

**INCLUDES**

International Private Sewage  
Disposal Code®

IPC®

2015

INTERNATIONAL CODE®

**INTERNATIONAL**  
Plumbing Code®

A Member of the International  
Code Family®

# 2015 IPC<sup>®</sup>

**INTERNATIONAL**  
Plumbing Code<sup>®</sup>

---

## CODE ALERT!

Sign up now to receive critical code updates and free access to videos, book excerpts and training resources.

Signup is easy, subscribe now! [www.iccsafe.org/alerts](http://www.iccsafe.org/alerts)



2015 International Plumbing Code®

First Printing: May 2014

ISBN: 978-1-60983-481-4 (soft-cover edition)  
ISBN: 978-1-60983-480-7 (loose-leaf edition)

COPYRIGHT © 2014  
by  
INTERNATIONAL CODE COUNCIL, INC.

Date of First Publication: May 30, 2014

ALL RIGHTS RESERVED. This 2015 *International Plumbing Code*® is a copyrighted work owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example, and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo and the “International Plumbing Code” are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

# PREFACE

## Introduction

Internationally, code officials recognize the need for a modern, up-to-date plumbing code addressing the design and installation of plumbing systems through requirements emphasizing performance. The *International Plumbing Code*<sup>®</sup>, in this 2015 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 plumbing code establishes minimum regulations for plumbing systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new plumbing designs. This 2015 edition is fully compatible with all of the *International Codes*<sup>®</sup> (I-Codes<sup>®</sup>) published by the International Code Council (ICC)<sup>®</sup>, including the *International Building Code*<sup>®</sup>, *International Energy Conservation Code*<sup>®</sup>, *International Existing Building Code*<sup>®</sup>, *International Fire Code*<sup>®</sup>, *International Fuel Gas Code*<sup>®</sup>, *International Green Construction Code*<sup>®</sup>, *International Mechanical Code*<sup>®</sup>, *ICC Performance Code*<sup>®</sup>, *International Private Sewage Disposal Code*<sup>®</sup>, *International Property Maintenance Code*<sup>®</sup>, *International Residential Code*<sup>®</sup>, *International Swimming Pool and Spa Code*<sup>™</sup>, *International Wildland-Urban Interface Code*<sup>®</sup> and *International Zoning Code*<sup>®</sup>.

The *International Plumbing Code* provisions provide many benefits, among which is the model code development process that offers an international forum for plumbing 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 Plumbing Code* (1995) was the culmination of an effort initiated in 1994 by a development committee appointed by the 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). The intent was to draft a comprehensive set of regulations for plumbing systems consistent with and inclusive of the scope of the existing model codes. Technical content of the latest model codes promulgated by BOCA, ICBO and SBCCI was utilized as the basis for the development. This 2015 edition presents the code as originally issued, with changes as reflected in the subsequent editions through 2012 and with changes approved through the ICC Code Development Process through 2013 (completion of Group B). A new edition, such as this is promulgated every 3 years.

This code is founded on principles intended to establish provisions consistent with the scope of a plumbing 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.

## Adoption

The International Code Council maintains a copyright in all of its codes and standards. Maintaining copyright allows ICC to fund its mission through sales of books, in both print and electronic formats. The *International Plumbing Code* is designed for adoption and use by jurisdictions that recognize and acknowledge the ICC's copyright in the code, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the ICC.

The ICC also recognizes the need for jurisdictions to make laws available to the public. All ICC codes and ICC standards, along with the laws of many jurisdictions, are available for free in a non-downloadable form on the ICC's website. Jurisdictions should contact the ICC at [adoptions@icc](mailto:adoptions@icc).

safe.org to learn how to adopt and distribute laws based on the *International Plumbing Code* in a manner that provides necessary access, while maintaining the ICC's copyright.

## Maintenance

The *International Plumbing 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 contents of this work are subject to change through both the Code Development Cycles and the governmental body that enacts the code into law. For more information regarding the code development process, contact the Codes and Standards Development Department of the International Code Council.

While the development procedure of the *International Plumbing Code* ensures the highest degree of care, the ICC, its members 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 does 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.

## Code Development Committee Responsibilities (Letter Designations in Front of Section Numbers)

In each code development cycle, proposed changes to the code are considered at the Committee Action Hearings by the International Plumbing 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 [BS] in front of them (e.g., [BS] 309.2) are considered by the IBC – Structural Code Development Committee at the code development hearings.

