



CSA/ANSI Z21.89:23 • CSA 1.18:23
National Standard of Canada
American National Standard



Outdoor cooking specialty gas appliances



Legal Notice for Standards

Canadian Standards Association and CSA America Standards Inc. (operating as "CSA Group") develop standards through a consensus standards development process approved by the Standards Council of Canada and the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group's and/or others' intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in printed or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and must not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Standards Update Service

CSA/ANSI Z21.89:23 • CSA 1.18:23
June 2023

Title: *Outdoor cooking specialty gas appliances*

To register for e-mail notification about any updates to this publication

- go to www.csagroup.org/store/
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **2130182**.

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at www.csagroup.org/legal to find out how we protect your personal information.

Canadian Standards Association (operating as “CSA Group”), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users — including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

More than 10 000 members indicate their support for CSA Group’s standards development by volunteering their time and skills to Committee work.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in fourteen countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to
CSA Group
178 Rexdale Boulevard
Toronto, Ontario, M9W 1R3
Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada’s economic competitiveness and social wellbeing, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

Standards Council of Canada
600-55 Metcalfe Street
Ottawa, Ontario, K1P 6L5
Canada



Cette Norme Nationale du Canada n’est disponible qu’en anglais.

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 to judge its suitability for their particular purpose.

®A trademark of the Canadian Standards Association, operating as “CSA Group”

CSA Group

The Canadian Standards Association (operating as “CSA Group”), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

More than 10 000 members indicate their support for CSA Group’s standards development by volunteering their time and skills to Committee work.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in fourteen countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to:
CSA Group
178 Rexdale Boulevard, Toronto, Ontario, M1W 1P7
Canada

American National Standards Institute

The American National Standards Institute (ANSI), Inc. is the nationally recognized coordinator of voluntary standards development in the United States through which voluntary organizations, representing virtually every technical discipline and every facet of trade and commerce, organized labor and consumer interests, establish and improve the some 10 000 national consensus standards currently approved as American National Standards.

ANSI provides that the interests of the public may have appropriate participation and representation in standardization activity, and cooperates with departments and agencies of U.S. Federal, state and local governments in achieving compatibility between government codes and standards and the voluntary standards of industry and commerce.

ANSI represents the interests of the United States in international nontreaty organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). The Institute maintains close ties with regional organizations such as the Pacific Area Standards Congress (PASC) and the Pan American Standards Commission (COPANT). As such, ANSI coordinates the activities involved in the U.S. participation in the above groups.

ANSI approval of standards is intended to verify that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standards has been achieved. ANSI coordination is intended to assist the voluntary system to ensure that national standards needs are identified and met with a set of standards that are without conflict or unnecessary duplication in their requirements.

Responsibility of approving American standards rests with the
American National Standards Institute, Inc.
25 West 43rd Street, Fourth floor
New York, NY 10036

*National Standard of Canada
American National Standard
CSA/ANSI Z21.89:23 • CSA 1.18:23
Outdoor cooking specialty gas
appliances*



IGAC

*Interprovincial/Territorial
Gas Advisory Council*

**A trademark of the Canadian Standards Association
and CSA America Standards Inc., operating as "CSA Group"*



*American National
Standards Institute, Inc.*

*Approved on May 30, 2023 by ANSI
Approved on May 22, 2023 by IGAC
Published in June 2023 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

*To purchase standards and related publications, visit our Online Store at
www.csa-group.org/store/ or call toll-free 1-800-463-6727 or 416-747-4044.*

*ICS 75.060
ISBN 978-1-4883-4790-0*

*© 2023 Canadian Standards Association
All rights reserved. No part of this publication may be reproduced in any form whatsoever
without the prior permission of the publisher.*

