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**ANSI Z21.56-2013  
CSA 4.7-2013**

## Gas-Fired Pool Heaters

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ANSI Z21.56-2013

CSA STANDARD  
CSA 4.7-2013

Fourth Edition — 2013  
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Gas-Fired Pool Heaters  
ANSI Z21.56-2006 • CSA 4.7-2006  
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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.

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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 pool heaters. It is the result of years of experience in the manufacture, testing, installation, maintenance, inspection and research on gas-fired pool 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 pool 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 Chairman of Accredited Standards Committee Z21/83, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131, or the Chairman of Canadian Standards Association Gas Equipment Standards Technical Committee, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.

Safe and satisfactory operation of gas-fired pool 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/Canadian Standard/Association 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.

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**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 Gas-Fired Pool Heater***

(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. Joint subcommittees were established to facilitate the standards harmonization process between the United States and Canada.

The draft harmonized standard was based on current coverage from the American National Standard for Gas-Fired Pool Heaters, ANSI Z21.56-1993 and Addenda Z21.56a-1994, Z21.56b-1994 and the Canadian Standard for Gas-Fired Pool Heaters, CAN1-4.7-M85. The draft was subsequently issued for public review and comment during April 1996.

Following reconsideration and modification of the proposed draft standard, in light of comments received, the joint water heater subcommittee, at its July 24-25, 1996 meeting, recommended the proposed draft to the Z21 Committee and the CGA Standards Steering Committee for approval.

The proposed draft of the harmonized standard for gas-fired pool heaters, as modified by the joint subcommittee at its meeting of July 24-25, 1996, was approved by the Z21/83 Committee by at its April 17, 1997 meeting and by the CGA Standards Steering Committee on May 6, 1997.

The first edition of the harmonized Z21/CSA Standard for Gas-Fired Pool Heaters, was approved by the Canadian Interprovincial Gas Advisory Council on September 10, 1997 and by the American National Standards Institute Inc. on March 19, 1998.

The second edition of the harmonized Z21/CSA/Canadian Standards Association Standard for Gas-Fired Pool Heaters, was approved by the Canadian Interprovincial Gas Advisory Council on August 1, 2001 and by the American National Standards Institute Inc. on December 20, 2001.

The third edition of the harmonized Z21/CSA Standard for Gas-Fired Pool Heaters was approved by the Canadian Interprovincial Gas Advisory Council on January 4, 2006 and by the American National Standards Institute, Inc. on December 13, 2005.

This, the fourth edition of the harmonized Z21/CSA Standard for Gas-Fired Pool Heaters, was approved by the Canadian Interprovincial Gas Advisory Council on February 25, 2013 and by the American National Standards Institute, Inc. on January 9, 2013.

The previous editions of the Standard for Gas-Fired Pool Heaters, and addenda thereto, approved by the Interprovincial Gas Advisory Council and American National Standards Institute, Inc. are as follows:

Z21.56-1998 • CSA 4.7-1998  
Z21.56a-2000 • CSA 4.7a-2000  
Z21.56b-2000 • CSA 4.7b-2000

Z21.56-2001 • CSA 4.7-2001  
Z21.56a-2004 • CSA 4.7a-2004  
Z21.56b-2004 • CSA 4.7b-2004

Z21.56-2006 • CSA 4.7-2006  
Z21.56a-2008 • CSA 4.7a-2008  
Z21.56b-2011 • CSA 4.7b-2011

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

Z21.56-2023 • CSA 4.7-2013

*Note: This edition of Z21.56 • CSA 4.7 incorporates changes to the third edition of Z21.56 • CSA 4.7 and addenda thereto. Changes are denoted by a vertical line in the margin.*

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# ***Gas-Fired Pool Heaters***

## ***Part I: Construction***

### **1.1 Scope**

#### **1.1.1**

This standard applies to newly produced pool heaters (see Part IV, Definitions), hereinafter referred to as pool heaters or appliances, constructed entirely of new, unused parts and materials, for heating non-potable water stored at atmospheric pressure, such as water in swimming pools, spas, hot tubs and similar applications:

- a. For use with natural gas;
- b. For use with manufactured gas;
- c. For use with mixed gas;
- d. For use with liquefied petroleum gases; and
- e. For use with LP gas-air mixtures.
- f. For installation in applications intended to temper the entire flow of the primary circulating pool loop water prior to re-entering the pool.
- g. For installation in applications for pool heaters intended to temper a portion of the primary circulating loop water diverted through the pool heater by mechanical means, and then re-enter and mix with the primary circulating loop water prior to entering the pool.

#### **1.1.2**

This standard also applies to pool heaters intended for installation at a distance less than 5 ft (1.52 m) from the inside surface of a pool or spa, hereinafter referred to as close proximity heaters (see Part IV, Definitions).

#### **1.1.3**

This standard also applies to pool heaters for indoor installation with draft hoods which are factory equipped with automatic vent damper devices (see Part IV, Definitions), hereinafter referred to as vent damper devices.

#### **1.1.4**

This standard also applies to pool heaters of other than the direct vent type which are factory equipped with electrically operated or mechanically actuated automatic flue damper devices (see Part IV, Definitions), hereinafter referred to as flue damper devices.

#### **1.1.5**

If a value for measurement as given in this standard is followed by an equivalent value in other units, the first stated value is to be regarded as the specification.