CANADIAN ELECTRICAL CODE, PART I

SAFETY STANDARD FOR ELECTRICAL INSTALLATIONS

CSA GROUP™

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Revision History

C22.1-18, Canadian Electrical Code, Part I

Errata — May 2020	**Revision symbol (in margin)**
Appendix B Note to Rule 12-3030 Rules 2-138, 8-202, 12-112, 16-212, 62-114, and 62-402 Tables 19, 39, and 66 Index	Ⓔ

Errata — September 2018	**Revision symbol (in margin)**
Note: *The error in Subrule 86-300 2) appeared in the first print run of the 2018* CE Code, Part I*. It has been corrected in subsequent print runs.* Appendix B Notes to Rules 8-106 11), 18-050, 26-012 b), and 26-656 2) Rules 8-200, 8-202, 10-300, 12-910, 12-2320, 18-094, 24-104, and 86-300 Tables 1, 18, and 41 Index	Ⓕ

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C22.1-18
Canadian Electrical Code, Part I

Safety Standard for Electrical Installations

(Twenty-fourth edition)

- 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 60364-1, *Low-voltage electrical installations*.
- Consult with local authorities regarding regulations that adopt and/or amend this Code.

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Section 12 — Wiring methods

S.W. Douglas *(Chair)*	International Association of Electrical Inspectors, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
I. Müller *(Vice-Chair)*	Nexans Canada Inc., Markham, Ontario
M.S. Anderson	SaskPower, Regina, Saskatchewan
G. Benjamin	Thomas & Betts Limited, Dorval, Québec
P. Daigle	New Brunswick Department of Public Safety, Miramichi, New Brunswick
B. Fuhr	DJA Engineering Services, Calgary, Alberta
T. Hamden	CSA Group, Toronto, Ontario
R.W. Horner	Atkore International (Allied Tube & Conduit Corporation), Harvey, Illinois, USA
C.K. Hunter	Cerro Wire LLC, Las Vegas, Nevada, USA
I. Laouini	Corporation des maîtres électriciens du Québec, Montréal, Québec
A. Nause	IPEX Management Inc., Oakville, Ontario
A. Pottier	Nova Scotia Power Inc., Halifax, Nova Scotia
K. Richards	BnZ Engineering, Burlington, Ontario
L. Letea *(Project Manager)*	CSA Group, Toronto, Ontario

Section 14 — Protection and control

R.P. de Lhorbe *(Chair)*	Schneider Electric Canada, Inc., Richmond, British Columbia
R.T. Hiscock *(Vice-Chair)*	RTH Electrical Consulting, Fort Steele, British Columbia
T. Branch	PDR Technologies Inc., Oakville, Ontario
S.C. Bygrave	Stantec Consulting Ltd., Dartmouth, Nova Scotia
L. Coulombe	Régie du bâtiment du Québec, Québec, Québec
S.G. Davies	KD Projects, DeWinton, Alberta
T. Evans	Underwriters Laboratories Inc., Toronto, Ontario
G.T. Gingara	Mosaic Potash, Esterhazy, Saskatchewan

D.J. Heron	Heron Electrical Consulting Inc., Worthington, Ontario
M. Lusk	CSA Group, Charlotte, North Carolina, USA
H.A. Masroor	Goodkey Weedmark and Associates Limited, Ottawa, Ontario
W.C. Rossmann	Jacobs Canada, Calgary, Alberta
L.G. Silecky	Mersen Canada Toronto Inc., Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
C. Thwaites	Mersen Canada Inc., Mississauga, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 16 — Class 1 and Class 2 circuits

T. Simmons *(Chair)*	British Columbia Institute of Technology, Burnaby, British Columbia
T.K. Kjartanson *(Vice-Chair)*	Manitoba Hydro, Winnipeg, Manitoba
P. Doucet	New Brunswick Department of Justice and Public Safety, Moncton, New Brunswick
R.J. Kelly	Government of Nunavut Community & Government Services, Iqaluit, Nunavut
D. Lenasi	Philips Lighting North America, Langley, British Columbia
N. Mashayekh	Eaton's Bussmann Business, Lachine, Québec
P. Olders	Ontario Electrical Industry Training Trust, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
S. Paulsen	CSA Group, Toronto, Ontario
W. Saworski	Concept Group, Saskatoon, Saskatchewan
G. Sawyer	Marex Canada Limited, Calgary, Alberta
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia
D. Zimmerman	SaskPower Electrical Inspections, Saskatoon, Saskatchewan
J. Mereuta *(Project Manager)*	CSA Group, Toronto, Ontario

Section 18 — Hazardous locations

T.S. Driscoll *(Chair)*	OBIEC Consulting Ltd., Calgary, Alberta
G. Lobay *(Vice-Chair)*	CSA Consumer Network, Ottawa, Ontario
D.S. Adams	QPS Evaluation Services Inc., Calgary, Alberta
A. Bozek	EngWorks Inc., Calgary, Alberta
M. Brown	Electrical Safety Authority, Cambridge, Ontario
M.T. Cole	Hubbell Canada LP, Pickering, Ontario
D.J. Heron	Heron Electrical Consulting Inc., Worthington, Ontario
B. Keane	Eaton, Mississauga, Ontario
R.R. Langlois	Stantec Consulting Ltd., Kitchener, Ontario
W.G. Lawrence	FM Approvals, LLC, Norwood, Massachusetts, USA
R. Leduc	Marex Canada Limited, Calgary, Alberta
D.G. Morlidge	Okotoks, Alberta
J.H. Morrison	QPS Evaluation Services Inc., Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
V. Rowe	Marex Canada Limited, Nanaimo, British Columbia
B. Schneider	Intertek, Edmonton, Alberta

D. Stochitoiu	CSA Group, Toronto, Ontario
M. Throckmorton	Shell Canada Limited, Shell Upstream Americas, Calgary, Alberta
A. Hawley *(Project Manager)*	CSA Group, Toronto, Ontario

Section 20 — Flammable liquid and gasoline dispensing, service stations, garages, bulk storage plants, finishing processes, and aircraft hangars

