CSA Standard

C22.1-09
Canadian Electrical Code, Part I

Safety Standard for Electrical Installations

(Twenty-first edition)

CANADIAN STANDARDS ASSOCIATION

- *The* Canadian Electrical Code, Part I, *is a voluntary code for adoption and enforcement by regulatory authorities.*
- *The* Canadian Electrical Code, Part I, *meets the fundamental safety principles of International Standard IEC 60364,* Electrical Installations of Buildings.
- *Consult with local authorities regarding regulations that adopt and/or amend this Code.*

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Contents

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Section 46 — Emergency systems, unit equipment, and exit signs

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M.S. Anderson	City of Winnipeg, Manitoba
R.M. Bartholomew	Electric Power Equipment (1986) Ltd., Vancouver, British Columbia
S. Bygrave	Michelin North America (Canada) Inc., New Glasgow, Nova Scotia
T. Fazzari	Mohawk College, Stoney Creek, Ontario
B. McAllister	City of Camrose, Alberta
R.A. Nelson	Canadian Standards Association, Mississauga, Ontario
B. Parent	Cummins Eastern Canada L.P., Dorval, Québec
P. Rizcallah	National Research Council Canada, Canadian Codes Centre, Ottawa, Ontario
R. Sutherland	Electrical Safety Authority, London, Ontario *(Representing International Association of Electrical Inspectors)*

Section 48 — Motion picture studios, projection rooms, film exchanges including film-vaults, and storehouses for pyroxylin plastic and nitrocellulose X-ray and photographic film

D.R.A. MacLeod *(Chair)*	Department of Labour and Workforce Development, Halifax, Nova Scotia

M. Perreault	Canadian Broadcasting Corporation, Montréal, Québec
R. Stewart	Electrical Safety Authority, Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
K. Vannice	Leviton Manufacturing Co., Tualatin, Oregon, USA
M.J. Wilson	Canadian Standards Association, Mississauga, Ontario

Section 50 — Solar photovoltaic systems

M.S. Anderson *(Chair)*	City of Winnipeg, Manitoba
K.S. Brightwell	Electrical Safety Authority, Belleville, Ontario
P.M. Cusack	S.A. Armstrong Limited, Toronto, Ontario
P. Drewes	Sol Source Engineering, Newmarket, Ontario
G. Howell	Howell-Mayhew Engineering Incorporated, Edmonton, Alberta
D. Li	CSA International, Toronto, Ontario
S. Martel	Natural Resources Canada, Varennes, Québec
G. Parris	Canadian Standards Association, Mississauga, Ontario
D.B. Pollock	Electrical Safety Authority, London, Ontario *(Representing International Association of Electrical Inspectors)*
E. Smiley	Vancouver Island University, Nanaimo, British Columbia
D. Turcotte	Natural Resources Canada, Varennes, Québec
B. Wilkinson	Matrix Energy Inc., Pointe-Claire, Québec

Section 52 — Diagnostic imaging installations

D.R.A. MacLeod *(Chair)*	Department of Labour and Workforce Development, Halifax, Nova Scotia
M.B. Raber *(Vice-Chair)*	Winnipeg, Manitoba
M. Brossoit	CSA International, Toronto, Ontario
E. Carlson	CSA International, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
J. Einarson	Department of Community Services, Whitehorse, Yukon
M.J. Wilson	Canadian Standards Association, Mississauga, Ontario

Section 54 — Community antenna distribution and radio and television installations

J. Poulin *(Chair)*	Bell Canada, Longueuil, Québec
E. Chantigny	General Electric Canada, Pointe-Claire, Québec
B. Nameh	Rogers Cable Systems Ltd., Don Mills, Ontario
P. Olders	Terra Communications, Inc., Scarborough, Ontario *(Representing International Association of Electrical Inspectors)*
G. Tubrett	Canadian Standards Association, Mississauga, Ontario

Section 56 — Optical fiber cables

E. Alfonso (*Chair*)	TELUS, Burnaby, British Columbia
C.B. Chan	Coquitlam, British Columbia
S. Finnagan	Algonquin College, Ottawa, Ontario
B. Haydon	Canadian Standards Association, Mississauga, Ontario
P. Olders	Terra Communications, Inc., Scarborough, Ontario *(Representing International Association of Electrical Inspectors)*
J. Poulin	Bell Canada, Longueuil, Québec
V.G. Rowe	Westbank, British Columbia
A.Z. Tsisserev	City of Vancouver, British Columbia

