2024 International Residential Code®

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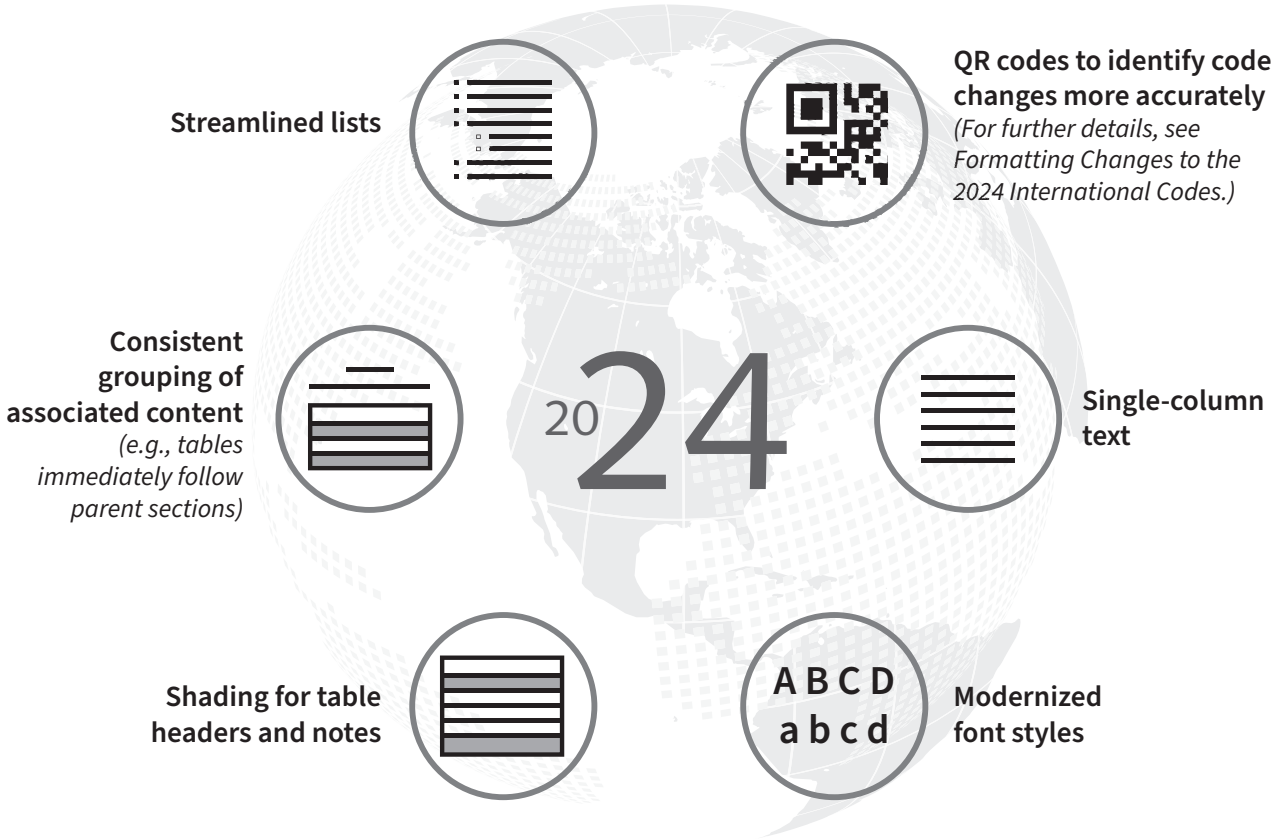
NEW DESIGN FOR THE 2024 INTERNATIONAL CODES

IBC IRC IFC IPC IMC IECC IEBC IFGC IPMC IPSDC IWUIC IZC ICCPC IgCC ISPSC

The 2024 International Codes® (I-Codes®) have undergone substantial formatting changes as part of the digital transformation strategy of the International Code Council® (ICC®) to improve the user experience. The resulting product better aligns the print and PDF versions of the I-Codes with the ICC's Digital Codes® content.

The changes, promoting a cleaner, more modern look and enhancing readability and sustainability, include:



More information can be found at iccsafe.org/design-updates.

PREFACE

FORMATTING CHANGES TO THE 2024 INTERNATIONAL CODES

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Replacement of Marginal Markings with QR Codes

Through 2021, print editions of the I-Codes identified technical changes from prior code cycles with marginal markings [solid vertical lines for new text, deletion arrows (➡), asterisks for relocations (*)]. The 2024 I-Code print editions replace the marginal markings with QR codes to identify code changes more precisely.

A QR code is placed at the beginning of any section that has undergone technical revision. If there is no QR code, there are no technical changes to that section.

In the following example from the 2024 *International Residential Code*® (IRC®), a QR code indicates there are changes to Section 605 from the 2021 IRC. Note that the change may occur in the main section or in one or more subsections of the main section.

SECTION R101—SCOPE AND GENERAL REQUIREMENTS

R101.1 Title. These provisions shall be known as the *Residential Code for One- and Two-family Dwellings* of **[NAME OF JURISDICTION]**, and shall be cited as such and will be referred to herein as "this code."

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.

Scan for Changes

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To see the code changes, the user need only scan the QR code with a smart device. If scanning a QR code is not an option, changes can be accessed by entering the 7-digit code beneath the QR code at the end of the following URL: qr.iccsafe.org/ (in the above example, "qr.iccsafe.org/d4b0d95"). Those viewing the code book via PDF can click on the QR code.

All methods take the user to the appropriate section on ICC's Digital Codes website, where technical changes from the prior cycle can be viewed. Digital Codes Premium subscribers who are logged in will be automatically directed to the Premium view. All other users will be directed to the Digital Codes Basic free view. Both views show new code language in blue text along with deletion arrows for deleted text and relocation markers for relocated text.

Digital Codes Premium offers additional ways to enhance code compliance research, including revision histories, commentary by code experts and an advanced search function. A full list of features can be found at codes.iccsafe.org/premium-features.