Contents

Interprovincial/Territorial Gas Advisory Council	6
Technical Committee on Gas Appliances and Related Accessories	8
Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories	10
Z21/CSA Joint Subcommittee on Standards for Outdoor Cooking and Illuminating Appliances	14
Preface	18
1 Scope	20
1.1 Applicable equipment	20
1.2 Applicable equipment for recreational vehicle	20
1.3 Non-applicable equipment	20
1.4 Outdoor cooking specialty gas appliance	20
1.5 Fuel systems	20
1.6 Fuel types	20
1.7 Self-contained systems	21
1.8 Pressure references	21
1.9 Measurement units	21
1.10 LP gas cylinder label	21
1.11 Conversion kits	21
1.12 Smart-enabled appliances	21
1.13 Items unique to the United States	21
1.14 Items unique to Canada	21
1.15 Non-applicable standard	21
1.16 Terminology	21
2 Reference publications	22
3 Definitions	25
4 Construction	30
4.1 General construction and assembly	30
4.1.1 Tolerance provisions	30
4.1.2 Appliance construction and materials	30
4.1.3 Test sample assembly compliance	31
4.1.4 Burner system configuration	31
4.1.5 Recreational vehicle mounting lock	31
4.1.6 Asbestos	31
4.1.7 Manufacturing practice	31
4.1.8 Material temperature suitability	31
4.1.9 Securement of parts	31
4.1.10 Service provision	32
4.1.11 Guard or shield mounting	32
4.1.12 Lid	32

4.1.13	Thermometer requirements	32
4.1.14	Material thickness	33
4.1.15	Fastener requirements	33
4.1.16	Oil temperature	33
4.1.17	Gas controls and component materials integrity	33
4.1.18	Low-temperature operation	33
4.2	Appliance structure	34
4.3	Gas supply lines	34
4.4	Fixed fuel piping systems	36
4.5	Self-contained LP gas supply systems	37
4.5.1	General requirements	37
4.5.2	Stationary appliance	37
4.5.3	Pressure regulator	38
4.5.4	Connection device — General requirements	38
4.5.5	Connection device seal	38
4.5.6	Connection device — Prohibited attachment	38
4.5.7	Supplied cylinder	39
4.5.8	Dual gas supply cylinder	39
4.5.9	High pressure regulator identification	39
4.5.10	Gas handling components	39
4.5.11	Gas hose assemblies	39
4.5.12	Integral cylinder retention	40
4.5.13	Inlet gas pressure not above 1 psi (27 in wc, 6.9 kPa)	40
4.5.14	Inlet gas pressure above 1 psi (27 in wc, 6.9 kPa)	40
4.5.15	Gas cylinders	40
4.5.16	Two-stage regulators	41
4.5.17	Cylinder valve	41
4.5.18	Cylinder temperatures	41
4.5.19	Vapour withdrawal	42
4.5.20	Cylinder valve protection	42
4.5.21	Cylinder gas pressure	42
4.5.22	Cylinder liquid level gauge	42
4.6	Enclosures for self-contained LP gas supply systems	42
4.6.1	General	42
4.6.2	Accessibility	42
4.6.3	Isolation	42
4.6.4	Minimum clearance	43
4.6.5	Connection inspection	43
4.7	Manual valves	43
4.8	Automatic valves	44
4.9	Gas appliance pressure regulators — Fixed fuel piping systems	44
4.9.1	Outlet pressure	44
4.9.2	Maximum temperature	44
4.9.3	Regulator removal	44
4.10	Orifices and orifice fittings	44
4.11	Burners	44
4.12	Burner ignition	45
4.13	Covers and grates	46
4.13.1	General	46

4.13.2	Movement	46
4.13.3	Incandescent particles	46
4.13.4	Accidental cover closure	47
4.14	Drip trays	47
4.15	Thermal insulation	47
4.16	Combustion air supply	47
4.17	Flue gas vent opening(s)	47
4.18	Electrical equipment and wiring	47
4.19	Instructions	47
4.19.1	General	47
4.19.2	Front cover	48
4.19.3	Assembly, installation, and operation	49
4.19.4	Self-contained gas supply	53
4.19.5	Additional requirements	53
4.20	Markings	53
4.20.1	Specifications for marking materials	53
4.20.2	Attached tags	54
4.20.3	Fryer	54
4.20.4	Boiler	55
4.20.5	Rating plate	55
4.20.6	Additional requirements	55
4.20.7	Lighting instructions	55
4.20.8	Pressure regulator for fixed fuel piping systems	55
4.20.9	Self-contained LP gas supply system pressure regulator	56
4.20.10	Attached top cover	56
4.20.11	Recreation vehicle outdoor cooking specialty gas appliance	56
4.20.12	Carton marking for fryer or boiler	57
4.20.13	Fryer or boiler	57
4.20.14	Carton marking for a boiler	57
4.20.15	Flexible service cord	57
4.20.16	Cooking vessel interior	58
4.20.17	Cooking vessel exterior	58
4.20.18	Letter height	59
4.20.19	Additional requirements	59