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

- [A] = Administrative Code Development Committee;
- [BE] = IBC – Means of Egress Code Development Committee;
- [BG] = IBC – General Code Development Committee;
- [BS] = IBC – Structural Code Development Committee;
- [E] = International Energy Conservation Code Development Committee;
- [F] = International Fire Code Development Committee; and
- [M] = International Mechanical Code Development Committee.

For the development of the 2018 edition of the I-Codes, there will be three groups of code development committees and they will meet in separate years. Note that these are tentative groupings.

<b>Group A Codes (Heard in 2015, Code Change Proposals Deadline: January 12, 2015)</b>	<b>Group B Codes (Heard in 2016, Code Change Proposals Deadline: January 11, 2016)</b>	<b>Group C Codes (Heard in 2017, Code Change Proposals Deadline: January 11, 2017)</b>
International Building Code – Fire Safety (Chapters 7, 8, 9, 14, 26) – Means of Egress (Chapters 10, 11, Appendix E) – General (Chapters 2-6, 12, 27-33, Appendices A, B, C, D, K)	Administrative Provisions (Chapter 1 of all codes except IRC and IECC, adminis- trative updates to currently referenced standards, and designated definitions)	International Green Construction Code
International Fuel Gas Code	International Building Code – Structural (Chapters 15-25, Appendices F, G, H, I, J, L, M)	
International Existing Building Code	International Energy Conservation Code	
International Mechanical Code	International Fire Code	
<b>International Plumbing Code</b>	International Residential Code – IRC-B (Chapters 1-10, Appendices E, F, H, J, K, L, M, O, R, S, T, U)	
International Private Sewage Disposal Code	International Wildland-Urban Interface Code	
International Property Maintenance Code		
International Residential Code – IRC-Mechanical (Chapters 12-24) – IRC-Plumbing (Chapter 25-33, Appendices G, I, N, P)		
International Swimming Pool and Spa Code		
International Zoning Code		

**Note:** Proposed changes to the ICC *Performance Code* will be heard by the code development committee noted in brackets [ ] in the text of the code.

Code change proposals submitted for code sections that have a letter designation in front of them will be heard by the respective committee responsible for such code sections. Because different committees hold code development hearings in different years, proposals for this code will be heard by committees in both the 2015 (Group A) and the 2016 (Group B) code development cycles.

For instance, every section of Chapter 1 of this code is designated as the responsibility of the Administrative Code Development Committee, and that committee is part of the Group B portion of the hearings. This committee will hold its code development hearings in 2016 to consider all code change proposals for Chapter 1 of this code and proposals for Chapter 1 of all I-Codes except the *International Energy Conservation Code*, *International Residential Code* and *ICC Performance Code*. Therefore, any proposals received for Chapter 1 of this code will be assigned to the Administrative Code Development Committee for consideration in 2016.

It is very important that anyone submitting code change proposals understand which code development committee is responsible for the section of the code that is the subject of the code change proposal. For further information on the code development committee responsibilities, please visit the ICC website at [www.iccsafe.org/scoping](http://www.iccsafe.org/scoping).

## Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2012 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 an item in a list of items or a table has been deleted.

A single asterisk [\*] placed in the margin indicates that text or a table has been relocated within the code. A double asterisk [\*\*] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code. The following table indicates such relocations in the 2015 edition of the *International Plumbing Code*.

2015 LOCATION	2012 LOCATION
Appendix C	Appendix F
Section 716	Appendix C

## Italicized Terms

Selected terms set forth in Chapter 2, Definitions, are italicized when they appear in code text. Such terms are not italicized where the definition set forth in Chapter 2 does not impart the intended meaning in the use of the term. The terms selected have definitions that the user should read carefully to facilitate better understanding of the code.