ABOUT THE I-CODES

The 2024 I-Codes, published by the ICC, are 15 fully compatible titles, intended to establish provisions that adequately protect public health, safety and welfare; that do not unnecessarily increase construction costs; that do not restrict the use of new materials, products or methods of construction; and that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

The I-Codes are updated on a 3-year cycle to allow for new construction methods and technologies to be incorporated into the codes. Alternative materials, designs and methods not specifically addressed in the I-Code can be approved by the building official where the proposed materials, designs or methods comply with the intent of the provisions of the code.

The I-Codes are used as the basis of laws and regulations in communities across the US and in other countries. They are also used in a variety of nonregulatory settings, including:

- Voluntary compliance programs.
- The insurance industry.
- Certification and credentialing for building design, construction and safety professionals.
- Certification of building and construction-related products.
- Facilities management.
- "Best practices" benchmarks for designers and builders.
- College, university and professional school textbooks and curricula.
- Reference works related to building design and construction.

Code Development Process

The code development process regularly provides an international forum for building professionals to discuss requirements for building design, construction methods, safety, performance, technological advances and new products. Proposed changes to the I-Codes, submitted by code enforcement officials, industry representatives, design professionals and other interested parties are deliberated through an open code development process in which all interested and affected parties may participate.

Openness, transparency, balance, due process and consensus are the guiding principles of both the ICC Code Development Process and OMB Circular A-119, which governs the federal government's use of private-sector standards. The ICC process is open to anyone without cost. Remote participation is available through cdpAccess®, the ICC's cloud-based app.

In order to ensure that organizations with a direct and material interest in the codes have a voice in the process, the ICC has developed partnerships with key industry segments that support the ICC's important public safety mission. Some code development committee members were nominated by the following industry partners and approved by the ICC Board:

- American Gas Association (AGA)
- American Institute of Architects (AIA)
- American Society of Plumbing Engineers (ASPE)
- International Association of Fire Chiefs (IAFC)
- National Association of Home Builders (NAHB)
- National Association of State Fire Marshals (NASFM)
- National Council of Structural Engineers Association (NCSEA)
- National Multifamily Housing Council (NMHC)
- Plumbing Heating and Cooling Contractors (PHCC)
- Pool and Hot Tub Alliance (PHTA), formerly The Association of Pool and Spa Professionals (APSP)

Code development committees evaluate and make recommendations regarding proposed changes to the codes. Their recommendations are then subject to public comment and council-wide votes. The ICC's governmental members—public safety officials who have no financial or business interest in the outcome—cast the final votes on proposed changes.

The I-Codes are subject to change through future code development cycles and by any governmental entity that enacts the code into law. For more information regarding the code development process, contact the Codes and Standards Development Department of the ICC at iccsafe.org/products-and-services/i-codes/code-development/.

While the I-Code development procedure is thorough and comprehensive, the ICC, its members and those participating in the development of the codes expressly disclaim any liability resulting from the publication or use of the I-Codes, or from compliance or noncompliance with their provisions. NO WARRANTY OF ANY KIND, IMPLIED, EXPRESSED OR STATUTORY, IS GIVEN WITH RESPECT TO THE I-CODES. The ICC does not have the power or authority to police or enforce compliance with the contents of the I-Codes.

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

In each cycle, proposed changes are considered by the Code Development Committee assigned to a specific code or subject matter. Committee Action Hearings result in recommendations regarding a proposal to the voting membership. Where changes to a code section are not considered by that code's own committee, the code section is preceded by a bracketed letter designation identifying a different committee. Bracketed letter designations for the I-Code committees are:

[A] = Administrative Code Development Committee

[BE] = IBC—Egress Code Development Committee

[BF] = IBC—Fire Safety Code Development Committee

[BG] = IBC—General Code Development Committee

[BS] = IBC—Structural Code Development Committee

[E] = Developed under the ICC's Standard Development Process

[EB] = International Existing Building Code Development Committee

[F] = International Fire Code Development Committee

[FG] = International Fuel Gas Code Development Committee

[M] = International Mechanical Code Development Committee

[P] = International Plumbing Code Development Committee

[SP] = International Swimming Pool and Spa Code Development Committee

For the development of the 2027 edition of the I-Codes, the ICC Board of Directors approved a standing motion from the Board Committee on the Long-Term Code Development Process to revise the code development cycle to incorporate two committee action hearings for each code group. This change expands the current process from two independent 1-year cycles to a single continuous 3-year cycle. There will be two groups of code development committees and they will meet in separate years. The current groups will be reworked. With the energy provisions of the *International Energy Conservation Code*® (IECC®) and Chapter 11 of the *International*

Residential Code® (IRC®) now moved to the Code Council's Standards Development Process, the reduced volume of code changes will be distributed between Groups A and B.

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 Committee Action Hearings in different years, proposals for most codes will be heard by committees in both the 2024 (Group A) and the 2025 (Group B) code development cycles. It is very important that anyone submitting code change proposals understands which code development committee is responsible for the section of the code that is the subject of the code change proposal.

Please visit the ICC website at iccsafe.org/products-and-services/i-codes/code-development/current-code-development-cycle for further information on the Code Development Committee responsibilities as it becomes available.

Coordination of the I-Codes

The coordination of technical provisions allows the I-Codes to be used as a complete set of complementary documents. Individual codes can also be used in subsets or as stand-alone documents. Some technical provisions that are relevant to more than one subject area are duplicated in multiple model codes.

