"What is an Arc Flash?" is often one of the first questions asked so let’s start there. An Arc Flash is a dangerous condition associated with an electrical explosion or the release of energy caused by an electrical arc. The flash causes an explosion with temperatures up to 35,000-degrees F, dangerous pressure and sound waves, thermal radiation, and shrapnel.

The first reason for having an Arc Flash Risk Assessment completed is that arc flash explosions are known to cause serious damage to your facility and personnel. Given the extreme temperatures (hotter than the sun), burns account for about 80% of the injuries from electric arc explosions. Employees not wearing the proper Personal Protective Equipment (PPE) are at risk of electric shock, severe burns, blindness, shrapnel wounds, lung blast injuries, ruptured eardrums, and pressure wave injuries. The damage caused by an arc flash explosion can cause significant enough damage to your facility that you could be dealing with lengthy downtime, extensive repairs, loss of profit and even expensive regulatory fines.

Numerous workers are injured and/or killed each year while working on energized equipment. Many of these casualties are a result of arc flash.

A good Arc Flash Risk Assessment can be used to determine the Incident Energy Value and proper hazard/risk categorization of your equipment. This helps workers understand the kind of energy they are working around, the necessary flash protection boundaries and the appropriate Personal Protective Equipment (PPE) they need to keep themselves safe. In addition, a good Arc Flash Risk Assessment can help mitigate the risk and damages from an arc flash explosion. Often times simple adjustments to your electrical system like the adjustment of breaker settings or installation of a breaker disconnect can significantly improve electrical safety and reduce your risk of an accident.

The second reason to have an Arc Flash Risk Assessment completed is that it is required by OSHA. In 2014 OSHA began considering arc flash as a ‘recognized hazard’ and therefore the OSHA General Duty Clause began to cover arc flash explosions. All employers need to implement and document an electrical safety program that directs activity appropriate to the risk associated with electric hazards. The electrical safety program needs be implemented as a part of the employers overall occupational health and safety management system.

After a period of transition in which companies were allowed a grace period to become compliant, all companies now must comply and have an Arc Flash Risk Assessment completed every five years.

The way that OSHA expects companies to conduct Arc Flash Risk Assessments is by following standard and recognized best practices. The leading standard and recognized industry best practice in electrical safety is the NFPA 70e Handbook. Simply stated the employer is required to conduct an assessment in accordance with CFR 1910.132(d)(1). Then, if an arc flash hazard is likely to be present, the employer must select and require employees to use Personal
FOR MORE DETAIL ON THE OSHA REQUIREMENT:

1. OSHA General Duty Clause which states:
   Each employer shall furnish to each of his employees’ employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm.

2. OSHA 29 CFR1910.333 (a)(1) states:
   Qualified electrical workers shall not be asked to work on equipment that is “hot” or “live” except for two reasons:
   A. De-energizing introduces additional or increased hazards such as cutting ventilation to a hazardous location
   B. Due to equipment design or operational limitations such as doing voltage testing for diagnostics

3. OSHA 29 CFR 1910.335 states:
   “Employees working in areas where potential electrical hazards exist shall be provided with and shall use personal protective equipment.”

Protective Equipment (PPE). Employers who conduct the hazard/risk assessment, provide and require their employees with the appropriate PPE are deemed in compliance with the Hazard Assessment and Equipment Selection OSHA standard. The most accurate way to determine the arc flash risk is by conducting an Incident Energy analysis. While other methods can be used, the Incident Energy method provides the most accurate information for the equipment to be labelled and provides the greatest level of safety to the employee.

An Arc Flash and the resulting explosions can be devastating to your organization and the employee that is not properly prepared or protected against it. Whether your motivation is to protect your employees or meet the OSHA requirements having an Arc Flash Risk Assessment completed by qualified and trained professionals is important. An arc flash can happen in the blink of an eye but the long term impacts can last forever. Contact the experienced Arc Flash specialists at Thompson Specialty Services today to perform an arc flash analysis for your facility, complex, office, or campus.

About Thompson Specialty Services

Thompson Specialty Services specializes in providing unique electrical services to keep your facilities and people safe, your business in compliance with government and safety requirements, your electrical systems running at optimal energy efficiency levels, and help you reduce the ever-growing energy costs.

Contact us today for more information on how we can help your business operate safely, energy efficiently, cost effectively, and in compliance for years to come.

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