written procedures, training of employees, and periodic inspections of the use of procedures.

Standards that mandate electrical safety regarding arc flash include the following:

- OSHA 29 CFR 1910, Subpart S
- NFPA 70 (National Electrical Code)
- NFPA 70E (Standard for Electrical Safety in the Workplace)

### NFPA 70E Requirements\*

- A documented safety training program with defined responsibilities
- Equipment-specific arc flash warning label marked with the available incident energy or required level of PPE required when working on energized equipment

*It is estimated that between 5 and 10 times a day an arc flash explosion occurs in electrical equipment somewhere in the United States, which sends a burn victim to a burn center.†*



## Benefits of Arc Flash Evaluation and Warning Labels

- Identifies proper PPE to facilitate maintenance
- Provides a safer working environment around electrical equipment
- Satisfies safety regulations and owner’s insurance carrier mandates
- Minimizes owner’s risk of costly litigation

## CH2M HILL Can Help

Research into arc flashes is relatively new. There is still some mystery about why arc flashes occur. That mystery has unfortunately led some companies to underestimate or ignore the risks. Lack of lockout/tagout procedures, inadequate NFPA 70E training, and improper PPE usage puts you, your employees, and your contractors at risk.

CH2M HILL can assist by conducting arc flash awareness training seminars at your site. This training covers hazards associated with an electrical explosion, how to analyze electrical hazards, PPE and training requirements, and the importance of working safely with electricity.

Through an arc flash audit, we will perform calculations and verify adequacy of short circuit bracing, identify any equipment that isn’t adequately braced for the available short circuit, calculate the incident energy level for each piece of electrical distribution equipment, generate a report summarizing the results of our study, and provide the required warning labels.

## Training Goals

- Identify hazards associated with an arc flash explosion
- Recognition of required PPE for Hazard Categories 0, 1, and 2
- Awareness of training requirements for personnel working energized electrical tasks
- Understand permit requirements for working energized electrical tasks
- Recognize the importance of always working electrically safe

## CH2M HILL Experience

CH2M HILL has executed arc flash projects and audits for companies in the automotive, pharmaceutical, food, manufacturing, chemicals, and petrochemicals businesses.

A few of our clients include the following:

- Advanced Glassfiber Yarns
- BP America
- Bridgestone Firestone USA
- Clariant
- DSM Chemicals
- General Chemical
- Hercules
- JM Huber
- Keystone Foods
- LM Glasfiber
- NutraSweet
- Owens Corning
- Pfizer
- Thermal Ceramics

## About CH2M HILL

Headquartered near Denver, Colorado, employee-owned CH2M HILL is a global leader in full-service consulting, program management, design, construction, and operations for public and private clients. With \$6.3 billion in revenue and more than 23,500 employees worldwide, CH2M HILL delivers innovative, practical, sustainable solutions—helping clients develop and manage infrastructure and facilities that improve efficiency, safety, and quality of life. The firm has long been recognized as a most-admired company and leading employer, including being named by FORTUNE magazine as one of the 100 Best Companies to Work For (2009). CH2M HILL is an industry-leading program management, construction management, and design firm as ranked by *Engineering News-Record* (2009).

Visit us at [ch2mhill.com](http://ch2mhill.com)

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