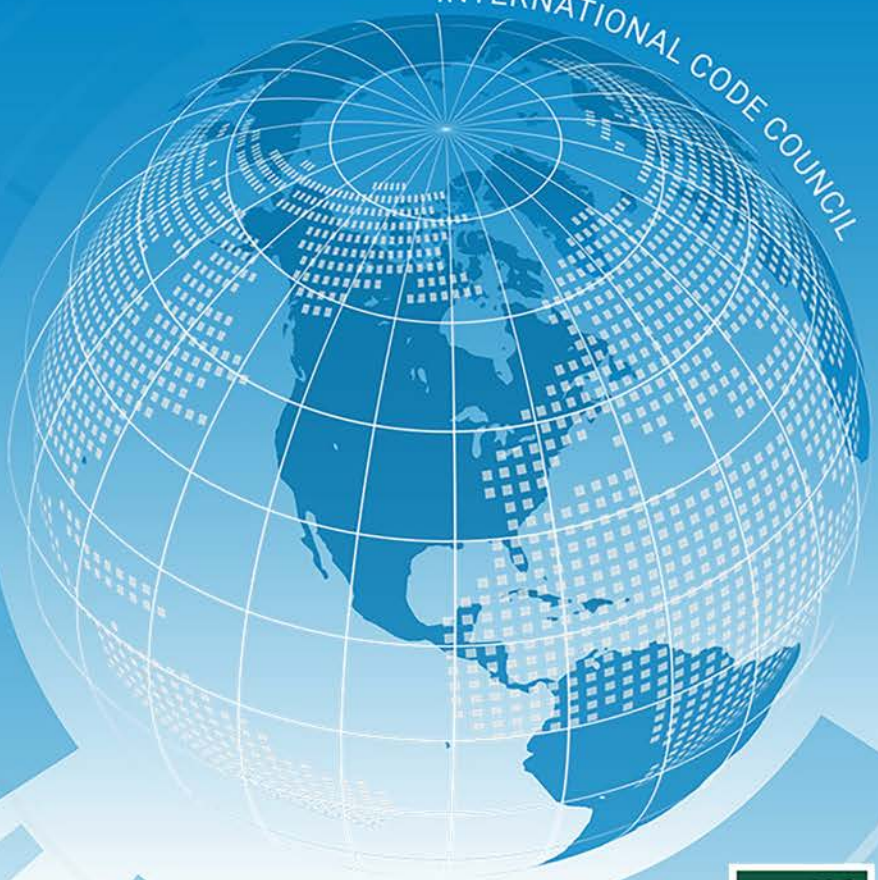
2024 IRC®

INTERNATIONAL RESIDENTIAL CODE®

FOR ONE- AND TWO-FAMILY DWELLINGS

INCLUDES
Residential requirements from
NFPA 70: National Electrical Code® 2023
The electrical code designated for use with the I-Codes®



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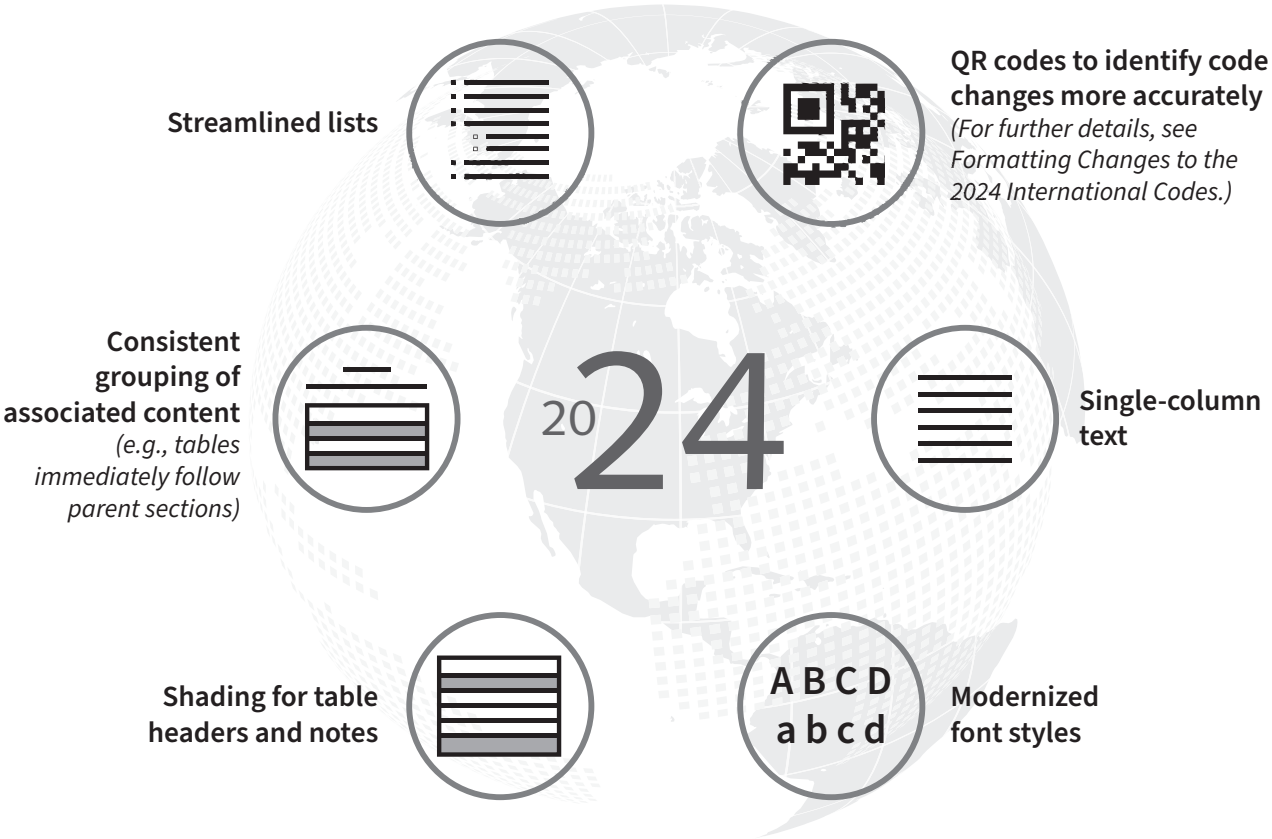
NEW DESIGN FOR THE 2024 INTERNATIONAL CODES

ICC INTERNATIONAL CODE COUNCIL®

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.

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PREFACE

FORMATTING CHANGES TO THE 2024 INTERNATIONAL CODES

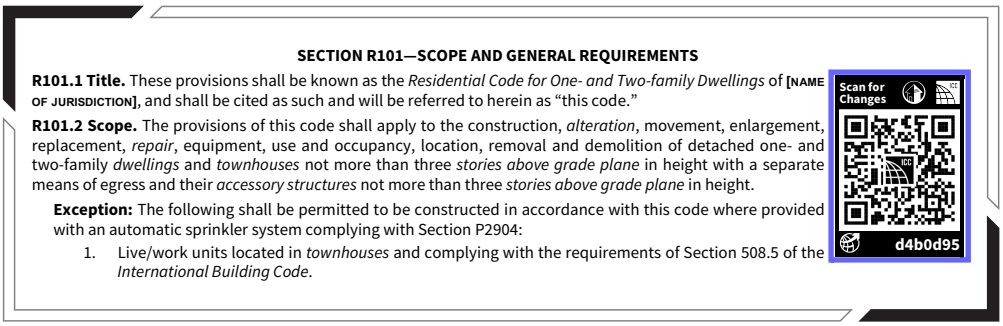
The 2024 International Codes® (I-Codes®) have undergone substantial formatting changes as part of the digital transformation strategy of the International Code Council® (ICC®) to improve the user experience. The resulting product better aligns the print and PDF versions of the I-Codes with the ICC's Digital Code content. Additional information can be found at iccsafe.org/design-updates.

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.



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.

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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*

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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.

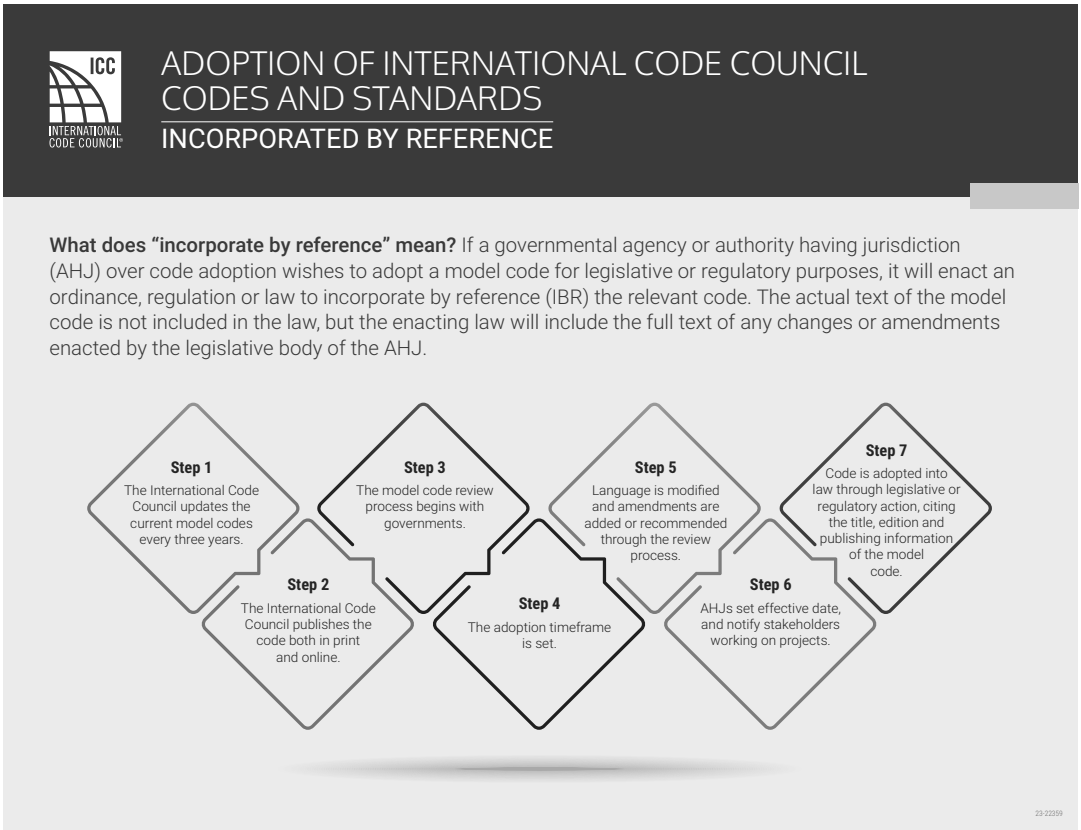
Adoption of International Code Council Codes and Standards