T. Olechna *(Chair)*	Electrical Safety Authority, Mississauga, Ontario
V. Rowe *(Vice-Chair)*	Marex Canada Limited, Nanaimo, British Columbia
I. Barnes	AES Engineering, Victoria, British Columbia
M. Brown	Electrical Safety Authority, Cambridge, Ontario
R. Charbonneau	Budget Propane (1998) Inc., Valleyfield, Québec
L. Coulombe	Régie du bâtiment du Québec, Québec, Québec
G.J. Drew	Cenovus Energy Inc., Calgary, Alberta
G. Lobay	CSA Consumer Network, Ottawa, Ontario
A. Milivojevich	QPS Evaluation Services Inc., Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
D.G. Morlidge	Okotoks, Alberta
E.J. Power	E.J. Power Engineering, Stanhope, Prince Edward Island
M.K. Shea	AES Engineering, Victoria, British Columbia
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 22 — Locations in which corrosive liquids, vapours, or excessive moisture are likely to be present

N. Hanna *(Chair)*	Electrical Safety Authority, Mississauga, Ontario
R.J. Kelly *(Vice-Chair)*	Government of Nunavut Community & Government Services, Iqaluit, Nunavut
L. Cantelo	Electrical Industry Training Centres of Alberta, Sherwood Park, Alberta *(Representing International Association of Electrical Inspectors)*
G.T. Gingara	Mosaic Potash, Esterhazy, Saskatchewan
M. Khalid	R.V. Anderson Associates Limited, Toronto, Ontario
R.R. Langlois	Stantec Consulting Ltd., Kitchener, Ontario
G.T. Walker	Emery Electric, Shawnigan Lake, British Columbia
D. Wilson	Accredited Testing Services, Brandon, Manitoba
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 24 — Patient care areas

A.Z. Tsisserev *(Chair)*	AES Engineering, Vancouver, British Columbia
N. Hanna *(Vice-Chair)*	Electrical Safety Authority, Mississauga, Ontario
M.S. Anderson	SaskPower, Regina, Saskatchewan
M. Brossoit	CSA Group, Pointe-Claire, Québec
R. Dodds	Vancouver General Hospital, Vancouver, British Columbia
L.R. Ferchoff	North Hill Engineering, Winnipeg, Manitoba
P.M. Gelinas	CIUSSS du Nord-de-L'île-de-Montréal Hôpital, Montréal, Québec

G. Hughes	University of New Brunswick, Department of Health, Fredericton, New Brunswick
S.H. Mallikarachchi	City of Winnipeg Planning, Property & Development, Winnipeg, Manitoba
M.B. Raber	M. B. Raber, P. Eng., Winnipeg, Manitoba
E. Smeltzer	Nova Scotia Power Inc., Lower Sackville, Nova Scotia *(Representing International Association of Electrical Inspectors)*
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 26 — Installation of electrical equipment

T. Simmons *(Chair)*	British Columbia Institute of Technology, Burnaby, British Columbia
R. Leduc *(Vice-Chair)*	Marex Canada Limited, Calgary, Alberta
M. Brown	Electrical Safety Authority, Cambridge, Ontario
A. Chown	Canadian Home Builders' Association, Ottawa, Ontario
L. Coulombe	Régie du bâtiment du Québec, Québec, Québec
P. Desilets	Leviton Manufacturing of Canada Limited, Pointe-Claire, Québec
M.W. Earley	National Fire Protection Association, Quincy, Massachusetts, USA
V.V. Gagachev	Eaton, Burlington, Ontario
M. Mihaluk	Les installations électriques Auger inc., Montréal, Québec
R.A. Nelson	CSA Group, Toronto, Ontario
S. Paulsen	CSA Group, Toronto, Ontario
T.R. Titus	Electrical Safety Authority, New Hamburg, Ontario *(Representing International Association of Electrical Inspectors)*
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 28 — Motors and generators

M. Smith *(Chair)*	Kitchener, Ontario
V.V. Gagachev *(Vice-Chair)*	Eaton, Burlington, Ontario
M.S. Anderson	SaskPower, Regina, Saskatchewan
P. Baltazart	CIMA +, Edmonton, Alberta
D. Beattie	Dan Beattie Electrical Inc., Spencerville, Ontario
J.P. Boivin	CSA Group, Pointe-Claire, Québec
T. Branch	PDR Technologies Inc., Oakville, Ontario
S.G. Davies	KD Projects, DeWinton, Alberta
R.P. de Lhorbe	Schneider Electric Canada, Inc., Richmond, British Columbia
C. Fallon	City of St. John's Planning, Engineering & Regulatory Services, St. John's, Newfoundland and Labrador
S. Finnagan	St. Lawrence College, Kingston, Ontario
E.J. Friesen	E.J. Friesen and Associates Incorporated, Calgary, Alberta
L.G. Silecky	Mersen Canada Toronto Inc., Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 30 — Installation of lighting equipment

P. Desilets *(Chair)*	Leviton Manufacturing of Canada Limited, Pointe-Claire, Québec
T. Dinic *(Vice-Chair)*	Electrical Safety Authority, Mississauga, Ontario
J.A. Davidson	JAD Consulting, Virden, Manitoba *(Representing International Association of Electrical Inspectors)*
B. Keane	Eaton, Mississauga, Ontario
Q.Y. Li	Mainland Technical Services Inc., Richmond, British Columbia
M. Mihaluk	Les installations électriques Auger inc., Montréal, Québec
D. Rittenhouse	Maple Ridge, British Columbia
M.K. Timmings	Binbrook, Ontario
A. Yearwood	CSA Group, Toronto, Ontario
J. Mereuta *(Project Manager)*	CSA Group, Toronto, Ontario

Section 32 — Fire alarm systems, smoke and carbon monoxide alarms, and fire pumps

M.S. Anderson *(Chair)*	SaskPower, Regina, Saskatchewan
A.Z. Tsisserev *(Vice-Chair)*	AES Engineering, Vancouver, British Columbia
S. Aspinwall	Smith + Andersen, Toronto, Ontario
A.N. Cavers	Underwriters Laboratories of Canada, Toronto, Ontario
R. Dodds	Vancouver General Hospital, Vancouver, British Columbia
D. Gnocchi	TornaTech Inc., St-Laurent, Québec
N. Hanna	Electrical Safety Authority, Mississauga, Ontario
S. Jenken	The City of Winnipeg, Winnipeg, Manitoba
R. MacKenzie	CSA Group, Toronto, Ontario
M. Paiement	SaskPower, Regina, Saskatchewan *(Representing International Association of Electrical Inspectors)*
V.R. Rochon	Fore Bears Forensic Science, King City, Ontario
D. Weber	Canadian Fire Alarm Association, Markham, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 34 — Signs and outline lighting