# EFFECTIVE USE OF THE INTERNATIONAL PLUMBING CODE

The *International Plumbing Code (IPC)* is a model code that regulates the design and installation of plumbing systems including the plumbing fixtures in all types of buildings except for detached one- and two-family dwellings and townhouses that are not more than three stories above grade in height. The regulations for plumbing systems in one- and two-family dwellings and townhouses are covered by Chapters 25 through 33 of the *International Residential Code (IRC)*. The IPC addresses general plumbing regulations, fixture requirements, water heater installations and systems for water distribution, sanitary drainage, special wastes, venting, storm drainage and medical gases. The IPC does not address fuel gas piping systems as those systems are covered by the *International Fuel Gas Code (IFGC)*. The IPC also does not regulate swimming pool piping systems, process piping systems, or utility-owned piping and systems. The purpose of the IPC is to establish the minimum acceptable level of safety to protect life and property from the potential dangers associated with supplying potable water to plumbing fixtures and outlets and the conveyance of bacteria-laden waste water from fixtures.

The IPC is primarily a specification-oriented (prescriptive) code with some performance-oriented text. For example, Section 405.1 is a performance statement but Chapter 4 contains the prescriptive requirements that will cause Section 405.1 to be satisfied.

Where a building contains plumbing fixtures, those fixtures requiring water must be provided with an adequate supply of water for proper operation. The number of required plumbing fixtures for a building is specified by this code and is based upon the anticipated maximum number of occupants for the building and the type of building occupancy. This code provides prescriptive criteria for sizing piping systems connected to those fixtures. Through the use of code-approved materials and the installation requirements specified in this code, plumbing systems will perform their intended function over the life of the building. In summary, the IPC sets forth the minimum requirements for providing safe water to a building as well as a safe manner in which liquid-borne wastes are carried away from a building.

## Arrangement and Format of the 2015 IPC

The format of the IPC allows each chapter to be devoted to a particular subject with the exception of Chapter 3 which contains general subject matters that are not extensive enough to warrant their own independent chapter. The IPC is divided into 14 different parts:

Chapters	Subjects
2	Administration and Definitions
3	General Regulations
4	Fixtures, Faucets and Fixture Fittings
5	Water Heaters
6	Water Supply and Distribution
7	Sanitary Drainage
8	Indirect/Special Waste
9	Vents
10	Traps, Interceptors and Separators
11	Storm Drainage
12	Special Piping (Medical Gas)
13	Nonpotable Water Systems
14	Subsurface Landscape Irrigation Systems
15	Referenced Standards
Appendices A-E	Appendices

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *International Plumbing Code*:

**Chapter 1 Scope and Administration.** This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. Chapter 1 is largely concerned with maintaining “due process of law” in enforcing the requirements contained in the body of this code. Only through careful observation of the administrative provisions can the code official reasonably expect to demonstrate that “equal protection under the law” has been provided.

**Chapter 2 Definitions.** Chapter 2 is the repository of the definitions of terms used in the body of the code. Codes are technical documents and every word, term and punctuation mark can impact the meaning of the code text and the intended results. The code often uses terms that have a unique meaning in the code and the code meaning can differ substantially from the ordinarily understood meaning of the term as used outside of the code.

The terms defined in Chapter 2 are deemed to be of prime importance in establishing the meaning and intent of the code text that uses the terms. The user of the code should be familiar with and consult this chapter because the definitions are essential to the correct interpretation of the code and because the user may not be aware that a term is defined.

Where understanding of a term’s definition is especially key to or necessary for understanding of a particular code provision, the term is shown in *italics* wherever it appears in the code. This is true only for those terms that have a meaning that is unique to the code. In other words, the generally understood meaning of a term or phrase might not be sufficient or consistent with the meaning prescribed by the code; therefore, it is essential that the code-defined meaning be known.

Guidance regarding tense, gender and plurality of defined terms as well as guidance regarding terms not defined in this code is provided.

**Chapter 3 General Regulations.** The content of Chapter 3 is often referred to as “miscellaneous,” rather than general regulations. This is the only chapter in the code whose requirements do not interrelate. If a requirement cannot be located in another chapter, it should be located in this chapter. Chapter 3 contains safety requirements for the installation of plumbing and nonplumbing requirements for all types of fixtures. This chapter also has requirements for the identification of pipe, pipe fittings, traps, fixtures, materials and devices used in plumbing systems.

The safety requirements of this chapter provide protection for the building’s structural members, as well as prevent undue stress and strain on pipes. The building’s structural stability is protected by the regulations for cutting and notching of structural members. Additional protection for the building occupants includes requirements to maintain the plumbing in a safe and sanitary condition, as well as privacy for those occupants.