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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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R307(all)	R323(all)
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R309(all)	R313(all)
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R311(all)	R315(all)
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R324(all)	R308(all)
R325(all)	R303(all)

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N1102.2.7	N1102.2.6
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CHAPTER

1 SCOPE AND ADMINISTRATION

User notes:

About this chapter: *Chapter 1 establishes the limits of applicability of this code and describes how the code is to be applied and enforced. Chapter 1 is in two parts: Part 1—Scope and Application (Sections R101–R102) and Part 2—Administration and Enforcement (Sections R103–R114). Section R101 identifies which buildings and structures come under its purview and references other I-Codes as applicable. Standards and codes are scoped to the extent referenced (see Section R102.4).*

The one- and two-family dwelling 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 1 establish the authority and duties of the building official appointed by the authority having jurisdiction and also establish the rights and privileges of the design professional, contractor and property owner.

QR code use: *A QR code is placed at the beginning of any section that has undergone technical revision. To see those revisions, scan the QR code with a smart device or enter the 7-digit code beneath the QR code at the end of the following URL: qr.iccsafe.org/ (see Formatting Changes to the 2024 International Codes for more information).*

PART 1—SCOPE AND APPLICATION

SECTION R101—SCOPE AND GENERAL REQUIREMENTS

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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*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit*.

R101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

R101.3 Purpose. The purpose of this code is to establish minimum requirements to provide a reasonable level of safety, health and general welfare through affordability, structural strength, means of egress, stability, sanitation, light and *ventilation*, energy conservation and safety to life and property from fire and other hazards and to provide a reasonable level of safety to firefighters and emergency responders during emergency operations.

SECTION R102—APPLICABILITY

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R102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

R102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

R102.3 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

R102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2.

Exception: Where enforcement of a code provision would violate the conditions of the *listing* of the *equipment* or *appliance*, the conditions of the *listing* and manufacturer's instructions shall apply.

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R102.4.1 Conflicts. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

R102.4.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

R102.5 Partial invalidity. In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

R102.6 Existing structures. The legal occupancy of any *structure* existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

R102.6.1 Additions, alterations, change of use or repairs. *Additions*, *alterations* or *repairs* to any *structure* shall conform to the requirements for a new structure without requiring the existing *structure* to comply with the requirements of this code, unless otherwise stated. *Additions*, *alterations, repairs* and relocations shall not cause an existing structure to become less compliant with the provisions of this code than the *existing building* or structure was prior to the *addition*, *alteration* or *repair*. Where additions, *alterations* or changes of use to an existing structure result in a use, occupancy, height or means of egress outside the scope of this code, the building shall comply with the *International Existing Building Code*.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION R103—CODE COMPLIANCE AGENCY

R103.1 Creation of agency. The **[INSERT NAME OF DEPARTMENT]** is hereby created and the official in charge thereof shall be known as the *building official*. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.



R103.2 Appointment. The *building official* shall be appointed by the chief appointing authority of the *jurisdiction*.

R103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint a deputy *building official*, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the *building official*.

SECTION R104—DUTIES AND POWERS OF THE BUILDING OFFICIAL

R104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code.



R104.2 Determination of compliance. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of this code's provisions. Such interpretations, policies and procedures:

1. Shall be in compliance with the intent and purpose of this code.
2. Shall not have the effect of waiving requirements specifically provided for in this code.

R104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be *listed* and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *building official*.

R104.2.2 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved.

R104.2.2.1 Approval authority. An alternative material, design or method of construction shall be approved where the *building official* finds that the proposed alternative is satisfactory and complies with Sections R104.2.2 through R104.2.2.6.2, as applicable.

R104.2.2.2 Application and disposition. Where required, a request to use an alternative material, design or method of construction shall be submitted in writing to the *building official* for approval. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons the alternative was not approved.

R104.2.2.3 Compliance with code intent. An alternative material, design or method of construction shall comply with the intent of the provisions of this code.

R104.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all the following, as applicable:

1. Quality.

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2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

R104.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *building official*.

R104.2.2.6 Reports. Supporting documentation, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall comply with Sections R104.2.2.6.1 and R104.2.2.6.2.

R104.2.2.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *building official* for the installation. The alternate material, design or method of construction and product evaluated shall be within the scope of the *building official*'s recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *building official*.

R104.2.2.6.2 Other reports. Reports not complying with Section R104.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the building official. The *building official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

R104.2.3 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, provided the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.

R104.2.3.1 Flood hazard areas. The *building official* shall not grant modifications to any provisions required in flood hazard areas as established by Table R301.2 unless a determination has been made that:

1. There is good and sufficient cause showing that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section R306 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. Written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the design flood elevation increases risks to life and property, has been submitted to the applicant.

R104.3 Applications and permits. The *building official* shall receive applications, review *construction documents,* issue *permits*, inspect the premises for which such *permits* have been issued and enforce compliance with the provisions of this code.

R104.3.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas. For applications for reconstruction, rehabilitation, *addition, alteration*, *repair* or other improvement of *existing buildings* or structures located in a flood hazard area as established by Table R301.2, the *building official* shall examine or cause to be examined the *construction documents* and shall make a determination with regard to the value of the proposed work. For *buildings* that have sustained damage of any origin, the value of the proposed work shall include the cost to *repair* the *building* or structure to its predamaged condition. If the *building official* finds that the value of proposed work equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the proposed work is a *substantial improvement* or *repair* of *substantial damage* and the *building official* shall require existing portions of the entire building or structure to meet the requirements of Section R306.

R104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a *structure* or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *building official* is authorized to enter the *structure* or premises at all reasonable times to inspect or to perform the duties imposed by this code. If such structure or premises is occupied, the *building official* shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the *building official* shall first make a reasonable effort to locate the *owner*, the *owner*'s authorized agent, or other *person* having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to every remedy provided by law to secure entry.

R104.4.1 Warrant. Where the building code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner*, the *owner*'s authorized agent, occupant or *person* having charge, care or control of the *structure* or

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premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the building code official for the purposes of inspection and examination pursuant to this code.

R104.5 Identification. The *building official* shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

R104.6 Notices and orders. The *building official* shall issue necessary notices or orders to ensure compliance with this code. Notices of violations shall be in accordance with Section R113.2.

R104.7 Official records. The *building official* shall keep official records as required in Sections R104.7.1 through R104.7.5. Such official records shall be retained for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations.

R104.7.1 Approvals. A record of approvals shall be maintained by the *building official* and shall be available for public inspection during business hours in accordance with applicable laws.

R104.7.2 Inspections. The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual. The *building official* shall keep a record of each inspection made, including notices and orders issued, showing the findings and disposition of each.

R104.7.3 Code alternatives and modifications. Application for alternative materials, design and methods of construction and equipment in accordance with Section R104.2.2; modifications in accordance with Section R104.2.3; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records.

R104.7.4 Tests. Tests. The *building official* shall keep a record of tests conducted to comply with Section R104.2.2.5.

R104.7.5 Fees. The *building official* shall keep a record of fees collected and refunded in accordance with Section R108.

R104.8 Liability. The *building official*, member of the board of appeals or employee charged with the enforcement of this code, while acting for the *jurisdiction* in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be personally liable, either civilly or criminally, and is hereby relieved from personal liability for any damage accruing to *persons* or property as a result of an act or by reason of any act or omission in the discharge of official duties.

R104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code or other laws or ordinances implemented through the enforcement of this code shall be defended by legal representatives of the *jurisdiction* until the final termination of the proceedings. The *building official* or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

R104.9 Approved materials and equipment. Materials, *equipment* and devices *approved* by the *building official* shall be constructed and installed in accordance with such approval.

R104.9.1 Materials and equipment reuse. Materials, *equipment* and devices shall not be reused unless such elements are in good working condition and *approved.*

SECTION R105—PERMITS



R105.1 Required. Any *owner* or *owner*'s authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. Other than *storm shelters*, one-*story* detached *accessory structures,* provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. *Retaining walls* that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.

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9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a *dwelling* or *townhouse* and do not serve the exit door required by Section R318.4.

Electrical:

1. *Listed* cord-and-plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, *appliances,* apparatus or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Gas:

1. Portable heating, cooking or clothes drying *appliances*.
2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
3. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating *appliances*.
2. Portable ventilation *appliances*.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.
5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

R105.2.1 Emergency repairs. Where *equipment* replacements and *repairs* must be performed in an emergency situation, the *permit* application shall be submitted within the next working business day to the *building official.*

R105.2.2 Repairs. Application or notice to the *building official* is not required for ordinary repairs to structures, replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include *addition* to, *alteration* of, replacement or relocation of any water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

R105.2.3 Public service agencies. A *permit* shall not be required for the installation, *alteration* or repair of generation, transmission, distribution, metering or other related equipment that is under the ownership and control of public service agencies by established right.

R105.3 Application for permit. To obtain a *permit*, the applicant shall first file an application therefor in writing on a form furnished by the department of building safety for that purpose. Such application shall:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed *building* or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by *construction documents* and other information as required in Section R106.1.
5. State the valuation of the proposed work.
6. Be signed by the applicant or the applicant's authorized agent.
7. Give such other data and information as required by the *building official*.