Section 58 — Passenger ropeways

W. Sparks (*Chair*)	Doppelmayr CTEC Ltd., Kelowna, British Columbia

A.N. Griffin (*Vice-Chair*)	Alberta Municipal Affairs and Housing, Edmonton, Alberta
S. Barclay	Electrical Safety Authority, Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
L. Brown	Whistler & Blackcomb Mountain Resorts Limited, Whistler, British Columbia
L. Burk	Pilz Automation Safety LP, Canton, Michigan, USA
D.H. Dunsire	Winnipeg, Manitoba
P. McDermott	Technical Standards and Safety Authority, Toronto, Ontario
S. Paulsen	Department of Public Safety, Fredericton, New Brunswick

Section 60 — Electrical communication systems

J. Poulin *(Chair)*	Bell Canada, Longueuil, Québec
D. Andrews	D.J.A. Engineering, Calgary, Alberta
C.B. Chan	Coquitlam, British Columbia
E. Chantigny	General Electric Canada, Pointe-Claire, Québec
P. Desilets	Leviton Manufacturing of Canada Limited, Pointe-Claire, Québec
S. Finnagan	Algonquin College, Ottawa, Ontario
E.S. Guevara	Industry Canada, Ottawa, Ontario
R. Kelsey	Nova Scotia Power Meter and Inspection Services, Digby, Nova Scotia *(Representing International Association of Electrical Inspectors)*
D. Schultz	TELUS, Edmonton, Alberta
R.S. Smith	Bell Aliant, Moncton, New Brunswick
A.Z. Tsisserev	City of Vancouver, British Columbia
M.J. Wilson	Canadian Standards Association, Mississauga, Ontario

Section 62 — Fixed electric space and surface heating systems

V.G. Rowe *(Chair)*	Westbank, British Columbia
J. Turner *(Vice-Chair)*	Swansea Consulting, Toronto, Ontario
J. Adam	Syncrude Canada Limited, Fort McMurray, Alberta
R. Barth	Thermon Manufacturing Company, San Marcos, Texas, USA
W.J. Burr	CSA International, Richmond, British Columbia
T.S. Driscoll	Shell Canada, Calgary, Alberta
W.E. Hanthorn	Tyco Thermal Controls (Canada) Ltd., Trenton, Ontario
R. Stromer	Imperial Oil Resources, Calgary, Alberta
J. Thomson	Electrical Safety Authority, Kitchener, Ontario *(Representing International Association of Electrical Inspectors)*
W.A. Williams	Tyco Thermal Controls, Menlo Park, California, USA

Section 66 — Amusement parks, midways, carnivals, film and TV sets, TV remote broadcasting locations, and travelling shows

G. Montminy *(Chair)*	Régie du bâtiment du Québec, Québec, Québec
D. Burke	Victoria, British Columbia
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec
T. Olechna	Electrical Safety Authority, Mississauga, Ontario
M. Perreault	Canadian Broadcasting Corporation, Montréal, Québec
R. Stewart	Electrical Safety Authority, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
A. Wanuch	Robertson Electric Wholesale, Toronto, Ontario
W. White	City of Vancouver, British Columbia

Section 68 — Pools, tubs, and spas

S.W. Douglas *(Chair)*	Electrical Safety Authority, Cambridge, Ontario *(Representing International Association of Electrical Inspectors)*
R. Cohen	CSA International, Toronto, Ontario
T. Coulter	Pool and Hot Tub Council of Canada, Concord, Ontario
T. Dinic	Electrical Safety Authority, Mississauga, Ontario
R. Lachance	Haywood Pool Products Canada, Incorporated, Oakville, Ontario
D. Letcher	Don Letcher (E.S.C.O.) Enterprises, Sherwood Park, Alberta *(Representing International Association of Electrical Inspectors)*
T. Minna	EPI Electrical Contractors, Brampton, Ontario
G. Montminy	Régie du bâtiment du Québec, Québec, Québec
L.B. Ross	Newmarket, Ontario
D.K. Stuebing	Solon Enterprises Ltd., Peace River, Alberta