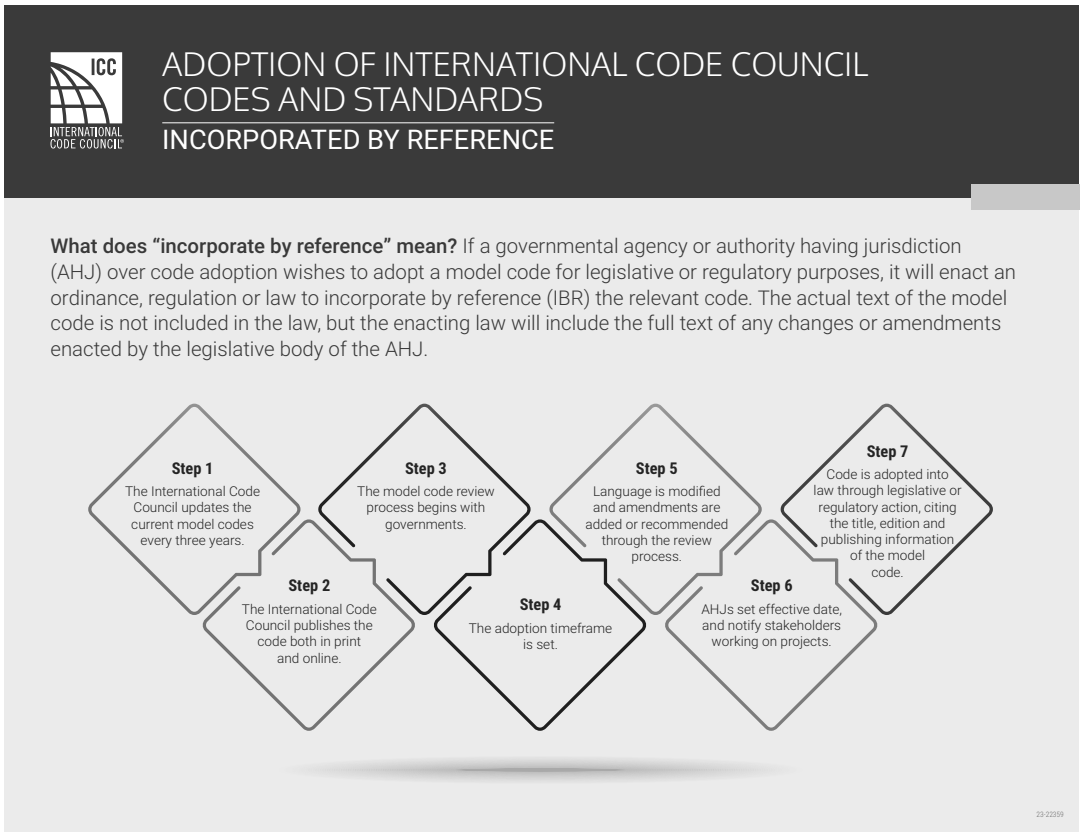
Italicized Terms

Words and terms defined in Chapter 2, Definitions, are italicized where they appear in code text and the Chapter 2 definitions apply. Although care has been taken to ensure applicable terms are italicized, there may be instances where a defined term has not been italicized or where a term is italicized but the definition found in Chapter 2 is not applicable. For example, Chapter 2 of the *International Building Code*® (IBC®) contains a definition for "*Listed*" that is applicable to equipment, products and services. The term "listed" is also used in that code to refer to a list of items within the code or within a referenced document. For the latter, the Chapter 2 definition would not be applicable.

Adoption of International Code Council Codes and Standards

The International Code Council maintains a copyright in all of its codes and standards. Maintaining copyright allows the Code Council to fund its mission through sales of books in both print and digital formats. The Code Council welcomes incorporation by reference of its codes and standards by jurisdictions that recognize and acknowledge the Code Council's copyright in the codes and standards, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the Code Council. By making its codes and standards available for incorporation by reference, the Code Council does not waive its copyright in its codes and standards.

The Code Council's codes and standards may only be adopted by incorporation by reference in an ordinance passed by the governing body of the jurisdiction. "Incorporation by reference" means that in the adopting ordinance, the governing body cites only the title, edition, relevant sections or subsections (where applicable), and publishing information of the model code or standard, and the actual text of the model code or standard is not included in the ordinance (see graphic, "Adoption of International Code Council Codes and Standards"). The Code Council does not consent to the reproduction of the text of its codes or standards in any ordinance. If the governing body enacts any changes, only the text of those changes or amendments may be included in the ordinance.



The Code Council also recognizes the need for jurisdictions to make laws accessible to the public. Accordingly, all I-Codes and I-Standards, along with the laws of many jurisdictions, are available to view for free at codes.iccsafe.org/codes/i-codes. These documents may also be purchased, in both digital and print versions, at shop.iccsafe.org.

To facilitate adoption, some I-Code sections contain blanks for fill-in information that needs to be supplied by the adopting jurisdiction as part of the adoption legislation. For example, the IRC contains:

Section R101.1. Insert: **[NAME OF JURISDICTION]**

Table R301.2. Jurisdictions to fill in details as directed by provisions of the code.

Section P2603.5.1. Insert: **[NUMBER OF INCHES IN TWO LOCATIONS]**

For further information or assistance with adoption, including a sample ordinance, jurisdictions should contact the Code Council at incorporation@iccsafe.org.

For a list of frequently asked questions (FAQs) addressing a range of foundational topics about the adoption of model codes by jurisdictions and to learn more about the Code Council's code adoption resources, scan the QR code or visit iccsafe.org/code-adoption-resources.

INTRODUCTION TO THE INTERNATIONAL RESIDENTIAL CODE

The IRC establishes minimum requirements for one- and two-family dwellings and townhouses using prescriptive provisions. It is founded on broad-based principles that make possible the use of new materials and new building designs. This 2024 edition is fully compatible with all of the International Codes® (I-Codes®) published by the ICC.

The IRC was created to serve as a complete, comprehensive code regulating the construction of single-family houses, two-family houses (duplexes) and buildings consisting of three or more townhouse units. All buildings within the scope of the IRC are limited to three stories above grade plane. For example, a four-story single-family house would fall within the scope of the IBC, not the IRC. The benefits of devoting a separate code to residential construction include the fact that the user need not navigate through a multitude of code provisions that do not apply to residential construction in order to locate that which is applicable. A separate code also allows for residential and nonresidential code provisions to be distinct and tailored to the structures that fall within the appropriate code's scopes.