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R105.3.1 Action on application. The *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within a reasonable time after filing. If the application or the *construction documents* do not conform to the requirements of pertinent laws, the *building official* shall reject such application in writing stating the reasons therefor. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and laws and ordinances applicable thereto, the *building official* shall issue a *permit* therefor as soon as practicable.

R105.3.2 Time limitation of application. An application for a *permit* for any proposed work shall be deemed to have been abandoned 180 days after the date of filing unless such application has been pursued in good faith or a *permit* has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

R105.4 Validity of permit. The issuance or granting of a *permit* shall not be construed to be a *permit* for, or an *approval* of, any violation of any of the provisions of this code or of any other ordinance of the *jurisdiction*. *Permits* presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid. The issuance of a *permit* based on *construction documents* and other data shall not prevent the *building official* from requiring the correction of errors in the *construction documents* and other data. The *building official* is authorized to prevent occupancy or use of a structure where in violation of this code or of any other ordinances of this *jurisdiction*.

R105.5 Expiration. Every *permit* issued shall become invalid unless the work authorized by such *permit* is commenced within 180 days after its issuance or after commencement of work if more than 180 days pass between inspections. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

R105.6 Suspension or revocation. The *building official* is authorized to suspend or revoke a *permit* issued under the provisions of this code wherever the *permit* is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code.

R105.7 Placement of permit. The building *permit* or a copy shall be kept on the site of the work until the completion of the project.

R105.8 Responsibility. It shall be the duty of every *person* who performs work for the installation or *repair* of *building*, structure, electrical, gas, mechanical or plumbing systems, for which this code is applicable, to comply with this code.

R105.9 Preliminary inspection. Before issuing a *permit,* the *building official* is authorized to examine or cause to be examined *buildings*, structures and sites for which an application has been filed.

SECTION R106—CONSTRUCTION DOCUMENTS

R106.1 Submittal documents. Submittal documents consisting of *construction documents*, and other data shall be submitted in two or more sets, or in a digital format where allowed by the *building official*, with each application for a *permit.* The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that reviewing of *construction documents* is not necessary to obtain compliance with this code.

R106.1.1 Information on construction documents. *Construction documents* shall be drawn upon suitable material. Electronic media documents are permitted to be submitted where *approved* by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official.*

R106.1.2 Manufacturer's installation instructions. Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.

R106.1.3 Information on braced wall design. For *buildings* and structures utilizing braced wall design, and where required by the *building official*, *braced wall lines* shall be identified on the *construction documents.* Pertinent information including, but not limited to, bracing methods, location and length of *braced wall panels* and foundation requirements of *braced wall panels* at top and bottom shall be provided.

R106.1.4 Information for construction in flood hazard areas. For *buildings* and structures located in whole or in part in flood hazard areas as established by Table R301.2, *construction documents* shall include:

1. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.
2. The elevation of the proposed lowest floor, including *basement*; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including *basement*, above the highest adjacent *grade*.
3. The elevation of the bottom of the lowest horizontal structural member in coastal high-hazard areas (V Zone) and in Coastal A Zones where such zones are delineated on flood hazard maps identified in Table R301.2 or otherwise delineated by the *jurisdiction*.
4. If design flood elevations are not included on the community's Flood Insurance Rate Map (FIRM), the *building official* and the applicant shall obtain and reasonably utilize any design flood elevation and floodway data available from other sources.

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R106.1.5 Information on storm shelters. *Construction documents* for *storm shelters* shall include the information required in ICC 500.

R106.2 Site plan or plot plan. The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing the size and location of new construction and existing structures on the site and distances from *lot lines*. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The *building official* is authorized to waive or modify the requirement for a site plan where the application for *permit* is for *alteration* or *repair* or where otherwise warranted.

R106.3 Examination of documents. The *building official* shall examine or cause to be examined *construction documents* for code compliance.

R106.3.1 Approval of construction documents. Where the *building official* issues a *permit*, the *construction documents* shall be *approved* in writing or by a stamp that states "REVIEWED FOR CODE COMPLIANCE." One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or a duly authorized representative.

R106.3.2 Previous approvals. This code shall not require changes in the *construction documents*, construction or designated occupancy of a structure for which a lawful *permit* has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

R106.3.3 Phased approval. The *building official* is authorized to issue a *permit* for the construction of foundations or any other part of a *building* or structure before the *construction documents* for the whole *building* or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such *permit* for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a *permit* for the entire structure will be granted.

R106.4 Amended construction documents. Work shall be installed in accordance with the *approved construction documents*, and any changes made during construction that are not in compliance with the *approved construction documents* shall be resubmitted for approval as an amended set of *construction documents*.

R106.5 Retention of construction documents. One set of *approved construction documents* shall be retained by the *building official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.

SECTION R107—TEMPORARY STRUCTURES AND USES

R107.1 General. The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

R107.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, light, *ventilation* and sanitary requirements of this code as necessary to ensure the public health, safety and general welfare.

R107.3 Temporary power. The *building official* is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70.

R107.4 Termination of approval. The *building official* is authorized to terminate such *permit* for a temporary structure or use and to order the temporary structure or use to be discontinued.

SECTION R108—FEES

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R108.1 Payment of fees. A *permit* shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a *permit* be released until the additional fee, if any, has been paid.

R108.2 Schedule of permit fees. On *buildings*, structures, electrical, gas, mechanical and plumbing systems or *alterations* requiring a *permit*, a fee for each *permit* shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

R108.3 Building permit valuations. Building *permit* valuation shall include total value of the work for which a *permit* is being issued, such as electrical, gas, mechanical, plumbing equipment and other permanent systems, including materials and labor.

R108.4 Related fees. The payment of the fee for the construction, *alteration*, removal or demolition for work done in connection to or concurrently with the work authorized by a building *permit* shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.

R108.5 Refunds. The *building official* is authorized to establish a refund policy.

R108.6 Work commencing before permit issuance. Any *person* who commences work requiring a *permit* on a *building*, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary *permits* shall be subject to a fee established by the applicable governing authority that shall be in addition to the required *permit* fees.

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SECTION R109—INSPECTIONS

R109.1 Types of inspections. For on-site construction, from time to time the *building official*, upon notification from the *permit* holder or his agent, shall make or cause to be made any necessary inspections and shall either approve that portion of the construction as completed or shall notify the *permit* holder or his or her agent wherein the same fails to comply with this code.

R109.1.1 Foundation inspection. Inspection of the foundation shall be made after poles or piers are set or trenches or *basement* areas are excavated and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations.

R109.1.2 Plumbing, mechanical, gas and electrical systems inspection. Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or *appliances* are set or installed, and prior to framing inspection.

Exception: Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.28 prior to inspection shall be permitted.

R109.1.3 Floodplain inspections. For construction in flood hazard areas as established by Table R301.2, upon placement of the lowest floor, including *basement*, and prior to further vertical construction, the *building official* shall require submission of documentation, prepared and sealed by a *registered design professional*, of the elevation of the lowest floor, including *basement*, required in Section R306.

R109.1.4 Frame and masonry inspection. Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are *approved*.

R109.1.5 Other inspections. In addition to inspections in Sections R109.1.1 through R109.1.4, the *building official* shall have the authority to make or require any other inspections to ascertain compliance with this code and other laws enforced by the *building official*.

R109.1.5.1 Fire-resistance-rated construction inspection. Where fire-resistance-rated construction is required between *dwelling units* or due to location on property, the *building official* shall require an inspection of such construction after lathing or *gypsum panel products* are in place, but before any plaster is applied, or before panel joints and fasteners are taped and finished.

R109.1.6 Final inspection. Final inspection shall be made after the permitted work is complete and prior to occupancy.

R109.1.6.1 Elevation documentation. If located in a flood hazard area, the documentation of elevations required in Section R306.1.10 shall be submitted to the *building official* prior to the final inspection.

R109.2 Inspection agencies. The *building official* is authorized to accept reports of *approved* agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

R109.3 Inspection requests. It shall be the duty of the *permit* holder or their agent to notify the *building official* that such work is ready for inspection. It shall be the duty of the *person* requesting any inspections required by this code to provide *access to* and means for inspection of such work.

R109.4 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. The *building official*, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or shall notify the *permit* holder or an agent of the *permit* holder wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*.

SECTION R110—CERTIFICATE OF OCCUPANCY

R110.1 Use and change of occupancy. A *building* or structure shall not be used or occupied in whole or in part, and a *change of occupancy* of a *building* or structure or portion thereof shall not be made, until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.



Exceptions:

1. Certificates of occupancy are not required for work exempt from *permits* under Section R105.2.
2. Accessory *buildings* or structures.

R110.2 Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy containing the following:

1. The *permit* number.
2. The address of the structure.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the structure for which the certificate is issued.

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5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. Where an automatic sprinkler system is provided and whether the sprinkler system is required.
9. Any special stipulations and conditions of the building *permit*.

R110.3 Temporary occupancy. The *building official* is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy is valid.

R110.4 Revocation. The *building official* is authorized to suspend or revoke a certificate of occupancy issued under the provisions of this code, in writing, wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of the provisions of this code or other ordinance of the *jurisdiction*.

SECTION R111—SERVICE UTILITIES



R111.1 Connection of service utilities. A *person* shall not make connections from a utility, a source of energy, fuel or power, or water system or sewer system to any *building* or system that is regulated by this code for which a *permit* is required, until *approved* by the *building official*.

R111.2 Temporary connection. The *building official* shall have the authority to authorize the temporary connection of the building or system to the utility, source of energy, fuel or power, water system or sewer system for the purpose of testing systems for use under a temporary approval.

