

American National
Standard For
**Household Cooking
Gas Appliances**

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American National Standard
ANSI Z21.1-2010

Twenty-Ninth Edition - 2010
This Standard is based on the standard
for Household Cooking Gas Appliances

ANSI Z21.1-2005
ANSI Z21.1a-2007
ANSI Z21.1b-2008



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Standards Developer

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Preface

This publication represents a basic standard for safe operation, substantial and durable construction, and acceptable performance of household cooking gas appliances. It is the result of years of experience in the manufacture, testing, installation, maintenance, inspection and research on household cooking gas appliances designed for the utilization of gas. There are risks of injury to persons inherent in some appliances that, if completely eliminated, would defeat the utility of the appliance. The provisions in this Standard are intended to reduce such risks while retaining the normal function 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 household cooking gas appliances, 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 technical advances take 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. A proposal form is provided in the back of this document.

Safe and satisfactory operation of household cooking gas appliances 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 (U.S.) Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280, or when such standard is not applicable, the Standard for Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities, ANSI/NFPA 501A, manufacturers' installation instructions, and local municipal building codes.

Users of this American National Standard are advised that the devices/products/activities within its scope may be subject to regulation at the Federal 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, state or local regulation should be followed.

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History Of The Development Of The Standard For Household Cooking Gas Appliances

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

The first definite step toward the preparation of gas range specifications appears to have been taken by The Philadelphia Gas Works Company in 1903, after several years' observation had indicated the desirability of preparing general specifications which would enable manufacturers to build their ranges to meet certain specific requirements.

In Volume 4 of the 1909 Proceedings of the American Gas Institute there is a report of the Committee on Utilization of Gas Appliances which includes the specifications in use by two large purchasers of gas ranges. In the 1912 proceedings: (1) specifications for gas ranges were submitted for approval which had been prepared jointly by the Committee of the American Gas Institute and a similar Committee of the National Commercial Gas Association, and (2) recommendation was made that a standing committee be appointed to continue the standardization and simplification of gas appliance specifications.

These specifications were revised several times between 1914 and 1918. In June 1918 the American Gas Institute and the National Commercial Gas Association amalgamated to form the American Gas Association. During 1919 a Committee on Standardization of Gas Appliances was formed by the American Gas Association to carry out revisions of existing gas appliance specifications.

In 1925 the Subcommittee on Approval Requirements for Domestic Gas Ranges was formed for the purpose of revising existing standards of the American Gas Association and placing them in a form adaptable to industry's needs and readily capable of enforcement by the newly created Testing Laboratories of the American Gas Association. The first American Gas Association Approval Requirements for Gas Ranges were released to the gas industry in 1926. Revised editions were published in 1928 and 1930.

In September 1930, the American Gas Association Approval Requirements Committee became Sectional Committee Z21 of the American Standards Association. Consequently, the Subcommittee on Approval Requirements for Domestic Gas Ranges became a subcommittee of the Z21 Committee.

During 1930 and 1931, general revision and enlargement of the standards were undertaken by the subcommittee and the Z21 Committee. The resulting standard, the most comprehensive ever issued for gas ranges, was submitted to the American Standards Association for adoption and accepted in 1932.

Revisions to the standard reflecting the latest developments and improvements were approved by the subcommittee during 1932. This draft standard was adopted by the Z21 Committee at its May, 1933 meeting and approved as American Standard by the American Standards Association in 1933. Following this procedure, seven subsequent editions of this standard were approved by the American Standards Association from 1935 to 1955.

Up to this point, the domestic gas range standard (Z21.1) covered both free-standing and built-in cooking units; however, in view of the rapid development of built-in units (formerly classified as recessed range sections) as well as other considerations as to the testing of these types of units, it was deemed advisable to have a separate standard devoted to each type of appliance. Consequently, the standard was divided

into two volumes: the fourteenth edition, Volume I, Free-Standing Units (Z21.1.1), and the first edition, Volume II, Built-In Domestic Cooking Units (Z21.1.2), which were approved as American Standard by the American Standards Association in 1956. New editions of Z21.1.1 and Z21.1.2 were approved in 1959.

As a result of the use of domestic gas ranges by the trailer coach and mobile home industry, the standards were modified to cover the special construction and performance features deemed necessary for ranges for installation in such vehicles. These revisions were included in first addenda to the standards approved as American Standards in 1960. Subsequent editions of both standards were approved in 1961 and 1964.

Continued progress in the development of domestic gas ranges prompted further revision of the standards. In the first addenda (Z21.1.1a-1965 and Z21.1.2a-1965) issued to the seventeenth edition of Z21.1.1 and the fourth edition of Z21.1.2, provisions covering outdoor gas broilers were incorporated.

In August 1966, the American Standards Association was reconstituted as the United States of America Standards Institute. As a result, the eighteenth edition of Z21.1.1 and the fifth edition of Z21.1.2, were approved as USA Standards by the United States of America Standards Institute in 1967.

In October 1969, the United States of America Standards Institute was renamed to the American National Standards Institute, Inc.