**Chapter 4 Fixtures, Faucets and Fixture Fittings.** This chapter regulates the minimum number of plumbing fixtures that must be provided for every type of building. This chapter also regulates the quality of fixtures and faucets by requiring those items to comply with nationally recognized standards. Because fixtures must be properly installed so that they are usable by the occupants of the building, this chapter contains the requirements for the installation of fixtures. Because the requirements for the number of plumbing fixtures affects the design of a building, Chapter 29 of the *International Building Code* (IBC) includes, verbatim, many of the requirements listed in Chapter 4 of this code.

**Chapter 5 Water Heaters.** Chapter 5 regulates the design, approval and installation of water heaters and related safety devices. The intent is to minimize the hazards associated with the installation and operation of water heaters. Although this code does not regulate the size of a water heater, it does regulate all other aspects of the water heater installation such as temperature and pressure relief valves, safety drip pans, installation and connections. Where a water heater also supplies water for space heating, this chapter regulates the maximum water temperature supplied to the water distribution system.

**Chapter 6 Water Supply and Distribution.** This chapter regulates the supply of potable water from both public and individual sources to every fixture and outlet so that it remains potable and uncontaminated. Chapter 6 also regulates the design of the water distribution system, which will allow fixtures to function properly and also help prevent backflow conditions. The unique requirements of the water supply for health care facilities are addressed separately. It is critical that the potable water supply system remain free of actual or potential sanitary hazards by providing protection against backflow.

**Chapter 7 Sanitary Drainage.** The purpose of Chapter 7 is to regulate the materials, design and installation of sanitary drainage piping systems as well as the connections made to the system. The intent is to design and install sanitary drainage systems that will function reliably, that are neither undersized nor oversized and that are constructed from materials, fittings and connections as prescribed herein. This chapter addresses the proper use of fittings for directing the flow into and within the sanitary drain piping system. Materials and provisions necessary for serving the drainage system are also included in this chapter.

**Chapter 8 Indirect/Special Waste.** This chapter regulates drainage installations that require an indirect connection to the sanitary drainage system. Fixtures and plumbing appliances, such as those associated with food preparation or handling, health care facilities and potable liquids, must be protected from contamination that can result from connection to the drainage system. An indirect connection prevents sewage from backing up into a fixture or appliance, thus providing protection against potential health hazards. The chapter also regulates special wastes containing hazardous chemicals. Special waste must be treated to prevent any damage to the sanitary drainage piping and to protect the sewage treatment processes.

**Chapter 9 Vents.** Chapter 9 covers the requirements for vents and venting. Knowing why venting is required makes it easier to understand the intent of this chapter. Venting protects every trap against the loss of its seal. Provisions set forth in this chapter are geared toward limiting the pressure differentials in the drainage system to a maximum of 1 inch of water column (249 Pa) above or below atmospheric pressure (i.e., positive or negative pressures).

**Chapter 10 Traps, Interceptors and Separators.** This chapter contains design requirements and installation limitations for traps. Prohibited types of traps are specifically identified. Where fixtures do not frequently replenish the water in traps, a method is provided to ensure that the water seal of the trap will be maintained. Requirements for the design and location of various types of interceptors and separators are provided. Specific venting requirements are given for separators and interceptors as these requirements are not addressed in Chapter 9.

**Chapter 11 Storm Drainage.** Chapter 11 regulates the removal of storm water typically associated with rainfall. The proper installation of a storm drainage system reduces the possibility of structural collapse of a flat roof, prevents the leakage of water through the roof, prevents damage to the roofings and foundation of the building and prevents flooding of the lower levels of the building.

**Chapter 12 Special Piping and Storage Systems.** This chapter contains the requirements for the design, installation, storage, handling and use of nonflammable medical gas systems, including inhalation anesthetic and vacuum piping systems, bulk oxygen storage systems and oxygen-fuel gas systems used for welding and cutting operations. The intent of these requirements is to minimize the potential fire and explosion hazards associated with the gases used in these systems.

**Chapter 13 Nonpotable Water Systems.** This chapter regulates the design and installation of nonpotable water systems. The reduction of the use of potable water in buildings has led to designers of buildings in some jurisdictions to use nonpotable water for irrigation and flushing of water closets and urinals. As such, this chapter provides the overall requirements for these systems.