R111.3 Authority to disconnect service utilities. The *building official* shall have the authority to authorize disconnection of utility service to the *building*, structure or system regulated by this code and the referenced codes and standards in case of emergency where necessary to eliminate an immediate hazard to life or property or where such utility connection has been made without the approval required by Section R111.1 or R111.2. The *building official* shall notify the serving utility and where possible the *owner* or the *owner*'s authorized agent and occupant of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnection, the *owner*, the *owner*'s authorized agent or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

SECTION R112—MEANS OF APPEALS



R112.1 General. In order to hear and decide appeals of orders, decisions or determinations made by the *building official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be appointed by the applicable governing authority and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *building official*.

R112.2 Limitations on authority. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equivalent or better form of construction is proposed. The board shall not have authority to waive requirements of this code.

R112.3 Qualifications. The board of appeals shall consist of members who are qualified by experience and training on matters pertaining to the provisions of this code and are not employees of the *jurisdiction*.

R112.4 Administration. The *building official* shall take action without delay in accordance with the decision of the board.

SECTION R113—VIOLATIONS

R113.1 Unlawful acts. It shall be unlawful for any *person*, firm or corporation to erect, construct, alter, extend, *repair*, move, remove, demolish or occupy any *building*, structure or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

R113.2 Notice of violation. The *building official* is authorized to serve a notice of violation or order on the *person* responsible for the erection, construction, *alteration*, extension, *repair*, moving, removal, demolition or occupancy of a building or structure in violation of the provisions of this code, or in violation of a detail statement or a plan *approved* thereunder, or in violation of a *permit* or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

R113.3 Prosecution of violation. If the notice of violation is not complied with in the time prescribed by such notice, the *building official* is authorized to request the legal counsel of the *jurisdiction* to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

R113.4 Violation penalties. Any *person* who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or *repairs* a *building* or structure in violation of the *approved construction documents* or directive of

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the *building official,* or of a *permit* or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

SECTION R114—STOP WORK ORDER

R114.1 Authority. Where the *building official* finds any work regulated by this code being performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the *building official* is authorized to issue a stop work order.

R114.2 Issuance. The stop work order shall be in writing and shall be given to the *owner* of the property, the *owner*'s authorized agent or the *person* performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work is authorized to resume.

R114.3 Emergencies. Where an emergency exists, the *building official* shall not be required to give a written notice prior to stopping the work.

R114.4 Failure to comply. Any *person* who shall continue any work after having been served with a stop work order, except such work as that *person* is directed to perform to remove a violation or unsafe condition, shall be subject to fines established by the authority having jurisdiction.

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CHAPTER

2 DEFINITIONS

User notes:

About this chapter: *Codes, by their very nature, are technical documents. Every word, term and punctuation mark can add to or change the meaning of a technical requirement. It is necessary to maintain a consensus on the specific meaning of each term contained in the code. Chapter 2 performs this function by stating clearly what specific terms mean for the purpose of the code.*

For definitions related to the electrical provisions in Chapters 34–43, see Section E3501.1. This information is based on NFPA 70.

Code development reminder: *Code change proposals to definitions in this chapter preceded by a bracketed letter are considered by the IRC—Building Code Development Committee [RB], the IRC—Mechanical/Plumbing Code Development Committee [MP] or the IECC—Residential Code Development Committee [RE] during the Group B (2025) Code Development Cycle.*

SECTION R201—GENERAL

R201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

R201.2 Interchangeability. Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

R201.3 Terms defined in other codes. Where terms are not defined in this code such terms shall have the meanings ascribed in other code publications of the International Code Council.

R201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

SECTION R202—DEFINITIONS

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[RE] ABOVE-GRADE WALL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] ACCESS (TO). That which enables a device, an *appliance* or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel, door or similar obstruction. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[RB] ACCESSORY STRUCTURE. A structure that is accessory to and incidental to that of the *dwelling(s) or townhouse(s)* and that is located on the same *lot*.

[RB] ADDITION. An extension or increase in floor area, number of *stories* or height of a *building* or structure. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] ADHERED STONE OR MASONRY VENEER. Stone or masonry veneer secured and supported through the adhesion of an *approved* bonding material applied to an *approved* backing.

[MP] AIR, EXHAUST. For the definition applicable in Chapter 24, see Section G2403.

[MP] AIR, MAKEUP. Any combination of outdoor and transfer air intended to replace exhaust air and exfiltration. For the definition applicable in Chapter 24, see Section G2403.

[MP] AIR, OUTDOOR. Ambient air that enters a building through a ventilation system, through intentional openings for natural ventilation or by infiltration.

[MP] AIR, TRANSFER. Air moved from one indoor space to another.

[MP] AIR ADMITTANCE VALVE. A one-way valve designed to allow air into the plumbing drainage system where a negative pressure develops in the piping. This device shall close by gravity and seal the terminal under conditions of zero differential pressure (no flow conditions) and under positive internal pressure.

[RE] AIR BARRIER. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] AIR BREAK (DRAINAGE SYSTEM). An arrangement where a discharge pipe from a fixture, *appliance* or device drains indirectly into a receptor below the *flood-level rim* of the receptor and above the trap seal.

[MP] AIR CIRCULATION, FORCED. A means of providing space conditioning utilizing movement of air through ducts or plenums by mechanical means.

[MP] AIR CONDITIONER, GAS-FIRED. For the definition applicable in Chapter 24, see Section G2403.

[MP] AIR CONDITIONING. For the definition applicable in Chapter 24, see Section G2403.

[MP] AIR GAP, DRAINAGE SYSTEM. The unobstructed vertical distance through free atmosphere between the outlet of a waste pipe and the *flood-level rim* of the fixture or receptor into which it is discharging.

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[MP] AIR GAP, WATER-DISTRIBUTION SYSTEM. The unobstructed vertical distance through free atmosphere between the lowest opening from a water supply discharge to the *flood-level rim* of a plumbing fixture.

[MP] AIR-CONDITIONING SYSTEM. A system that consists of heat exchangers, blowers, filters, supply, exhaust and return-air systems, and shall include any apparatus installed in connection therewith.

[MP] AIR-HANDLING UNIT. For the definition applicable in Chapter 24, see Section G2403. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] AIR-IMPERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 L/s-m^2 at 75 Pa pressure differential as tested in accordance with ASTM E283 or E2178.

[RB] ALTERATION. Any construction, retrofit or renovation to an existing structure other than *repair* or *addition* that requires a *permit*. Also, a change in a *building*, electrical, gas, mechanical or plumbing system that involves an extension, *addition* or change to the arrangement, type or purpose of the original installation that requires a *permit*. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[RB] ALTERNATING TREAD DEVICE. A device that has a series of steps between 50 and 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

[RB] ANCHORED STONE OR MASONRY VENEER. Stone or masonry veneer secured with *approved* mechanical fasteners to an *approved* backing.

[MP] ANCHORS. See "*Supports*."

[MP] ANODELESS RISER. For the definition applicable in Chapter 24, see Section G2403.

[MP] ANTISIPHON. A term applied to valves or mechanical devices that eliminate siphonage.

[MP] APPLIANCE. A device or apparatus that is manufactured and designed to utilize energy and for which this code provides specific requirements. For the definition applicable in Chapter 24, see Section G2403.

[MP] APPLIANCE, AUTOMATICALLY CONTROLLED. For the definition applicable in Chapter 24, see Section G2403.

[MP] APPLIANCE, FAN-ASSISTED COMBUSTION. For the definition applicable in Chapter 24, see Section G2403.

[MP] APPLIANCE, UNVENTED. For the definition applicable in Chapter 24, see Section G2403.

[MP] APPLIANCE, VENTED. For the definition applicable in Chapter 24, see Section G2403.

[RB] APPROVED. Acceptable to the *building official*. For the definition applicable in Chapter 24, see Section G2403.

[RB] APPROVED AGENCY. An established and recognized organization that is regularly engaged in conducting tests, furnishing inspection services or furnishing product evaluation or certification where such organization has been *approved*. For the definition applicable in Chapter 24, see Section G2403.

[RB] APPROVED SOURCE. An independent *person*, firm or corporation, *approved* by the *building official*, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] ASPECT RATIO. The ratio of longest to shortest perpendicular dimensions, or for wall sections, the ratio of height to length.

[MP] **ATMOSPHERIC PRESSURE.** For the definition applicable in Chapter 24, see Section G2403.

[RB] ATTIC. The unfinished space between the ceiling assembly and the *roof assembly*.

[RB] ATTIC, HABITABLE. A finished or unfinished *habitable space* within an *attic*.

[RE] AUTOMATIC. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] AUTOMATIC IGNITION. For the definition applicable in Chapter 24, see Section G2403.

[RE] AUTOMATIC SHUTOFF CONTROL. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] BACKFLOW, DRAINAGE. A reversal of flow in the drainage system.

[MP] BACKFLOW, WATER DISTRIBUTION. The flow of water or other liquids into the potable water-supply piping from any sources other than its intended source. Backsiphonage is one type of backflow.

[MP] BACKFLOW PREVENTER. A backflow prevention assembly, a backflow prevention device or other means or method to prevent backflow into the potable water supply.

[MP] BACKFLOW PREVENTER, REDUCED-PRESSURE-ZONE TYPE. A backflow-prevention device consisting of two independently acting check valves, internally force loaded to a normally closed position and separated by an intermediate chamber (or zone) in which there is an automatic relief means of venting to atmosphere internally loaded to a normally open position between two tightly closing shutoff valves and with means for testing for tightness of the checks and opening of relief means.

[MP] BACKPRESSURE. Pressure created by any means in the water distribution system that by being in excess of the pressure in the water supply mains causes a potential backflow condition.

[MP] BACKPRESSURE, LOW HEAD. A pressure less than or equal to 4.33 psi (29.88 kPa) or the pressure exerted by a 10-foot (3048 mm) column of water.

[MP] BACKSIPHONAGE. The flowing back of used or contaminated water from piping into a potable water-supply pipe due to a negative pressure in such pipe.

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[MP] BACKWATER VALVE. A device installed in a drain or pipe to prevent backflow of sewage.