5 Performance 59

5.1	General requirements	59
5.1.1	General	59
5.1.2	Criteria for altitude	59
5.1.3	Ventimeters	59
5.1.4	Test clearances	59
5.1.5	Supplied hose	59
5.2	Test gases	59
5.3	Test pressures and burner adjustments	60
5.4	Burner capacities	62
5.5	Combustion	62
5.5.1	Air-free carbon monoxide	62
5.5.2	Use with natural gas	64
5.6	Burner operating characteristics	65

5.6.1	General	65
5.6.2	Flashback	65
5.6.3	Carbon deposits	65
5.6.4	Mixer face	65
5.6.5	Door and cover extinguish test	65
5.6.6	Simultaneous operation test	66
5.6.7	Combination of appliance burners	66
5.6.8	Flame characteristics	66
5.6.9	Use with natural gas	67
5.6.10	Burner noise	67
5.7	Burner placement and integrity	67
5.7.1	General	67
5.7.2	Portable appliances	67
5.7.3	Burner construction	67
5.8	Ignition	68
5.8.1	Main burner ignition time	68
5.8.2	Ignition system temperatures	69
5.9	Performance of LP gas cylinder connection devices	69
5.10	Manual gas valves	69
5.10.1	Needle valve	69
5.10.2	Manual valves not exceeding 0.5 psi (3.5 kPa)	69
5.10.3	Manual valves exceeding 0.5 psi (3.5 kPa)	69
5.10.4	Low temperature performance	70
5.10.5	Cycle test	71
5.10.6	Impact test	71
5.10.7	Valve body temperature	72
5.11	Automatic valves	72
5.12	Gas pressure regulators	72
5.13	Combination regulator valve — Low pressure	72
5.13.1	Pressure settings	72
5.13.2	Excessive pressure	73
5.13.3	Mechanical failure	73
5.14	Manifold and control assembly capacity	74
5.15	Orifice and orifice fittings	74
5.16	Temperatures of gas-carrying components	74
5.17	Oil overflow test for turkey fryer vessel	75
5.18	Drip tray temperature	75
5.19	Burner blockage	75
5.20	Appliance structure	76
5.21	Wall and floor temperatures	78
5.22	Temperatures of handles and knobs	81
5.23	Pen test	83
5.23.1	Water accumulation	83
5.23.2	Window thermal shock	86
5.24	Non-metallic panels	86
5.24.1	Window thermal shock	86
5.24.2	Impact on windows	86
5.25	Wind tests	87
5.26	Permanently attached marking tags	88

- 5.26.1 Detachment 88
- 5.26.2 Fasteners 88
- 5.27 Thermometer scale misalignment 89
- 5.28 Thermometer scale marking material resistance to oil 89
- 5.29 Thermometer calibration 89
- 5.30 Turkey fryer oil temperature test 90
- 5.30.1 Oil temperature 90
- 5.30.2 Cycle testing 90
- 5.31 Marking material adhesion and legibility 90

6 Manufacturing and production tests 91

- 6.1 General 91
- 6.2 Production component and assembly inspection 91
- 6.3 Appliance sampling plan 92

7 Items unique to the United States 93

- 7.1 Electrical equipment and wiring 93
 - 7.1.1 Acceptable electrical components 93
 - 7.1.2 Application 93
 - 7.1.3 Power supply cord requirements 93
 - 7.1.4 Insulation 93
 - 7.1.5 Rotisserie motor 98
 - 7.1.6 Leakage current 99
 - 7.1.7 Dielectric test 99

