



**CSA
Group**

ANSI Z83.8-2013/CSA 2.6-2013

**Standard for gas unit heaters, gas
packaged heaters, gas utility heaters, and
gas-fired duct furnaces**

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Standard for gas unit heaters, gas
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Interprovincial Gas Advisory Council



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Preface

This publication represents a basic standard for safe operation, substantial and durable construction, and acceptable performance of a gas unit heater, gas packaged heater, gas utility heater, or gas-fired duct furnace. It is the result of years of experience in the manufacture, testing, installation, maintenance, inspection and research on a gas unit heater, gas packaged heater, gas utility heater, or gas-fired duct furnace 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.

Safe and satisfactory operation of gas unit heater, gas packaged heater, gas utility heater, or gas-fired duct furnace 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*; or the *Natural Gas and Propane Installation Code, CSA B149.1*.

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History of Development of the ANSI Z83.8-2013/CSA 2.6-2013

Note: *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 equipment.

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.

A Z83/CGA joint Subcommittee on Standards for Heavy Duty Heaters was then established, based on memberships of the Z83 subcommittee for Gas-Fired Heavy Duty Forced Air Heaters, and the CGA committees for Unit Heaters/Duct Furnaces, Make-up Air Heaters, and Door Heaters.

Membership on the joint heavy duty heaters subcommittee encompasses representatives from the U.S. and Canadian manufacturing industry, gas suppliers (natural and LP), regulatory authorities and general interest.

To facilitate the reporting structure of joint subcommittees, a CGA Standards Steering Committee on Gas Burning Appliances and Related Accessories was established to parallel Accredited Standards Committees Z21 and Z83.

The first meeting of the Z83/CGA joint heavy duty heaters subcommittee was held on July 14-16, 1992 in Toronto.

During the standards development process, a total of four drafts were circulated for public review.

The fourth draft of the proposed harmonized standard was issued for public review in March 1994. All comments relating to the fourth draft were duly considered by the joint heavy duty heaters subcommittee at its meeting of June 21-22, 1994. The resulting fifth draft of the proposed harmonized standard (fourth draft as revised at the June 21-22, 1994 subcommittee meeting) was submitted for approval by the Z83 Committee and the CGA Steering Committee.

The first edition of the harmonized Z83/CGA standard for Unit Heaters and Gas-Fired Duct Furnaces was approved by the Interprovincial Gas Advisory Council on June 7, 1996, and by the American National Standards Institute, Inc. on August 29, 1996.

The second edition of the harmonized Z83/CSA Standard for Gas Unit Heaters and Gas-Fired Duct Furnaces was approved by the Interprovincial Gas Advisory Council on February 8, 2002 and by the American National Standards Institute, Inc., on April 24, 2002.

The third edition, was approved by the Interprovincial Gas Advisory Council on January 13, 2006 and by the American National Standards Institute, Inc. on October 7, 2005.

With the fourth edition, the title of the Standard for Gas Unit Heater and Gas-Fired Duct Furnace was changed. The American National Standard/CSA Standard for Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters, or Gas-Fired Duct Furnaces was approved by the International Gas Advisory Council on December 29, 2008, and by the American National Standards Institute on December 15, 2009.

The fifth edition, was approved by the International Gas Advisory Council on February 5, 2013, and by the American National Standards Institute on February 22, 2013.

The previous editions of the gas unit heaters and gas-fired duct furnaces, and addenda thereto, approved by the Interprovincial Gas Advisory Council and American National Standards Institute, Inc. are as follows:

ANSI Z83.8-1996 (R2001) • CGA 2.6-M96 ANSI Z83.8a-1998 (R2001) • CGA 2.6a-M98 ANSI Z83.8b-2000 (R2001) • CGA 2.6b-2000	ANSI Z83.8-2002 • CSA 2.6-2002 ANSI Z83.8a-2003 • CSA 2.6a-2003 ANSI Z83.8b-2004 • CSA 2.6b-2004
ANSI Z83.8-2006 • CSA 2.6-2006 ANSI Z83.8a-2009 • CSA 2.6a-2009	ANSI Z83.8-2009 • CSA 2.6-2009

The following identifies the designation and year of this edition of the standard:

ANSI Z83.8-2013 • CSA 2.6-2013

Note: *This edition of ANSI Z83.8 • CSA 2.6 incorporates changes to the 2009 edition. Changes, other than editorial, are denoted by a vertical line in the margin.*

ANSI Z83.8-2013/CSA 2.6-2013

Standard for gas unit heaters, gas packaged heaters, gas utility heaters, and gas-fired duct furnaces

1 Scope

1.1

This standard applies to newly produced gas fired-duct furnaces, packaged heaters and unit heaters with input rates up to and including 10,000,000 Btu/h (2 931 kW) and utility heaters with inputs up to and including 400,000 Btu/hr (117.2 kW) constructed entirely of new, unused parts and materials:

- a) For use with natural gas with inlet gas pressures up to and including 5.0 psi (34.5 kPa); unit heaters, packaged heaters and duct furnace with burners having inputs rates over 400,000 Btu/hr (117 228 kW) may have higher inlet pressures.
- b) For use with liquefied petroleum gases; and
- c) Convertible for use with natural gas and liquefied petroleum gases, when provision is made for the conversion from one gas to the other.

1.2

The term "appliance" when used herein, applies to gas-fired duct furnaces, packaged heaters, utility heaters and unit heaters. Duct furnaces, unit heaters and package heaters may be factory-built as a single unit or as a package system intended to be disassembled for shipping and reassembled for installation and may be combined with a cooling unit. (See Clause 3).

1.3

Duct furnaces, unit heaters, and packaged heaters may be factory-built as a single unit or as a package system intended to be disassembled for shipping and reassembled for installation, and may be combined with a cooling unit. (See Clause 3).

1.4

The construction of appliances for use with the above-mentioned gases is covered under Clause 4.

1.5

The performance of appliances for use with the above-mentioned gases is covered under Clause 5.

1.6

This standard applies to Category I, Category II, Category III and Category IV Appliances. (See Clause 3).

1.7

This standard covers self-contained, automatically controlled, vented unit heaters, packaged heaters, utility heaters and duct furnaces. These appliances are intended for installation in locations where flammable gases or vapors are not generally present.