R. Pack *(Chair)*	SaskPower, Saskatoon, Saskatchewan
L. Cronk *(Vice-Chair)*	IBEW 1st District, Burnaby, British Columbia
L. Catton	Acme Design Service Ltd., Belle River, Ontario
F. Dabiet	Allanson International Inc., Toronto, Ontario
J.A. Davidson	JAD Consulting, Virden, Manitoba *(Representing International Association of Electrical Inspectors)*
D. Froese	Seventy-Seven Signs Limited, Saskatoon, Saskatchewan
E.J. Power	E.J. Power Engineering, Stanhope, Prince Edward Island
A. Yearwood	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 36 — High-voltage installations

J. Côté *(Chair)*	Hydro-Québec, Distribution, Montréal, Québec
B. Lipson *(Vice-Chair)*	AES Engineering, Vancouver, British Columbia
R.M. Bartholomew	Electric Power Equipment Ltd., Vancouver, British Columbia
L. Coulombe	Régie du bâtiment du Québec, Québec, Québec
R.P. de Lhorbe	Schneider Electric Canada, Inc., Richmond, British Columbia
E.P. Dick	Electric Power Diagnostics, Toronto, Ontario
R. Head	Electrical Safety Authority, Cambridge, Ontario *(Representing International Association of Electrical Inspectors)*
D.J. Heron	Heron Electrical Consulting Inc., Worthington, Ontario
T. Tremblay	Electrical Safety Authority, Sudbury, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 38 — Elevators, dumbwaiters, material lifts, escalators, moving walks, lifts for persons with physical disabilities, and similar equipment

D. McColl *(Chair)*	Otis Canada, Inc., Mississauga, Ontario
K.C. Cheong	AES Engineering, Vancouver, British Columbia
U. Janisch	Technical Safety BC, Langley, British Columbia
D. Laguerre	Schindler Elevator Corporation, Toronto, Ontario
D. McLellan	Technical Standards & Safety Authority (TSSA), Toronto, Ontario
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec
M. Mihai	Technical Standards & Safety Authority (TSSA), Toronto, Ontario
R. Mitchell	Electrical Safety Authority, Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
A. Rehman	Schindler Elevator Corporation, Morristown, New Jersey, USA
L. Yang	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 40 — Electric cranes and hoists

M.S. Anderson *(Chair)*	SaskPower, Regina, Saskatchewan
D. Mayne *(Vice-Chair)*	Government of Newfoundland and Labrador, Human Resource Secretariat, St. John's, Newfoundland and Labrador
S. Bollito	RUETGERS Canada Inc., Hamilton, Ontario
M. Chumkovski	QPS Evaluation Services Inc., Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
S.W. Douglas	International Association of Electrical Inspectors, Toronto, Ontario
K. Hood	Lloydminster, Alberta
T. Rodrigues	Technical Standards & Safety Authority (TSSA), Mississauga, Ontario
R. Rus	O'Brien Lifting Solutions, Burlington, Ontario
L. Uruski	Manitoba Labour, Winnipeg, Manitoba
L. Yang	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 42 — Electric welders

A. Pottier *(Chair)*	Nova Scotia Power Inc., Halifax, Nova Scotia
R. May *(Vice-Chair)*	Surrey, British Columbia
J.P. Boivin	CSA Group, Pointe-Claire, Québec
F. Hegholz	Rostec Enterprises Inc., Rosalind, Alberta
D.A. Hisey	Canadian Welding Bureau, Fort Saskatchewan, Alberta
M. Mihaluk	Les installations électriques Auger inc., Montréal, Québec
L.G. Silecky	Mersen Canada Toronto Inc., Mississauga, Ontario *(Representing International Association of Electrical Inspectors)*
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 44 — Theatre installations

G. Montminy *(Chair)*	Régie du bâtiment du Québec, Québec, Québec
I. Laouini *(Vice-Chair)*	Corporation des maîtres électriciens du Québec, Montréal, Québec
B. Bennett	Civic Theatres Toronto, Toronto, Ontario
J. Calabrese	Electrical Safety Authority, Scarborough, Ontario
K. Hood	Lloydminster, Alberta *(Representing International Association of Electrical Inspectors)*
M. Mihaluk	Les installations électriques Auger inc., Montréal, Québec
G.K. Rose	Pefferlaw, Ontario
K.E. Vannice	Portland, Oregon, USA
A. Yearwood	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 46 — Emergency power supply, unit equipment, exit signs, and life safety systems

A.Z. Tsisserev *(Chair)*	AES Engineering, Vancouver, British Columbia
M.S. Anderson *(Vice-Chair)*	SaskPower, Regina, Saskatchewan
S. Aspinwall	Smith + Andersen, Toronto, Ontario
R.M. Bartholomew	Electric Power Equipment Ltd., Vancouver, British Columbia
S.C. Bygrave	Stantec Consulting Ltd., Dartmouth, Nova Scotia
P. Corby	City of Victoria, Victoria, British Columbia *(Representing International Association of Electrical Inspectors)*
R. Dodds	Vancouver General Hospital, Vancouver, British Columbia
T. Fazzari	Mohawk College, Stoney Creek, Ontario
N. Hanna	Electrical Safety Authority, Mississauga, Ontario
W.L. McAllister	City of Camrose, Camrose, Alberta
R.A. Nelson	CSA Group, Toronto, Ontario
M. Rendulic	Winnipeg School Division Building Department, Winnipeg, Manitoba
A. Yearwood	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 52 — Diagnostic imaging installations

D.R.A. MacLeod *(Chair)*	Nova Scotia Department of Labour and Advanced Education, Halifax, Nova Scotia
M.B. Raber *(Vice-Chair)*	M. B. Raber, P. Eng., Winnipeg, Manitoba
M. Brossoit	CSA Group, Pointe-Claire, Québec
J.C. Einarson	Whitehorse, Yukon
W. Wetmore	QPS Evaluation Services Inc., Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 54 — Community antenna distribution and radio and television installations

