

Gas-fired room heaters, volume II, unvented room heaters



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.



Revision History

Revisions from previous edition	Revision symbol (in margin)
Clauses 1.1 , 1.2 , 3 , 4.1.3 , 4.1.4 , 4.20.4 , 4.20.5 , 4.21.3 , 4.21.10 , 4.21.22 , 5.1.1 , 5.1.10 , 5.1.11 , 5.3.4 , 5.5.9 , and 5.25	Δ

Currently in preview, click buy full versi

Standards Update Service

CSA/ANSI Z21.11.2:19
July 2019

Title: *Gas-fired room heaters, volume II, unvented room heaters*

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

- go to store.csagroup.org
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **24253.1**

If you require assistance, please e-mail techsupport@csagroup.org or call 419-771-47-2233.

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

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.

Individuals, companies, and associations across Canada indicate their support for CSA Groups standards development by volunteering their time and skills to Committee work and supporting CSA Groups objectives through sustaining memberships. The more than 7000 committee volunteers and the 2000 sustaining memberships together form CSA Groups total membership from which its Directors are chosen. Sustaining memberships represent a major source of income for CSA Groups standards development activities.

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 product 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 eight 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,
Canada M9W 1R3

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 these 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

CSA/ANSI Z21.11.2:19
***Gas-fired room heaters, volume II,
unvented room heaters***



American National Standards Institute, Inc.



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

*Approved on June 7, 2019 by ANSI
Published in July 2019 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 store.csagroup.org
or call toll-free 1-800-463-6727 or 416-747-4044.*

ISBN 978-1-4883-1550-3

*© 2019 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

Z21/83 Technical Committee on Standards for Performance and Installation of Gas Burning Appliances and Related Accessories 3

Z21 Technical Subcommittee on Standards for Unvented Gas-Fired Heating Appliances 6

Preface 10

1 Scope 14

2 Reference publications 16

3 Definitions 17

4 Construction 27

4.1 General construction and assembly 27

4.2 Materials 30

4.3 Catalytic materials 31

4.4 Glass fronts 31

4.5 Main burners 32

4.6 Primary air openings and adjustment means 33

4.7 Orifices and orifice fittings 34

4.8 Automatic gas ignition systems 34

4.9 Oxygen depletion safety shutoff systems 36

4.10 Appliance main gas valve 37

4.11 Gas supply lines 38

4.12 Bleeds and vents 40

4.13 Thermostats 40

4.14 Automatic valves and safety shutoff valves 41

4.15 Gas appliance pressure regulators 41

4.16 Adjustment of minimum input rating 42

4.17 Pilot gas filters 42

4.18 Electrical equipment and wiring 43

4.19 Motors and blowers 56

4.20 Instructions 57

4.21 Marking 66

5 Performance 78

5.1 General 78

5.2 Test gases 80

5.3 Input test pressures and burner adjustments 81

5.4 Combustion 83

5.5 Burner operating characteristics 89

5.6 Automatic shutdown of a universal unvented room heater 91

5.7 Pilot operating characteristics 91

5.8 Pilot burners and safety shutoff devices 92

5.9 Orifice and orifice fitting temperatures 95

5.10 Direct ignition systems 96

5.11	Glass fronts	97
5.12	Burn hazard potential	100
5.13	Oxygen depletion safety shutoff systems	106
5.14	Appliance main gas valves	107
5.15	Gas appliance pressure regulators	107
5.16	Automatic valves	107
5.17	Safety circuit analysis	108
5.18	Manifold and control assembly capacity	108
5.19	Wall, floor, and ceiling temperatures	108
5.20	Surface temperatures	109
5.21	Evaluation of clothing ignition potential	112
5.22	Temperature at discharge air opening	113
5.23	Marking material adhesion and legibility	114
5.24	Catalytic materials	116
5.25	Stability of parts not permanently attached to unvented room heaters	116
5.26	Catalyst longevity	117
5.27	Catalyst quality	117