Section 70 — Electrical requirements for factory-built relocatable structures and non-relocatable structures

S. Hinde *(Chair)*	British Columbia Safety Authority, Nanaimo, British Columbia
M.S. Anderson	City of Winnipeg, Manitoba
J. Einarson	Department of Community Services, Whitehorse, Yukon
K. Maynard	Canadian Manufactured Housing Institute, Ottawa, Ontario
R. Morin	Economical Insurance Group, Oshawa, Ontario *(Representing International Association of Inspectors)*
I. Pye	British Columbia Safety Authority, New Westminster, British Columbia

Section 72 — Mobile home and recreational vehicle parks

S. Hinde *(Chair)*	British Columbia Safety Authority, Nanaimo, British Columbia
M.S. Anderson	City of Winnipeg, Manitoba
J. Baker	OPCA, Embro, Ontario
J. Einarson	Department of Community Services, Whitehorse, Yukon
D. Letcher	Don Letcher (E.S.C.O.) Enterprises, Sherwood Park, Alberta *(Representing International Association of Electrical Inspectors)*
G. Montminy	Régie du bâtiment du Québec, Québec, Québec
T. Olechna	Electrical Safety Authority, Mississauga, Ontario
I. Pye	British Columbia Safety Authority, New Westminster, British Columbia

Section 74 — Airport installations

S. Hinde *(Chair)*	British Columbia Safety Authority, Nanaimo, British Columbia
D. Henry *(Vice-Chair)*	Department of National Defence, Winnipeg, Manitoba
E.J. Alf	Transport Canada, Ottawa, Ontario
G.W. Bradbury	B.T.E. Engineering Technology Services, St. Petersburg, Florida, USA *(Representing International Association of Electrical Inspectors)*
D.H. Dunsire	Winnipeg, Manitoba
G.T. Gingara	Stantec Consulting, Saskatoon, Saskatchewan
R. Kowalik	Alberta Transportation, Sherwood Park, Alberta
I. Pye	British Columbia Safety Authority, New Westminster, British Columbia

Section 76 — Temporary wiring

P. McDonald *(Chair)*	Alberta Municipal Affairs, Edmonton, Alberta
S. Douglas *(Vice-Chair)*	Electrical Safety Authority, Cambridge, Ontario *(Representing International Association of Electrical Inspectors)*

J.B. Biollo	Biollo Agency, Leduc, Alberta
B. Doan	Summer Electric London Ltd., Komoka, Ontario
S. Hinde	British Columbia Safety Authority, Nanaimo, British Columbia
T. Kjartanson	Manitoba Hydro, Winnipeg, Manitoba
S. Nair	WorkSafe BC, Richmond, British Columbia
B. O'Donnell	AC Powerline Construction, Pickering, Ontario
T. Olechna	Electrical Safety Authority, Mississauga, Ontario

Section 78 — Marinas, yacht clubs, marine wharves, structures, and fishing harbours

A. Sutherland *(Chair)*	Department of Public Works and Government Services Canada, Gatineau, Québec
R.M. Branch	Department of Public Safety, Bathurst, New Brunswick
A. Donaldson	Ontario Marinas Operators' Association, Penetanguishene, Ontario
T.A. Fekete	Scarborough, Ontario
K. McCormick	Electrical Safety Authority, Cobourg, Ontario *(Representing International Association of Electrical Inspectors)*
R. Molloy	Department of Government Services, St. John's, Newfoundland
K.L. Rodel	Hubbell Canada LP, Pickering, Ontario
M. Vollmer	Burlington, Ontario

Section 80 — Cathodic protection

T. Simmons *(Chair)*	British Columbia Institute of Technology, Burnaby, British Columbia
S.J. Croall	Manitoba Hydro, Winnipeg, Manitoba
J.G. Demers	Marex Canada Ltd., Calgary, Alberta
R.J. Maynard	Aurora Environmental Consulting Ltd., Calgary, Alberta
W.G. McMullan	Winnipeg, Manitoba
D. Schill	SaskPower, Yorkton, Saskatchewan *(Representing International Association of Electrical Inspectors)*
R. Stromer	Imperial Oil Resources, Calgary, Alberta
A.Z. Tsisserev	City of Vancouver, British Columbia
R.G. Wakelin	Correng Consulting Services, Markham, Ontario