[MP] BALANCED VENTILATION SYSTEM. A ventilation system that simultaneously supplies outdoor air to and exhausts air from a space, where the mechanical supply airflow rate and the mechanical exhaust airflow rate are within 10 percent of the average of the two airflow rates. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] BAROMETRIC DRAFT REGULATOR. For the definition applicable in Chapter 24, see Section G2403.

[RB] BASEMENT. A *story* that is not a *story above grade plane* (see "*Story above grade plane*").

[RE] BASEMENT WALL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] BASIC WIND SPEED. Three-second gust speed at 33 feet (10 058 mm) above the ground in Exposure C (see Section R301.2.1) as given in Figure R301.2(2).

[MP] BATHROOM GROUP. A group of fixtures, including or excluding a bidet, consisting of a water closet, lavatory, and bathtub or shower. Such fixtures are located together on the same floor level.

[MP] BEND. A drainage fitting, designed to provide a change in direction of a drain pipe of less than the angle specified by the amount necessary to establish the desired slope of the line (see "*Elbow*" and "*Sweep*").

[RE] BIODIESEL BLEND. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] BOILER. A self-contained *appliance* from which *hot water* is circulated for heating purposes and then returned to the boiler, and that operates at water pressures not exceeding 160 pounds per square inch gage (psig) (1102 kPa gauge) and at water temperatures not exceeding 250°F (121°C).

[MP] BOILER, LOW-PRESSURE. For the definition applicable in Chapter 24, see Section G2403.

Hot water heating boiler. For the definition applicable in Chapter 24, see Section G2403.

Hot water supply boiler. For the definition applicable in Chapter 24, see Section G2403.

Steam heating boiler. For the definition applicable in Chapter 24, see Section G2403.

[RB] BOND BEAM. A horizontal grouted element within masonry in which reinforcement is embedded.

[MP] BONDING JUMPER. For the definition applicable in Chapter 24, see Section G2403.

[RB] BRACED WALL LINE. A straight line through the building plan that represents the location of the lateral resistance provided by the wall bracing.

[RB] BRACED WALL LINE, CONTINUOUSLY SHEATHED. A *braced wall line* with structural sheathing applied to all sheathable surfaces including the areas above and below openings.

[RB] BRACED WALL PANEL. A full-height section of wall constructed to resist in-plane shear loads through interaction of framing members, sheathing material and anchors. The panel's length meets the requirements of its particular bracing method, and contributes toward the total amount of bracing required along its *braced wall line* in accordance with Section R602.10.1.

[MP] BRANCH. Any part of the piping system other than a riser, *main* or stack.

[MP] BRANCH, FIXTURE. See "*Fixture branch, drainage*."

[MP] BRANCH, HORIZONTAL. See "*Horizontal branch, drainage*."

[MP] BRANCH, MAIN. A water-distribution pipe that extends horizontally off a *main* or riser to convey water to branches or fixture groups.

[MP] BRANCH, VENT. A vent connecting two or more individual vents with a vent stack or stack vent.

[MP] BRANCH INTERVAL. A vertical measurement of distance, 8 feet (2438 mm) or more in *developed length*, between the connections of *horizontal* branches to a drainage stack. Measurements are taken down the stack from the highest *horizontal* branch connection.

[MP] BRAZING. For the definition applicable in Chapter 24, see Section G2403.

[MP] BTU. For the definition applicable in Chapter 24, see Section G2403.

[MP] BTU/H. The *listed* maximum capacity of an *appliance*, absorption unit or burner expressed in British thermal units input per hour.

[RB] BUILDING. Any one- or two-family *dwelling* or *townhouse*, or portion thereof, used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or any *accessory structure*. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] BUILDING DRAIN. The lowest piping that collects the discharge from all other drainage piping inside the house and extends 30 inches (762 mm) in *developed length* of pipe, beyond the exterior walls and conveys the drainage to the *building sewer*.

[RB] BUILDING LINE. The line established by law, beyond which a *building* shall not extend, except as specifically provided by law.

[RB] BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] BUILDING SEWER. That part of the drainage system that extends from the end of the *building drain* and conveys its discharge to a public sewer, private sewer, *individual sewage-disposal system* or other point of disposal.

[RE] BUILDING SITE. For the definition applicable in Chapter 11, see Section N1101.6.

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[RE] BUILDING THERMAL ENVELOPE. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] BUILDING-INTEGRATED PHOTOVOLTAIC (BIPV) ROOF COVERING. A BIPV system that also functions as a roof covering. Coverings include, but are not limited to, shingles, tiles and roof panels.

[RB] BUILDING-INTEGRATED PHOTOVOLTAIC (BIPV) ROOF PANEL. A *photovoltaic panel* that functions as a component of the building envelope.

[RB] BUILDING-INTEGRATED PHOTOVOLTAIC (BIPV) SYSTEM. A building system that incorporates *photovoltaic modules* and functions as an integral part of the building envelope, such as *roof assemblies* and *roof coverings*, exterior wall envelopes and *exterior wall coverings*, and fenestration.

[RB] BUILT-UP ROOF COVERING. Two or more layers of felt cemented together and surfaced with a cap sheet, mineral aggregate, smooth coating or similar surfacing material.

[MP] BURNER. For the definition applicable in Chapter 24, see Section G2403.

Induced-draft. For the definition applicable in Chapter 24, see Section G2403.

Power. For the definition applicable in Chapter 24, see Section G2403.

[RB] CAP PLATE. The top plate of the double top plates used in *structural insulated panel* (SIP) construction. The *cap plate* is cut to match the *panel thickness* such that it overlaps the wood structural panel *facing* on both sides.

[RB] CARBON MONOXIDE ALARM. A single- or multiple-station alarm intended to detect carbon monoxide gas and alert occupants by a distinct audible signal. It incorporates a sensor, control components and an alarm notification appliance in a single unit.

[RB] CARBON MONOXIDE DETECTOR. A device with an integral sensor to detect carbon monoxide gas and transmit an alarm signal to a connected alarm control unit.

[RE] CAVITY INSULATION. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] CEILING HEIGHT. The clear vertical distance from the finished floor to the finished ceiling.

[RB] CEMENT PLASTER. A mixture of Portland or blended cement, Portland cement or blended cement and hydrated lime, masonry cement or plastic cement and aggregate and other *approved* materials as specified in this code.

[RB] CHANGE OF OCCUPANCY. A change in the use of a *building* or portion of a *building* that involves a change in the application of the requirements of this code.

[MP] CHIMNEY. A primary vertical structure containing one or more flues, for the purpose of carrying gaseous products of combustion and air from a fuel-burning *appliance* to the outside atmosphere. For the definition applicable in Chapter 24, see Section G2403.

Factory-built chimney. For the definition applicable in Chapter 24, see Section G2403.

Masonry chimney. For the definition applicable in Chapter 24, see Section G2403.

[MP] CHIMNEY CONNECTOR. A pipe that connects a fuel-burning *appliance* to a chimney.

[MP] CHIMNEY TYPES.

Residential-type appliance. An *approved* chimney for removing the products of combustion from fuel-burning, residential-type *appliances* producing combustion gases not in excess of 1,000°F (538°C) under normal operating conditions, and capable of producing combustion gases of 1,400°F (760°C) during intermittent forces firing for periods up to 1 hour. All temperatures shall be measured at the *appliance* flue outlet. Residential-type *appliance* chimneys include masonry and factory-built types.

[MP] CIRCUIT VENT. A vent that connects to a horizontal drainage branch and vents two traps to not more than eight traps or trapped fixtures connected into a battery.

[MP] CIRCULATING HOT WATER SYSTEM. A specifically designed water distribution system where one or more pumps are operated in the service *hot water* piping to circulate heated water from the water-heating equipment to fixtures and back to the water-heating equipment. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] CLADDING. The exterior materials that cover the surface of the building envelope that is directly loaded by the wind.

[MP] CLEANOUT. An access opening in the drainage system utilized for the removal of obstructions. Types of cleanouts include a removable plug or cap, and a removable fixture or fixture trap.

[MP] CLEARANCE. For the definition applicable in Chapter 24, see Section G2403.

[RE] CLIMATE ZONE. A geographical region based on climatic criteria as specified in this code. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] CLOSET. A small room or chamber used for storage.

[MP] CLOTHES DRYER. For the definition applicable in Chapter 24, see Section G2403.

Type 1. For the definition applicable in Chapter 24, see Section G2403.

[MP] CODE. For the definition applicable in Chapter 24, see Section G2403.

[MP] CODE OFFICIAL. For the definition applicable in Chapter 24, see Section G2403.

[RB] COLLAPSIBLE SOILS. Soils that exhibit volumetric reduction in response to partial or full wetting under load.

[MP] COLLECTION PIPE. Unpressurized pipe used within the collection system that drains on-site nonpotable water or rainwater to a storage tank by gravity.

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[MP] COMBINATION WASTE AND VENT SYSTEM. A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks, lavatories or *floor drains* by means of a common waste and vent pipe adequately sized to provide free movement of air above the flow line of the drain.

[MP] COMBUSTIBLE ASSEMBLY. For the definition applicable in Chapter 24, see Section G2403.

[RB] COMBUSTIBLE MATERIAL. Any material not defined as noncombustible. For the definition applicable in Chapter 24, see Section G2403.

[MP] COMBUSTION. For the definition applicable in Chapter 24, see Section G2403.

[MP] COMBUSTION AIR. The air provided to fuel-burning equipment including air for fuel combustion, draft hood dilution and *ventilation* of the equipment enclosure. For the definition applicable in Chapter 24, see Section G2403.

[MP] COMBUSTION CHAMBER. For the definition applicable in Chapter 24, see Section G2403.

[MP] COMBUSTION PRODUCTS. For the definition applicable in Chapter 24, see Section G2403.

[RE] COMMON AREAS. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] COMMON VENT. A single pipe venting two trap arms within the same *branch interval*, either back-to-back or one above the other.