**Chapter 14 Subsurface Landscape Irrigation Systems.** This chapter regulates the design and installation of subsurface landscape irrigation systems for the disposal of on-site nonpotable water such as graywater. The reduction of the use of potable water in buildings has led to designers of buildings in some jurisdictions to use on-site nonpotable water for irrigation. This chapter provides the overall requirements for these systems.

**Chapter 15 Referenced Standards.** Chapter 15 contains a comprehensive list of all standards that are referenced in the code. The standards are part of the code to the extent of the reference to the standard. Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with the code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the code official, contractor, designer and owner.

Chapter 15 is organized in a manner that makes it easy to locate specific standards. It lists all of the referenced standards, alphabetically, by acronym of the promulgating agency of the standard. Each agency's standards are then listed in either alphabetical or numeric order based upon the standard identification. The list also contains the title of the standard; the edition (date) of the standard referenced; any addenda included as part of the ICC adoption; and the section or sections of this code that reference the standard.

**Appendix A Plumbing Permit Fee Schedule.** Appendix A provides a format for a fee schedule.

**Appendix B Rates of Rainfall for Various Cities.** Appendix B provides specific rainfall rates for major cities in the United States.

**Appendix C Structural Safety.** Appendix C is provided so that the user does not have to refer to another code book for limitations for cutting, notching and boring of sawn lumber and cold-formed steel framing.

**Appendix D Degree Day and Design Temperatures.** This appendix provides valuable temperature information for designers and installers of plumbing systems in areas where freezing temperatures might exist.

**Appendix E Sizing of Water Piping System.** Appendix E provides two recognized methods for sizing the water service and water distribution piping for any structure. The method under Section E103 provides friction loss diagrams which require the user to "plot" points and read values from the diagrams in order to perform the required calculations and necessary checks. This method is the most accurate of the two presented in this appendix. The method under Section E201 is known to be conservative; however, very few calculations are necessary in order to determine a pipe size that satisfies the flow requirements of any application.

# LEGISLATION

Jurisdictions wishing to adopt the 2015 *International Plumbing Code* as an enforceable regulation governing plumbing systems should ensure that certain factual information is included in the adopting legislation at the time adoption is being considered by the appropriate governmental body. The following sample adoption legislation addresses several key elements, including the information required for insertion into the code text.

## SAMPLE LEGISLATION FOR ADOPTION OF THE *INTERNATIONAL PLUMBING CODE* ORDINANCE NO. \_\_\_\_\_

A[N] [ORDINANCE/STATUTE/REGULATION] of the [JURISDICTION] adopting the 2015 edition of the *International Plumbing Code*, regulating and governing the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of plumbing systems in the [JURISDICTION]; providing for the issuance of permits and collection of fees therefor; repealing [ORDINANCE/STATUTE/REGULATION] No. \_\_\_\_\_ of the [JURISDICTION] and all other ordinances or parts of laws 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 Plumbing Code*, 2015 edition, including Appendix Chapters [FILL IN THE APPENDIX CHAPTERS BEING ADOPTED], as published by the International Code Council, be and is hereby adopted as the Plumbing Code of the [JURISDICTION], in the State of [STATE NAME] regulating and governing the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of plumbing systems 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 Plumbing 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 legislation, 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 106.6.2. Insert: [APPROPRIATE SCHEDULE]

Section 106.6.3. Insert: [PERCENTAGES IN TWO LOCATIONS]

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

Section 108.5. Insert: [DOLLAR AMOUNT IN TWO LOCATIONS]

Section 305.4.1. Insert: [NUMBER OF INCHES IN TWO LOCATIONS]

Section 903.1. Insert: [NUMBER OF INCHES]

**Section 3.** That [ORDINANCE/STATUTE/REGULATION] No. \_\_\_\_\_ of [JURISDICTION] entitled [FILL IN HERE THE COMPLETE TITLE OF THE LEGISLATION OR LAWS IN EFFECT AT THE PRESENT TIME SO THAT THEY WILL BE REPEALED BY DEFINITE MENTION] and all other ordinances or parts of laws in conflict herewith are hereby repealed.