Section 82 — Closed-loop and pre-closed-loop power distribution

D. Holmes *(Chair)*	City of Calgary, Alberta
G.N. Bowling	The Empress, Ottawa, Ontario
D. Juden	C.C.G., Ottawa, Ontario
D. Pilon	SaskPower Electrical Inspections, Prince Alberta, Saskatchewan *(Representing International Association of Electrical Inspectors)*

Section 84 — Interconnection of electric power production sources

F.L. Kaempffer *(Chair)*	British Columbia Hydro, Burnaby, British Columbia
M.S. Anderson	City of Winnipeg, Manitoba
D. Desrosiers	IFD Corporation, Vancouver, British Columbia
P. Dick	Electric Power Diagnostics, Toronto, Ontario
D.H. Dunsire	Winnipeg, Manitoba
D. Heron	Electrical Safety Authority, Worthington, Ontario *(Representing International Association of Electrical Inspectors)*
L. Letea	Canadian Standards Association, Mississauga, Ontario
A. Mak	Colt WorleyParsons, Edmonton, Alberta

S. Martel	Natural Resources Canada, Varennes, Québec
V.G. Rowe	Westbank, British Columbia
T. Simmons	British Columbia Institute of Technology, Burnaby, British Columbia

Section 86 — Electric vehicle charging systems

T.W. Odell *(Chair)*	General Motors of Canada, Oshawa, Ontario
D. Chandler	Vancouver Electric Vehicle Association, Vancouver, British Columbia
S. Dallas	Toronto Electric Mobility Canada, Toronto, Ontario
R. Field	Norvik Technologies Inc., Mississauga, Ontario
P. Hinse	University of Ontario Institute of Technology, Oshawa, Ontario
C. Keyes	Kinectrics Inc., Toronto, Ontario
G. Parris	Canadian Standards Association, Mississauga, Ontario
J. Potts	Electrical Safety Authority, Brampton, Ontario *(Representing International Association of Electrical Inspectors)*
A.Z. Tsisserev	City of Vancouver, British Columbia

Appendix C

A.Z. Tsisserev *(Chair)*	City of Vancouver, British Columbia
G. Lobay (*Vice-Chair*)	CANMET, Natural Resources Canada, Ottawa, Ontario
F.L. Kaempffer	BC Hydro, Burnaby, British Columbia
P. Liberatore	Corporation des maîtres électriciens du Québec, Montréal, Québec
D. Mascarenhas	Canadian Standards Association, Mississauga, Ontario
P. McDonald	Alberta Municipal Affairs, Edmonton, Alberta
S. Paulsen	Department of Public Safety, Fredericton, New Brunswick
T. Simmons	British Columbia Institute of Technology, Burnaby, British Columbia
M. Smith	Rockwell Automation Canada Inc., Control Systems, Cambridge, Ontario

Appendix D

S. Paulsen *(Chair)*	Department of Public Safety, Fredericton, New Brunswick
S.W. Douglas (*Vice-Chair*)	Electrical Safety Authority, Cambridge, Ontario *(Representing International Association of Electrical Inspectors)*
A.Z. Tsisserev	City of Vancouver, British Columbia

Appendix E

V.G. Rowe *(Chair)*	Westbank, British Columbia

Appendix F

V.G. Rowe *(Chair)*	Westbank, British Columbia

Appendix G

A.Z. Tsisserev *(Chair)*	City of Vancouver, British Columbia

Appendix H

V.G. Rowe *(Chair)*	Westbank, British Columbia

Appendix J

Annex J18

V.G. Rowe *(Chair)*	Westbank, British Columbia

Annex J20

G. Lobay (*Chair*)	CANMET, Natural Resources Canada, Ottawa, Ontario

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Preface

This twenty-first edition of the *Canadian Electrical Code, Part I,* was approved by the Committee on the *Canadian Electrical Code, Part I*, and by the Regulatory Authority Committee at their June 2008 meetings in Calgary, Alberta. This twenty-first edition supersedes the previous editions, published in 2006, 2002, 1998, 1994, 1990, 1986, 1982, 1978, 1975, 1972, 1969, 1966, 1962, 1958, 1953, 1947, 1939, 1935, 1930, and 1927.

