CSA Group

ANSI Z83.20-2008
CSA 2.34-2008
(reaffirmed 2013)

American National Standard/ CSA Standard For Gas-Fired Low Intensity Infrared Heaters

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CSA Group

AMERICAN NATIONAL STANDARD
ANSI Z83.20-2008

CSA STANDARD
CSA 2.34-2008

Second Edition - 2008
This Standard is based on the Standard for
Gas-Fired Low-Intensity Infrared Heaters
ANSI Z83.20-2001 • CSA 2.34-2001
and Addenda Z83.20a-2003 • CSA 2.34a-2003,
Z83.20b-2004 • CSA 2.34b-2004

APPROVED

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American National Standards Institute, Inc.

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Standards Developer

CSA AMERICA INC.
8501 East Pleasant Valley Road
Cleveland, Ohio 44131

CANADIAN STANDARDS ASSOCIATION
5060 Spectrum Way, Suite 100
Mississauga, Ontario, Canada L4W 5N6

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Canadian Standards Association

The Canadian Standards Association (CSA), 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 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's standards development by volunteering their time and skills to CSA Committee work and supporting the Association's objectives through sustaining memberships. The more than 7000 committee volunteers and the 2000 sustaining memberships together form CSA's total membership from which its Directors are chosen. Sustaining memberships represent a major source of income for CSA's standards development activities.

The Association 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, the Association regularly and continually audits and inspects products that bear the CSA Mark.

In addition to its head office and laboratory complex in Toronto, CSA has regional branch offices in many centres across Canada and inspection and testing agencies in eight countries. Since 1919, the Association has developed the necessary expertise to meet its corporate mission: CSA 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.

L'Association canadienne de normalisation (CSA), sous les auspices de laquelle cette Norme nationale a été préparée, a reçu ses lettres patentes en 1919 et son accréditation au sein du Système de Normes nationales par le Conseil canadien des normes en 1973. Association d'affiliation libre, sans but lucratif ni pouvoir de réglementation, elle se consacre à l'élaboration de normes et à la certification.

Les normes CSA reflètent le consensus de producteurs et d'usagers de partout au pays, au nombre desquels se trouvent des fabricants, des consommateurs, des détaillants et des représentants de syndicats, de corps professionnels et d'agences gouvernementales. L'utilisation des normes CSA est très répandue dans l'industrie et le commerce, et leur adoption par divers ordres de législation, tant municipal et provincial que fédéral, est chose courante, particulièrement dans les domaines de la santé, de la sécurité, du bâtiment, de la construction et de l'environnement.

Les Canadiens d'un bout à l'autre du pays témoignent de leur appui au travail de normalisation mené par la CSA en participant bénévolement aux travaux des comités de la CSA et en appuyant ses objectifs par leurs cotisations de membres de soutien. Les quelque 7000 volontaires faisant partie des comités et les 2000 membres de soutien constituent l'ensemble des membres de la CSA parmi lesquels ses administrateurs sont choisis. Les cotisations des membres de soutien représentent une source importante de revenu pour les services de soutien à la normalisation volontaire.

L'Association offre des services de certification et de mise à l'essai qui appuient et complètent ses activités dans le domaine de l'élaboration de normes. De manière à assurer l'intégrité de son processus de certification, l'Association procède de façon régulière et continue à l'examen et à l'inspection des produits portant la marque CSA.

Outre son siège social et ses laboratoires à Toronto, la CSA possède des bureaux régionaux dans des centres vitaux partout au Canada, de même que des agences d'inspection et d'essai dans huit pays. Depuis 1919, l'Association a parfait les connaissances techniques qui lui permettent de remplir sa mission d'entreprise, à savoir la CSA est un organisme de services indépendant dont la mission est d'offrir une tribune libre et efficace pour la réalisation d'activités facilitant l'échange de biens et de services par l'intermédiaire de services de normalisation, de certification et autres, pour répondre aux besoins de nos clients, tant à l'échelle nationale qu'internationale.

For further information on CSA services, write to

Canadian Standards Association
5060 Spectrum Way, Suite 100Mississauga, Ontario,
Canada L4W 5N6

Pour plus de renseignements sur les services de la CSA, s'adresser à
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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.

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American National Standards Institute, Inc.
25 West 43rd Street, Fourth Floor
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10036

Preface

This publication represents a basic standard for safe operation, substantial and durable construction, and acceptable performance of gas-fired low-intensity infrared heaters. It is the result of years of experience in the manufacture, testing, installation, maintenance, inspection and research on gas-fired low-intensity infrared heaters designed for utilization of gas. There are risks of injury to persons inherent in appliances that, if completely eliminated, would defeat the utility of the appliance. The provisions in this standard are intended to help reduce such risks while retaining the normal operation of the appliance.

Nothing in this standard is to be considered in any way as indicating a measure of quality beyond compliance with the provisions it contains. It is designed to allow compliance of gas-fired low-intensity infrared heaters, the safety construction and performance of which may exceed the various provisions specified herein. In its preparation, recognition has been given to possibilities of improvement through ingenuity of design. As progress takes place, revisions may become necessary. When they are believed desirable, recommendations or suggestions should be forwarded to the Z21/83 Committee, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131, or the Chairman of the CSA Technical Committee on Gas Appliances and Related Accessories, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.

Safe and satisfactory operation of gas-fired low-intensity infrared heaters depends to a great extent upon its proper installation, use and maintenance. It should be installed, as applicable, in accordance with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54;* the *Natural Gas and Propane Installation Code, CSA B149.1.*

Users of this American National Standard/CSA Standard are advised that the devices, products and activities within its scope may be subject to regulation at the Federal, Territorial, Provincial, state or local level. Users are strongly urged to investigate this possibility through appropriate channels. In the event of a conflict with this standard, the Federal, Territorial, Provincial, State or local regulation should be followed.