8 Items unique to Canada 100

- 8.1 French translations 100
- 8.2 Propane definition 107
- 8.3 Metrication 107

-
- Annex A (normative) — LP gas cylinder label 108
 - Annex B (normative) — Provisions for approved outdoor cooking specialty gas appliance conversion kits (optional) 111
 - Annex C (informative) — Sample illustrations for outdoor areas 114
 - Annex D (normative) — Smart enabled of household outdoor cooking specialty gas appliances (optional) 116
 - Annex E (normative) — Formula for calculation of input 124

Interprovincial/Territorial Gas Advisory Council

S. C. Manning	Alberta Municipal Affairs — Safety Services, Edmonton, Alberta, Canada <i>Category: Regulatory Authority</i>	<i>Chair</i>
D. A. Balcha	Manitoba Office of the Fire Commissioner, Winnipeg, Manitoba, Canada <i>Category: Regulatory Authority</i>	<i>Vice-Chair</i>
P. Fowler	Nova Scotia Department of Labour, Skills and Immigration, Dartmouth, Nova Scotia, Canada <i>Category: Regulatory Authority</i>	<i>Vice-Chair</i>
N. Ali	SaskPower, Regina, Saskatchewan, Canada <i>Category: Regulatory Authority</i>	
N. Armstrong	Office of the Fire Commissioner — Inspections and Technical Services, Winnipeg, Manitoba, Canada	<i>Alternate</i>
D. Brockerville	Government of Newfoundland and Labrador/ Service NL, St. John's, Newfoundland and Labrador, Canada <i>Category: Regulatory Authority</i>	
N. Chiasson	Province of Prince Edward Island, Charlottetown, Prince Edward Island, Canada <i>Category: Regulatory Authority</i>	
M. E. Davidson	Province of New Brunswick Department of Justice and Public Safety, Fredericton, New Brunswick, Canada <i>Category: Regulatory Authority</i>	
Z. J. Fraczkowski	Technical Standards and Safety Authority (TSSA), Toronto, Ontario, Canada <i>Category: Regulatory Authority</i>	<i>Alternate</i>
B. Hamou L'Hadj	Régie du bâtiment du Québec, Montréal, Québec, Canada	<i>Alternate</i>

S. Hauer	Yukon Government, Whitehorse, Yukon Territory, Canada <i>Category: Regulatory Authority</i>	
D. N. Hird	SaskPower, Regina, Saskatchewan, Canada	<i>Alternate</i>
T. Holley	Nova Scotia Department of Labour, Skills and Immigration, Dartmouth, Nova Scotia, Canada	<i>Alternate</i>
J. Lackey	Technical Safety BC, Victoria, British Columbia, Canada <i>Category: Regulatory Authority</i>	
J. Lalande	Health Canada, Ottawa, Ontario, Canada <i>Category: Regulatory Authority</i>	
M. LeBlanc	Province of New Brunswick Department of Public Safety, Grand Falls, New Brunswick, Canada	<i>Alternate</i>
M. Mailman	Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada <i>Category: Regulatory Authority</i>	
J. R. Marshall	Technical Standards and Safety Authority (TSSA), Toronto, Ontario, Canada <i>Category: Regulatory Authority</i>	<i>Non-voting</i>
J. Renaud	Régie du bâtiment du Québec, Montréal, Québec, Canada <i>Category: Regulatory Authority</i>	
C. R. Valliere	Alberta Municipal Affairs — Safety Services, Edmonton, Alberta, Canada	<i>Alternate</i>
M. A. Wani	Government of Nunavut Department of Community and Government Services, Iqaluit, Nunavut, Canada <i>Category: Regulatory Authority</i>	
B. Zinn	Technical Safety BC, Vancouver, British Columbia, Canada	<i>Non-voting</i>

