

PHILADELPHIA PLUMBING CODE 2018



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PREFACE

Introduction

The *Philadelphia Plumbing Code* is incorporated as Subcode “P” of the *Philadelphia Building Construction and Occupancy Code* (BCOC), which comprises most of Title 4 of the Philadelphia Code.

The City of Philadelphia has the oldest known model plumbing code in the country, dating back to June 30, 1885. This publication marks the most significant revision to the Philadelphia Plumbing Code since its adoption by the Department of Licenses and Inspections in 1961. The revised code is based upon the recommendations of the Plumbing Advisory Board. It is the culmination of the Advisory Board’s expert melding of nationally recognized standards to promote economy and conservation with long-time Philadelphia-specific provisions essential to our infrastructure. Accordingly, the updated *Philadelphia Plumbing Code* contains provisions of the 2018 *International Plumbing Code*® published by the International Code Council, while retaining local amendments that serve to protect the historic building stock within the City of Philadelphia. The *Philadelphia Plumbing Code* also incorporates changes mandated by the Commonwealth of Pennsylvania under the Uniform Construction Code to further encourage standardization and economy in construction.

The *Philadelphia Plumbing Code* is a member of a family of subcodes that together address all matters relating to the construction and occupancy of buildings and other structures. Together with the Building, Electrical, Energy Conservation, Existing Building, Fire, Fuel Gas, Mechanical, Performance, Property Maintenance, Residential and Zoning Codes, it regulates construction, additions, alterations, fire safety, internal and external property conditions, and changes to occupancy classification.

The bulk of administrative provisions in these subcodes refer to the *Philadelphia Administrative Code* located within Title 4, which sets forth the administrative provisions that apply across the other subcodes. The Administrative subcode is a necessary companion to the Plumbing subcode.

Effective October 1, 2019.

Marginal Markings

- ➡ = Indicates where a paragraph or item has been deleted from the requirements of the 2015 *International Plumbing Code*.
- > = Indicates model code language deleted by the City of Philadelphia.
- | = Indicates a technical change from the requirements of the 2015 *International Plumbing Code*.
- || = Indicates a City of Philadelphia amendment has been made to the 2018 *International Plumbing Code*.

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 2018 edition of the *International Plumbing Code*.

2018 LOCATION	2015 LOCATION
802.2	804.1

Formatting Features

International Plumbing Code text in the body of the code amended by Philadelphia are identified by a P- preceding the subsection or table number. Where the wording of a section title was changed, the P- precedes the title number. Philadelphia regulations are printed within the subsection under which they were promulgated and are indicated by “(R)” behind the subsection number.

Words and terms defined in Chapter 2, Definitions, are italicized where they appear in code text and the Chapter 2 definition applies. Where such words and terms are not italicized, common-use definitions apply. The words and terms selected have code-specific definitions that the user should read carefully to facilitate better understanding of the code.

An indenting feature is used in tandem with the code's decimal-based section numbering system to clearly indicate the hierarchy of each subsection. The numbering system enables the code user to know immediately the section to which a subsection is subordinate, since each subsection begins with the main section number, which is keyed to the chapter number.

Values that are stated in the U.S. customary units of measurement are to be regarded as the code requirements. The metric equivalent of U.S. customary units may be approximate. Nominal sizes included in the code indicate the common designation of materials by the industry and metric equivalents are not indicated.

Throughout the code, references to "International" codes of "ICC" codes shall be deemed to refer to the "Philadelphia" code of the same name.

Appendices

Appendix E of the *International Plumbing Code* has been adopted by the City of Philadelphia. Philadelphia also added Appendices F and G.

Errors

Readers of the *Philadelphia Plumbing Code* are urged to notify the Department of Licenses and Inspections if they discover any errors in the printing of this code. Contact the Code Development Unit at the Municipal Services Building, 1401 John F Kennedy Blvd, Philadelphia, PA 19102.

Further Information

Errata, updates and additional information about this code may be found at:

International Code Council: www.iccsafe.org

Commonwealth of Pennsylvania: www.dli.state.pa.us

City of Philadelphia: www.phila.gov

EFFECTIVE USE OF THE PHILADELPHIA PLUMBING CODE

Arrangement and Format of the Code

The format of the *Philadelphia Plumbing Code* 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.

Chapters	Subjects
1–2	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	Reserved
15	Referenced Standards
Appendices A–D	Reserved
Appendices E–G	Appendices

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *Philadelphia 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*. 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 servicing 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 pres-

sure 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). Section P-919 includes provisions for the Philadelphia Single-Stack and Waste Vent System, an engineered system utilized in all existing buildings in the City of Philadelphia.

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 those 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 footings 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 potable water use in buildings has led building designers in some jurisdictions to use nonpotable water for irrigation and flushing of water closets and urinals. 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 potable water use in buildings has led building designers 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.

Appendices A–D Reserved.

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.

Appendix F Figures. Appendix F provides figures for illustrative purposes. In case of any difference of meaning or implication between the text of this code and any figure, the text shall control.

Appendix G Licensing Requirements. Appendix G provides a summary of the licensing requirements established by Title 9 of the Philadelphia Code. Licensing requirements serve to protect public health and safety and ensure compliance with applicable industry codes by establishing standards and enforcement procedures for contractors and tradespersons performing construction work in Philadelphia.

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