[RB] COMPRESSIBLE SOILS. Soils that exhibit volumetric reduction in response to the application of load even in the absence of wetting or drying.

[MP] CONCEALED LOCATION. For the definition applicable in Chapter 24, see Section G2403.

[MP] CONCEALED PIPING. For the definition applicable in Chapter 24, see Section G2403.

[MP] CONDENSATE. The liquid that separates from a gas due to a reduction in temperature; for example, water that condenses from *flue gases* and water that condenses from air circulating through the cooling coil in air conditioning equipment. For the definition applicable in Chapter 24, see Section G2403.

[MP] CONDENSING APPLIANCE. An *appliance* that condenses water generated by the burning of fuels.

[RB] CONDITIONED AIR. Air treated to control its temperature, relative humidity or quality.

[RE] CONDITIONED FLOOR AREA. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] CONDITIONED SPACE. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] CONNECTOR, APPLIANCE (Fuel). For the definition applicable in Chapter 24, see Section G2403.

[MP] CONNECTOR, CHIMNEY OR VENT. For the definition applicable in Chapter 24, see Section G2403.

[RB] CONSTRUCTION DOCUMENTS. Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building *permit*. Construction drawings shall be drawn to an appropriate scale. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] CONTAMINATION. A high-hazard or health-hazard impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste.

[RE] CONTINUOUS AIR BARRIER. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] CONTINUOUS INSULATION (ci). For the definition applicable in Chapter 11, see Section N1101.6.

[RE] CONTINUOUS PILOT. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] CONTINUOUS WASTE. A drain from two or more similar adjacent fixtures connected to a single trap.

[MP] CONTROL. For the definition applicable in Chapter 24, see Section G2403.

[MP] CONTROL, LIMIT. An automatic control responsive to changes in liquid flow or level, pressure, or temperature for limiting the operation of an *appliance*.

[MP] CONTROL, PRIMARY SAFETY. A safety control responsive directly to flame properties that senses the presence or absence of flame and, in event of ignition failure or unintentional flame extinguishment, automatically causes shutdown of mechanical equipment.

[MP] CONVECTOR. A system incorporating a heating element in an enclosure in which air enters an opening below the heating element, is heated and leaves the enclosure through an opening located above the heating element.

[MP] CONVERSION BURNER. For the definition applicable in Chapter 24, see Section G2403.

[MP] COPPER ALLOY. For the definition applicable in Chapter 24, see Section G2403.

[RB] CORE. The lightweight middle section of a *structural insulated panel*, composed of *foam plastic insulation*, that provides the link between the two *facing* shells.

[RB] CORROSION RESISTANCE. The ability of a material to withstand deterioration of its surface or its properties where exposed to its environment.

[RB] COURT. A space, open and unobstructed to the sky, located at or above *grade* level on a *lot* and bounded on three or more sides by walls or a *building*.

[RB] CRAWL SPACE. An underfloor space that is not a *basement*.

[RE] CRAWL SPACE WALL. For the definition applicable in Chapter 11, see Section N1101.6.

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[RB] CRIPPLE WALL. A framed wall extending from the top of the foundation to the underside of the floor framing of the first *story above grade plane*.

[RB] CRIPPLE WALL CLEAR HEIGHT. The vertical height of a *cripple wall* from the top of the foundation to the underside of floor framing above.

[MP] CROSS CONNECTION. Any connection between two otherwise separate piping systems that allows a flow from one system to the other.

[RB] CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or *structural composite lumber* where the adjacent layers are cross-oriented and bonded with structural adhesive to form a solid wood element.

[MP] CUBIC FOOT. For the definition applicable in Chapter 24, see Section G2403.

[RE] CURTAIN WALL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] DALLE GLASS. A decorative composite glazing material made of individual pieces of glass that are embedded in a cast matrix of concrete or epoxy.

[MP] DAMPER. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[MP] DAMPER, VOLUME. A device that will restrict, retard or direct the flow of air in any duct, or the products of combustion of heat-producing equipment, vent connector, vent or chimney.

[RB] DEAD LOADS. The weight of the materials of construction incorporated into the *building*, including but not limited to walls, floors, roofs, ceilings, *stairways*, built-in partitions, finishes, *cladding*, and other similarly incorporated architectural and structural items, and fixed service equipment.

[MP] DECORATIVE APPLIANCE, VENTED. For the definition applicable in Chapter 24, see Section G2403.

[MP] DECORATIVE APPLIANCES FOR INSTALLATION IN VENTED FIREPLACES. For the definition applicable in Chapter 24, see Section G2403.

[RB] DECORATIVE GLAZING. A carved, leaded or *Dalle glass* or glazing material with a purpose that is decorative or artistic, not functional; with coloring, texture or other design qualities or components that cannot be removed without destroying the glazing material; and with a surface, or assembly into which it is incorporated, that is divided into segments.

[MP] DEMAND. For the definition applicable in Chapter 24, see Section G2403.

[RE] DEMAND RECIRCULATION WATER SYSTEM. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] DEMAND RESPONSE SIGNAL. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] DEMAND RESPONSIVE CONTROL. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] DESIGN FLOOD ELEVATION. For the definition applicable in Chapter 24, see Section G2403.

[RB] DESIGN PROFESSIONAL. See "*Registered design professional*."

[MP] DEVELOPED LENGTH. The length of a pipeline measured along the center line of the pipe and fittings.

[MP] DIAMETER. Unless specifically stated, the term "diameter" is the nominal diameter as designated by the *approved* material standard.

[RB] DIAPHRAGM. A horizontal or nearly horizontal system acting to transmit lateral forces to the vertical resisting elements. Where the term "*diaphragm*" is used, it includes horizontal bracing systems.

[MP] DILUTION AIR. Air that enters a draft hood or draft regulator and mixes with *flue gases*. For the definition applicable in Chapter 24, see Section G2403.

[RE] DIMMER. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] DIRECT SYSTEM. A solar thermal system in which the gas or liquid in the solar collector loop is not separated from the load.

[MP] DIRECT-VENT APPLIANCE. A fuel-burning *appliance* with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all *flue gases* to the outside atmosphere. For the definition applicable in Chapter 24, see Section G2403.

[RE] DISTRIBUTION SYSTEM EFFICIENCY (DSE). For the definition applicable in Chapter 11, see Section N1101.6.

[MP] DRAFT. The pressure difference existing between the *appliance* or any component part and the atmosphere, that causes a continuous flow of air and products of combustion through the gas passages of the *appliance* to the atmosphere. For the definition applicable in Chapter 24, see Section G2403.

Mechanical or induced draft. The pressure difference created by the action of a fan, blower or ejector, that is located between the *appliance* and the chimney or vent termination. For the definition applicable in Chapter 24, see Section G2403.

Natural draft. The pressure difference created by a vent or chimney because of its height, and the temperature difference between the *flue gases* and the atmosphere. For the definition applicable in Chapter 24, see Section G2403.

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[MP] DRAFT HOOD. A device built into an *appliance*, or a part of the vent connector from an *appliance*, that is designed to provide for the ready escape of the *flue gases* from the *appliance* in the event of no draft, backdraft or stoppage beyond the draft hood; prevent a backdraft from entering the *appliance*; and neutralize the effect of stack action of the chimney or gas vent on the operation of the *appliance*. For the definition applicable in Chapter 24, see Section G2403.

[MP] DRAFT REGULATOR. A device that functions to maintain a desired draft in the *appliance* by automatically reducing the draft to the desired value. For the definition applicable in Chapter 24, see Section G2403.

[RB] DRAFT STOP. A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as *crawl spaces*, floor-ceiling assemblies, roof-ceiling assemblies and *attics*.

[MP] DRAIN. Any pipe that carries soil and waterborne wastes in a building drainage system.

[MP] DRAINAGE FITTING. A pipe fitting designed to provide connections in the drainage system that have provisions for establishing the desired slope in the system. These fittings are made from a variety of both metals and plastics. The methods of coupling provide for required slope in the system.

[MP] DRAIN-BACK SYSTEM. A solar thermal system in which the fluid in the solar collector loop is drained from the collector into a holding tank under prescribed circumstances.

[MP] DRIP. For the definition applicable in Chapter 24, see Section G2403.

[RE] DUCT. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] DUCT AIRFLOW BALANCING. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] DUCT FURNACE. For the definition applicable in Chapter 24, see Section G2403.

[MP] DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling *equipment* and *appliances*. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] DUCTWORK. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] DWELLING. Any *building* that contains one or two *dwelling units* used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

[RB] DWELLING UNIT. A single unit providing complete independent living facilities for one or more *persons*, including permanent provisions for living, sleeping, eating, cooking and sanitation. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[MP] DWV. Abbreviated term for drain, waste and vent piping as used in common plumbing practice.

[MP] EFFECTIVE OPENING. The minimum cross-sectional area at the point of water-supply discharge, measured or expressed in terms of diameter of a circle and if the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable to *air gap*.)

[MP] ELBOW. A pressure pipe fitting designed to provide an exact change in direction of a pipe run. An elbow provides a sharp turn in the flow path (see "*Bend*" and "*Sweep*").

[RB] EMERGENCY ESCAPE AND RESCUE OPENING. An operable exterior window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency. (See also "*Grade floor emergency escape and rescue opening*.")

[RE] EMITTANCE. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] ENCLOSED REFLECTIVE AIR SPACE. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] ENERGY ANALYSIS. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] ENERGY COST. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] ENERGY RATING INDEX (ERI). For the definition applicable in Chapter 11, see Section N1101.6.

[RE] ENERGY SIMULATION TOOL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] ENERGY STORAGE SYSTEMS (ESS). One device or multiple devices, assembled together, capable of storing electrical energy to be supplied at a future time.

[RB] ENGINEERED WOOD RIM BOARD. A full-depth *structural composite lumber*, *wood structural panel*, structural glued laminated timber or prefabricated wood I-joist member designed to transfer horizontal (shear) and vertical (compression) loads, provide attachment for *diaphragm* sheathing, siding and exterior deck ledgers and provide lateral support at the ends of floor or roof joists or rafters.