The IRC contains coverage for all components of a house or townhouse, including structural components, fireplaces and chimneys, thermal insulation, mechanical systems, fuel gas systems, plumbing systems and electrical systems.

The IRC is a prescriptive-oriented (specification) code with some examples of performance code language. It has been said that the IRC is the complete cookbook for residential construction. Section R301.1, for example, is written in performance language, but states that the prescriptive requirements of the code will achieve such performance.

It is important to understand that the IRC contains coverage for what is conventional and common in residential construction practice. While the IRC will provide all of the needed coverage for most residential construction, it might not address construction practices and systems that are atypical or rarely encountered in the industry. Therefore, the IRC contains several references to other codes either as an alternative to the provisions of the IRC or where the IRC lacks coverage for a particular type of structure, design, system, appliance or method of construction. In other words, the IRC is meant to be all inclusive for typical residential construction and it relies on other codes only where alternatives are desired or where the code lacks coverage for the uncommon aspect of residential construction. Of course, the IRC constantly evolves to address new technologies and construction practices that were once uncommon, but are now common.

The IRC is unique in that much of it, including Chapters 3 through 9 and Chapters 34 through 43, is presented in an ordered format that is consistent with the normal progression of construction, starting with the design phase and continuing through the final trim-out phase. This is consistent with the "cookbook" philosophy of the IRC.

ARRANGEMENT AND FORMAT OF THE 2024 IRC

The IRC is divided into nine main parts, specifically: Part I—Administrative, Part II—Definitions, Part III—Building Planning and Construction, Part IV—Energy Conservation, Part V—Mechanical, Part VI—Fuel Gas, Part VII—Plumbing, Part VIII—Electrical and Part IX—Referenced Standards. The following provides a brief description of the content of each chapter and appendix of the IRC:

Chapter 1 Scope and Administration.

Chapter 1 establishes the limits of applicability of the code and describes how the code is to be applied and enforced. The provisions of Chapter 1 establish the authority and duties of the code official appointed by the authority having jurisdiction and also establish the rights and privileges of the design professional, contractor and property owner.

Chapter 2 Definitions.

Chapter 2 is the repository of the definitions of terms used in the body of the code. 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.

Chapter 3 Building Planning.

Chapter 3 provides guidelines for a minimum level of structural integrity, life safety, fire safety and livability for inhabitants of dwelling units regulated by this code. Chapter 3 is a compilation of the code requirements specific to the building planning sector of the design and construction process. This chapter sets forth code requirements dealing with light, ventilation, sanitation, minimum room size, ceiling height and environmental comfort. Chapter 3 establishes life-safety provisions including limitations on glazing used in hazardous areas, specifications on stairways, use of guards at elevated surfaces, window and fall protection, and rules for means of egress. Snow, wind and seismic design live and dead loads and flood-resistant construction, as well as solar energy systems, and swimming pools, spas and hot tubs, are addressed in this chapter.

Chapter 4 Foundations.

Chapter 4 provides the requirements for the design and construction of foundation systems for buildings regulated by this code. Provisions for seismic load, flood load and frost protection are contained in this chapter. A foundation system consists of two interdependent components: the foundation structure itself and the supporting soil.

The prescriptive provisions of this chapter provide requirements for constructing footings and walls for foundations of wood, masonry, concrete and precast concrete. In addition to a foundation's ability to support the required design loads, this chapter addresses several other factors that can affect foundation performance. These include controlling surface water and subsurface drainage, requiring soil tests where conditions warrant and evaluating proximity to slopes and minimum depth requirements. The chapter also provides requirements to minimize adverse effects of moisture, decay and pests in basements and crawl spaces.

Chapter 5 Floors.

Chapter 5 provides the requirements for the design and construction of floor systems that will be capable of supporting minimum required design loads. This chapter covers four different types: wood floor framing, wood floors on the ground, cold-formed steel floor framing and concrete slabs on the ground. Allowable span tables are provided that greatly simplify the determination of joist, girder and sheathing sizes for raised floor systems of wood framing and cold-formed steel framing. This chapter also contains prescriptive requirements for wood-framed exterior decks and their attachment to the main building.

Chapter 6 Wall Construction.

Chapter 6 contains provisions that regulate the design and construction of walls. The wall construction covered in Chapter 6 consists of five different types: wood framed, cold-formed steel framed, masonry, concrete and structural insulated panel (SIP). The primary concern of this chapter is the structural integrity of wall construction and transfer of all imposed loads to the supporting structure. This chapter provides the requirements for the design and construction of wall systems that are capable of supporting the minimum design vertical loads (dead, live and snow loads) and lateral loads (wind or seismic loads). This chapter contains the prescriptive requirements for wall bracing and/or shear walls to resist the imposed lateral loads due to wind and seismic activity.

Chapter 6 also regulates exterior windows and doors installed in walls. This chapter contains criteria for the performance of exterior windows and doors and includes provisions for testing and labeling, garage doors, windborne debris protection and anchorage details.

Chapter 7 Wall Covering.

Chapter 7 contains provisions for the design and construction of interior and exterior wall coverings. This chapter establishes the various types of materials, materials standards and methods of application permitted for use as interior coverings, including interior plaster, gypsum board, ceramic tile, wood veneer paneling, hardboard paneling, wood shakes and wood shingles. Chapter 7 also contains requirements for the use of vapor retarders for moisture control in walls.

Exterior wall coverings provide the weather-resistant exterior envelope that protects the building's interior from the elements. Chapter 7 provides the requirements for wind resistance and water-resistive barrier for exterior wall coverings. This chapter prescribes the exterior wall coverings as well as the water-resistive barrier required beneath the exterior materials. Exterior wall coverings regulated by this section include aluminum, stone and masonry veneer, wood, hardboard, particleboard, wood structural panel siding, wood shakes and shingles, exterior plaster, steel, vinyl, fiber cement and exterior insulation finish systems.

Chapter 8 Roof-Ceiling Construction.