S.M. Turcot *(Chair)*	Bell Canada, Montréal, Québec
J. Zulak *(Vice-Chair)*	Department of National Defence, Ottawa, Ontario
E. Chantigny	Standard Products Inc., St-Laurent, Québec
T. Chiu	Stantec Consulting Ltd., Vancouver, British Columbia
P. Olders	Ontario Electrical Industry Training Trust, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
T. Walker	TELUS, Calgary, Alberta
E. Yap	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 56 — Optical fiber cables

S.M. Turcot *(Chair)*	Bell Canada, Montréal, Québec
J. Zulak *(Vice-Chair)*	Department of National Defence, Ottawa, Ontario
C.B. Chan	Coquitlam, British Columbia
S. Finnagan	St. Lawrence College, Kingston, Ontario
T. Hamden	CSA Group, Toronto, Ontario
P. Olders	Ontario Electrical Industry Training Trust, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
V. Rowe	Marex Canada Limited, Nanaimo, British Columbia
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 58 — Passenger ropeways and similar equipment

W. Sparks *(Chair)*	Doppelmayr Canada Ltd., Kelowna, British Columbia
U. Janisch *(Vice-Chair)*	Technical Safety BC, Langley, British Columbia
D. Bruce	Alberta Municipal Affairs, Edmonton, Alberta
M. Chumkovski	QPS Evaluation Services Inc., Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
P. McDermott	Technical Standards & Safety Authority (TSSA), Toronto, Ontario
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec
D. Uddenberg	Banff, Alberta

T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 60 — Electrical communication systems

S.M. Turcot *(Chair)*	Bell Canada, Montréal, Québec
J. Zulak *(Vice-Chair)*	Department of National Defence, Ottawa, Ontario
D.J. Andrews	DJA Engineering Services, Calgary, Alberta
S. Bent	Nova Scotia Power Inc., Kingston, Nova Scotia *(Representing International Association of Electrical Inspectors)*
C.B. Chan	Coquitlam, British Columbia
E. Chantigny	Standard Products Inc., St-Laurent, Québec
P. Desilets	Leviton Manufacturing of Canada Limited, Pointe-Claire, Québec
S. Finnagan	St. Lawrence College, Kingston, Ontario
W. Kwan	Industry Canada, Ottawa, Ontario
B. Lowe	CSA Group, Richmond, British Columbia
R.S. Smith	Riverview, New Brunswick
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia
T. Walker	TELUS, Calgary, Alberta
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 62 — Fixed electric heating systems

T.S. Driscoll *(Chair)*	OBIEC Consulting Ltd., Calgary, Alberta
J. Turner *(Vice-Chair)*	Swansea Consulting, Toronto, Ontario
R. Barth	Thermon Inc., San Marcos, Texas, USA
J. Bradshaw	Pentair Thermal Management Canada, Edmonton, Alberta
J. Calabrese	Electrical Safety Authority, Scarborough, Ontario
T. De Francesco	Aeromation Inc., Vancouver, British Columbia
P.D. den Bakker	Shell Canada Ltd., Calgary, Alberta
G. Gagnon	Schluter Systems (Canada) Inc., Ste-Anne-de-Bellevue, Québec
T. Hamden	CSA Group, Toronto, Ontario
R. Loiselle	Suncor Energy Inc., Calgary, Alberta
D.W. McCallum	PCL Intracon Power, Vanscoy, Saskatchewan
R. Pack	SaskPower, Saskatoon, Saskatchewan *(Representing International Association of Electrical Inspectors)*
S. Pouliot	Stelpro Design Inc., St-Bruno, Québec
E.D. Stephens	EGS EasyHeat Ltd., Elmira, Ontario
M. Humphries *(Project Manager)*	CSA Group, Toronto, Ontario

Section 64 — Renewable energy systems

T. Simmons *(Chair)*	British Columbia Institute of Technology, Burnaby, British Columbia
S.W. Douglas *(Vice-Chair)*	International Association of Electrical Inspectors, Toronto, Ontario
T. Buchal	Intertek, Cortland, New York, USA
S. Eng	Enviro-Energy Technologies Inc., Markham, Ontario
T.K. Kjartanson	Manitoba Hydro, Winnipeg, Manitoba

S. Paulsen	CSA Group, Toronto, Ontario
J. Pinter	Pinter Electrical Consulting Inc., Lake Country, British Columbia
D.B. Pollock	Electrical Safety Authority, Ilderton, Ontario *(Representing International Association of Electrical Inspectors)*
A. Pottier	Nova Scotia Power Inc., Halifax, Nova Scotia
R. Yousef	Electrical Safety Authority, Mississauga, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

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
U. Janisch *(Vice-Chair)*	Technical Safety BC, Langley, British Columbia
J. Calabrese	Electrical Safety Authority, Scarborough, Ontario
R. Holden	Sim Lighting and Grip, Burnaby, British Columbia
K. Hood	Lloydminster, Alberta *(Representing International Association of Electrical Inspectors)*
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec
S. Paulsen	CSA Group, Toronto, Ontario
J. Porter	Westbury National Show Systems Ltd., Scarborough, Ontario
A. Wanuch	KRE Electric Ltd., Mississauga, Ontario
W. White	City of Vancouver Development, Building and Licensing, Vancouver, British Columbia
K.S. Woods	IATSE Local 891, Port Moody, British Columbia
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 68 — Pools, tubs, and spas

R. Pack *(Chair)*	SaskPower, Saskatoon, Saskatchewan
M.S. Anderson *(Vice-Chair)*	SaskPower, Regina, Saskatchewan
M. Brown	Electrical Safety Authority, Cambridge, Ontario
S.W. Douglas	International Association of Electrical Inspectors, Toronto, Ontario
W. Humphrey	Hayward Pool Products Canada Inc., 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
L.B. Ross	New Market, Ontario
W.R. Wood	Pool & Hot Tub Council of Canada, Brampton, Ontario
A. Yearwood	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