Technical Committee on Gas Appliances and Related Accessories

G. Fabbruzzo	Enbridge Gas Inc., Toronto, Ontario, Canada <i>Category: User Interest</i>	<i>Chair</i>
P. A. Baker	Maxitrol Company, Port Dover, Ontario, Canada <i>Category: Producer Interest</i>	<i>Vice-Chair</i>
D. N. Hird	SaskPower, Regina, Saskatchewan, Canada <i>Category: Regulatory Authority</i>	<i>Vice-Chair</i>
D. Baxter	Ridgeway, Ontario, Canada <i>Category: General Interest</i>	
J. Boros	Rheem Sales Co. Inc. AKA Rheem Manufacturing Co., Montgomery, Alabama, USA	<i>Non-voting</i>
M. Callen	GHP Group Inc., Niles, Illinois, USA	<i>Non-voting</i>
C. Côté	Corporation des maîtres mécaniciens en tuyauterie du Québec (CMMTQ), Montréal, Québec, Canada <i>Category: User Interest</i>	
B. Diel	M.B. Sturgis Inc., Maryland Heights, Missouri, USA	<i>Non-voting</i>
L. Gill	IPEX USA LLC, Oakville, Ontario, Canada	<i>Non-voting</i>
A. Gould	Reliance Comfort LP, Cambridge, Ontario, Canada <i>Category: User Interest</i>	
C. Grider	Intertek, Plano, Texas, USA	<i>Non-voting</i>

P. Kirchner	A.O. Smith Enterprises Ltd., Fergus, Ontario, Canada <i>Category: Producer Interest</i>	
P. Koepfgen	FortisBC, Surrey, British Columbia, Canada <i>Category: User Interest</i>	
P. Osborne	Enercare Home and Commercial Services, North York, Ontario, Canada <i>Category: General Interest</i>	
B. Streisel	GHP Group Inc., Garrettsville, Ohio, USA <i>Category: Producer Interest</i>	
M. Thomas	Natural Resources Canada — CanmetENERGY, Ottawa, Ontario, Canada	<i>Non-voting</i>
M. Travers	Reliance Comfort LP, Cambridge, Ontario, Canada	<i>Non-voting</i>
C. R. Valliere	Government of Alberta Municipal Affairs, Edmonton, Alberta, Canada <i>Category: Regulatory Authority</i>	
P. Verhas	Dettson Industries Inc., Sherbrooke, Québec, Canada <i>Category: Producer Interest</i>	
D. B. Walls	Engineered Air, Calgary, Alberta, Canada	<i>Non-voting</i>
M. W. Wilber	ESi (Engineering Systems Inc.), Plymouth, Minnesota, USA	
N. Shrewsbury-Gee	CSA Group, Toronto, Ontario, Canada	<i>Project Manager</i>

Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories

M. W. Wilber	ESi (Engineering Systems Inc.), Plymouth, Minnesota, USA <i>Category: General Interest</i>	<i>Chair</i>
A. Lanier Papageorge	Southern Company Gas, Atlanta, Georgia, USA <i>Category: Gas Supplier</i>	<i>Vice-Chair</i>
E. Adair	Hearth, Patio & Barbecue Association, Dixon, California, USA <i>Category: Producer Interest</i>	
S. Ayers	Consumer Product Safety Commission, Rockville, Maryland, USA	<i>Non-voting</i>
R. Beard	CSA Group, Toronto, Ontario, Canada <i>Category: Research/Testing</i>	
M. Beisheim	VentBOM LLC, Highlands Ranch, Colorado, USA <i>Category: Gas Supplier</i>	
J. Brania	ULSE Inc., Melville, New York, USA	<i>Alternate</i>
R. Cabrera	Rheem Manufacturing, Fort Smith, Arkansas, USA <i>Category: Producer Interest</i>	
R. Carroll	Hearth, Patio & Barbecue Association, Arlington, Virginia, USA	<i>Alternate</i>
S. M. Corcoran	American Gas Association, Washington, DC, USA	<i>Alternate</i>

M. Diesch	Lennox International Inc., Carrollton, Texas, USA <i>Category: Producer Interest</i>	
J. M. Emmel	Virginia Tech, Blacksburg, Virginia, USA <i>Category: User Interest</i>	
G. Fabbruzzo	Enbridge Gas Inc., Toronto, Ontario, Canada	<i>Non-voting</i>
P. Glanville	GTI Energy, Des Plaines, Illinois, USA <i>Category: Research/Testing</i>	
C. Grider	Intertek, Plano, Texas, USA <i>Category: Research/Testing</i>	
R. Jensen	Emerson Climate Technologies, St. Louis, Missouri, USA <i>Category: Producer Interest</i>	
R. A. Jordan	Consumer Product Safety Commission, Rockville, Maryland, USA	<i>Non-voting</i>
J. Kleiss	Lochinvar LLC, Lebanon, Tennessee, USA	<i>Non-voting</i>
T. Kwon	Air-Conditioning, Heating, and Refrigeration Institute (AHRI), Arlington, Virginia, USA	<i>Non-voting</i>
R. Lani	American Public Gas Association, Washington, DC, USA <i>Category: Gas Supplier</i>	
N. Lee	Rheem Manufacturing, Fort Smith, Arkansas, USA	<i>Alternate</i>
T. Manz	State of Minnesota Construction Codes and Licensing Division, St. Paul, Minnesota, USA <i>Category: Government and/or Regulatory Authority</i>	