As a result of continued progress and development of domestic cooking equipment designs plus the increasing similarity of some designs of free-standing and built-in ranges, the subcommittee concluded that reorganization and expansion of the domestic gas range standards was needed to adequately cover various types of cooking equipment. Accordingly, three draft standards were distributed for review and comment during September 1970: coverage for outdoor broilers contained in the existing standards, plus added coverage for outdoor top cooking units, was combined into a draft standard for outdoor cooking gas appliances; coverage for appliances for use with liquefied petroleum gases and for installation in travel trailers, as contained in the existing standards, was combined into a separate draft standard for recreational vehicle cooking appliances; and the remainder of Z21.1.1 and Z21.1.2 was combined into a draft standard for household cooking gas appliances.

The nineteenth edition of the former domestic gas range standards, Z21.1.1 and Z21.1.2, retitled and redesignated the American National Standard for Household Cooking Gas Appliances, Z21.1, was approved as American National Standard in 1972.

Further revisions in line with developments in gas utilization, including transfer of the remaining coverage for appliances for recreational vehicle installation to American National Standard for Recreational Vehicle Cooking Gas Appliances, Z21.57, were incorporated in the twentieth edition of the household cooking gas appliance standard, which was approved as American National Standard by the American National Standards Institute, Inc., in 1974.

The twenty-first, twenty-second, twenty-third, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh and twenty-eighth editions of the household cooking gas appliance standards were approved as American National Standards by the American National Standards Institute, Inc., in 1978, 1982, 1987, 1990, 1993, 1996, 2000 and 2005 respectively.

Following the procedures outlined above, further revisions to this standard, Z21.1, were developed in line with industry developments. This, the twenty-ninth edition of the household cooking gas appliance standard, was approved as an American National Standard by the American National Standards Institute, Inc. on November 17, 2010.

Previous editions of the household cooking gas appliance standard, and addenda thereto, approved by the American National Standards Institute or its predecessor organizations are as follows:

Z21A-1932		
Z21.1-1933		
Z21.1-1935		
Z21.1-1937		
Z21.1-1940	Z21.1-1942	
Z21.1-1948	Z21.1a-1949	
Z21.1-1952	Z21.1a-1953	Z21.1b-1954
Z21.1-1955		
Z21.1-1956	Z21.1.1a-1957	Z21.1.1b-1958
Z21.1.1-1959	Z21.1.1a-1960	
Z21.1.1-1961	Z21.1.1a-1962	Z21.1.1b-1963
Z21.1.1-1964	Z21.1.1a-1965	Z21.1.1b-1965
Z21.1.1-1967	Z21.1.1a-1968	Z21.1.1b-1966
Z21.1-1972		
Z21.1-1974	Z21.1a-1974	Z21.1b-1977
Z21.1-1978	Z21.1a-1979	Z21.1b-1981
Z21.1-1982	Z21.1a-1982	Z21.1b-1984
Z21.1-1987	Z21.1a-1989	Z21.1b-1989
Z21.1-1990	Z21.1a-1991	Z21.1b-1993
Z21.1-1993		
Z21.1-1996	Z21.1a-1997	Z21.1b-1998
Z21.1-2000	Z21.1a-2003	Z21.1b-2003
Z21.1-2005	Z21.1a-2010	Z21.1b-2008

The following identifies the designation and year of the twenty-ninth edition of the standard:

ANSI Z21.1-2010

NOTE: This edition of Z21.1 incorporates changes to the 2005 edition and addenda thereto. Changes other than editorial are denoted by a vertical line in the margin.

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NOTE

This standard contains SI (Metric) equivalents to the yard/pound quantities, the purpose being to allow the standard to be used in SI (Metric) units. (Standard for use of the International System of Units (SI): The Modern Metric System, IEEE/ASTM SI 10 or Metric Practice Guide, CAN/CSA Z234.1 are used as a guide in making metric conversion from yard/pound quantities.) If a value for a measurement and an equivalent value in other units, the first stated is to be regarded as the requirement. The given equivalent value may be approximate. If a value for a measurement and an equivalent value in other units, are both specified as a quoted marking requirement, the first stated unit, or both shall be provided.

American National Standard For Household Cooking Gas Appliances

Part I: Construction

1.1 Scope

1.1.1

This standard applies to newly produced household cooking gas appliances (see Part IV, Definitions), hereinafter referred to as units or appliances, constructed entirely of new, unused parts and materials. These appliances may be floor supported or built-in.

1.1.2

This standard applies to household cooking gas appliances:

- 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;
- e. For use with LP gas-air mixtures;
- f. For use with either natural, manufactured or mixed gas and convertible for use with liquefied petroleum gases (see Part IV, Definitions);
- g. For manufactured (mobile) home installation for use with liquefied petroleum gases only (see [1.2.25](#));
- h. For manufactured (mobile) home installation for use with either natural, manufactured or mixed gas and convertible for use with liquefied petroleum gases (see [1.2.25](#) and Part IV, Definitions);
- i. For Recreational Park Trailer installation for use with natural, manufactured, or mixed gases and convertible for use with liquefied petroleum gases (see [1.2.25](#) and Part IV, Definitions); and
- j. Provided with pyrolytic self-cleaning oven features or self-cleaning broiler features, or both (see [1.2.26](#)).

The construction of floor-supported units and built-in units for use with the above-mentioned gases is covered under Part I.

The performance of floor-supported units and built-in units for use with the above-mentioned gases is covered under Part II.