[MP] EQUIPMENT. Piping, ducts, vents, control devices and other components of systems other than *appliances* that are permanently installed and integrated to provide control of environmental conditions for *buildings*. This definition shall also include other systems specifically regulated in this code. For the definition applicable in Chapter 24, see Section G2403.

[MP] EQUIVALENT LENGTH. For determining friction losses in a piping system, the effect of a particular fitting equal to the friction loss through a straight piping length of the same nominal diameter.

[RE] ERI REFERENCE DESIGN. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] ESCARPMENT. With respect to topographic wind effects, a cliff or steep slope generally separating two levels or gently sloping areas.

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[MP] ESSENTIALLY NONTOXIC TRANSFER FLUIDS. Fluids having a Gosselin rating of 1, including propylene glycol; mineral oil; polydimethylsiloxane; hydrochlorofluorocarbon, chlorofluorocarbon and hydrofluorocarbon refrigerants; and FDA-approved boiler water additives for steam boilers.

[MP] ESSENTIALLY TOXIC TRANSFER FLUIDS. Soil, water or *graywater* and fluids having a Gosselin rating of 2 or more including ethylene glycol, hydrocarbon oils, ammonia refrigerants and hydrazine.

[MP] EVAPORATIVE COOLER. A device used for reducing air temperature by the process of evaporating water into an airstream.

[MP] EXCESS AIR. Air that passes through the combustion chamber and the *appliance* flue in excess of what is theoretically required for complete combustion.

[MP] EXCESS FLOW VALVE (EFV). For the definition applicable in Chapter 24, see Section G2403.

[MP] EXHAUST HOOD, FULL OPENING. An exhaust hood with an opening not less than the diameter of the connecting vent.

[RB] EXISTING BUILDING. *Existing building* is a building erected prior to the adoption of this code, or one for which a legal *building permit* has been issued. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] EXISTING INSTALLATIONS. Any plumbing system regulated by this code that was legally installed prior to the effective date of this code, or for which a *permit* to install has been issued.

[RB] EXPANSIVE SOILS. Soils that exhibit volumetric increase or decrease (swelling or shrinking) in response to partial or full wetting or drying under load.

[RB] EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS). EIFS are nonstructural, nonload-bearing exterior wall *cladding* systems that consist of an insulation board attached either adhesively or mechanically, or both, to the substrate; an integrally reinforced base coat; and a textured protective finish coat.

[RB] EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) WITH DRAINAGE. An EIFS that incorporates a means of drainage applied over a *water-resistive barrier*.

[MP] EXTERIOR MASONRY CHIMNEY. For the definition applicable in Chapter 24, see Section G2403.

[RB] EXTERIOR SOFFIT. A material or assembly of materials applied on the underside of exterior overhangs and attached carport and porch ceilings.

[RB] EXTERIOR WALL. An above-grade wall that defines the exterior boundaries of a *building*. Includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, gable end roof trusses, walls enclosing a mansard roof and basement walls with an average below-grade wall area that is less than 50 percent of the total opaque and nonopaque area of that enclosing side. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] EXTERIOR WALL COVERING. A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a weather-resistive barrier, insulation or for aesthetics, including but not limited to, veneers, siding, *exterior insulation and finish systems*, architectural *trim* and embellishments such as cornices.

[RB] FACING. The wood structural panel *facings* that form the two outmost rigid layers of the *structural insulated panel*.

[MP] FACTORY-BUILT CHIMNEY. A *listed* and *labeled* chimney composed of factory-made components assembled in the field in accordance with the manufacturer's instructions and the conditions of the *listing*.

[MP] FACTORY-MADE AIR DUCT. A *listed and labeled* duct manufactured in a factory and assembled in the field in accordance with the manufacturer's instructions and conditions of the *listing*.

[RE] FENESTRATION. Products classified as either *vertical fenestration* or *skylights and sloped glazing*, installed in such a manner as to preserve the weather-resistant barrier of the wall or roof in which they are installed. Fenestration includes products with glass or other transparent or translucent materials. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] FENESTRATION, VERTICAL. Windows that are fixed or movable, *opaque doors*, glazed doors, glazed block and combination opaque and glazed doors installed in a wall at less than 15 degrees (0.26 rad) from vertical. For the definition applicable in Chapter 11, see Section N1101.6 under "Fenestration."

[RE] FENESTRATION PRODUCT, SITE-BUILT. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] F-FACTOR (THERMAL TRANSMITTANCE). For the definition applicable in Chapter 11, see Section N1101.6.

[RB] FIBER-CEMENT (BACKERBOARD, SIDING, SOFFIT, TRIM AND UNDERLAYMENT) PRODUCTS. Manufactured thin section composites of hydraulic cementitious matrices and discrete nonasbestos fibers.

[RB] FIRE SEPARATION DISTANCE. The distance measured from the building face to one of the following:

1. To the closest interior *lot line*.
2. To the centerline of a street, an alley or public way.
3. To an imaginary line between two *buildings* or townhouse units on the *lot*.

The distance shall be measured at a right angle from the face of the wall.

[RB] FIREBLOCKING. Building materials or materials *approved* for use as *fireblocking*, installed to resist the free passage of flame to other areas of the *building* through concealed spaces.

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[RB] FIREPLACE. An assembly consisting of a hearth and fire chamber of *noncombustible material* and provided with a chimney, for use with solid fuels. For the definition applicable in Chapter 24, see Section G2403.

Factory-built fireplace. A *listed* and *labeled fireplace* and chimney system composed of factory-made components, and assembled in the field in accordance with manufacturer's instructions and the conditions of the listing. For the definition applicable in Chapter 24, see Section G2403.

Masonry fireplace. A field-constructed *fireplace* composed of *solid masonry* units, bricks, stones or concrete. For the definition applicable in Chapter 24, see Section G2403.

[MP] FIREPLACE STOVE. A free-standing, chimney-connected solid-fuel-burning heater designed to be operated with the fire chamber doors in either the open or closed position.

[RB] FIREPLACE THROAT. The opening between the top of the firebox and the smoke chamber.

[RB] FIRE-RETARDANT-TREATED WOOD. Wood products that, when impregnated with chemicals by a pressure process or other means during manufacture, exhibit reduced surface burning characteristics and resist propagation of fire.

[MP] FIXTURE. See "*Plumbing fixture*."

[MP] FIXTURE BRANCH, DRAINAGE. A drain serving two or more fixtures that discharges into another portion of the drainage system.

[MP] FIXTURE BRANCH, WATER-SUPPLY. A water-supply pipe between the fixture supply and a *main* water-distribution pipe or fixture group *main*.

[MP] FIXTURE DRAIN. The drain from the trap of a fixture to the junction of that drain with any other drain pipe.

[MP] FIXTURE FITTING.

Supply fitting. A fitting that controls the volume or directional flow or both of water and that is either attached to or accessed from a fixture or is used with an open or atmospheric discharge.

Waste fitting. A combination of components that conveys the sanitary waste from the outlet of a fixture to the connection of the sanitary drainage system.

[MP] FIXTURE GROUP, MAIN. The *main* water-distribution pipe (or secondary branch) serving a plumbing fixture grouping such as a bath, *kitchen* or laundry area to which two or more individual fixture branch pipes are connected.

[MP] FIXTURE SUPPLY. The water-supply pipe connecting a fixture or fixture fitting to a fixture branch.

[MP] FIXTURE UNIT, DRAINAGE (d.f.u.). A measure of probable discharge into the drainage system by various types of plumbing fixtures, used to size DWV piping systems. The drainage fixture-unit value for a particular fixture depends on its volume rate of drainage discharge, on the time duration of a single drainage operation and on the average time between successive operations.

[MP] FIXTURE UNIT, WATER-SUPPLY (w.s.f.u.). A measure of the probable hydraulic demand on the water supply by various types of plumbing fixtures used to size water-piping systems. The water-supply fixture-unit value for a particular fixture depends on its volume rate of supply, on the time duration of a single supply operation and on the average time between successive operations.

[MP] FLAME SAFEGUARD. For the definition applicable in Chapter 24, see Section G2403.

[RB] FLAME SPREAD. The propagation of flame over a surface.

[RB] FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E84 or UL 723.

[MP] FLASHBACK ARRESTOR CHECK VALVE. For the definition applicable in Chapter 24, see Section G2403.

[MP] FLEXIBLE AIR CONNECTOR. A conduit for transferring air between an air duct or plenum and an air terminal unit, an air inlet or an air outlet. Such conduit is limited in its use, length and location.

[RB] FLIGHT. A continuous run of rectangular treads or *winders* or combination thereof from one landing to another.

[MP] FLOOD HAZARD AREA. For the definition applicable in Chapter 24, see Section G2403.

[MP] FLOOD-LEVEL RIM. The edge of the receptor or fixture from which water overflows.

[MP] FLOOR DRAIN. A plumbing fixture for recess in the floor having a floor-level strainer intended for the purpose of the collection and disposal of wastewater used in cleaning the floor and for the collection and disposal of accidental spillage to the floor.

[MP] FLOOR FURNACE. A self-contained *furnace* suspended from the floor of the space being heated, taking air for combustion from outside such space, and with means for lighting the *appliance* from such space. For the definition applicable in Chapter 24, see Section G2403.

[MP] FLOW PRESSURE. The static pressure reading in the water-supply pipe near the faucet or water outlet while the faucet or water outlet is open and flowing at capacity.

[MP] FLUE. See "*Vent*."

[MP] FLUE, APPLIANCE. The passages within an *appliance* through which combustion products pass from the combustion chamber to the *flue collar*. For the definition applicable in Chapter 24, see Section G2403.

[MP] FLUE COLLAR. The portion of a fuel-burning *appliance* designed for the attachment of a draft hood, vent connector or venting system. For the definition applicable in Chapter 24, see Section G2403.