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

U. Janisch *(Chair)*	Technical Safety BC, Langley, British Columbia
H. Lang *(Vice-Chair)*	Government of Yukon, Whitehorse, Yukon

M.S. Anderson	SaskPower, Regina, Saskatchewan
A. Chown	Canadian Home Builders' Association, Ottawa, Ontario
P. Daigle	New Brunswick Department of Public Safety, Miramichi, New Brunswick
J.C. Einarson	Whitehorse, Yukon
J. Hermary	Nickel Electric Ltd., Brandon, Manitoba
R.W. Morin	Grafton, Ontario *(Representing International Association of Electrical Inspectors)*
V. Thielmann	Nova 3 Engineering Limited, Winnipeg, Manitoba
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 72 — Mobile home and recreational vehicle parks

R. Leduc *(Chair)*	Marex Canada Limited, Calgary, Alberta
D. Hallock *(Vice-Chair)*	City of Winnipeg, Winnipeg, Manitoba
M.S. Anderson	SaskPower, Regina, Saskatchewan
J. Baker	OPCA, Embro, Ontario
L. Coulombe	Régie du bâtiment du Québec, Québec, Québec
B. Cowley	Electrical Safety Authority, Ottawa, Ontario
P. Daigle	New Brunswick Department of Public Safety, Miramichi, New Brunswick
J.C. Einarson	Whitehorse, Yukon
K. Hood	Lloydminster, Alberta
U. Janisch	Technical Safety BC, Langley, British Columbia
D. Letcher	Don Letcher (E.S.C.O.) Enterprises, Sherwood Park, Alberta *(Representing International Association of Electrical Inspectors)*
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 74 — Airport installations

C.C. Cormier *(Chair)*	Alberta Municipal Affairs, Edmonton, Alberta
S.W. Douglas *(Vice-Chair)*	International Association of Electrical Inspectors, Toronto, Ontario
E.J. Alf	Transport Canada — AARTAE, Ottawa, Ontario
G.W. Bradbury	B.T.E. Engineering Technology Services, St. Petersburg, Florida, USA *(Representing International Association of Electrical Inspectors)*
R. Chernish	Department of National Defence, Winnipeg, Manitoba
G.T. Gingara	Mosaic Potash, Esterhazy, Saskatchewan
D. Hallock	City of Winnipeg, Winnipeg, Manitoba
U. Janisch	Technical Safety BC, Langley, British Columbia
G. Kooner	Vancouver Airport Authority, Richmond, British Columbia
R. Larivée	Avia Rupta Solutions Inc., Montréal, Québec
S.H. Mallikarachchi	City of Winnipeg Planning, Property & Development, Winnipeg, Manitoba
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 76 — Temporary wiring

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

S.W. Douglas *(Vice-Chair)*	International Association of Electrical Inspectors, Toronto, Ontario *(Representing International Association of Electrical Inspectors)*
J. Calabrese	Electrical Safety Authority, Scarborough, Ontario
B. Doan	Sumner Electric London Ltd., Komoka, Ontario
T.K. Kjartanson	Manitoba Hydro, Winnipeg, Manitoba
S. Nair	WorkSafeBC, Richmond, British Columbia
B. O'Donnell	AC Powerline Construction, Pickering, Ontario
S. Paulsen	CSA Group, Toronto, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 78 — Marine wharves, docking facilities, fixed and floating piers, and boathouses

A. Pottier *(Chair)*	Nova Scotia Power Inc., Halifax, Nova Scotia
U. Janisch *(Vice-Chair)*	Technical Safety BC, Langley, British Columbia
W.J. Burr	Burr and Associates, Campbell River, British Columbia
P. Daigle	New Brunswick Department of Public Safety, Miramichi, New Brunswick
C.J. Estereicher	Merick Contractors Inc., Cochrane, Alberta
D.J. Heron	Heron Electrical Consulting Inc., Worthington, Ontario
D. Kalles	Industrial Electrical Contractors Limited, Toronto, Ontario
D. Keats	City of St. John's City Hall, St. John's, *(Representing International Association of Electrical Inspectors)*
T. Olechna	Electrical Safety Authority, Mississauga, Ontario
M.L. Vollmer	Michael Vollmer Yacht Design Inc., Burlington, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 80 — Cathodic protection

D.R.A. MacLeod *(Chair)*	Nova Scotia Department of Labour and Advanced Education, Halifax, Nova Scotia
H. Lang *(Vice-Chair)*	Government of Yukon, Whitehorse, Yukon
R.J. Maynard	Aurora Corrosion Control, a Division of Aurora Environmental Consulting Ltd., Calgary, Alberta
S. Paulsen	CSA Group, Toronto, Ontario
D. Schill	SaskPower, Regina, Saskatchewan *(Representing International Association of Electrical Inspectors)*
R. Stromer	RS Engineering Ltd., Calgary, Alberta
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia
R.G. Wakelin	Gull River Engineering Inc., Brooklin, Ontario
T. Pope *(Senior Project Manager)*	CSA Group, Toronto, Ontario

Section 84 — Interconnection of electric power production sources

A. Pottier *(Chair)*	Nova Scotia Power Inc., Halifax, Nova Scotia
M.S. Anderson	SaskPower, Regina, Saskatchewan
D. Desrosiers	CYME International T&D, St-Bruno, Québec
E.P. Dick	Electric Power Diagnostics, Toronto, Ontario

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Section 86 — Electric vehicle charging systems

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P.R. Hinse	University of Ontario Institute of Technology, Oshawa, Ontario
M. Mihaluk	Les installations électriques Auger inc., Montréal, Québec
T.W. Odell	Toronto Hydro-Electric System Ltd., Toronto, Ontario
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S. Paulsen	CSA Group, Toronto, Ontario
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Appendix J — Annex J18

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Appendix J — Annex J20

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Preface

This twenty-fourth 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 2017 meetings in Halifax, Nova Scotia. This twenty-fourth edition supersedes the previous editions, published in 2015, 2012, 2009, 2006, 2002, 1998, 1994, 1990, 1986, 1982, 1978, 1975, 1972, 1969, 1966, 1962, 1958, 1953, 1947, 1939, 1935, 1930, and 1927.