THIS STANDARD IS INTENDED TO BE USED BY THE MANUFACTURING SECTOR AND BY THOSE APPLYING THE EQUIPMENT AND BY THOSE RESPONSIBLE FOR ITS PROPER INSTALLATION. IT IS THE RESPONSIBILITY OF THESE USERS TO DETERMINE THAT IN EACH CASE THIS STANDARD IS SUITABLE FOR AND APPLICABLE TO THE SPECIFIC USE THEY INTEND.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute, Inc., require that action be taken to reaffirm, revise or withdraw this standard no later than five (5) years from the date of approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, Inc., 25 West 43rd Street, Fourth Floor, New York, N.Y. 10036, (212) 642-4900.

EFFECTIVE DATE: An organization using this standard for product evaluation as a part of its certification program will normally establish the date by which all products certified by that organization should comply with this standard.

History Of The Development Of The Standard For Gas-Fired Low-Intensity Infrared Heaters

(This History is informative and is not part of the standard.)

With the onset of the Free Trade Agreement between the United States and Canada on January 2, 1988, significant attention was given to the harmonization of the United States and Canadian safety standards addressing gas-fired equipment for residential, commercial and industrial applications. It was believed that the elimination of the differences between the standards would remove potential trade barriers and provide an atmosphere in which North American manufacturers could market more freely in the United States and Canada. The harmonization of these standards was also seen as a step toward harmonization with international standards.

The draft harmonized standard was based on current coverage from the American National Standard for Gas-Fired Infrared Heaters, Z83.6-1990, and the Canadian Standard for Gas-Fired Infra-Red Heaters, CAN1-2.16-M81.

At the November 18, 1998 meeting of the Z21/(Interim) CSA Joint Subcommittee for Gas-Fired Infrared Heaters, the subcommittee approved the draft harmonized standard on Gas-Fired Low-Intensity Infrared Heaters, Z83.20/CSA 2.34 for distribution for Public Review and Comment. The proposed draft harmonized standard was distributed for industry review on January 15, 1999.

At its October 1999 meeting, following reconsideration and modifications of the proposed draft standard for Gas-Fired Low-Intensity Infrared Heaters, the subcommittee recommended the the proposed draft standard to the Accredited Standards Committee Z21/83 and the CSA Technical Committee on Gas Appliances and Related Accessories for approval.

The proposed draft harmonized standard for Gas-Fired Low-Intensity Infrared Heaters was approved by the Z21/83 Committee on January 19, 2001, and by the CSA Technical Committee by letter ballot dated February 25, 2000.

The first edition of the American National Standard/CSA Standard for Gas-Fired Low-Intensity Infrared Heaters was approved by the Canadian Interprovincial Gas Advisory Council (IGAC) on January 4, 2001 and by the American National Standards Institute, Inc. (ANSI), on March 14, 2001.

This, the second edition of the American National Standard/CSA Standard for Gas-Fired Low-Intensity Infrared Heaters, was approved by the Canadian Interprovincial Gas Advisory Council (IGAC) on September 14, 2007 and by the American National Standards Institute, Inc. (ANSI) on February 15,2008.

The previous editions of the Gas-Fired Low-Intensity Infrared Heaters, and addenda thereto, approved by the IGAC and ANSI Institute Inc. are as follows:

ANSI Z83.20-2001 • CSA 2.34-2001
ANSI Z83.20a-2003 • CSA 2.34a-2003
ANSI Z83.20b-2004 • CSA 2.34b-2004

The following identifies the designation and year of the harmonized standard:

ANSI Z83.20-2008 • CSA 2.34-2008

Note: This edition of Z83.20 • CSA 2.34 incorporates changes to the 2001 edition and addenda thereto. Changes are denoted by a vertical line in the margin.

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American National Standard/CSA Standard For Gas-Fired Low-Intensity Infrared Heaters

Part I: Construction

1.1 Scope

1.1.1
This standard applies to newly produced, gas-fired low-intensity infrared heaters and infrared radiant tube heaters (see Part IV, Definitions), hereinafter referred to as heaters or appliances, constructed entirely of new, unused parts and materials with inputs up to and including 400 000 Btu/hr (117.23 kW) per burner:

a. For use with natural gas;

b. For use with manufactured gas;

c. For use with mixed gas;

d. For use with liquefied petroleum (propane) gases;

e. For use with LP gas-air mixtures; and

f. Convertible for use with natural gas and liquefied petroleum (propane) gases, when provision is made for the simple conversion from one gas to the other.

1.1.2
The heaters covered by this standard are intended for installation in and heating of outdoor spaces or nonresidential indoor spaces and are intended for location where flammable gases or vapors are not generally present.

Although heaters covered by this standard may, in certain instances, be suitable for application in industrial processes, this standard does not cover industrial process burners.

1.1.3
Low-intensity infrared heaters and infrared radiant tube heaters may be suspended overhead, angle mounted overhead, wall mounted or floor mounted. Floor-mounted heaters may be free-standing and, when for outdoor installation, also may be portable to the extent defined in Part IV, Definitions.

1.1.4
Overhead heaters complying with this standard are suitable for use in (1) aircraft hangars when installed in accordance with the Standard for *Aircraft Hangars, ANSI/NFPA 409*, and (2) garages when installed in accordance with the Standard for *Parking Structures, ANSI/NFPA 88A*, or the Standard for *Repair Garages, ANSI/NFPA 88B*, or the Canadian *Natural Gas and Propane Installation Code, CSA B149.1*, and are so marked.