Chapter 8 regulates the design and construction of roof-ceiling systems. This chapter contains two roof-ceiling framing systems: wood framing and cold-formed steel framing. Allowable span tables are provided to simplify the selection of rafter and ceiling joist size for wood roof framing and cold-formed steel framing. Chapter 8 also provides requirements for the application of ceiling finishes, the proper ventilation of concealed spaces in roofs (e.g., enclosed attics and rafter spaces), unvented attic assemblies and attic access.

Chapter 9 Roof Assemblies.

Chapter 9 regulates the design and construction of roof assemblies. A roof assembly includes the roof deck, vapor retarder, substrate or thermal barrier, insulation, vapor retarder and roof covering. This chapter provides the requirement for wind resistance of roof coverings.

The types of roof covering materials and installation regulated by Chapter 9 are: asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shakes and shingles, built-up roofs, metal roof panels, modified bitumen roofing, thermoset and thermoplastic single-ply roofing, sprayed polyurethane foam roofing, liquid applied coatings and photovoltaic shingles. Chapter 9 also provides requirements for roof drainage, flashing, above deck thermal insulation, rooftop-mounted photovoltaic systems and recovering or replacing an existing roof covering.

Chapter 10 Chimneys and Fireplaces.

Chapter 10 contains requirements for the safe construction of masonry chimneys and fireplaces and establishes the standards for the use and installation of factory-built chimneys, fireplaces and masonry heaters. Chimneys and fireplaces constructed of masonry rely on prescriptive requirements for the details of their construction; the factory-built type relies on the listing and labeling method of approval. Chapter 10 provides the requirements for seismic reinforcing and anchorage of masonry fireplaces and chimneys.

Chapter 11 [RE] Energy Efficiency.

The purpose of Chapter 11 [RE] is to provide minimum design requirements that will promote efficient utilization of energy in buildings. The requirements are directed toward the design of building envelopes with adequate thermal resistance and low air leakage, and toward the design and selection of mechanical, water heating, electrical and illumination systems that promote effective use of depletable energy resources. The provisions of Chapter 11 [RE] are duplicated from the *International Energy Conservation Code—Residential Provisions*, as applicable for buildings which fall under the scope of the IRC.

For ease of use and coordination of provisions, the corresponding IECC—Residential Provisions section number is indicated following the IRC section number [e.g., N1102.1 (R402.1)].

Chapter 12 Mechanical Administration.

Chapter 12 establishes the limits of applicability of the code and describes how the code is to be applied and enforced. A mechanical code, like any other code, is intended to be adopted as a legally enforceable document and it cannot be effective without adequate provisions for its administration and enforcement. The provisions of Chapter 12 establish the authority and duties of the code official appointed by the jurisdiction having authority and also establish the rights and privileges of the design professional, contractor and property owner. It also relates this chapter to the administrative provisions in Chapter 1.

Chapter 13 General Mechanical System Requirements.

Chapter 13 contains broadly applicable requirements related to appliance listing and labeling, appliance location and installation, appliance and systems access, protection of structural elements and clearances to combustibles, among others.

Chapter 14 Heating and Cooling Equipment and Appliances.

Chapter 14 is a collection of requirements for various heating and cooling appliances, dedicated to single topics by section. The common theme is that all of these types of appliances use energy in one form or another, and the improper installation of such appliances would present a hazard to the occupants of the dwellings, due to either the potential for fire or the accidental release of refrigerants. Both situations are undesirable in dwellings that are covered by this code.

Chapter 15 Exhaust Systems.

Chapter 15 is a compilation of code requirements related to residential exhaust systems, including kitchens and bathrooms, clothes dryers and range hoods. The code regulates the materials used for constructing and installing such duct systems. Air brought into the building for ventilation, combustion or makeup purposes is protected from contamination by the provisions found in this chapter.

Chapter 16 Duct Systems.

Chapter 16 provides requirements for the installation of ducts for supply, return and exhaust air systems. This chapter contains no information on the design of these systems from the standpoint of air movement, but is concerned with the structural integrity of the systems and the overall impact of the systems on the fire-safety performance of the building. This chapter regulates the materials and methods of construction which affect the performance of the entire air distribution system.

Chapter 17 Combustion Air.

Chapter 17 consists of a single section that directs the user to NFPA 31 for oil-fired appliance combustion air requirements and the manufacturer's installation instructions for solid fuel-burning appliances. Chapter 24 is applicable to fuel gas appliances.

Chapter 18 Chimneys and Vents.

Chapter 18 regulates the design, construction, installation, maintenance, repair and approval of chimneys, vents and their connections to fuel-burning appliances. A properly designed chimney or vent system is needed to conduct the flue gases produced by a fuel-burning appliance to the outdoors. The provisions of this chapter are intended to minimize the hazards associated with high temperatures and potentially toxic and corrosive combustion gases. This chapter addresses factory-built and masonry chimneys, vents and venting systems used to vent oil-fired and solid fuel-burning appliances.

Chapter 19 Special Appliances, Equipment and Systems.

Chapter 19 regulates the installation of fuel-burning appliances that are not covered in other chapters, such as ranges and ovens, sauna heaters, fuel cell power plants and hydrogen systems. Because the subjects in this chapter do not contain the volume of text necessary to warrant individual chapters, they have been combined into a single chapter. The only commonality is that the subjects use energy to perform some task or function. The intent is to provide a reasonable level of protection for the occupants of the dwelling.

Chapter 20 Boilers and Water Heaters.

Chapter 20 regulates the installation of boilers and water heaters. Its purpose is to protect the occupants of the dwelling from the potential hazards associated with such appliances. A water heater is any appliance that heats potable water and supplies it to the plumbing hot water distribution system. A boiler either heats water or generates steam for space heating and is generally a closed system.

Chapter 21 Hydronic Piping.

Hydronic piping includes piping, fittings and valves used in building space conditioning systems. Applications include hot water, chilled water, steam, steam condensate, brines and water/antifreeze mixtures. Chapter 21 regulates installation, alteration and repair of all hydronic piping systems to ensure the reliability, serviceability, energy efficiency and safety of such systems.

