

What is Arc Flash Training?

By Jim Pollard



The term “arc flash training” has become part of our vocabulary, but what does that really mean? An arc flash is only one identified electrical hazard, along with associated arc blast and shock. Shock is actually far more dangerous than arc flash and results in the majority of electrical related workplace fatalities. However, the industry has adopted the “arc flash” term as a catch-all used to describe electrical safety training, electrical engineering studies, electrical safety programs, electrical-specific personal protective equipment (PPE) and more. This is likely due to the violent and explosive nature of an arc flash hazard. Often we can’t even “see” a shock hazard. An arc flash incident catches everyone’s attention, similar to a car chase scene in a blockbuster movie. So what is arc flash training? Or, what should it be?

Electrical Safety Training Requirements

The industry-accepted best practice used in Canada is the CSA Z462 Workplace Electrical Safety Standard. The topic of training is extensively covered under the Clause 4 Safety-related work practices. The Standard provides great detail for employers to use for guidance, including: the requirements for training, type of training, emergency procedures training, LOTO training, contact emergency release training methods, first aid (emergency response and resuscitation), training verification, worker training for Qualified vs. Unqualified persons, retraining and training documentation. Clearly the CSA Z462 Standard requires more than just arc flash training!

In summary, the following training requirements are specified:

- Training shall apply to all workers exposed to electrical hazards.
- Workers shall be trained to understand the risk associated with electrical energy.
- The training shall cover safety-related work practices and procedural requirements.
- Worker training shall be specific to job or work task assignments.
- Workers shall be trained to identify and understand the hazards and possible injury.

ARC FLASH TRAINING

The type of training could be summarized as follows:

- Training shall be classroom or on-the-job, or both.
- The type and extent of training required is determined by the risk to the worker.

Acceptable Types of Training

The classroom training requirement could be either a physical or virtual classroom. Instructor-led courses delivered in a physical classroom environment are the most popular delivery format, however, advances in adult-oriented eLearning course development now provides a credible, viable and compliant alternative. As we continue to evolve with more innovative training formats, the possibilities become:

- Instructor-led classroom;
- eLearning (virtual classroom); or
- Blended learning.

eLearning vs. Instructor-led Training

With the time, worker attrition and cost-related pressures on employers today, eLearning courses can be a valuable training option. Similar to how one instructor could be more knowledgeable compared to another, not all eLearning courses are created equal. The best type of eLearning course engages the student in the learning process with interactive elements, provides

learning aids such as a student workbook, allows the student to ask the instructor questions about their course and uses both 2D and 3D graphics. For eLearning to be an effective training format, the course needs to be compliant by including sufficient content to meet the full requirements of the CSA Z462 Standard.

Time Commitment

Another topic of debate within the electrical industry is how much time is needed to adequately cover the full training requirements from the CSA Z462 Standard. This is different for Qualified versus Unqualified persons. For a Qualified Electrical Worker the average instruction time is two days. That's two full days of having workers demobilized in a physical classroom. With the availability of compliant eLearning course options, employers can use a blended learning method to reduce the time workers spend in a physical classroom. The blended learning method uses eLearning to provide a prerequisite knowledge base followed by a focused application session using an instructor either in a physical classroom and/or on the job.

A company's electrical safety program should define what electrical safety training is, what worker role should receive it and at what frequency.

Qualified Electrical Worker

Completion of electrical safety training is one step towards becoming a Qualified Electrical Worker. Training is knowledge transfer using one of many methods as noted above. For training to be effective and credible it needs to be comprehensive in all requirements and include an assessment; refer to the CSA Z1001 Standard for additional guidance. As per the CSA Z462 Standard, for a worker who is undergoing training to be considered a qualified person, that worker must demonstrate their ability on the job or in the field to apply the skills and knowledge gained from training. Furthermore, it's the responsibility of the employer to determine on at least an annual basis that each worker is complying with the safety-related work practices that were provided as part of that worker's electrical safety training. When gaps are identified workers shall be adequately retrained.

A competency validation process is recommended for employers to validate and document a worker's capability of applying electrical safety skills and knowledge. Electrical safety competency validation is separate from determining if a worker has adequate technical or trade qualifications. Competency validation is the responsibility of the worker's supervisor and must be confirmed by interviewing, testing and observing a worker.

Practical Application Training

Generic training is the most common option available on the market. However, an off-the-shelf product does not address an employer's specific policies and workplace electrical safety-related



Jim Peplinski Leasing is pleased to announce fleet rebates for ECAO members on 2018 Chrysler, RAM & Dodge vehicles.

This exciting new program offers members significant fleet discounts, regardless of their individual fleet size. When combined with our open-ended lease product these concessions offer savings of up to \$14,500 off the dealer cost price.

Rebates available on:

2018 Ram 1500 Quad/ Crew	\$13,250
2018 Ram 2500/3500	\$14,500
2018 Ram Promaster City	\$5,750
2018 Ram Promaster 1500/2500	\$7,750
2018 Ram Promaster 3500	\$8,250

To learn more contact Tim Ahern, Commercial Lease Manager at **613-226-9818** or **tahern@jimpeplinski.ca**



work practices that are defined by its electrical safety program. Furthermore, training based on the CSA Z462 Standard may not include relevant knowledge such as practical application exercises. When electrical safety training includes practical application lessons, the course is more effective at providing a Qualified Electrical Worker with the skills and knowledge necessary to complete work tasks. Workers can be lulled to sleep during a training course that only covers the generic Clause content from the CSA Z462 Standard.

Ultimately, a company's electrical safety program should define what electrical safety training is, what worker role should receive it and at what frequency. Electrical safety programs can use Qualification & Training Matrices to easily communicate training requirements for each role.

A Matter of Life or Death

Workplace electrical safety training is more than checking a box. It's more than just arc flash training. Electrical hazards in the workplace can cause a severe or fatal injury and the risk can be high for workers exposed to them. The training they receive and how an employer follows up on the application of that training in the field is a matter of life or death.

Jim Pollard is a Subject Matter Expert on arc flash personal protective equipment (PPE), whose experience and technical knowledge has been tapped by technical committees in Canada and the USA including CSA Z462, ASTM F18.15, CAN/ULC-S801, CSC/IEC/TC78 and ULC Live Working. Jim's company, Unlimited PPE Inc., performs as a Sales Agent for the Oberon Company (www.arcflash.com), Danatec Educational Services Ltd., Electrical Safety Division (www.danatec.com) and PROXXI Corporation (www.proxxiband.com).

mgbtransformers

Used/refurbished power equipment specialists

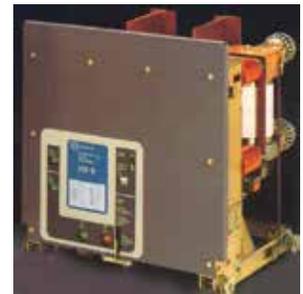
Transformers (in stock 100 KVA to 60 MVA)

- Liquid filled & dry type
- Rewind & repair shop / Emergency rentals

Switchgear

- load break switches (5, 15, 25, 35kV)
- 600V air circuit breakers (all makes & models)
- circuit breakers 5kV to 230 kV
- medium voltage starters (all makes)
- parts: Ct's, Pt's, fuses, relays

We sell, rent & repair / We buy your surplus



1-800-265-5608 / (450) 772-5608 / St.Pie, QC

www.mgbtransformers.com