**Section 4.** That if any section, subsection, sentence, clause or phrase of this legislation 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 law, 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 legislation or in the Plumbing 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 law; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

**Section 6.** That the [JURISDICTION'S KEEPER OF RECORDS] is hereby ordered and directed to cause this legislation to be published. (An additional provision may be required to direct the number of times the legislation 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 law 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.

# TABLE OF CONTENTS

<p><b>CHAPTER 1 SCOPE AND ADMINISTRATION . . . 1</b></p> <p><b>PART 1—SCOPE AND APPLICATION . . . . . 1</b></p> <p>Section</p> <p>101 General . . . . . 1</p> <p>102 Applicability . . . . . 1</p> <p><b>PART 2—ADMINISTRATION AND ENFORCEMENT . . . . . 2</b></p> <p>Section</p> <p>103 Department of Plumbing Inspection . . . . . 2</p> <p>104 Duties and Powers of the Code Official . . . . . 2</p> <p>105 Approval . . . . . 3</p> <p>106 Permits . . . . . 3</p> <p>107 Inspections and Testing . . . . . 5</p> <p>108 Violations . . . . . 6</p> <p>109 Means of Appeal . . . . . 7</p> <p>110 Temporary Equipment, Systems and Uses . . . . . 8</p> <p><b>CHAPTER 2 DEFINITIONS . . . . . 9</b></p> <p>Section</p> <p>201 General . . . . . 9</p> <p>202 General Definitions . . . . . 9</p> <p><b>CHAPTER 3 GENERAL REGULATIONS . . . . . 17</b></p> <p>Section</p> <p>301 General . . . . . 17</p> <p>302 Exclusion of Materials Detrimental to the Sewer System . . . . . 17</p> <p>303 Materials . . . . . 17</p> <p>304 Rodentproofing . . . . . 17</p> <p>305 Protection of Pipes and Plumbing System Components . . . . . 18</p> <p>306 Trenching, Excavation and Backfill . . . . . 18</p> <p>307 Structural Safety . . . . . 19</p> <p>308 Piping Support . . . . . 19</p> <p>309 Flood Hazard Resistance . . . . . 20</p> <p>310 Washroom and Toilet Room Requirements . . . . . 20</p> <p>311 Toilet Facilities for Workers . . . . . 20</p> <p>312 Tests and Inspections . . . . . 20</p> <p>313 Equipment Efficiencies . . . . . 21</p>	<p>314 Condensate Disposal . . . . . 21</p> <p>315 Penetrations . . . . . 23</p> <p>316 Alternative Engineered Design . . . . . 23</p> <p><b>CHAPTER 4 FIXTURES, FAUCETS AND FIXTURE FITTINGS . . . . . 25</b></p> <p>Section</p> <p>401 General . . . . . 25</p> <p>402 Fixture Materials . . . . . 25</p> <p>403 Minimum Plumbing Facilities . . . . . 25</p> <p>404 Accessible Plumbing Facilities . . . . . 29</p> <p>405 Installation of Fixtures . . . . . 29</p> <p>406 Automatic Clothes Washers . . . . . 30</p> <p>407 Bathtubs . . . . . 30</p> <p>408 Bidets . . . . . 30</p> <p>409 Dishwashing Machines . . . . . 30</p> <p>410 Drinking Fountains . . . . . 30</p> <p>411 Emergency Showers and Eyewash Stations . . . . . 31</p> <p>412 Floor and Trench Drains . . . . . 31</p> <p>413 Food Waste Disposer Units . . . . . 31</p> <p>414 Garbage Can Washers . . . . . 31</p> <p>415 Laundry Trays . . . . . 31</p> <p>416 Lavatories . . . . . 31</p> <p>417 Showers . . . . . 32</p> <p>418 Sinks . . . . . 33</p> <p>419 Urinals . . . . . 33</p> <p>420 Water Closets . . . . . 33</p> <p>421 Whirlpool Bathtubs . . . . . 33</p> <p>422 Health Care Fixtures and Equipment . . . . . 34</p> <p>423 Specialty Plumbing Fixtures . . . . . 34</p> <p>424 Faucets and Other Fixture Fittings . . . . . 34</p> <p>425 Flushing Devices for Water Closets and Urinals . . . . . 35</p> <p>426 Manual Food and Beverage Dispensing Equipment . . . . . 36</p> <p>427 Floor Sinks . . . . . 36</p> <p><b>CHAPTER 5 WATER HEATERS . . . . . 37</b></p> <p>Section</p> <p>501 General . . . . . 37</p> <p>502 Installation . . . . . 37</p>
---	--

