



Safety Measures ^{ELECTRICAL}

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

CSA Z462-2015, Clause 4.3.7 Personal & Other Protective Equipment

By Terry Becker, P.Eng.

Clause 4.3.7 in CSA Z462-2015 provides a solid base of generic information on Electrical Specific PPE, Tools & Equipment and in reference to the required work task's Arc Flash Risk Assessment and Shock Risk

Assessment. But as presented this information doesn't address "management system" requirements.

In reference to the series of Articles published in 2016 I reviewed the CSA Z462-2015 Standard's requirements for

completing an Arc Flash Risk Assessment and Shock Risk Assessment as part of the overall work task Risk Assessment Procedure. These two risk assessments were used to determine boundaries of approach distances and

specifically the Electrical Specific PPE, Tools & Equipment requirements when an arc flash hazard exists and/or shock hazard exists.

The Qualified Electrical Worker would select the appropriate Electrical Specific PPE, Tools & Equipment based on the work task's Arc Flash Risk Assessment and Shock Risk Assessment. It is essential that the employer's Electrical Safety Program provides specific documented direction on exactly what will be specified, procured and made available to the Qualified Electrical Worker.

The challenge you will face as the employer or supervisor is ensuring that you meet your OH&S Regulatory obligations related to PPE supplied to an employee. It is recommended that the best due diligence is provided by ensuring your Electrical Safety Program includes an entire section on Electrical Specific PPE, Tools & Equipment.

From my experience the PPE, tools and equipment can become a risk to you and the employee that wears and uses it if it is not managed correctly.

Within your Electrical Safety Program, it is recommended that your Electrical Specific PPE, Tools & Equipment Section includes the following requirements:

1. Specification
2. Procurement
3. Selection
4. Level System
5. Inventory Management
6. Performance Management
7. Individual vs Shared
8. Pre-Use Checks
9. Care, Use & Maintenance
10. Frequency of Inspection & Testing

The listed sections above provide for a complete management system for the Electrical Specific PPE, Tools &

Equipment. Detailed information is provided directly by the employer to the employee and ensures OH&S obligations are met.

As a note of caution, the "Achilles Heel" of these requirements outlined in your Electrical Safety Program will always be ensuring that you have the rubber insulating gloves dielectrically tested every 6 months. During External Electrical Safety Audits I perform it never fails that one or two pairs are found in service, but NOT tested within the last 6 months.

Also ensure that you work with your employees to ensure the PPE, tool or equipment performs as intended. As an example a "lab coat style" arc flash jacket with Velcro used below the waist line of the worker will fail when the worker bends down and if the worker is exposed to an arc flash the PPE will not perform and will cause the worker to receive a burn injury.

One last element that is very important is to ensure that you budget for upgrades to the PPE, Tools & Equipment that you have procured. Innovations in PPE, Tools & Equipment have been occurring in the last 2 to 5 years. If a safer component of PPE, tool or equipment is available that can reduce risk related to its use then as an employer it is recommended you procure it and provide it to your employees for use. One example of this is the new True Color Grey face shield and arc flash suit hood technology developed by Oberon Company. This face shield or arc flash suit hood is no longer tinted green, but is near clear and will not discolour wires or inhibit vision at all.

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Other innovations include a voltage proving unit from Fluke, their PRV-240 is a portable AC or DC source to be used to pre-use test a test instrument in the TEST-BEFORE-TOUCH process. Fluke also has available “probe extenders” that are 13 inches long and move the Qualified Electrical Workers’ hands out of the box allowing them to see their work task and not move any wires with their hands.

New technology is also emerging that will allow wearable electrical field detection by a Qualified Electrical Worker. The Proxi Band is in testing right now and is a wrist band mounted electrical field detection device that will advise wearers when they enter the Limits of Approach to overhead power lines or electrical fields in other electrical equipment.

It is important to ensure that your Electrical Safety Program provides comprehensive and detailed information on Electrical Specific PPE, Tools & Equipment.

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



Terry Becker, P.Eng., CESC, IEEE Senior Member is the first past Vice-Chair of the CSA Z462 Workplace electrical safety Standard and currently a Voting Member and Working Group 8 Leader, Annexes. He is also a Voting Member on the IEEE 1584 Technical Committee and an Associate Member of the CSA Z463 Guideline on maintenance of electrical systems. Terry is a Professional Engineer in the Provinces of BC, AB, SK and ON. Terry is the President & Owner of ESPS Electrical Safety Program Solutions INC., an electrical engineering consulting firm specializing in electrical safety consulting, licensed products and training solutions. www.esps.ca

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This conference will be a Canadian conference, all presenters and tutorial instructors will be Canadians involved in electrical safety. Delegates will have the opportunity to expand their network and interact with others in industry to learn more about arc flash and shock hazards and how to mitigate them or reduce risk to an acceptable level.

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