Chapter 22 Special Piping and Storage Systems.

Chapter 22 regulates the design and installation of fuel oil storage and piping systems. The regulations include reference to construction standards for above-ground and underground storage tanks, material standards for piping systems (both above-ground and underground) and extensive requirements for the proper assembly of system piping and components. The purpose of this chapter is to prevent fires, leaks and spills involving fuel oil storage and piping systems, whether inside or outside structures and above or underground.

Chapter 23 Solar Thermal Energy Systems.

Chapter 23 contains requirements for the construction, alteration and repair of all systems and components of solar thermal energy systems used for space heating or cooling, and domestic hot water heating or processing. The provisions of this chapter are limited to those necessary to achieve installations that are relatively hazard free.

A solar thermal energy system can be designed to handle 100 percent of the energy load of a building, although this is rarely accomplished. Because solar energy is a low-intensity energy source and dependent on the weather, it is usually necessary to supplement a solar thermal energy system with traditional energy sources.

As our world strives to find alternate means of producing power for the future, the requirements of this chapter will become more and more important over time.

Chapter 24 Fuel Gas.

Chapter 24 regulates the design and installation of fuel gas distribution piping and systems, appliances, appliance venting systems and combustion air provisions. The definition of "Fuel gas" includes natural, liquefied petroleum and manufactured gases and mixtures of these gases.

The purposes of this chapter are to establish the minimum acceptable level of safety and to protect life and property from the potential dangers associated with the storage, distribution and use of fuel gases and the byproducts of combustion of such fuels. This code also protects the personnel who install, maintain, service and replace the systems and appliances addressed herein.

Chapter 24 is composed entirely of text extracted from the *International Fuel Gas Code* (IFGC); therefore, whether using the IFGC or the IRC, the fuel gas provisions will be identical. Note that to avoid the potential for confusion and conflicting definitions, Chapter 24 has its own definition section.

Chapter 25 Plumbing Administration.

The requirements of Chapter 25 do not supersede the administrative provisions of Chapter 1. Rather, the administrative guidelines of Chapter 25 pertain to plumbing installations that are best referenced and located within the plumbing chapters. This chapter addresses how to apply the plumbing provisions of this code to specific types or phases of construction. This chapter also outlines the responsibilities of the applicant, installer and inspector with regard to testing plumbing installations.

Chapter 26 General Plumbing Requirements.

The content of Chapter 26 is often referred to as "miscellaneous," rather than general plumbing requirements. This is the only chapter of the plumbing chapters of the code whose requirements do not interrelate. If a requirement cannot be located in another plumbing chapter, it should be located in this chapter. Chapter 26 contains safety requirements for the installation of plumbing systems and includes requirements for the identification of pipe, pipe fittings, traps, fixtures, materials and devices used in plumbing systems. If specific provisions do not demand that a requirement be located in another chapter, the requirement is located in this chapter.

Chapter 27 Plumbing Fixtures.

Chapter 27 requires fixtures to be of the proper type, approved for the purpose intended and installed properly to promote usability and safe, sanitary conditions. This chapter 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.

Chapter 28 Water Heaters.

Chapter 28 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 chapter 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 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 29 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 by cross connections. Chapter 29 also regulates the design of the water distribution system, which will allow fixtures to function properly. Because it is critical that the potable water supply system remain free of actual or potential sanitary hazards, this chapter has the requirements for providing backflow protection devices.

Chapter 30 Sanitary Drainage.

The purpose of Chapter 30 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, are neither undersized nor oversized and are constructed from materials, fittings and connections whose quality is regulated by this section. 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 31 Vents.

Venting protects the trap seal of each trap. The vents are designed to limit differential pressures at each trap to 1 inch of water column (249 Pa). Because waste flow in the drainage system creates pressure fluctuations that can negatively affect traps, the sanitary drainage system must have a properly designed venting system. Chapter 31 covers the requirements for vents and venting. All of the provisions set forth in this chapter are intended to limit 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 32 Traps.

Traps prevent sewer gas from escaping from the drainage piping into the building. Water seal traps are the simplest and most reliable means of preventing sewer gas from entering the interior environment. Chapter 32 lists prohibited trap types and specifies the minimum trap size for each type of fixture.

Chapter 33 Storm Drainage.

Rainwater infiltration into the ground adjacent to a building can cause the interior of foundation walls to become wet. The installation of a subsoil drainage system prevents the buildup of rainwater on the exterior of the foundation walls. Chapter 33 provides the specifications for subsoil drain piping. Where the discharge of the subsoil drain system is to a sump, this chapter also provides coverage for sump construction, pumps and discharge piping.

Chapter 34 General Requirements.

Chapter 34 contains broadly applicable, general and miscellaneous requirements including scope, listing and labeling, equipment locations and clearances for conductor materials and connections and conductor identification.

Chapter 35 Electrical Definitions.

Chapter 35 is the repository of the definitions of terms used in the body of Part VIII of the code. To avoid the potential for confusion and conflicting definitions, Part VIII, Electrical, has its own definition chapter.

Codes are technical documents and every word, term and punctuation mark can add to or change the meaning of a technical requirement. The code often uses terms that have a unique meaning in the code, which can differ substantially from the ordinarily understood meaning of the term as used outside of the code.

The terms defined in Chapter 35 are deemed to be of prime importance in establishing the meaning and intent of the electrical 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.

Chapter 36 Services.

Chapter 36 covers the design, sizing and installation of the building's electrical service equipment and grounding electrode system. It includes an easy-to-use load calculation method and service conductor sizing table. The electrical service is generally the first part of the electrical system to be designed and installed.

Chapter 37 Branch Circuit and Feeder Requirements.

Chapter 37 addresses the requirements for designing the power distribution system, which consists of feeders and branch circuits emanating from the service equipment. This chapter dictates the ratings of circuits and the allowable loads, the number and types of branch circuits required, the wire sizing for such branch circuits and feeders and the requirements for protection from overcurrent for conductors. A load calculation method specific to feeders is also included. This chapter is used to design the electrical system on the load side of the service.