This edition features important revisions to many Sections. Section 26 now mandates the use of tamper-resistant receptacles in additional areas where children may be present. Section 62 now requires ground fault circuit interrupter protection for heating devices and controls in proximity to tubs, sinks, and shower stalls.

Section 10 has been updated, reorganized, and significantly reduced in length. Requirements for power over ethernet systems have been added to Section 16, and requirements for marine wharves and similar facilities have been substantially updated and reorganized in Section 78.

To address the increasing use of electric vehicles, Section 8 now formally recognizes energy management systems as a method of reducing the load on building services. Because lighting control devices associated with energy management or home automation require power to operate, Section 4 now requires that an identified conductor be provided for all devices controlling permanently installed luminaires.

Other revisions in this edition include the following:

- in Section 26, Rules 26-400 to 26-726 have been reorganized and renumbered in order to group related concepts together and provide a more logical flow for the requirements;
- in many Sections, the redundant use of the term “approved” has been eliminated;
- clarification has been provided on arc-fault circuit interrupter protection for bathrooms, washrooms, existing circuits, and circuits supplying carbon monoxide or smoke alarms;
- requirements for dining area and refrigerator circuits have been clarified;
- the terms “jacketed”, “insulated”, and “covered” as applied to conductors have been clarified through a new definition of the term “jacket” and a revised definition of the term “conductor” in Section 0. As a result, the term “conductor” has been replaced with “insulated conductor” in many Sections of the Code;
- Section 82 has been deleted as it covered a technology that is no longer in use; and
- a new Appendix M containing French translations of markings has been added.

Many of the changes in this edition were developed by cross-functional working groups. Their work is gratefully acknowledged.

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 10-206 3)" and not "Subrule 3) of Rule 10-206").

The principal changes that have been made between the 2015 edition of the *Canadian Electrical Code, Part I*, and this new edition, published in 2018, are marked in the text of the Code by the symbol delta (Δ) in the margin. 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. Global revisions that improve the overall consistency and precision of Code language without affecting the interpretation of any specific Rule are not identified. 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 or interpretations.

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.

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 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.

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) *This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee.*

3) *All enquiries regarding this Standard should be addressed to CSA Group, 178 Rexdale Blvd., Toronto, Ontario, Canada M9W 1R3. Requests for interpretation 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. See Clause C9. Interpretations are available on the* Current Standards Activities *page at standardsactivities.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)
N•m	newton•metre	8.85	pound-force inches
Ω	ohm(s)	1	ohm(s)

Symbol	SI unit	Multiplying factor for conversion to previously used unit	Previously used unit
Pa	pascal(s)	0.000295	inch(es) of mercury
		0.000334	feet of water
		0.000145	pounds per square inch (psi)
s	second(s)	1	second(s)
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
8	200

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 Group

6.19-17
Residential carbon monoxide alarming devices

ASME A17.1-2013/CSA B44-13
Safety code for elevators and escalators

CSA B44.1-14/ASME A17.5-2014
Elevator and escalator electrical equipment

B52-13
Mechanical refrigeration code

CAN/CSA-B72-M87 (R2013)
Installation code for lightning protection systems

B108-14
Compressed natural gas fuelling stations installation code

B149.1-15
Natural gas and propane installation code

B149.2-15
Propane storage and handling code

B355-15
Lifts for persons with physical disabilities

CAN/CSA-B613-00 (withdrawn)
Private residence lifts for persons with physical disabilities

CAN/CSA-C22.2 No. 0-10 (R2015)
General requirements — Canadian Electrical Code, Part II

C22.2 No. 1-04 (withdrawn)
Audio, video, and similar electronic equipment

C22.2 No. 3-M1988 (withdrawn)
Electrical features of fuel-burning equipment

C22.2 No. 4-16
Enclosed and dead-front switches

C22.2 No. 5-16
Molded-case circuit breakers, molded-case switches, and circuit-breaker enclosures

C22.2 No. 14-13
Industrial control equipment

C22.2 No. 18.1-13
Metallic outlet boxes

C22.2 No. 18.2-06 (R2016)
Nonmetallic outlet boxes

C22.2 No. 18.3-12 (R2017)
Conduit, tubing, and cable fittings

C22.2 No. 18.4-15
Hardware for the support of conduit, tubing, and cable

C22.2 No. 29-15
Panelboards and enclosed panelboards

C22.2 No. 35-09 (R2014)
Extra-low-voltage control circuit cable, low-energy control cable, and extra-low-voltage control cable

C22.2 No. 38-14
Thermoset-insulated wires and cables

C22.2 No. 41-13
Grounding and bonding equipment

C22.2 No. 42-10 (R2015)
General use receptacles, attachment plugs, and similar wiring devices

C22.2 No. 42.1-13
Cover plates for flush-mounted wiring devices

C22.2 No. 45.1-07 (R2017)
Electrical rigid metal conduit — Steel

C22.2 No. 46-13
Electric air-heaters

C22.2 No. 48-15
Nonmetallic sheathed cable

C22.2 No. 49-14
Flexible cords and cables

C22.2 No. 51-14
Armoured cables

C22.2 No. 52-15
Underground secondary and service-entrance cables

C22.2 No. 56-17
Flexible metal conduit and liquid-tight flexible metal conduit

C22.2 No. 64-10 (R2014)
Household cooking and liquid-heating appliances

C22.2 No. 65-13
Wire connectors

C22.2 No. 66.3-06 (R2015)
Low voltage transformers — Part 3: Class 2 and Class 3 transformers

C22.2 No. 75-17
Thermoplastic insulated wires and cables

C22.2 No. 77-14
Motors with inherent overheating protection

C22.2 No. 82-1969 (R2013)
Tubular support members and associated fittings for domestic and commercial service masts

