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INTERNATIONAL FUEL GAS CODE®



2006

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2006 International Fuel Gas Code®

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PREFACE

Introduction

Internationally, code officials recognize the need for a modern, up-to-date fuel gas code addressing the design and installation of fuel gas systems and gas-fired appliances through requirements emphasizing performance. The *International Fuel Gas Code*®, in this 2006 edition, is designed to meet these needs through model code regulations that safeguard the public health and safety in all communities, large and small.

This comprehensive fuel gas code establishes minimum regulations for fuel gas systems and gas-fired appliances using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new fuel gas system and appliance designs. This 2006 edition is fully compatible with all the *International Code Council Codes*® published by the International Code Council (ICC)®, including the *International Building Code*®, *ICC Electrical Code*®, *International Energy Conservation Code*®, *International Existing Building Code*®, *International Fire Code*®, *International Mechanical Code*®, *ICC Performance Code*®, *International Plumbing Code*®, *International Private Sewage Disposal Code*®, *International Property Maintenance Code*®, *International Residential Code*®, *International Wildland-Urban Interface Code*™ and *International Zoning Code*®.

The *International Fuel Gas Code* provisions provide many benefits, among which is the model code development process that offers an international forum for fuel gas technology professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

Development

The first edition of the *International Fuel Gas Code* (1997) was the culmination of a effort initiated in 1996 by a development committee appointed by ICC and consisting of representatives of the three statutory members of the International Code Council at that time, including: Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI) and the gas industry. The intent was to draft a comprehensive set of regulations for fuel gas systems and gas-fired appliances consistent with and inclusive of the scope of the existing mechanical, plumbing and gas codes. Technical content of the latest model codes promulgated by BOCA, ICBO, SBCCI and ICC and the *National Fuel Gas Code* (ANSI Z223.1) was utilized as the basis for the development. This 2006 edition presents the code as originally issued, with changes reflected in subsequent editions through 2003, and with code changes approved through the ICC Code Development Process through 2005 and standard provisions correlated with ANSI Z223.1-2006. A new edition such as this is promulgated every three years.

This code is founded on principles intended to establish provisions consistent with the scope of a fuel gas code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Format

The *International Fuel Gas Code* is segregated by section numbers into two categories — “code” and “standard” — all coordinated and incorporated into a single document. The sections that are “code” are designated by the acronym “IFGC” next to the main section number (e.g., Section 101) and the sections that are “standard” are designated by the acronym “IFGS” next to the main section number (e.g., Section 102).

Adoption

The *International Fuel Gas Code* is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction’s laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the adopting jurisdiction. These locations are shown in bracketed words in small capital letters in the code and in the sample ordinance. The sample adoption ordinance on page v addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

Maintenance

The *International Fuel Gas Code* is kept up to date through the review of proposed changes submitted by code enforcing officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an

open code development process in which all interested and affected parties may participate. The code development process of the *International Fuel Gas Code* is slightly different than the process for the other *International Codes*.

Proposed changes to text designated “IFGC” are subject to the ICC Code Development Process. For more information regarding the code development process, contact the Code and Standard Development Department of the International Code Council.

Proposed changes to text designated as “IFGS” are subject to the standards development process which maintains the *National Fuel Gas Code* (ANSI Z223.1). For more information regarding the standard development process, contact the American Gas Association (AGA) at 400 N. Capitol Street, N.W., Washington, DC 20001.

While the development procedure of the *International Fuel Gas Code* assures the highest degree of care, the ICC, its members, the AGA and those participating in the development of this code do not accept any liability resulting from compliance or noncompliance with the provisions because the ICC, its founding members and the AGA do not have the power or authority to police or enforce compliance with the contents of this code. Only the governmental body that enacts the code into law has such authority.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to the code are considered at the Code Development Hearings by the ICC Fuel Gas Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section that has a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [B] in front of them (e.g., [B]302.1) are considered by the International Building Code Development Committee at the code development hearings.

The content of sections in this code that begin with a letter designation are maintained by the code development committee in accordance with the following:

[B] = International Building Code Development Committee;

[M] = International Mechanical Code Development Committee; and

[F] = International Fire Code Development Committee.

Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2003 edition. Deletion indicators in the form of an arrow (➔) are provided in the margin where an entire section, paragraph, exception or table has been deleted or item in a list of items or in a table has been deleted.

ORDINANCE

The *International Codes* are designed and promulgated to be adopted by reference by ordinance. Jurisdictions wishing to adopt the 2006 *International Fuel Gas Code* as an enforceable regulation governing fuel gas systems and gas-fired appliances should ensure that certain factual information is included in the adopting ordinance at the time adoption is being considered by the appropriate governmental body. The following sample adoption ordinance addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

SAMPLE ORDINANCE FOR ADOPTION OF THE *INTERNATIONAL FUEL GAS CODE* ORDINANCE NO. _____

An ordinance of the [JURISDICTION] adopting the 2006 edition of the *International Fuel Gas Code*, regulating and governing fuel gas systems and gas-fired appliances in the [JURISDICTION]; providing for the issuance of permits and collection of fees therefor; repealing Ordinance No. _____ of the [JURISDICTION] and all other ordinances and parts of the ordinances in conflict therewith.