6 Manufacturing and production tests 117

Annex A (normative)	— Glass temperature calculation	120
Annex B (normative)	— Sample failure modes and effects analysis for component miswiring*	124
Annex C (normative)	— Outline of lighting instructions for appliances equipped with continuous pilots	125
Annex D (normative)	— Outline of operating instructions for appliances equipped with intermittent pilot or interrupted pilot systems	128
Annex E (normative)	— Outline of operating instructions for appliances equipped with direct ignition systems	131
Annex F (informative)	— Pertinent references to ANSI Y14.15	134
Annex G (informative)	— Wire color designations	135
Annex H (informative)	— Recommended wire color usage	136
Annex I (informative)	— Preferred graphic symbols of commonly used items, extracted from standard ANSI/IEEE 31-1975, Graphic symbols for electrical and electronics diagrams, and abbreviations for these items	137
Annex J (informative)	— Relationship of carbon dioxide to oxygen in the closed room test specified in Clause 5.13	139
Annex K (informative)	— Table of conversion factors	141
Annex L (informative)	— Legibility and design of safety information in unvented room heater markings and manuals	144

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

B.J. Swiecicki	National Propane Gas Association, Tinley Park, Illinois, USA <i>Category: Gas Supplier</i>	<i>Chair</i>
M.W. Wilber	Crane Engineering, Plymouth, Minnesota, USA <i>Category: General Interest</i>	<i>Vice-Chair</i>
J. Brania	Underwriters Laboratories Inc., Melville, New York, USA <i>Category: Research/Testing</i>	
R. Carrol	Hearth Patio & Barbecue Association, Arlington, Virginia, USA <i>Category: General Interest</i>	
M. Deegan	Clearwater Gas System, Clearwater, Florida, USA <i>Category: Regulatory/Government Agency</i>	
M. Diesch	Lennox International Inc, Carrollton, Texas, USA <i>Category: Manufacturer</i>	
J.M. Emmel	Virginia Tech, Blacksburg, Virginia, USA <i>Category: Consumer/User Interest</i>	
G.A. Gress	International Code Council (ICC), Country Club Hills, Illinois, USA <i>Category: Regulatory Code</i>	
C. Grider	Intertek, Plano, Texas, USA	<i>Alternate</i>
T.F. Hardin	Underwriters Laboratories Inc., Research Triangle Pk, North Carolina, USA	<i>Alternate</i>

J.E. Hohman	EDEMPCO, Ewart, Michigan, USA <i>Category: General Interest</i>	
D.W. Hubbard	Intertek Commercial & Electrical, Chagrin Falls, Ohio, USA <i>Category: Research/Testing</i>	
D.M. Jakobs	Rheem Manufacturing Company Air Conditioning Division, Fort Smith, Arkansas, USA <i>Category: Manufacturer</i>	
A. Lanier Papageorge	Southern Company Gas, Atlanta, Georgia, USA <i>Category: Gas Supplier</i>	
G. McPherson	McPherson Propane, Inc., Sturgis, South Dakota, USA <i>Category: Consumer/User Interest</i>	
F. Myers	Mansfield, Texas, USA <i>Category: General Interest</i>	
J. Nanni	Consumers Union, Yonkers, New York, USA <i>Category: Consumer/User Interest</i>	
J. Park	Association of Home Appliance Manufacturers (AHAM), Washington, DC, USA	<i>Alternate</i>
G.J. Potter	Heater Technologies, LLC, Northasville, Missouri, USA <i>Category: Manufacturer</i>	
J.A. Ranfone	American Gas Association Inc., Washington, DC, USA <i>Category: Gas Supplier</i>	
N. J. Roch	Lochinvar, LLC, Lebanon, Tennessee, USA	<i>Alternate</i>
I. Sargunam	Bloomington, Indiana, USA <i>Category: General Interest</i>	

A.B. Sherwin	St. Louis Community College, St. Louis, Missouri, USA <i>Category: Consumer/User Interest</i>	
D. Snyder	American Water Heater Company, Johnson City, Tennessee, USA <i>Category: Manufacturer</i>	
C. Souhrada	North American Association of Food Equipment Manufacturers, Chicago, Illinois, USA <i>Category: Manufacturer</i>	
C. Suchovsky	Gas Consultants, Inc, Walton Hills, Ohio, USA <i>Category: General Interest</i>	
H. Virgil	Brownsburg, Indiana, USA <i>Category: Consumer/User Interest</i>	
L.B. Willmore	Southern California Gas Company, Los Angeles, California, USA <i>Category: Gas Supplier</i>	
L. McCourt	CSA Group, Cleveland, Ohio, USA	<i>Project Manager</i>
S. Corcoran	CSA Group, Cleveland, Ohio, USA	<i>Project Manager</i>

Z21 Technical Subcommittee on Standards for Unvented Gas-Fired Heating Appliances

