

NEW ELECTRICAL SAFETY STANDARD ON THE WAY

INCREASING FOCUS ON RISK ASSESSMENT, INTEGRATION

By Jim Pollard and Terry Becker

In January, the third edition of the CSA Z462 Workplace Electrical Safety standard will be released, and it includes hundreds of changes from the current edition. The new edition is in alignment with current Canadian and international occupational health and safety standards and industry accepted practices and philosophies.

INTEGRATION

Since it was first published in December 2008, the CSA Z462 standard has gradually been accepted as an industry best practice standard for arc flash and shock. Electrical engineering and electrical maintenance departments have driven its early adoption; however, the integration with the requirements of occupational health and safety management system (OHSMS) standards has widely been neglected. The division between these groups has resulted in stand-alone electrical safety measures that neither conformed to an organization's OHSMS or risk assessment procedures.

Typically, the safety professional has not been consulted in the identification and control of electrical hazards or the arc-rated clothing for workers to ensure appropriate selection, use and maintenance. In the new standard there is an emphasis on



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collaboration between these groups so organizations can achieve full compliance with the intended interpretation, specifically the implementation of an electrical safety program as part of an employer's overall OHSMS. The electrical maintenance department will be required to consult OHS practitioners for help digesting the new terminology and requirements. The tendency in industry to keep arc flash and shock isolated in the electrical departments of companies should now evolve to ensure a more focused safety management system approach is developed and implemented.

The clauses within the new CSA Z462 have been updated to realign it with the CSA Z1000 Occupational Health and Safety Management standard.

In recent years, the CSA Z1002-12 Occupational Health and Safety – Hazard Identification and Elimination and Risk Assessment and Control standard was published. While content from this was inserted in the current edition of CSA Z462 and Annex F, the new standard expands this content and brings it forward into the body of the standard.

Employers will need to update their existing electrical safety programs to ensure their safety management systems include the elements necessary to maintain a sustainable process for identifying and eliminating electrical hazards and assessing and controlling risk.

TERMINOLOGY CHANGES

In the constantly changing world of electrical safety, industry adopted language is always being updated. Long ago, the terms "live" and "dead" were used which were later changed

to "energized" and "de-energized." More wholesale terminology changes are coming in the new CSA Z462 for 2015, similar to the global revision from flame resistant (FR) to arc-rated (AR) between the first and second editions. Many of the currently adopted electrical safety terms will be deleted in the third edition of CSA Z462, and new terminology and related requirements will be added.

The most significant change in terminology and related requirements is eliminating references to a "hazard identification and analysis" and replacing it with "risk assessment procedure." This applies to both arc flash and shock so the new terminology will be an "arc flash risk assessment" and a "shock risk assessment." Workers will be required to complete a risk assessment procedure related to energized electrical work tasks. Employers with well-established OHS management systems may already include the use of risk assessments and should rejoice at this

result. The previous editions of both CSA Z462 and NFPA 70E: Standard for Electrical Safety in the Workplace had a fuzzy application of the term "risk," which was incorrectly being used to describe probability or likelihood. The new requirement of imbedding a risk assessment procedure in an implemented electrical safety program fully aligns CSA Z462 with CSA Z1002.

The new risk assessment procedure will require a qualified electrical worker to do the following:

- ensure the electrical hazards apply to the work task
- assess the risk of undertaking the work task in an energized state
- implement both preventive and protective controls following occupational health and safety hierarchy of methods to reduce risk to as low as reasonably practicable.

NEW 'TABLE METHOD'

In addition to the risk assessment focus of CSA Z462, all references to hazard/

risk category (HRC) table method have been completely deleted from the updated standard. The updated version of the table method — called "arc flash PPE category method" — requires the identification of when arc flash personal protective equipment (PPE) will be required related to a justified energized electrical work task. The condition of the energized electrical equipment must also be identified as normal or abnormal.

"Normal" refers to the following:

- the equipment is properly installed
- the equipment is properly maintained
- all equipment doors are closed and secured
- all equipment covers are in place and secured
- there is no evidence of impending failure.

When arc flash PPE is required, the updated table method still requires electrical specific prerequisites, called parameters, to be met for certain equipment and voltages. If the parameters are met, an arc flash PPE category is assigned to the work task and this category correlates to a required minimum protection.

There will still be the same minimum protection requirements from the deleted HRCs 1-4 to the new arc flash PPE categories 1-4. All references to a category 0 have been eliminated.

Another change worth noting is an improved explanation of equipment labelling requirements and changing the text to ensure clarity. Appropriate electrical equipment shall have a field applied equipment label that includes: nominal system voltage; arc flash boundary; and incident energy data or arc flash PPE category (but not both).

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DIFFERENCES	
CSA Z462 2nd Edition	CSA Z462 3rd Edition
Hazard/risk category	Arc flash PPE category
Arc flash hazard analysis	Arc flash risk assessment
Shock hazard analysis	Shock risk assessment
Probability or risk	Likelihood
Risk not defined	Definition of Risk
Hazardous not defined	Definition of Hazardous
Hazard not defined	Definition of Hazard
Risk assessment not defined	Definition of Risk Assessment
OHS Hierarchy of Controls not provided	OHS Hierarchy of Controls provided
Energized Electrical Work Permit	Improved clarity on exemptions
N/A	Annex on human performance and workplace electrical safety

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