A new Section 58 was added to cover requirements for passenger ropeways and similar equipment. In addition, there are significant changes to Sections 0, 10, 18, 26, 46, and 68. Sections 12 and 32 have been revised to reflect new technology and industry practices.

The designation for receptacle configuration type 5-20RA ("T-slot") has been revised to 5-20R throughout the Code, and the configuration previously designated as 5-20R is now designated 5-20RA to recognize that this configuration is being phased out. Similarly, the designations for 6-20R and 6-20RA configurations have been interchanged throughout the Code.

The term "light fixture" has been replaced by "luminaire" throughout the Code, and all references to HFT conduit have been deleted.

General arrangement

The Code is divided into numbered Sections, each covering some main division of the work. Sections 0 to 16 and 26 are considered general sections, and the other sections supplement or amend the general sections. The Sections are divided into numbered Rules, with captions for easy reference, as follows:

(a) **Numbering system** — With the exception of Section 38, even numbers have been used throughout to identify Sections and Rules. Rule numbers consist of the Section number separated by a hyphen from the 3- or 4-digit figure. The intention in general is that odd numbers may be used for new Rules required by interim revisions. Due to the introduction of some new Rules and the deletion of some existing Rules during the revision of each edition, the Rule numbers for any particular requirement are not always the same in successive editions.

(b) **Subdivision of Rules** — Rules are subdivided in the manner illustrated by Rules 8-204 and 8-206, and the subdivisions are identified as follows:

00-000	Rule
(1)	Subrule
(a)	Item
(i)	Item
(A)	Item

(c) **Reference to other Rules, etc.** — Where reference is made to two or more Rules (e.g., Rules 10-200 to 10-206), the first and last Rules mentioned are included in the reference. Where reference is made to a Subrule or Item in the same Rule, only the Subrule number and/or Item letter and the word "Subrule" or "Item" need be mentioned. If the reference is to another Rule or Section, then the Rule number and the word "Rule" shall be stated (e.g., "Rule 10-200(3)" and not "Subrule (3) of Rule 10-200").

The principal changes that have been made between the 2006 edition of the *Canadian Electrical Code, Part I*, and this new edition published in 2009 are marked in the text of the Code by the symbol delta (Δ) in the margin. Where revisions to or deletions from the text have caused existing Rules to be renumbered, only the first renumbered Rule in the sequence is marked. Users of the Code 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 reorganization or revision of the Code. Care must therefore be taken not to rely on the change markers to determine the current requirements of the Code. As always, users of the Code must consider the entire Code and any local amendments.

Acknowledgement

The use of material contained in the *National Electrical Code* is acknowledged.

The history and operation of the *Canadian Electrical Code, Part I*

The preliminary work in preparing the Canadian Electrical Code began in 1920 when a special committee, appointed by the main Committee of the Canadian Engineering Standards Association, recommended its

development. A third meeting of this Committee was held in June 1927 with representatives from Nova Scotia, Québec, Ontario, Manitoba, Saskatchewan, and British Columbia in attendance. At this meeting, the revised draft, which had been discussed at the previous two meetings, was formally approved and it was resolved that it be printed as Part I of the *Canadian Electrical Code*.

The present Committee on the *CE Code, Part I*, is composed of 41 members, with representation from inspection authorities, industry, utilities, and allied interests. The main Committee meets once a year and deals with reports that have been submitted by the Section Subcommittees, which work under the jurisdiction of the main Committee. Suggestions for changes to the Code may be made by any member of the Committee or anyone outside the Committee as outlined in Clause C6.

January 2009

Notes:

(1) *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.*

(2) *CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee.*

(3) *All enquiries regarding this Standard should be addressed to Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.*

Requests for interpretation will also be accepted by the Committee (see Clause C9). They should be worded in such a manner as to permit a specific "yes" or "no" answer based on the literal text of the requirement concerned.