The [GOVERNING BODY] of the [JURISDICTION] does ordain as follows:

Section 1. That a certain document, three (3) copies of which are on file in the office of the [TITLE OF JURISDICTION'S KEEPER OF RECORDS] of [NAME OF JURISDICTION], being marked and designated as the *International Fuel Gas Code*, 2006 edition, including Appendix Chapters [FILL IN THE APPENDIX CHAPTERS BEING ADOPTED] (see *International Fuel Gas Code* Section 101.3, 2006 edition), as published by the International Code Council, be and is hereby adopted as the Fuel Gas Code of the [JURISDICTION], in the State of [STATE NAME] for regulating and governing fuel gas systems and gas-fired appliances as herein provided; providing for the issuance of permits and collection of fees therefor; and each and all of the regulations, provisions, penalties, conditions and terms of said Fuel Gas Code on file in the office of the [JURISDICTION] are hereby referred to, adopted, and made a part hereof, as if fully set out in this ordinance, with the additions, insertions, deletions and changes, if any, prescribed in Section 2 of this ordinance.

Section 2. The following sections are hereby revised:

Section 101.1. Insert: [NAME OF JURISDICTION]

Section 106.5.2. Insert: [APPROPRIATE SCHEDULE]

Section 106.5.3. Insert: [PERCENTAGES IN TWO LOCATIONS]

Section 108.4. Insert: [SPECIFY OFFENSE] [AMOUNT] [NUMBER OF DAYS]

Section 108.5. Insert: [AMOUNTS IN TWO LOCATIONS]

Section 3. That Ordinance No. _____ of [JURISDICTION] entitled [FILL IN HERE THE COMPLETE TITLE OF THE ORDINANCE OR ORDINANCES IN EFFECT AT THE PRESENT TIME SO THAT THEY WILL BE REPEALED BY DEFINITE MENTION] and all other ordinances or parts of ordinances in conflict therewith are hereby repealed.

Section 4. That if any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The [GOVERNING BODY] hereby declares that it would have passed this ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

Section 5. That nothing in this ordinance or in the Fuel Gas Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed as cited in Section 3 of this ordinance; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this ordinance.

Section 6. That the [JURISDICTION'S KEEPER OF RECORDS] is hereby ordered and directed to cause this ordinance to be published. (An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.)

Section 7. That this ordinance and the rules, regulations, provisions, requirements, orders and matters established and adopted hereby shall take effect and be in full force and effect [TIME PERIOD] from and after the date of its final passage and adoption.

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CHAPTER 1

ADMINISTRATION

SECTION 101 (IFGC) GENERAL

101.1 Title. These regulations shall be known as the *Fuel Gas Code* of [NAME OF JURISDICTION], hereinafter referred to as “this code.”

101.2 Scope. This code shall apply to the installation of fuel gas piping systems, fuel gas utilization equipment, gaseous hydrogen systems and related accessories in accordance with Sections 101.2.1 through 101.2.5.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.

➔ **101.2.1 Gaseous hydrogen systems.** Gaseous hydrogen systems shall be regulated by Chapter 7.

101.2.2 Piping systems. These regulations cover piping systems for natural gas with an operating pressure of 125 pounds per square inch gauge (psig) (862 kPa gauge) or less, and for LP-gas with an operating pressure of 20 psig (140 kPa gauge) or less, except as provided in Section 402.6.1. Coverage shall extend from the point of delivery to the outlet of the equipment shutoff valves. Piping systems requirements shall include design, materials, components, fabrication, assembly, installation, testing, inspection, alteration and maintenance.

101.2.3 Gas utilization equipment. Requirements for gas utilization equipment and related accessories shall include installation, combustion and ventilation and venting and connections to piping systems.

101.2.4 Systems and equipment outside the scope. This code shall not apply to the following:

1. Portable LP-gas equipment of all types that is not connected to a fixed fuel piping system.
2. Installation of farm equipment such as brooders, dehydrators, dryers and irrigation equipment.
3. Raw material (feedstock) applications except for piping to special atmosphere generators.
4. Oxygen-fuel gas cutting and welding systems.
5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen.
6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms and natural gas processing plants.
7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by, or used in, chemical reactions.

8. LP-gas installations at utility gas plants.
9. Liquefied natural gas (LNG) installations.
10. Fuel gas piping in power and atomic energy plants.
11. Proprietary items of equipment, apparatus or instruments such as gas-generating sets, compressors and calorimeters.
12. LP-gas equipment for vaporization, gas mixing and gas manufacturing.
13. Temporary LP-gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.
14. Installation of LP-gas systems for railroad switch heating.
15. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.
16. Equipment provided in Section 401.1.1, gas piping, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-gas.
17. Building design and construction, except as specified herein.
18. Piping systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 psig (69 kPa gauge).
19. Portable fuel cell appliances that are neither connected to a fixed piping system nor interconnected to a power grid.

101.2.5 Other fuels. The requirements for the design, installation, maintenance, alteration and inspection of mechanical systems operating with fuels other than fuel gas shall be regulated by the *International Mechanical Code*.

101.3 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

101.4 Intent. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of fuel gas systems.

101.5 Severability. If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION 102 (IFGC) APPLICABILITY

102.1 General. The provisions of this code shall apply to all matters affecting or relating to structures and premises, as set forth in Section 101. Where, in a specific case, different sec-