

Electrical safety and essential electrical systems in health care facilities



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Preface

This is the fourth edition of CSA Z32, *Electrical safety and essential electrical systems in health care facilities*. It supersedes the previous editions, published in 2009, 2004 and 1999, and is harmonized with CSA C22.1, *Canadian Electrical Code, Part I*, and CSA C282, *Emergency electrical power supply for buildings*.

This edition features important revisions to many Clauses. An informative Annex has been added on uninterruptible power systems (UPS) describing factors that should be considered by health care facilities for use of UPS. Some definitions and terminology have been updated to better correspond with the third edition of CAN/CSA C22.2 No. 60601-1 and to the *Canadian Electrical Code, Part I*. Reference has been added to CSA SPE-3000, *Model code for the field evaluation of medical electrical equipment and systems*.

Clarification of requirements have been made for patient-owned electrical devices, use of power bars, luminaries in patient care environments, insulation resistance, solidly grounded systems, isolated ground receptacles, battery-operated emergency lighting, and supply or consumer services. Information on isolated power systems and line isolation monitors is more directly referenced in this Standard. A guidance table on approximate spacing for interference-free working with filtered equipment, in the 2009 edition, has been removed.

Updates to informative notes and minimum number of receptacles and branch circuits in basic and intermediate care areas have been made. An informative annex has been added on the interaction of the *Canadian Electrical Code* with related ISO and IEC standards.

CSA Group acknowledges that the development of this standard was made possible, in part, by the financial support of the governments of Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Ontario, Prince Edward Island, Québec, Saskatchewan, and Yukon, as administered by the Canadian Agency for Drugs and Technologies in Health (CADTH).

This Standard was prepared by the Subcommittee on Essential Electrical Systems, under the jurisdiction of the Technical Committee on Application of Electricity in Health Care and the Strategic Steering Committee on Health Care Technology, 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.*
- 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) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change;*
 - d) *rationale for the change.*

CSA Z32:15

Electrical safety and essential electrical systems in health care facilities

1 Scope

1.1 General

1.1.1 Application

This Standard deals with the following subjects:

- a) electrical safety associated with health care provision; and
- b) essential electrical systems for health care facilities.

Note: See Clause 3 for the definition of “health care facility”.

1.1.2 Exclusions

1.1.2.1

This Standard is not intended to apply to veterinary facilities, although its electrical safety principles could prove useful in the design, construction, and operation of such facilities.

1.1.2.2

Uninterruptible power systems, which may be used for specific critical applications are not covered by this Standard.

Note: If a UPS is used within a healthcare facility, refer to Annex J for more information.

1.1.3 Relationship to the Canadian Electrical Code

Provisions of this Standard are supplementary to the installation requirements specified in Sections 24 and 52 of the *Canadian Electrical Code, Part I* and require compliance with *Canadian Electrical Code, Part II* standards.

1.2 Electrical safety

1.2.1 Areas

This Standard applies to

- a) patient care areas of Class A, Class B, and Class C health care facilities; and
- b) areas outside health care facilities that are intended for patient diagnosis, treatment, or care involving intentional electrical contact of any kind between patients and medical electrical equipment.

1.2.2 Electrical equipment

This Standard applies to

- a) medical electrical equipment;
- b) health-care-facility-owned non-medical electrical equipment;
- c) patient-owned electrical devices; and