Interpretations are published in CSA's periodical Info Update*, which is available on the CSA Web site at www.csa.ca.*

Metric units

Symbols and conversion factors for SI units

Recognized symbols for SI units have been used in the *Canadian Electrical Code, Part I*. For the convenience of the user, these symbols and the units they represent have been listed in the following table; the table also gives a multiplying factor that may be used to convert the SI unit to the previously used unit.

Symbol	SI unit	Multiplying factor for conversion to previously used unit	Previously used unit
A	ampere(s)	1	ampere(s)
cm^3	cubic centimetre(s)	0.061	cubic inch(es)
°(s)	degree(s) (angle)	1	degree(s) (angle)
°C rise	degree(s) Celsius	1.8	degree(s) Fahrenheit
°C temperature	degree(s) Celsius	1.8 plus 32	degree(s) Fahrenheit
h	hour(s)	1	hour(s) (time)
Hz	hertz	1	cycles per second
J	joule(s)	0.7376	foot-pound(s)
kg	kilogram(s)	2.205	pound(s)
kJ	kilojoule(s)	737.6	foot-pound(s)
km	kilometre	0.621	mile(s)
kPa	kilopascal(s)	0.295	inch(es) of mercury
		0.334	feet of water
		0.145	pound(s) per square inch (psi)
kW	kilowatt	3415.179	BTU/h
lx	lux	0.093	foot-candle(s)
L	litre	0.220	gallon(s)
m	metre(s)	3.281	feet
m^2	square metre(s)	10.764	square feet
m^3	cubic metre(s)	35.315	cubic feet
MHz	megahertz	1	megacycles per second
min	minute(s)	1	minute(s)
mL	millilitre(s)	0.061	cubic inch(es)
mm	millimetre(s)	0.03937	inch(es)
mm^2	square millimetre(s)	0.00155	square inch(es)
Ω	ohm(s)	1	ohm(s)
Pa	pascal(s)	0.000295	inch(es) of mercury
		0.000334	feet of water
		0.000145	pounds per square inch (psi)
V	volt(s)	1	volt(s)
W	watt(s)	1	watt(s)
μF	microfarad(s)	1	microfarad(s)

Conduit sizes

Starting in the 2006 edition of the Code, the metric trade designator has been used exclusively to identify conduit size. The following table is provided for convenience only.

Conduit trade sizes

Inches	Metric designator
3/8	12
1/2	16
3/4	21
1	27
1-1/4	35
1-1/2	41
2	53
2-1/2	63
3	78
3-1/2	91
4	103
5	129
6	155

Reference publications

This Standard refers to the following publications, and the year dates shown indicate the latest editions available at the time the Standard was approved:

CSA (Canadian Standards Association)
B44-07, *Safety Code for Elevators and Escalators*
CAN/CSA-B44.1-04/ASME A17.5-2004, *Elevator and Escalator Electrical Equipment*
B52-05, *Mechanical Refrigeration Code*
CAN/CSA-B72-M87 (R2003), *Installation Code for Lightning Protection Systems*
CAN/CSA-B137 Series-05, *Thermoplastic Pressure Piping Compendium*
CAN/CSA-B149.1-05, *Natural Gas and Propane Installation Code*
CAN/CSA-B149.2-05, *Propane Storage and Handling Code*
CAN/CSA-B355-00 (R2005), *Lifts for Persons with Physical Disabilities*
CAN/CSA-B613-00 (R2005), *Private Residence Lifts for Persons with Physical Disabilities*
CAN/CSA-C22.2 No. 0-M91 (R2006), *General Requirements — Canadian Electrical Code, Part II*
C22.2 No. 1-04, *Audio, Video, and Similar Electronic Equipment*
C22.2 No. 3-M1988 (R2004), *Electrical Features of Fuel-Burning Equipment*
CAN/CSA-C22.2 No. 14-05, *Industrial Control Equipment*
C22.2 No. 22-M1986 (R2008), *Electrical Equipment for Flammable and Combustible Fuel Dispensers*
C22.2 No. 25-1966 (R2004), *Enclosures for Use in Class II Groups E, F, and G Hazardous Locations*
C22.2 No. 30-M1986 (R2007), *Explosion-Proof Enclosures for Use in Class I Hazardous Locations*
C22.2 No. 33-M1984 (R2004), *Construction and Test of Electric Cranes and Hoists*
C22.2 No. 41-07, *Grounding and Bonding Equipment*
C22.2 No. 77-95 (R2004), *Motors with Inherent Overheating Protection*
C22.2 No. 82-1969 (R2004), *Tubular Support Members and Associated Fittings for Domestic and Commercial Service Masts*
CAN/CSA-C22.2 No. 106-05, *HRC Fuses*
C22.2 No. 107.1-01 (R2006), *General Use Power Supplies*
C22.2 No. 111-00 (R2005), *General-Use Snap Switches*
CAN/CSA-C22.2 No. 114-M90 (R2005), *Diagnostic Imaging and Radiation Therapy Equipment*
C22.2 No. 124-04, *Mineral-Insulated Cable*
C22.2 No. 125-M1984 (R2004), *Electromedical Equipment*
C22.2 No. 126.1-02 (R2007), *Metal Cable Tray Systems*
CAN/CSA-C22.2 No. 130-03 (R2008), *Requirements for Electrical Resistance Heating Cables and Heating Device Sets*
CAN/CSA-C22.2 No. 130.1-M90 (R2001), *Heat-Tracing Cable Systems for Use in Industrial Locations* (withdrawn)
C22.2 No. 137-M1981 (R2004), *Electric Luminaires For Use in Hazardous Locations*
C22.2 No. 141-02 (R2007), *Unit Equipment for Emergency Lighting*
C22.2 No. 145-M1986 (R2004), *Motors and Generators for Use in Hazardous Locations*
C22.2 No. 152-M1984 (R2006), *Combustible Gas Detection Instruments*
CAN/CSA-C22.2 No. 157-92 (R2006), *Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations*
C22.2 No. 159-M1987 (R2004), *Attachment Plugs, Receptacles, and Similar Wiring Devices for Use in Hazardous Locations: Class I, Groups A, B, C, and D; Class II, Groups G, in Coal or Coke Dust, and in Gaseous Mines*
C22.2 No. 174-M1984 (R2008), *Cables and Cable Glands for Use in Hazardous Locations*
C22.2 No. 178-1978 (R2006), *Automatic Transfer Switches*
C22.2 No. 211.0-03 (R2008), *General Requirements and Methods of Testing for Nonmetallic Conduit*
C22.2 No. 213-M1987 (R2008), *Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations*
CAN/CSA-C22.2 No. 248 series (R2005), *Low-Voltage Fuses*
CAN/CSA-C22.2 No. 601 series, *Medical Electrical Equipment*
CAN/CSA-C22.2 No. 60079-0-07, *Electrical Apparatus for Explosive Gas Atmospheres — Part 0: General Requirements*
CAN/CSA-C22.2 No. 60079-1-07, *Electrical Apparatus for Explosive Gas Atmospheres — Part 1: Flameproof Enclosures "d"*
CAN/CSA-C22.2 No. 60529-05, *Degrees of Protection Provided by Enclosures (IP Code)*
CAN/CSA-C22.3 No. 1-06, *Overhead Systems*