G. McPherson	McPherson Propane Inc., Sturgis, South Dakota, USA <i>Category: User Interest</i>	
F. Myers	The Myers Group LLC, Arlington, Texas, USA <i>Category: General Interest</i>	
J. Nanni	Consumers Union, Yonkers, New York, USA <i>Category: User Interest</i>	
J. Park	Association of Home Appliance Manufacturers (AHAM), Washington, DC, USA	<i>Non-voting</i>
G. J. Potter	Heater Technologies LLC, Marthasville, Missouri, USA <i>Category: Producer Interest</i>	
J. A. Ranfone	American Gas Association Inc., Washington, DC, USA <i>Category: Gas Supplier</i>	
G. Reynolds	A.O. Smith Corp., Nashville, Tennessee, USA <i>Category: Producer Interest</i>	
I. Sargunam	Bloomington, Indiana, USA <i>Category: General Interest</i>	
A. B. Sherwin	St. Louis Community College, St. Louis, Missouri, USA <i>Category: User Interest</i>	
M. Skierkiewicz	ULSE Inc., Melville, New York, USA <i>Category: Research/Testing</i>	
C. Souhrada	North American Association of Food Equipment Manufacturers, Chicago, Illinois, USA <i>Category: Producer Interest</i>	
C. Suchovsky	Appliance Engineering Inc., Twinsburg, Ohio, USA <i>Category: General Interest</i>	

B. J. Swiecicki	National Propane Gas Association, Tinley Park, Illinois, USA <i>Category: Gas Supplier</i>	
M. B. Williams	Association of Home Appliance Manufacturers (AHAM), Washington, DC, USA <i>Category: Producer Interest</i>	
T. A. Williams	Natural Gas Direct LLC, Arlington, Virginia, USA <i>Category: User Interest</i>	
N. Shrewsbury-Gee	CSA Group, Toronto, Ontario, Canada	<i>Project Manager</i>

Z21/CSA Joint Subcommittee on Standards for Outdoor Cooking and Illuminating Appliances

D. Szubra	Channel Products Inc., Solon, Ohio, USA	<i>Chair</i>
R. Ten Bruin	Weber-Stephen Products LLC, Palatine, Illinois, USA	<i>Vice-Chair</i>
E. Adair	Hearth, Patio & Barbecue Association, Dixon, California, USA	
T. Anderson	Rocky Mountain Outdoors Ltd., Victoria, British Columbia, Canada	
S. Ayers	Consumer Product Safety Commission, Rockville, Maryland, USA	
P. A. Baker	Maxitrol Company, Port Dover, Ontario, Canada	
R. Beard	CSA Group, Toronto, Ontario, Canada	
B. Bennett	Logan Outdoor Products LLC dba Camp Chef, Logan, Utah, USA	
N. Bourgeois	Metal Fusion Inc., Jefferson, Louisiana, USA	
J. Brania	ULSE Inc., Melville, New York, USA	
R. Calabria	Empire Comfort, Belleville, Illinois, USA	
R. Carroll	Hearth, Patio & Barbecue Association, Arlington, Virginia, USA	