C22.2 No. 83-M1985 (R2017)
Electrical metallic tubing

C22.2 No. 83.1-07 (R2017)
Electrical metallic tubing — Steel

C22.2 No. 85-14
Rigid PVC boxes and fittings

C22.2 No. 96-17
Portable power cables

C22.2 No. 100-14
Motors and generators

C22.2 No. 106-05 (R2014)
HRC-miscellaneous fuses

C22.2 No. 107.1-16
Power conversion equipment

C22.2 No. 111-10 (R2015)
General-use snap switches

C22.2 No. 123-16
Metal sheathed cables

C22.2 No. 124-16
Mineral-insulated cable

C22.2 No. 126.1-17
Metal cable tray systems

CAN/CSA-C22.2 No. 126.2-02 (R2017)
Nonmetallic cable tray systems

C22.2 No. 127-15
Equipment and lead wires

C22.2 No. 129-10 (R2014)
Neutral-supported cables

C22.2 No. 130-16
Requirements for electrical resistance trace heating and heating device sets

C22.2 No. 131-14
Type TECK 90 cable

C22.2 No. 141-15
Emergency lighting equipment

CAN/CSA-C22.2 No. 157-92 (R2016)
Intrinsically safe and non-incendive equipment for use in hazardous locations

C22.2 No. 174-M1984 (R2017)
Cables and cable glands for use in hazardous locations

C22.2 No. 178.1-14
Transfer switch equipment

C22.2 No. 179-09 (R2014)
Airport series lighting cables

C22.2 No. 208-14
Fire alarm and signal cable

C22.2 No. 211.0-03 (R2013)
General requirements and methods of testing for nonmetallic conduit

C22.2 No. 211.1-06 (R2016)
Rigid types EB1 and DB2/ES2 PVC conduit

C22.2 No. 211.2-06 (R2016)
Rigid PVC (unplasticized) conduit

C22.2 No. 211.3-96 (withdrawn)
Reinforced thermosetting resin conduit (RTRC) and fittings

C22.2 No. 213-16
Non-incendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations

C22.2 No. 214-17
Communications cables

C22.2 No. 218.1-13
Spas, hot tubs, and associated equipment

C22.2 No. 223-15
Power supplies with extra-low-voltage Class 2 outputs

CAN/CSA-C22.2 No. 227.1-06 (R2016)
Electrical nonmetallic tubing

C22.2 No. 227.2.1-14
Liquid-tight flexible non-metallic conduit

C22.2 No. 239-17
Control and instrumentation cables

C22.2 No. 248 series
Low-voltage fuses

C22.2 No. 250.0-08 (R2013)
Luminaires

CAN/CSA-C22.2 No. 250.13-17
Light emitting diode (LED) equipment for lighting applications

CAN/CSA-C22.2 No. 257-06 (R2015)
Interconnecting inverter-based micro-distributed resources to distribution systems

C22.2 No. 269.1-17
Surge protective devices — Type 1 — Permanently connected

C22.2 No. 269.2-17
Surge protective devices — Type 2 — Permanently connected

C22.2 No. 269.3-17
Surge protective devices — Type 3 — Cord connected, direct plug-in, and receptacle type

C22.2 No. 269.4-17
Surge protective devices — Type 4 — Component assemblies

C22.2 No. 269.5-17
Surge protective devices — Type 5 — Components

C22.2 No. 271-11 (R2016)
Photovoltaic cables

C22.2 No. 272-14
Wind turbine electrical systems

C22.2 No. 273-14
Cablebus

C22.2 No. 327-16
HDPE conduit, conductors-in-conduit, and fittings

C22.2 No. 330-17
Photovoltaic rapid shutdown systems

CAN/CSA-C22.2 No. 60079-0:15
Explosive atmospheres — Part 0: Equipment — General requirements

CAN/CSA-C22.2 No. 60079-1:16
Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures "d"

CAN/CSA-C22.2 No. 60079-2:16
Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure "p"

CAN/CSA-C22.2 No. 60079-5:16
Explosive atmospheres — Part 5: Equipment protection by powder filling "q"

CAN/CSA-C22.2 No. 60079-6:17
Explosive atmospheres — Part 6: Equipment protection by liquid immersion "o"

CAN/CSA-C22.2 No. 60079-7:16
Explosive atmospheres — Part 7: Equipment protection by increased safety "e"

CAN/CSA-C22.2 No. 60079-11:14
Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i"

CAN/CSA-C22.2 No. 60079-15:16
Explosive atmospheres — Part 15: Equipment protection by type of protection "n"

CAN/CSA-C22.2 No. 60079-18:16
Explosive atmospheres — Part 18: Equipment protection by encapsulation "m"

CAN/CSA-C22.2 No. 60079-25:14
Explosive atmospheres — Part 25: Intrinsically safe electrical systems

CAN/CSA-C22.2 No. 60079-26:16
Explosive atmospheres — Part 26: Equipment with equipment protection level (EPL) Ga

CAN/CSA-C22.2 No. 60079-28:16
Explosive atmospheres — Part 28: Protection of equipment and transmission systems using optical radiation

CAN/CSA-C22.2 No. 60079-29-1:17
Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases

CAN/CSA-C22.2 No. 60079-30-1:17
Explosive atmospheres — Part 30-1: Electrical resistance trace heating — General and testing requirements

CAN/CSA-C22.2 No. 60529:16
Degrees of protection provided by enclosures

CAN/CSA-C22.2 No. 60601 series
Medical electrical equipment

CAN/CSA-C22.2 No. 60950-1-07 (R2016)
Information technology equipment — Safety — Part 1: General requirements

CAN/CSA-C22.2 No. 61730-1:11 (R2016)
Photovoltaic (PV) module safety qualification — Part 1: Requirements for construction

CAN/CSA-C22.2 No. 61730-2:11 (R2016)
Photovoltaic (PV) module safety qualification — Part 2: Requirements for testing

CAN/CSA-C22.2 No. 62109-1:16
Safety of power converters for use in photovoltaic power systems — Part 1: General requirements

CAN/CSA-C22.2 No. 62275:16
Cable management systems — Cable ties for electrical installations

CAN/CSA-C22.2 No. 62368-1-14
Audio/video, information and communication technology equipment — Part 1: Safety requirements

C22.3 No. 1-15
Overhead systems

C22.3 No. 7-15
Underground systems

CAN/CSA-C68.5-13
Shielded and concentric neutral power cable for distribution utilities

C68.10-14
Shielded power cable for commercial and industrial applications, 5–46 kV

C83-96 (R2016)
Communication and power line hardware

CAN3-C235-83 (R2015)
Preferred voltage levels for ac systems, 0 to 50 000 V

C282-15
Emergency electrical power supply for buildings

CAN/CSA-C50052-99 (R2016)
Cast aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear

CAN/CSA-C50064-99 (R2016)
Wrought aluminium and aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear

CAN/CSA-C50068-99 (R2016)
Wrought steel enclosures for gas-filled high-voltage switchgear and controlgear

CAN/CSA-C50069-99 (R2016)
Welded composite enclosures of cast and wrought aluminium alloys for gas-filled high-voltage switchgear and controlgear

CAN/CSA-C50089-99 (R2016)
Cast resin partitions for metal-enclosed gas-filled high-voltage switchgear and controlgear

CAN/CSA-C62155:06 (R2015)
Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1000 V

CAN/CSA-IEC 61400-24:12
Wind turbines — Part 24: Lightning protection

IEEE 844.1-2017/CSA C22.2 No. 293.1-17
Skin effect trace heating of pipelines, vessels, equipment, and structures — general, testing, marking, and documentation requirements

IEEE 844.2/CSA C293.2
Application guide for design, equipment selection and installation of skin effect trace heating systems

M421-16
Use of electricity in mines

PLUS 2203 (withdrawn)
Guide for the Design, Testing, Construction, and Installation of Equipment in Explosive Atmospheres by John A. Bossert, 3rd edition, 2001

S413-14
Parking structures

SPE-1000-13
Model code for the field evaluation of electrical equipment

Z32-15
Electrical safety and essential electrical systems in health care facilities

Z98-14
Passenger ropeways and passenger conveyors

CAN/CSA-Z240 MH Series-92 (withdrawn)
Mobile homes

CAN/CSA-Z240 RV Series-08 (R2013)
Recreational vehicles

Z240 RV Series-14
Recreational vehicles

CAN/CSA-Z241 Series-03 (R2013)
Park model trailers

CAN/CSA-Z267-00 (R2011)
Safety code for amusement rides and devices

Z462-15
Workplace electrical safety

CAN/CSA-Z662-15
Oil and gas pipeline systems

ANSI (American National Standards Institute)

B77.1-2017
Passenger Ropeways — Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors — Safety Standard

C84.1-2016
American National Standard for Electric Power Systems and Equipment—Voltage Ratings (60 Hz)

ANSI/ASME (American National Standards Institute/American Society of Mechanical Engineers)

B1.20.1-2013
Pipe Threads, General Purpose (Inch)

ANSI/IEEE (American National Standards Institute/Institute of Electrical and Electronics Engineers)

487-2015
IEEE Standard for the Electrical Protection of Communications Facilities Serving Electric Supply Locations — General Considerations

ANSI/ISA (American National Standards Institute/International Society of Automation)

12.27.01-2011
Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids

60079-10-1 (12.24.01)-2014
Explosive Atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres

RP 12.06.01-2003
Recommended Practice for Wiring Methods for Hazardous (Classified) Locations — Instrumentation — Part 1: Intrinsic Safety

ANSI/NEMA (American National Standards Institute/National Electrical Manufacturers Association)

WD 6-2016
Wiring Devices — Dimensional Specifications

Z535.4-2011
Product Safety Signs and Labels

API (American Petroleum Institute)

RP 14F (2008; R2013)
Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class 1, Division 1 and Division 2 Locations

RP 14FZ (2013)
Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1 and Zone 2 Locations

RP 500 (2012)
Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2

RP 505 (1997; R2013)
Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2

RP 2216 (2003; R2015)
Ignition Risk of Hydrocarbon Liquids and Vapors by Hot Surfaces in the Open Air

PUBL 4589 (1993)
Fugitive Hydrocarbon Emissions from Oil and Gas Production Operations

PUBL 4615 (1995)
Emission Factors for Oil and Gas Production Operations

PUBL 4638 (1996)
Calculation Workbook for Oil and Gas Production Equipment Fugitive Emissions

ASABE (American Society of Agricultural and Biological Engineers)

EP473.2-2001 (R2015)
Equipotential Plane in Livestock Containment Areas

ASTM International

ASTM B117-16
Standard Practice for Operating Salt Spray (Fog) Apparatus

C1055-03 (2014)
Standard Guide for Heated System Surface Conditions that Produce Contact Burn Injuries

D2487-11
Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

E11-17
Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves

E1226-12a
Standard Test Method for Explosibility of Dust Clouds

BNQ (Bureau de normalisation du Québec)

CAN/BNQ 1784-000 (2007)
Canadian Hydrogen Installation Code

CEA (Canadian Electricity Association)*

249 D 541 (1989)
Simplified Rules for Grounding Customer-Owned High Voltage Substations

266 D 991 (1995)
Clearance Distances Between Swimming Pools and Underground Electrical Cables

**CEA Standards are available through CEATI International (Centre for Energy Advancement through Technological Innovation).*

DIN [Deutsches Institut für Normung (German Institute for Standardisation)]

DIN IEC 60079-20-2 (withdrawn)
Explosive Atmospheres — Part 20-2: Material Characteristics — Combustible Dusts Test Methods

Energy Institute

EI 15
Model code of safe practice Part 15: Area classification code for installations handling flammable fluids, 2015

IEC (International Electrotechnical Commission)

60079-10-1:2015
Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres

60079-10-2:2015
Explosive atmospheres — Part 10-2: Classification of areas — Explosive dust atmospheres

60079-13:2017
Explosive atmospheres — Part 13: Equipment protection by pressurized room "p" and artificially ventilated room "v"

60079-14:2013
Explosive atmospheres — Part 14: Electrical installations design, selection and erection

60079-17:2013
Explosive atmospheres — Part 17: Electrical installations inspection and maintenance

60079-19:2010
Explosive atmospheres — Part 19: Equipment repair, overhaul and reclamation

60079-20-1:2010
Explosive atmospheres — Part 20-1: Material characteristics for gas and vapour classification — Test methods and data

60079-25:2010
Explosive atmospheres — Part 25: Intrinsically safe electrical systems

60079-26:2014
Explosive atmospheres — Part 26: Equipment with equipment protection level (EPL) Ga

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Section 0 — Object, scope, and definitions
(See Appendix G)

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, *Low-voltage electrical installations*. 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 60364-1 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 applies to 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 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.