Chapter 38 Wiring Methods.

Chapter 38 specifies the allowable wiring methods, such as cable, conduit and raceway systems, and provides the installation requirements for the wiring methods. This chapter is primarily applicable to the "rough-in" phase of construction.

Chapter 39 Power and Lighting Distribution.

Chapter 39 mostly contains installation requirements for the wiring that serves the lighting outlets, receptacle outlets, appliances and switches located throughout the building. The required distribution and spacing of receptacle outlets and lighting outlets is prescribed in this chapter, as well as the requirements for ground-fault and arc-fault circuit-interrupter protection.

Chapter 40 Devices and Luminaires.

Chapter 40 focuses on the devices, including switches and receptacles, and lighting fixtures that are typically installed during the final phase of construction.

Chapter 41 Appliance Installation.

Chapter 41 addresses the installation of appliances including HVAC appliances, water heaters, fixed space-heating equipment, dishwashers, garbage disposals, range hoods and suspended paddle fans.

Chapter 42 Swimming Pools.

Chapter 42 covers the electrical installation requirements for swimming pools, storable swimming pools, wading pools, decorative pools, fountains, hot tubs, spas and hydromassage bathtubs. The allowable wiring methods are specified along with the required clearances between electrical system components and pools, spas and tubs. This chapter includes the special grounding requirements related to pools, spas and tubs, and also prescribes the equipotential bonding requirements that are unique to pools, spas and tubs.

Chapter 43 Class 2 Remote-Control, Signaling and Power-Limited Circuits.

Chapter 43 covers the power supplies, wiring methods and installation requirements for the Class 2 circuits found in dwellings. Such circuits include thermostat wiring, alarm systems, security systems, automated control systems and doorbell systems.

Chapter 44 Referenced Standards.

Chapter 44 lists all of the product and installation standards and codes that are referenced throughout Chapters 1 through 43 and includes identification of the promulgators and the section numbers in which the standards and codes are referenced. As stated in Section 102.4, these standards and codes become an enforceable part of the code (to the prescribed extent of the reference) as if printed in the body of the code.

Appendix AA Board of Appeals.

Appendix AA contains the provisions for appeal and the establishment of a board of appeals. The provisions include the application for an appeal, the makeup of the board of appeals and the conduct of the appeal process.

Appendix AB Permit Fees.

Appendix AB provides guidance to jurisdictions for setting appropriate permit fees. This appendix will aid many jurisdictions to assess permit fees that will assist to fairly and properly administer the code. This appendix can be used for informational purposes only or may be adopted when specifically referenced in the adopting ordinance.

Appendix BA Manufactured Housing Used as Dwellings.

The criteria for the construction of manufactured homes are governed by the National Manufactured Housing Construction and Safety Act. While this act may seem to cover the bulk of the construction of manufactured housing, it does not cover those areas related to the placement of the housing on the property. The provisions of Appendix BA are not applicable to the design and construction of manufactured homes. Appendix BA provides a complete set of regulations in conjunction with federal law for the installation of manufactured housing. This appendix also contains provisions for existing manufactured home installations.

Appendix BB Tiny Houses.

For dwelling units that are 400 square feet (37 m^2) or less in floor area, excluding lofts, Appendix BB provides relaxed provisions as compared to those in the body of the code. These provisions primarily address reduced ceiling heights for loft areas and specific stair and ladder detail requirements that allow for more compact designs where accessing lofts.

Appendix BC Accessory Dwelling Units.

Appendix BC provides for the design and construction of accessory dwelling units (ADUs), an alternative to two- and multiple-family residential construction that promotes increased housing supply and affordability.

Appendix BD Home Day Care—R-3 Occupancy.

Appendix BD provides means of egress and smoke detection requirements for a Group R-3 Occupancy that is to be used as a home day care for more than five children who receive custodial care for less than 24 hours. This appendix is strictly for guidance and/or adoption by those jurisdictions that have Licensed Home Care Provider laws and statutes that allow more than five children to be cared for in a person's home. When a jurisdiction adopts this appendix, the provisions for day care and child care facilities in the IBC should be considered also.

Appendix BE Radon Control Methods.

Radon comes from the natural (radioactive) decay of the element radium in soil, rock and water and finds its way into the air. Appendix BE contains requirements to mitigate the transfer of radon gases from the soil into the dwelling. The provisions of this Appendix BE regulate the design and construction of radon-resistant measures intended to reduce the entry of radon gases into the living space of residential buildings.

Appendix BF Patio Covers.

Appendix BF sets forth the regulations and limitations for patio covers. The provisions address those uses permitted in patio cover structures, the minimum design loads to be assigned for structural purposes, and the effect of the patio cover on egress and emergency escape or rescue from sleeping rooms. This appendix also contains the special provisions for aluminum screen enclosures in hurricane-prone regions.

Appendix BG Sound Transmission.

Appendix BG regulates the sound transmission of wall and floor-ceiling assemblies separating dwelling units and townhouse units. Airborne sound insulation is required for walls. Airborne sound insulation and impact sound insulation are required for floor-ceiling assemblies. The provisions in Appendix BG set forth a minimum Sound Transmission Class (STC) rating for common walls and floor-ceiling assemblies between dwelling units. In addition, a minimum Impact Insulation Class (IIC) rating is also established to limit structureborne sound through common floor-ceiling assemblies separating dwelling units.

Appendix BH Automatic Vehicular Gates.

Appendix BH provides the requirements for the design and construction of automatic vehicular gates. The provisions are for where automatic gates are installed for use at a vehicular entrance or exit on the lot of a one- or two-family dwelling. The requirements provide protection for individuals from potential entrapment between an automatic gate and a stationary object or surface.

Appendix BI Light Straw-Clay Construction.

Appendix BI regulates the use of light straw-lay as a construction material. It is limited in application to nonbearing wall infill systems.