A. Carter	Masterbuilt Manufacturing LLC, Columbus, Georgia, USA
B. Diel	M.B. Sturgis Inc., Maryland Heights, Missouri, USA
B. Dresner	Empire Comfort Systems Inc., Belleville, Illinois, USA
L. Eck	Newell Brands, Wichita, Kansas, USA
T. Edwards	Metal Fusion Inc., Jefferson, Louisiana, USA
E. Ferguson	C3H8 Consulting, Eaton, Colorado, USA
S. T. Gentry	Worthington Cylinder Corp., Columbus, Ohio, USA
G. Graham	Blackstone Products, Logan, Utah, USA
A. Hamill	Ooni Limited, Edinburgh, UK
T. L. Jackson	Accuflex Industrial Hose Ltd., Guelph, Ontario, Canada
Y. S. Kim	Consumer Product Safety Commission, Rockville, Maryland, USA
B. Levien	Loco-Crazy Good Cookers LLC, Columbus, Georgia, USA
D. McCullough	Robert H. Peterson Co., City of Industry, California, USA
P. E. Newberry	Worthington Industries, Columbus, Ohio, USA
M. N. Nureddine	Bull Outdoor Products Inc., Lodi, California, USA

S. W. Ogle	Lowe's Quality Assurance, Mooresville, North Carolina, USA
T. O'Leary	Skytech Products Group, Fort Wayne, Indiana, USA
R. Panaro	Cavagna North America, Inc., a division of Cavagna Group, Somerset, New Jersey, USA
J. Petersen	Petersen Engineering, Texarkana, Texas, USA
C. Pollock	Char-Broil LLC, Columbus, Georgia, USA
W. M. Pryor	Electrolux Home Products Inc., Springfield, Tennessee, USA
R. Rasmussen	Rasmussen Iron Works Inc., Whittier, California, USA
M. Riggle	Dormont Manufacturing, Export, Pennsylvania, USA
W. Ring	Fairview Ltd., Oakville, Ontario, Canada
J. D. Runstedler	Onward Manufacturing Company Ltd., Waterloo, Ontario, Canada
A. Sellers	Ooni Limited, Edinburgh, UK
D. Shoman	PFS Corp., Cottage Grove, Wisconsin, USA
R. G. Smith	Global Engineered Solutions Group LLC, New Smyrna Beach, Florida, USA
C. Su	Consumer Product Safety Commission, Rockville, Maryland, USA

C. Suchovsky	Appliance Engineering Inc., Twinsburg, Ohio, USA	
J. Sunich	Weber-Stephen Products LLC, Palatine, Illinois, USA	
D. Tinney	Camp Chef, Hyde Park, Utah, USA	
T. Vandini	Quality Steel Corporation, Salt Lake City, Utah, USA	
J. Vazquez	Copreci de Mexico S.A. de C.V., Guadalajara, Mexico	
N. Wilson	CSA Group, Independence, Ohio, USA	
E. Wolf	Cavagna North America, Mansfield, Ohio, USA	
M. Yan	Robert H. Peterson Co., City of Industry, California, USA	
N. Shrewsbury-Gee	CSA Group, Toronto, Ontario, Canada	<i>Project Manager</i>

Preface

This is the sixth edition of CSA/ANSI Z21.89 • CSA 1.18, *Outdoor cooking specialty gas appliances*. It supersedes the previous editions published in 2017, 2013, 2007, 2004, and 2002.

The major changes to this edition include the following:

- a) Altitude testing requirements have been updated.
- b) Battery temperature limits have been revised.
- c) Additional requirements for manufacturing and production have been added.
- d) Coverage for low temperature operation has been added.
- e) Combustible material temperature tolerances have been standardized.
- f) Wind testing requirements have been revised.
- g) Annex [D](#), on smart enabled appliances, has been added.
- h) Annex [E](#), on input calculations, has been added.
- i) References to manufactured and mixed gases have been removed.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Z21/CSA Joint Subcommittee on Standards on Outdoor Cooking and Illuminating Appliances, under the jurisdiction of the Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories, the Technical Committee on Gas Appliances and Related Accessories, and the Strategic Steering Committee on Standards for Fuel Burning Equipment, and had been formally approved by the Technical Committees and the Interprovincial/Territorial Gas Advisory Council.

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.

This Standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

Interpretations: The Strategic Steering Committee on Standards for Fuel Burning Equipment has provided the following direction for the interpretation of standards under its jurisdiction: “The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant committee interpretation has not already been published, CSA’s procedures for interpretation shall be followed to determine the intended safety principle.”

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.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*