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Z462-18

Workplace electrical safety

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Preface

This is the fourth edition of CSA Z462, *Workplace electrical safety*. It supersedes the previous editions published in 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.

In this 2018 edition, where a major change or addition to the previous edition of this Standard has been made, the clause, table, or figure affected is identified by the symbol delta (Δ) in the margin. Users of this Standard are advised that the change markers in the text are not intended to be all-inclusive and are provided as a convenience only; such markers cannot constitute a comprehensive guide to the revisions made to this Standard. Care must therefore be taken not to rely on the change markers to determine the current requirements of this Standard. As always, users of this Standard must consider the entire Standard.

The following is an overview of the major revisions to the 2018 edition:

- a) the definitions of “arc flash hazard” and “shock hazard” have been aligned with the definition of “hazard” (Clause 3);
- b) Clause 4.1.4 includes a new general requirement that hazard elimination be the first priority in the implementation of safety-related work practices;
- c) Clause 4.1.6 has several new electrical safety program requirements:
 - i) the requirement to inspect newly installed or modified equipment has been added to Clause 4.1.6.2;
 - ii) risk assessment has been revised in Clause 4.1.6.8.3 to include human error;
 - iii) the hierarchy of risk control in Clause 4.1.6.8.4 has been moved into mandatory text;
 - iv) the requirement to perform and document job safety planning has been added to Clause 4.1.6.9; and
 - v) the requirement to investigate electrical incidents has been added to Clause 4.1.6.10;
- d) the minimum threshold for potentially-hazardous energy has been reduced from 50 V to 30 V (Clauses 4.1.9.1, 4.1.9.5, 4.3.2.1, 4.3.2.2.3, 4.3.4.6, 4.3.6.1, 4.3.6.3.2, 4.3.6.6, and 4.3.6.7);
- e) Clause 4.2 has been totally reorganized, including relocating all training and auditing requirements to Clause 4.1;

- f) in Clause 4.3.4, shock risk assessment has been aligned with the arc flash risk assessment in Clause 4.3.5;
- g) Table 2 (previously Table 4A) has been relocated from the arc flash PPE category method to the arc flash risk assessment in Clause 4.3.5;
- h) Table 3 (previously Table H.2) has been relocated from Annex H to Clause 4.3.5 (arc flash risk assessment);
- i) Annex F has been completely rewritten; and
- j) Annex K has been updated.

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.

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.*
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 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

Z462-18

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 divided into three main clauses, as shown in Figure 1. Annexes A to W do not specify requirements and are included for information only.

1.6 Measurements

The values given in SI units are the units of record for the purposes of this Standard. The values given in parentheses are for information and comparison only.

1.7 Terminology

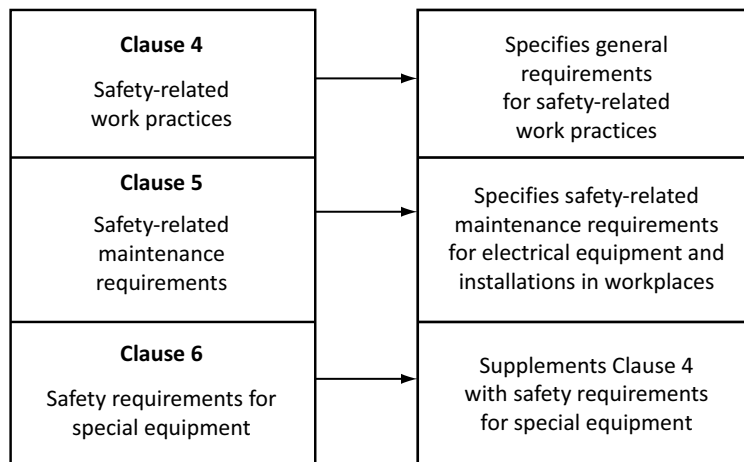
In this Standard, "shall" is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; "should" is used to express a recommendation or that which is advised but not required; and "may" is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

Figure 1
Organization of this Standard
(See Clause 1.5.)



2 Reference publications

Note: See Annex V for additional publications.

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

CSA Group

C22.1-18

Canadian Electrical Code, Part I

CAN/CSA-C22.2 No. 0-10 (R2015)

General requirements — Canadian Electrical Code, Part II