R.G. Smith	Global Engineered Solutions Group, LLC, New Smyrna Beach, Florida, USA	<i>Chair</i>
D.C. Delaquila	Aquila Consulting, LLC, Warren, Ohio, USA	<i>Vice-Chair</i>
G. Achman	Hearth & Home Technologies, Lakeville, Minnesota, USA	
E. Adair	Hearth, Patio & Barbecue Association, Arlington, Virginia, USA	
P.A. Baker	Maxitrol Company, Port Dover, Ontario, Canada	<i>Alternate</i>
D. Brand	Thermablaster, Pittsburgh, Pennsylvania, USA	
R. Carroll	Hearth Patio & Barbecue Association, Arlington, Virginia, USA	<i>Alternate</i>
R.D. Curkeet	Curkeet Consulting LLC, Black Earth, Wisconsin, USA	
D. Denton	Vent-Free Gas Products Alliance, Townsend, Kentucky, USA	
B. Diel	M.B. Sturgis Inc., Maryland Heights, Missouri, USA	
K.S. Dorrrough	Rinnai America Corporation, Peachtree City, Georgia, USA	<i>Alternate</i>
B. Dresner	Empire Comfort Systems, Inc., Belleville, Illinois, USA	
R. Freeman	Freeman Gas, Spartanburg, South Carolina, USA	

G. Fu	Thermablaster, Pittsburgh, Pennsylvania, USA	<i>Alternate</i>
T. James	Woodbridge Fireplace Inc., Mississauga, Ontario, Canada	
D.R. Jamieson	GHP Group Inc., Oakville, Ontario, Canada	
R.A. Jordan	Consumer Product Safety Commission, Rockville, Maryland, USA	<i>Non-voting</i>
K. Kirchner	GHP Group Inc., Placentia, California, USA	
K. Leason	Continental Appliance, Inc. dba Procom, Brea, California, USA	
J. Lee	Continental Appliance, Inc. dba Procom, Brea, California, USA	<i>Alternate</i>
D. McCullough	Robert H. Peterson Company, City of Industry, California, USA	<i>Alternate</i>
M.S. Mulberry	Sure Heat Manufacturing, Bowling Green, Kentucky, USA	<i>Alternate</i>
J. Nanni	Consumers Union, Yonkers, New York, USA	
C. Olds	PERC, Washington, DC, USA	
T. O'Leary	Skytech Products Group, Ft. Wayne, Indiana, USA	
J. Petersen	Petersen Engineering, Texarkana, Texas, USA	
S. Pyne	Detroit Radiant Products Company, Warren, Mississippi, USA	

R. Rasmussen	Rasmussen Iron Works, Inc., Whittier, California, USA
C. Richards	Catalytic Heater Company, Terrell, Texas, USA
J.J. Schlachter	Maxitrol Company, Southfield, Michigan, USA
D. Shoman	PFS Corporation, Cottage Grove, Wisconsin, USA
C. Suchovsky	Gas Consultants, Inc., Walton Hills, Ohio, USA
B. Swiecicki	National Propane Gas Association, Tinley Park, Illinois, USA
J.S. Thomas	Sure Heat Manufacturing, Bowling Green, Kentucky, USA
J. Vancak	Calcana Industries Ltd., Calgary, Alberta, Canada
B. Vandrak	Enerco/Mr. Heater Corporation, Cleveland, Ohio, USA
M. Wilber	Crane Engineering, Plymouth, Minnesota, USA
E. Wolf	Cavagna North America, Mansfield, Ohio, USA
M. Yan	Robert H. Peterson Company, City of Industry, California, USA
A. Yilmaz	Air-Conditioning, Heating, and Refrigeration Institute, Arlington, Virginia, USA
J. York	Rinnai America Corporation, Peachtree City, Georgia, USA

B. Zimmerman Underwriters Laboratories Inc.,
Northbrook, Illinois, USA

S. Corcoran CSA Group, *Project Manager*
Cleveland, Ohio, USA

Preface

This is the twenty-ninth edition of ANSI Z21.11.2, *Gas-fired room heaters, volume II, unvented room heaters*. It supersedes the previous editions published in 2016, 2013, 2011, 2007, 2000, 1996, 1992, 1989, 1983, 1978, 1974, 1971, 1967, and 1962.

This Standard was prepared by the Z21 Technical Subcommittee on Standards for Unvented Gas-Fired Heating Appliances, under the jurisdiction of the Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories, and had been formally approved by the Technical Committee, and American National Standards Institute.

