



# Safety Measures <sup>ELECTRICAL</sup>

“All electrical incidents are preventable!  
Keep employees safe with an up to date  
Electrical Safety Program and appropriate training.”

## CSA Z462-2015: Clause 4.1.6 Training

**By Terry Becker, P.Eng.**

What is high-quality, compliant electrical safety, arc flash and shock training? Why and how often do your workers need it? Does your company have an *Electrical Safety, Arc Flash & Shock Training Specification* that outlines corporate training requirements? Are worker training requirements (e.g. including an Electrical Safety Training Matrix) and other preventive and protective control measures documented in your company’s Electrical Safety Program?

The CSA Z1001 Occupational health and safety training Standard provides guidance around defining compliant OHS-related training to ensure workers are *suitably trained to perform their work*. The Standard also notes, *training should meet the needs of the organization as well as those*

*being trained. It is important that training be designed by individuals with appropriate qualifications and subject matter expertise and that delivery of the training be done in a way that is conducive to learning.*

Most importantly, CSA Z1001 dictates that the *development of competence through training is an integral part of OHS management*, and that the *goal of training is to help workers and other parties develop and achieve the knowledge, skills, and ability to perform their work in a manner that reduces risk of harm from work-related hazards.*

While the primary goal of regular, compliant training is to ensure workers are capable and knowledgeable in performing their work tasks and recognizing and mitigating hazards that

may come with the risk of serious and potentially fatal injury, the possible liability to a company with an inadequate training program and a lack of effective documentation can lead to far-reaching legal and financial consequences.

It is for this reason the responsibility of reviewing, acquiring, tracking and documenting ongoing effective and compliant worker training, combined with demonstrating worker competence, rests in the hands of the appropriate electrical safety leaders in the company, not in the hands of the workers, in a top-down collaborative approach that ensures overall success.

But what is high-quality, effective and compliant electrical safety, arc flash and shock training? Not all training is created equal! Effective training for qualified electrical workers is much more than just basic awareness training. You should be asking the following questions:

- **Who is providing the training?** How long has the training company been in business? What is the education and experience level of the company's Subject Matter Expert on the CSA Z462 Workplace electrical safety Standard and the instructors delivering the training?
- **Is the training company insured?** Does the training company have the appropriate liability insurance to back up its training?
- **Does the training fully align with your company's Electrical Safety Program?** Does it cover all areas and consider your company's unique situations and training needs?
- **Does the training meet the requirements outlined in both CSA Z462 and CSA Z1001?** Are CSA Z462 Clauses quoted and reviewed verbatim?
- **Does it clearly define what "energized electrical work" is?**
- **Does the training include a comprehensive review of both arc flash and shock hazards?** Or, does it primarily focus on arc flash?
- **Does the training include an analytical "Risk Assessment Procedure"?**
- **Does the Risk Assessment Procedure allow a Qualified Person to determine an energized electrical work task's "Residual Risk Level"?**
- **Is "Measurement of Learning" included during the course?** Does this involve a thorough evaluation of demonstrated knowledge, skills and understanding?
- **How long is the training course?** Appropriate training time needs to be considered for in-depth learning and review of the fundamentals, applying the concepts in hands-on exercises, and proper testing to ensure full understanding.

Further to this, when you specify the "Training Developer and Training Provider", CSA Z1001 provides the following recommendations:

- **Subject Matter Expertise.** Do the Provider and Instructor(s) have suitable CSA Z462 and application knowledge, skills and ability gained through training, education and experience?
- **Training Delivery Skills.** Are the Instructors competent in delivery techniques and methods suitable for adult learners?
- **Continuing Education.** Provider and Instructor(s) shall maintain their training skills by participating in continuing education or development programs.
- **Documentation of Training Course Provider Qualifications.** Do the Provider and Instructor(s) have an experience sheet and resume, are they accredited, or do they have continuing

*education course certificates or other certificates adhering to accredited Standards, licensing and registration?*

If you bid out the training to vendors, has your company created an "Electrical Safety, Arc Flash & Shock Training Specification" that outlines corporate training requirements as per the above?

- *Did you pre-qualify (by requesting defensible substantiation) that the "Training Developer and Training Provider" you identified could provide compliant arc flash and shock training?*
- *Did your evaluation of the training proposal document find that the proposal included evidence the training is "compliant"?*

Once your company has found high-quality, effective and compliant electrical safety training, how often should you train your workers?

CSA Z462 Clause 4.1.6 Training dictates *employers shall verify at least annually that required worker training is current, and shall document that the training has occurred.*

In terms of retraining, the Clause mandates *a worker shall receive periodic retraining in safety-related work practices and in the applicable changes to this Standard, at intervals not to exceed three years.* It is important to note here the CSA Z462 Standard is updated every three years.

As an example, Alberta's OH&S Act, Regulation and Code, Handi-Guide, Chapter 2: OH&S Due Diligence, recommends *operators to be 're-certified' at periodic intervals, e.g., every three years, when regulatory changes occur and re-training may be required.* It goes on to note *ongoing or revised training related to PPE is important, particularly where advances in equipment or technologies result in changed practices or better equipment.*

For the best due diligence that is defensible to OH&S or OSHA requirements related to arc flash and shock, ensure the electrical safety training you procure for your workers is fully compliant training provided by a credible *Training Developer and Training Provider.* The CSA Z1001 Occupational health and training Standard can be used to develop a "Technical Training Program Specification" for your electrical safety, arc flash and shock training, which is only one element of the Hierarchy of Controls used to reduce risk as a component of a complete Electrical Safety Program.

Please submit any questions or comments you may have to Kevin Buhr and myself at [kevinb@electricalline.com](mailto:kevinb@electricalline.com) and [terry.becker@esps.ca](mailto:terry.becker@esps.ca).

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