**TABLE OF CONTENTS**

503 Connections . . . . . 37  
504 Safety Devices . . . . . 38  
505 Insulation . . . . . 38

**CHAPTER 6 WATER SUPPLY AND DISTRIBUTION . . . . . 39**

Section

601 General . . . . . 39  
602 Water Required. . . . . 39  
603 Water Service . . . . . 39  
604 Design of Building Water Distribution System . . . . . 40  
605 Materials, Joints and Connections . . . . . 41  
606 Installation of the Building Water Distribution System . . . . . 47  
607 Hot Water Supply System . . . . . 48  
608 Protection of Potable Water Supply . . . . . 49  
609 Health Care Plumbing . . . . . 55  
610 Disinfection of Potable Water System . . . . . 55  
611 Drinking Water Treatment Units . . . . . 56  
612 Solar Systems . . . . . 56  
613 Temperature Control Devices and Valves . . . . . 56

**CHAPTER 7 SANITARY DRAINAGE . . . . . 57**

Section

701 General . . . . . 57  
702 Materials. . . . . 57  
703 Building Sewer . . . . . 59  
704 Drainage Piping Installation. . . . . 59  
705 Joints. . . . . 59  
706 Connections Between Drainage Piping and Fittings . . . . . 62  
707 Prohibited Joints and Connections . . . . . 63  
708 Cleanouts . . . . . 63  
709 Fixture Units. . . . . 64  
710 Drainage System Sizing . . . . . 64  
711 Offsets in Drainage Piping in Buildings of Five Stories or More . . . . . 66  
712 Sumps and Ejectors . . . . . 66  
713 Health Care Plumbing . . . . . 67  
714 Computerized Drainage Design . . . . . 69  
715 Backwater Valves. . . . . 69  
716 Vacuum Drainage Systems. . . . . 69  
717 Replacement of Underground Sewers by Pipe-Bursting Methods . . . . . 70

**CHAPTER 8 INDIRECT/SPECIAL WASTE . . . . . 71**

Section

801 General. . . . . 71  
802 Indirect Wastes. . . . . 71  
803 Special Wastes . . . . . 72  
804 Materials, Joints and Connections . . . . . 72

**CHAPTER 9 VENTS . . . . . 73**

Section

901 General . . . . . 73  
902 Materials. . . . . 73  
903 Vent Terminals. . . . . 73  
904 Outdoor Vent Extensions. . . . . 73  
905 Vent Connections and Grades . . . . . 74  
906 Vent Pipe Sizing . . . . . 74  
907 Vents for Stack Offsets . . . . . 74  
908 Relief Vents—Stacks of More Than 10 Branch Intervals . . . . . 76  
909 Fixture Vents . . . . . 76  
910 Individual Vent . . . . . 76  
911 Common Vent . . . . . 76  
912 Wet Venting . . . . . 77  
913 Waste Stack Vent. . . . . 77  
914 Circuit Venting. . . . . 78  
915 Combination Waste and Vent System . . . . . 78  
916 Island Fixture Venting . . . . . 78  
917 Single Stack Vent System . . . . . 79  
918 Air Admittance Valves. . . . . 80  
919 Engineered Vent Systems . . . . . 80  
920 Computerized Vent Design . . . . . 81

**CHAPTER 10 TRAPS, INTERCEPTORS AND SEPARATORS. . . . . 83**

Section

1001 General. . . . . 83  
1002 Trap Requirements. . . . . 83  
1003 Interceptors and Separators . . . . . 84  
1004 Materials, Joints and Connections . . . . . 86

**CHAPTER 11 STORM DRAINAGE . . . . . 87**

Section

1101 General. . . . . 87  
1102 Materials. . . . . 87  
1103 Traps. . . . . 88  
1104 Conductors and Connections . . . . . 88