Interpretations: The Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories 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 Group’s procedures for interpretation shall be followed to determine the intended safety principle.”

Notes:

- 1) *The use of patented technology may be required to meet the requirements of this Standard.*
- 2) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 3) *This Standard contains SI (Metric) corresponding to the yard/pound quantities, the purpose being to allow the standard to be used in SI (Metric) units. IEEE/ASTM SI 10, American National Standard for Metric Practice, or ISO 80000-1:2009, Quantities and units – Part 1: General, is used as a guide in making metric conversion from yard/pound quantities.) If a value for a measurement and a corresponding value in other units are stated, the first stated value is to be regarded as the requirement. The given corresponding value may be approximate. If a value for a measurement and a corresponding value in other units are both specified as a quoted marking requirement, the first stated unit, or both shall be provided.*
- 4) *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.*
- 5) *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.*
- 6) *This Standard is subject to review at least every five years; suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:*
 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*
- 7) *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*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.

History of the development of ANSI Z21.11.2

Note: *This history is informative and is not part of the standard.*

Available records indicate that the “Gas Appliance Testing Code,” published in 1924 by the Pacific Coast Gas Association, contained what appeared to be the first printed specifications covering construction and performance of gas fired space heaters.

In April 1925, the American Gas Association (A.G.A.) Approval Requirements Committee appointed the Subcommittee on Approval Requirements for Gas Space Heaters to formulate nationally acceptable standards that could be used by the newly created A.G.A. Testing Laboratories. Following a comprehensive investigation of contemporary types of gas space heaters, a draft standard was developed and distributed for criticism in April 1926. The subcommittee revised the draft standard in the light of comments received, and the resultant standard was approved by the Approval Requirements Committee and published in July 1926. Following the same procedure, revised editions were published in June 1927 and August 1929.

On September 11, 1930, the American Gas Association Approval Requirements Committee became Sectional Committee Z21 of the American Standards Association; consequently, the Sub-committee on Approval Requirements for Gas Space Heaters became a subcommittee of the Z21 Committee, and subsequent editions were developed in accordance with American Standards Association procedures. Due to progress made in the utilization of gas for space heating during this period, further modifications and expansion of these standards were deemed necessary. Based on a continuous program of study and research conducted on this type of equipment and following American Standards Association procedures, eleven subsequent editions were approved as American Standards between December 1930 and August 1962.

With the tenth edition of the standard, approved as American Standard by the American Standards Association on August 12, 1949, the title of the standard was changed from “Requirements for Gas Space Heaters” to “Requirements for Gas Fired Room Heaters” to be more indicative of its scope.

In 1959, the gas heating appliance subcommittees were reorganized with the result that the gas fired room heater standard was divided into Volume I, Vented Room Heaters, and Volume II, Unvented Room Heaters. The vented room heater standard was assigned to the new vented warm air heater subcommittee, and the unvented room heater standard was assigned to the new unvented heating appliance subcommittee. With the fourteenth edition, approved by the American Standards Association in 1962, this division of the room heater standard into Volumes I and II was accomplished.

On August 24, 1966, the American Standards Association was reconstituted as the United States of America Standards Institute, and the fifteenth edition of the unvented room heater standard was approved as USA Standard in November 1967. On October 6, 1969, the United States of America Standards Institute was renamed the American National Standards Institute, Inc. As a result, the sixteenth through the twenty-third edition of this Standard were approved as American National Standards between 1971 and 2000.

Further revisions to the standard were developed in line with industry development. The twenty-fourth edition of the unvented room heater standard, which includes revisions deemed necessary in line with industry developments, was approved as an American National Standard by the American National Standards Institute, Inc., on October 17, 2002.

The twenty-fifth edition of the unvented room heater standard was approved by the American National Standards Institute, Inc., on February 28, 2007.

The twenty-sixth edition of the unvented room heater standard was approved by the American National Standards Institute, Inc., on September 30, 2011.

The twenty-seventh edition of the unvented room heater standard was approved by the Z21/83 Technical Committee on May 13, 2013 and by the American National Standards Institute, Inc., on August 7, 2013.

The twenty-eighth edition of the unvented room heater standard was distributed for industry review during August 2012, April 2013, November 2013, and July 2014. This edition was approved by the Z21/83 Technical Committee on August 29, 2016 and by the American National Standards Institute, Inc. on November 7, 2016.

