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CSA Z462:21
National Standard of Canada

Workplace electrical safety

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Preface

This is the fifth edition of CSA Z462, *Workplace electrical safety*. It supersedes the previous editions published in 2018, 2015, 2012, and 2008.

This Standard is based on NFPA 70E, *Standard for Electrical Safety for the Workplace,* and has been harmonized with Parts I, II, and III of the *Canadian Electrical Code;* CSA Z460, *Control of hazardous energy — Lockout and other methods*; and CSA M421, *Use of electricity in mines*. This revised edition of CSA Z462 has been developed by CSA Group from the original edition as promulgated by the National Fire Protection Association. In addition to its initial source, it includes significant revisions by CSA Group. This Standard is fully the responsibility of CSA Group. The NFPA, holder of the copyright in this edition, takes no responsibility for any portion thereof.

This Standard specifies requirements for and provides guidance on safety management systems, safe work procedures, and selection of personal protective equipment and other safety devices for persons exposed to hazards associated with energized electrical equipment. In addition, this Standard sets out criteria for the identification and training of qualified electrical workers and for determination of hazardous work to be performed only by those qualified individuals.

By permission of the National Fire Protection Association, many of the clauses, tables, and figures in this Standard have been copied from NFPA 70E. CSA Group wishes to thank the NFPA for its support throughout the development of this Standard.

The following is an overview of the major revisions to the 2021 edition:

a) definitions for “normal operation”, “policy”, “procedure”, “process”, and “program” have been added (Clause 3);
b) a requirement for employers to create and document an electrical safety policy has been added (Clause 4.1.5);
c) Several organizational changes were made, including
    i) relocation of content into Clause 4.1 to create a more complete listing of the general requirements for electrical-safety related work practices (Clauses 4.1.6, 4.1.7.8.4, 4.1.11.4, and 4.1.12.1)
    ii) relocation of content in Clause 4.3 to create a more logical flow;
d) the term “normal operating condition” and its meaning have been modified. The term now appears as “normal equipment condition” (Clause 4.1.7.8.4, and definition of “normal operation” in Clause 3);
e) additional means of training were added to recognize that training may be achieved by any of several method provided that it achieves specific measurable outcomes (Clause 4.1.8.1.5);
f) the minimum threshold for potentially-hazardous energy was changed from 30 V to 30 V ac or 60 V dc (Clauses 4.1.6.1, 4.1.6.2.3, 4.1.11.5, and 4.3.7.4.8);
g) a new method for selecting arc-flash PPE for ac voltages has been added (Clauses 4.3.5.5, 4.3.5.7, 4.3.7.3.15.2, 4.3.7.3.15.4, B.2, H.1, and H.2, Annex V, and Tables 6C and H.1);
h) added guidance on methods that may be used to reduce likelihood of occurrence of an arcing event or the severity of exposure when incident energy is greater than the arc rating of commercially available arc-rated PPE (Clause 4.3.7.3.1);
i) added Table 4A, which provides voltage ratings for various classes of rubber insulating gloves. The previous Table 4 is now Table 4B;
j) Table 6A has been modified with several changes to the equipment categories and a change to the associated arc flash PPE category for 600 V switchgear;

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k) Table 6C has been modified with additions of high-visibility apparel and hand protection methods and a new arc flash PPE category 5 has been added for arc-rated clothing up to 75 cal/cm^2;
l) Clause 5 has been completely rewritten;
m) Table A.1 has been completely rewritten;
n) an example of a job safety planning checklist has been added in Annex I (Figure I.2);
o) Annex O has been largely rewritten to increase clarity, provide more methods to reduce incident energy, and provide further options for safety by design;
p) Annex P has been added to provide guidance on electrical switching and isolation; and
q) Annex T has been added to provide guidance on temporary protective grounding.

This Standard was prepared by the Technical Committee on Workplace Electrical Safety, under the jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
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   b) *provide an explanation of circumstances surrounding the actual field condition; and*
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   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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CSA Z462:21
Workplace electrical safety

1 Scope

1.1 General

This Standard specifies requirements for workplace electrical safety necessary for the practical safeguarding of workers during activities such as the installation, removal, inspection, operation, maintenance, and demolition of electric conductors and electric equipment, as well as work in proximity of energized electrical equipment.

1.2 Application

While it can be applied by organizations of any type or size, this Standard does not cover:

a) installations in ships, watercraft other than floating buildings, railway rolling stock, aircraft, and automotive vehicles other than mobile homes and recreational vehicles;
b) installations of railways for the generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signalling and communications;
c) installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations; and
d) installations under the exclusive control of an electric utility when such installations
    i) consist of service drops or service laterals, and associated metering;
    ii) are located in legally established easements or rights-of-way designated or recognized by public service commissions, utility commissions, or other regulatory agencies having jurisdiction for such installations; or
    iii) are on property owned or leased by the electric utility for communications or for metering, generation, control, transformation, transmission, or distribution of electric energy.

1.3 Suitability

It is the responsibility of the users of this Standard to judge its suitability for their particular purpose (see Note 2 to the Preface).

1.4 Use with related standards and regulations

This Standard is intended for use with Parts I, II, and III of the *Canadian Electrical Code* and other related Canadian workplace electrical safety standards (e.g., CSA M421 and CSA Z460), and should be used with such standards. In addition, users of this Standard should always refer to provincial, territorial, and federal safety regulations that have jurisdiction over their work facility, contract job site, or profession.

1.5 Organization of this Standard

The requirements of this Standard are organized in three main clauses and one Annex, as shown in Figure 1. Annexes A to U, W, and X do not specify requirements and are included for information only.

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