CAN/CSA-C22.3 No. 7-06, *Underground Systems*
C83-96 (R2005), *Communication and Power Line Hardware*
CAN3-C235-83 (R2006), *Preferred Voltage Levels for AC Systems,* 0 *to* 50 000 V
CAN/CSA-C282-05, *Emergency Electrical Power Supply for Buildings*
CAN/CSA-C50052-99 (R2007), *Cast Aluminium Alloy Enclosures for Gas-Filled High-Voltage Switchgear and Controlgear*
CAN/CSA-C50064-99 (R2007), *Wrought Aluminium and Aluminium Alloy Enclosures for Gas-Filled High-Voltage Switchgear and Controlgear*
CAN/CSA-C50068-99 (R2007), *Wrought Steel Enclosures for Gas-Filled High-Voltage Switchgear and Controlgear*
CAN/CSA-C50069-99 (R2007), *Welded Composite Enclosures of Cast and Wrought Aluminium Alloys for Gas-Filled High-Voltage Switchgear and Controlgear*
CAN/CSA-C50089-99 (R2007), *Cast Resin Partitions for Metal-Enclosed Gas-Filled High-Voltage Switchgear and Controlgear*
CAN/CSA-C62155:06, *Hollow Pressurized and Unpressurized Ceramic and Glass Insulators for Use in Electrical Equipment with Rated Voltages Greater Than* 1000 V
CAN/CSA-E60079-2-02 (R2006), *Electrical Apparatus for Explosive Gas Atmospheres — Part 2: Electrical Apparatus — Type of Protection "p"*
CAN/CSA-E60079-5-02 (R2006), *Electrical Apparatus for Explosive Gas Atmospheres — Part 5: Powder Filling "q"*
CAN/CSA-E60079-6-02 (R2006), *Electrical Apparatus for Explosive Gas Atmospheres — Part 6: Oil-Immersion "o"*
CAN/CSA-E60079-7-03 (R2008), *Electrical Apparatus for Explosive Gas Atmospheres — Part 7: Increased Safety "e"*
CAN/CSA-E60079-11-02 (R2006), *Electrical Apparatus for Explosive Gas Atmospheres — Part 11: Intrinsic Safety "i"*
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Section 0 — Object, scope, and definitions
(See Appendix G)

Δ Object (see Appendix B)

The object of this Code is to establish safety standards for the installation and maintenance of electrical equipment. In its preparation, consideration has been given to the prevention of fire and shock hazards, as well as proper maintenance and operation.

The requirements in this Code address the fundamental principles of protection for safety contained in Section 131 of International Electrotechnical Commission Standard 60364-1, *Electrical Installations of Buildings*. IEC 60364-1, Section 131, contains fundamental principles of protection for safety that encompass protection against electric shock, thermal effects, overcurrent, fault currents, and overvoltage. Therefore, compliance with the requirements of this Code and proper maintenance will ensure an essentially safe installation. Safe installations may be also achieved by alternatives to this Code, when such alternatives meet the fundamental safety principles of IEC 60364-1 (see Appendix K). These alternatives are intended to be used only in conjunction with acceptable means to assess compliance of these alternatives with the fundamental safety principles of IEC 60364 by the authorities enforcing this Code.

Wiring installations that do not make provision for the increasing use of electricity may be overloaded in the future, resulting in a hazardous condition. It is recommended that the initial installation have sufficient wiring capacity and that there be some provision made for wiring changes that might be required as a result of future load growth.

This Code is not intended as a design specification nor as an instruction manual for untrained persons.

Scope

This Code covers all electrical work and electrical equipment operating or intended to operate at all voltages in electrical installations for buildings, structures, and premises, including factory-built relocatable and non-relocatable structures, and self-propelled marine vessels stationary for periods exceeding five months and connected to a shore supply of electricity continuously or from time to time, with the following exceptions:

(a) installations or equipment employed by an electric, communication, or community antenna distribution system utility in the exercise of its function as a utility, as recognized by the regulatory authority having jurisdiction, and located outdoors or in buildings or sections of buildings used for that purpose;
(b) equipment and facilities that are used in the operation of an electric railway and are supplied exclusively from circuits that supply the motive power;
(c) installations or equipment used for railway signalling and railway communication purposes, and located outdoors or in buildings or sections of buildings used exclusively for such installations;
(d) aircraft; and
(e) electrical systems in ships that are regulated under Transport Canada.

For mines and quarry applications, see also CAN/CSA-M421.

This Code and any standards referenced in it do not make or imply any assurance or guarantee by the authority adopting this Code with respect to life expectancy, durability, or operating performance of equipment and materials so referenced.

Definitions

For the purpose of correct interpretation, certain terms have been defined and where such terms or their derivatives appear throughout this Code they shall be understood to have the following meanings. The ordinary or dictionary meaning of terms shall be used for terms not specifically defined in this Code.

Acceptable — acceptable to the authority enforcing this Code.

Accessible (as applied to equipment) — admitting close approach because the equipment is not guarded by locked doors, elevation, or other effective means.

Accessible (as applied to wiring methods) —

(a) not permanently closed in by the structure or finish of the building; and
(b) capable of being removed without disturbing the building structure or finish.