This, the twenty-ninth edition of the unvented room heater standard was distributed for industry review during November 2016 and February 2017. This edition was approved by the Z21/83 Technical Committee on DATE and by the American National Standards Institute, Inc. on DATE.

Previous editions of the unvented room heater standard, and addenda thereto, approved by the American National Standards Institute or its predecessor organizations are as follows:

ANSI Z21.11-1933		
ANSI Z21.11-1936		
ANSI Z21.11-1940		
ANSI Z21.11-1942	ANSI Z21.11a-1945	
ANSI Z21.11-1948		
ANSI Z21.11-1949	ANSI Z21.11a-1950	ANSI Z21.11b-1953
ANSI Z21.11-1954	ANSI Z21.11a-1955	
ANSI Z21.11-1956	ANSI Z21.11a-1957	ANSI Z21.11b-1958
ANSI Z21.11-1959	ANSI Z21.11a-1960	
ANSI Z21.11.2-1962	ANSI Z21.11.2a-1964	ANSI Z21.11.2b-1965
ANSI Z21.11.2-1967	ANSI Z21.11.2a-1968	ANSI Z21.11.2b-1969
ANSI Z21.11.2-1971	ANSI Z21.11.2a-1972	ANSI Z21.11.2b-1973
ANSI Z21.11.2-1974	ANSI Z21.11.2a-1976	ANSI Z21.11.2b-1977
ANSI Z21.11.2-1978	ANSI Z21.11.2a-1979	ANSI Z21.11.2b-1982
ANSI Z21.11.2-1983	ANSI Z21.11.2a-1984	ANSI Z21.11.2b-1988
ANSI Z21.11.2-1989	ANSI Z21.11.2a-1990	ANSI Z21.11.2b-1991
ANSI Z21.11.2-1992	ANSI Z21.11.2a-1993	ANSI Z21.11.2b-1995
ANSI Z21.11.2-1996	ANSI Z21.11.2a-1997	ANSI Z21.11.2b-1998
ANSI Z21.11.2-2000	ANSI Z21.11.2a-2001	ANSI Z21.11.2b-2002
ANSI Z21.11.2-2002	ANSI Z21.11.2a-2003	ANSI Z21.11.2b-2004
ANSI Z21.11.2-2007	ANSI Z21.11.2a-2007	ANSI Z21.11.2b-2010
ANSI Z21.11.2-2011		

ANSI Z21.11.2-2013

ANSI Z21.11.2-2016

Note: *This edition of ANSI Z21.11.2 incorporates changes to the 2016 edition. Changes, other than editorial, are denoted by a delta in the margin.*

CSA/ANSI Z21.11.2:19

Gas-fired room heaters, volume II, unvented room heaters

1 Scope

Δ 1.1

This Standard applies to newly produced gas-fired unvented room heaters for connection to the house fuel supply system (see Clause 3), hereinafter referred to as room heaters or appliances, constructed entirely of new, unused parts and materials, having input ratings up to and including 40,000 Btu/hr (11,723 W) except:

- a) unvented room heaters suitable for installation in bedrooms have input ratings of 10,000 Btu/hr (2,931 W) or less; and
- b) unvented room heaters suitable for installation in bathrooms have input ratings of 6000 Btu/hr (1,758 W) or less.

Δ 1.2

This Standard covers unvented room heaters that comply with either of the following types:

- a) shipped from the factory equipped specifically for use with one gas only. Field conversion of gas types by any means including the use of a kit are not permitted; or
- b) a universal unvented room heater shipped from the factory equipped with a switching means for selecting the type of gas to which it is being connected.

1.3

Unvented room heaters are:

- a) for use with natural gas;
- b) for use with manufactured gas;
- c) for use with mixed gas;
- d) for use with propane gas;
- e) for use with LP gas-air mixtures; and
- f) for manufactured (mobile) home aftermarket installation for use with natural gas only or for use with propane gas only.

1.4

Universal unvented room heaters are:

- a) for use with propane and for use with natural gas when provision is made for a switching means from one gas to the other; and
- b) for manufactured (mobile) home or mobile home aftermarket installation for use with propane and for use with natural gas when provision is made for a switching means from one gas to the other (see Clause 4.1.5).

1.5

Unvented room heaters for installation in bathrooms are to be wall-mounted. Unvented room heaters for installation in bedrooms are to be wall-mounted or for installation in solid-fuel burning fireplaces.