Appendix BJ Strawbale Construction.

Appendix BJ provides prescriptive requirements for the use of strawbale as a construction material. It is limited in application to the walls of one-story structures, except where additional engineering is provided.

Appendix BK Cob Construction (Monolithic Adobe).

Appendix BK provides prescriptive requirements for the use of natural cob (monolithic adobe) as a construction material. It is limited in application to the walls of one-story structures, except where additional engineering is provided.

Appendix BL Hemp-Lime (Hempcrete) Construction.

Appendix BL contains requirements for hemp-lime construction. Hemp-lime, commonly referred to as hempcrete, is a nonstructural, biocomposite insulation infill material composed of hemp hurd and a lime-based binder. The benefits of hemp-lime include high thermal performance, low embodied carbon emissions in production, high carbon sequestration in service, healthy living environments and high fire-resistance. These benefits, along with the 2018 United States legalization of hemp as a commercial crop, are driving rapid growth in interest and projects across the US.

Appendix BM 3D-printed Building Construction.

Appendix BM provides for the design, construction and inspection of buildings, structures and building elements fabricated by 3D-printed construction techniques.

Appendix BN Extended Plate Wall Construction.

Appendix BN contains requirements for extended plate wall (EPW) construction. EPW construction provides a practical compliance option for meeting energy code requirements for above-grade walls using conventional wood-framing materials.

Appendix BO Existing Buildings and Structures.

Appendix BO contains the provisions for the repair, renovation, alteration and reconstruction of existing buildings and structures that are within the scope of this code. To accomplish this objective and to make the rehabilitation process more available, this appendix allows for a controlled departure from full code compliance without compromising minimum life safety, fire safety, structural and environmental features of the rehabilitated existing building or structure.

Appendix CA Sizing and Capacities of Gas Piping.

Appendix CA is informative and not part of the code. It provides design guidance, useful facts and data and multiple examples of how to apply the sizing tables and sizing methodologies of Chapter 24.

Appendix CB Sizing of Venting Systems Serving Appliances Equipped with Draft Hoods, Category I Appliances, and Appliances Listed for Use with Type B Vents.

Appendix CB is informative and not part of the code. It contains multiple examples of how to apply the vent and chimney tables and methodologies of Chapter 24.

Appendix CC Recommended Procedure for Safety Inspection of an Existing Appliance Installation.

Appendix CC is informative and not part of the code. It provides recommended procedures for testing and inspecting an appliance installation to determine if the installation is operating safely and if the appliance is in a safe condition.

Appendix CD Piping Standards for Various Applications.

Appendix CD provides standards for various types of plastic piping products. This appendix is informative and is not part of the code.

Appendix CE Venting Methods.

Appendix CE has a number of illustrations for commonly installed sanitary drainage systems in order for the reader to gain a better understanding of this code's venting requirements. Because venting of sanitary drainage systems is a difficult concept to understand, and Chapter 31 uses only words to describe venting requirements, illustrations can offer greater insight into what the words mean.

Appendix CF Sizing of Water Piping System.

Appendix CF provides two recognized methods for sizing the water service and water distribution piping for a building. The method under Section CF103 provides friction loss diagrams that 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 CF201 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 CG Nonsewered Sanitation Systems.

Appendix CG addresses the considerations that need to be taken into account by building officials regarding the placement and installation of nonsewered sanitation systems in buildings. This appendix would permit the installation of these systems and provide an exception to the general requirement in the *International Plumbing Code* and this code that sanitation devices be connected to the building drainage system.

Appendix CH Private Sewage Disposal.

Appendix CH simply provides the opportunity to utilize the *International Private Sewage Disposal Code* for the design and installation of private sewage disposal in one- and two-family dwellings.

Appendix NA Reserved.

Appendix NB (RB) Solar-Ready Provisions—Detached One- and Two-Family Dwellings and Townhouses.

Appendix NB addresses provisions for solar capacity in new structures.

Appendix NC (RC) Zero Net Energy Residential Building Provisions.

Appendix NC provides requirements intended to bring about zero net energy consumption in residential buildings.

Appendix ND (RD) Electric Energy Storage Provisions.

Appendix ND provides requirements for electric energy storage readiness.

Appendix NE (RE) Electric Vehicle Charging Infrastructure.

Appendix NE provides guidance for an authority having jurisdiction wishing to provide electric vehicle readiness provisions.

Appendix NF (RF) Alternative Building Thermal Envelope Insulation R-value Options.

The purpose of Appendix NF is to provide expanded *R*-value options for determining compliance with the *U*-factor criteria in Section N1102.

Appendix NG (RG) 2024 IECC Stretch Code.

Appendix NG provides requirements for residential buildings intended to lower energy consumption beyond the requirements of the 2024 IECC.

Appendix NH (RH) Operational Carbon Rating and Energy Reporting.

Appendix NH provides a means to evaluate a building's greenhouse gas performance in accordance with ANSI/RESNET/ICC 301.

Appendix NI (RI) On-site Renewable Energy.

Appendix NI describes requirements for prescriptive solar PV to be installed at the time of construction.

Appendix NJ (RJ) Demand Responsive Controls.
Appendix NJ provides guidance for demand responsive controls for building appliances and systems.

Appendix NK (RK) Electric-Ready Residential Building Provisions.
Appendix NK provides guidance on how to prepare residential buildings to be electric ready.

Appendix NL (RL) Renewable Energy Infrastructure.
Appendix NL addresses provisions for solar capacity in new structures.

Resource A All-Electric Residential Buildings.
Resource A is not part of this code. It is provided as a resource.

RELOCATION OF TEXT OR TABLES

The following table indicates relocation of sections and tables in the 2024 edition of the IRC from the 2021 edition.

RELOCATIONS	
2024 LOCATION	**2021 LOCATION**
R101.2.1	R102.5
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R104.2.3	R104.10
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N1105.5.4.2	N1105.3.2.2
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Appendix NL	New

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