1105 Roof Drains . . . . . 88

1106 Size of Conductors, Leaders and Storm Drains . . . . . 88

1107 Siphonic Roof Drainage Systems . . . . . 94

1108 Secondary (Emergency) Roof Drains . . . . . 94

1109 Combined Sanitary and Storm Public Sewer . . . . . 95

1110 Controlled Flow Roof Drain Systems . . . . . 95

1111 Subsoil Drains . . . . . 95

1112 Building Subdrains . . . . . 96

1113 Sumps and Pumping Systems . . . . . 96

**CHAPTER 12 SPECIAL PIPING AND STORAGE SYSTEMS . . . . . 97**

Section

1201 General . . . . . 97

1202 Medical Gases . . . . . 97

1203 Oxygen Systems . . . . . 97

**CHAPTER 13 NONPOTABLE WATER SYSTEMS . . . . . 99**

Section

1301 General . . . . . 99

1302 On-site Nonpotable Water Reuse Systems . . . . . 101

1303 Nonpotable Rainwater Collection and Distribution Systems . . . . . 103

1304 Reclaimed Water Systems . . . . . 105

**CHAPTER 14 SUBSURFACE LANDSCAPE IRRIGATION SYSTEMS . . . . . 107**

Section

1401 General . . . . . 107

1402 System Design and Sizing . . . . . 107

1403 Installation . . . . . 108

**CHAPTER 15 REFERENCED STANDARDS . . . . . 111**

**APPENDIX A PLUMBING PERMIT FEE SCHEDULE . . . . . 123**

Permit Issuance . . . . . 123

Unit Fee Schedule . . . . . 123

Other Inspections and Fees . . . . . 123

**APPENDIX B RATES OF RAINFALL FOR VARIOUS CITIES . . . . . 125**

**APPENDIX C STRUCTURAL SAFETY . . . . . 127**

Section

C101 Cutting, Notching and Boring in Wood Members . . . . . 127

**APPENDIX D DEGREE DAY AND DESIGN TEMPERATURES . . . . . 129**

**APPENDIX E SIZING OF WATER PIPING SYSTEM . . . . . 135**

Section

E101 General . . . . . 135

E102 Information Required . . . . . 135

E103 Selection of Pipe Size . . . . . 135

E201 Selection of Pipe Size . . . . . 152

E202 Determination of Pipe Volumes . . . . . 152

**INDEX . . . . . 157**



# CHAPTER 1

## SCOPE AND ADMINISTRATION

### PART 1—SCOPE AND APPLICATION

#### SECTION 101 GENERAL

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

[A] **101.2 Scope.** The provisions of this code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code shall regulate non-flammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel-gas-fired water heaters and water heater venting systems shall be regulated by the *International Fuel Gas Code*. Provisions in the appendices shall not apply unless specifically adopted.

**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*.

[A] **101.3 Intent.** The purpose of this code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

[A] **101.4 Severability.** If any 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 APPLICABILITY

[A] **102.1 General.** Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

[A] **102.2 Existing installations.** Plumbing systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use and maintenance continued if the use, maintenance or repair is in accordance with the original design and hazard to life, health or property is not created by such plumbing system.

[A] **102.3 Maintenance.** Plumbing systems, materials and appurtenances, both existing and new, and parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. Devices or safeguards required by this code shall be maintained in compliance with the edition of the code under which they were installed.

The owner or the owner’s authorized agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the code official shall have the authority to require any plumbing system to be re-inspected.

[A] **102.4 Additions, alterations or repairs.** Additions, alterations, renovations or repairs to any plumbing system shall conform to that required for a new plumbing system without requiring the existing plumbing system to comply with all the requirements of this code. Additions, alterations or repairs shall not cause an existing system to become unsafe, insanitary or overloaded.

Minor additions, alterations, renovations and repairs to existing plumbing systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is *approved*.

[A] **102.5 Change in occupancy.** It shall be unlawful to make any change in the *occupancy* of any structure that will subject the structure to any special provision of this code applicable to the new *occupancy* without approval of the code official. The code official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new *occupancy* and that such change of *occupancy* does not result in any hazard to the public health, safety or welfare.

[A] **102.6 Historic buildings.** The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings where such buildings or structures are judged by the code official to be safe and in the public interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, restoration, relocation or moving of buildings.

[A] **102.7 Moved buildings.** Except as determined by Section 102.2, plumbing systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

[A] **102.8 Referenced codes and standards.** The codes and standards referenced in this code shall be those that are listed in Chapter 15 and such codes and standards shall be consid-