[MP] FLUE GASES. Products of combustion plus excess air in *appliance* flues or heat exchangers. For the definition applicable in Chapter 24, see Section G2403.

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[MP] FLUE LINER (LINING). For the definition applicable in Chapter 24, see Section G2403.

[MP] FLUSH VALVE. A device located at the bottom of a flush tank that is operated to flush water closets.

[MP] FLUSHOMETER TANK. A device integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

[MP] FLUSHOMETER VALVE. A flushometer valve is a device that discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure.

[RB] FOAM BACKER BOARD. Foam plastic used in siding applications where the foam plastic is a component of the siding.

[RB] FOAM PLASTIC INSULATION. A plastic that is intentionally expanded by the use of a foaming agent to produce a reduced-density plastic containing voids consisting of open or closed cells distributed throughout the plastic for thermal insulating or acoustic purposes and that has a density less than 20 pounds per cubic foot (320 kg/m^3) unless it is used as interior *trim*.

[RB] FOAM PLASTIC INTERIOR TRIM. Exposed foam plastic used as picture molds, chair rails, crown moldings, baseboards, *handrails*, ceiling beams, door *trim* and window *trim* and similar decorative or protective materials used in fixed applications.

[RB] FUEL CELL POWER SYSTEM, STATIONARY. A stationary energy generation system that converts the chemical energy of a fuel and oxidant to electric energy (DC or AC electricity) by an electrochemical process.

Field-fabricated fuel cell power system. A *stationary fuel cell power system* that is assembled at the job site and is not a preengineered or prepackaged factory-assembled fuel cell power system.

Preengineered fuel cell power system. A *stationary fuel cell power system* consisting of components and modules that are produced in a factory, and shipped to the job site for assembly.

Prepackaged fuel cell power system. A *stationary fuel cell power system* that is factory assembled as a single, complete unit and shipped as a complete unit for installation at the job site.

[MP] FUEL GAS. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[RE] FUEL OIL. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] FUEL-PIPING SYSTEM. All piping, tubing, valves and fittings used to connect fuel utilization equipment to the point of fuel delivery.

[MP] FULL-OPEN VALVE. A water control or shutoff component in the water supply system piping that, where adjusted for maximum flow, the flow path through the component's closure member is not a restriction in the component's through-flow area.

[MP] FULLWAY VALVE. A valve that in the full open position has an opening cross-sectional area that is not less than 85 percent of the cross-sectional area of the connecting pipe.

[MP] FURNACE. A vented heating *appliance* designed or arranged to discharge heated air into a *conditioned space* or through a duct or ducts. For the definition applicable in Chapter 24, see Section G2403.

[MP] FURNACE, CENTRAL. For the definition applicable in Chapter 24, see Section G2403.

[MP] FURNACE PLENUM. For the definition applicable in Chapter 24, see Section G2403.

[MP] GAS CONVENIENCE OUTLET. For the definition applicable in Chapter 24, see Section G2403.

[MP] GAS PIPING. For the definition applicable in Chapter 24, see Section G2403.

[RB] GLASS MAT GYPSUM PANEL. A gypsum panel consisting of a noncombustible *core* primarily of gypsum, surfaced with glass mat partially or completely embedded in the core.

[RB] GLAZING AREA. The interior surface area of all glazed fenestration, including the area of sash, curbing or other framing elements, that enclose *conditioned space*. Includes the area of glazed fenestration assemblies in walls bounding conditioned *basements*.

[RB] GRADE. The finished ground level adjoining the *building* at all exterior walls.

[MP] GRADE, PIPING. See "*Slope*."

[RB] GRADE FLOOR EMERGENCY ESCAPE AND RESCUE OPENING. An *emergency escape and rescue opening* located such that the bottom of the clear opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening. (See also "*Emergency escape and rescue opening*.")

[RB] GRADE PLANE. A reference plane representing the average of the finished ground level adjoining the *building* at all exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the *building* and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the *building* between the structure and a point 6 feet (1829 mm) from the *building*. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] GRAYWATER. Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays.

[MP] GRIDDED WATER DISTRIBUTION SYSTEM. A water distribution system where every water distribution pipe is interconnected so as to provide two or more paths to each fixture supply pipe.

[RB] GROSS AREA OF EXTERIOR WALLS. The normal projection of all *exterior walls*, including the area of all windows and doors installed therein.

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[MP] GROUND-SOURCE HEAT PUMP LOOP SYSTEM. Piping buried in horizontal or vertical excavations or placed in a body of water for the purpose of transporting heat transfer liquid to and from a *heat pump*. Included in this definition are closed loop systems in which the liquid is recirculated and open loop systems in which the liquid is drawn from a well or other source.

[RB] GUARD. A building component or a system of building components located near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to the lower level.

[RB] GUESTROOM. Any room or rooms used or intended to be used by one or more guests for living or sleeping purposes.

[RB] GYPSUM BOARD. A type of gypsum panel product consisting of a noncombustible *core* primarily of gypsum with paper surfacing.

[RB] GYPSUM PANEL PRODUCT. The general name for a family of sheet products consisting essentially of gypsum complying with the standards specified in Section R702.3 and Chapter 44 of this code.

[RB] GYPSUM SHEATHING. *Gypsum panel products* specifically manufactured with enhanced water resistance for use as a substrate for exterior surface materials.

[RB] GYPSUM WALLBOARD. A *gypsum board* used primarily as interior surfacing for building structures.

[RB] HABITABLE SPACE. A space in a *building* for living, sleeping, eating or cooking. Bathrooms, toilet rooms, *closets*, halls, storage or utility spaces and similar areas are not considered *habitable spaces*.

[RB] HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

[MP] HANGERS. See "*Supports*."

[MP] HAZARDOUS LOCATION. Any location considered to be a fire hazard for flammable vapors, dust, combustible fibers or other highly combustible substances. For the definition applicable in Chapter 24, see Section G2403.

[RE] HEAT EXCHANGER. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] HEAT PUMP. A refrigeration system or factory-made appliance that utilizes refrigerant to transfer heat into a space or substance.

[RE] HEATED SLAB. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] HEIGHT, BUILDING. The vertical distance from *grade plane* to the average height of the highest roof surface.

[RB] HEIGHT, STORY. The vertical distance from top to top of two successive tiers of beams or finished floor surfaces; and, for the topmost *story*, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

[MP] HIGH-TEMPERATURE (H.T.) CHIMNEY. A high-temperature chimney complying with the requirements of UL 103. A Type H.T. chimney is identifiable by the markings "Type H.T." on each chimney pipe section.

[RB] HILL. With respect to topographic wind effects, a land surface characterized by strong relief in any horizontal direction.

[RB] HISTORIC BUILDING. A *building* or structure that is one or more of the following:

1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register-listed, or a state-designated or locally designated historic district.

For the definition applicable in Chapter 11, see Section N1101.6.

[MP] HORIZONTAL BRANCH, DRAINAGE. A drain pipe extending laterally from a soil or waste stack or *building drain*, that receives the discharge from one or more *fixture drains*.

[MP] HORIZONTAL PIPE. Any pipe or fitting that makes an angle of less than 45 degrees (0.79 rad) with the horizontal.

[MP] HOT WATER. Water at a temperature greater than 120°F (49°C).

[RB] HURRICANE-PRONE REGIONS. Areas vulnerable to hurricanes, defined as the US Atlantic Ocean and Gulf of Mexico coasts where the ultimate design wind speed, V_{ult}, is greater than 115 miles per hour (51 m/s), and Hawaii, Puerto Rico, Guam, Virgin Islands and America Samoa.

[MP] HYDROGEN-GENERATING APPLIANCE. A self-contained package or factory-matched packages of integrated systems for generating gaseous hydrogen. Hydrogen-generating *appliances* utilize electrolysis, reformation, chemical or other processes to generate hydrogen.

[MP] IGNITION PILOT. For the definition applicable in Chapter 24, see Section G2403.

[MP] IGNITION SOURCE. A flame, spark or hot surface capable of igniting flammable vapors or fumes. Such sources include *appliance* burners, burner ignitors and electrical switching devices. For the definition applicable in Chapter 24, see Section G2403.

[RB] IMPACT PROTECTIVE SYSTEM. Impact protective systems are defined as follows:

1. Construction that has been shown by testing to withstand the impact of test missiles and that is applied, attached or locked over exterior glazing.
2. For storm shelters, an assembly or device, subject to static or cyclic pressure and impact testing as detailed in ICC 500, installed to protect an opening in the storm shelter envelope.

[MP] INDIRECT SYSTEM. A solar thermal system in which the gas or liquid in the solar collector loop circulates between the solar collector and a heat exchanger and such gas or liquid is not drained from the system or supplied to the load during normal operation.

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[MP] INDIRECT WASTE PIPE. A waste pipe that discharges into the drainage system through an *air gap* into a trap, fixture or receptor.

[MP] INDIVIDUAL SEWAGE DISPOSAL SYSTEM. A system for disposal of sewage by means of a septic tank or mechanical treatment, designed for use apart from a public sewer to serve a single establishment or *building*.

[MP] INDIVIDUAL VENT. A pipe installed to vent a single *fixture drain* that connects with the vent system above or terminates independently outside the *building*.

[MP] INDIVIDUAL WATER SUPPLY. A supply other than an *approved* public water supply that serves one or more families.

[RE] INFILTRATION. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] INFRARED RADIANT HEATER. For the definition applicable in Chapter 24, see Section G2403.

[RB] INSULATED SIDING. A type of continuous insulation, with manufacturer-installed insulating material as an integral part of the *cladding* product, having a minimum *R*-value of R-2. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] INSULATED VINYL SIDING. A vinyl *cladding* product, with manufacturer-installed foam plastic insulating material as an integral part of the *cladding* product, having a thermal resistance of not less than R-2.

[RB] INSULATING CONCRETE FORM (ICF). A concrete forming system using stay-in-place forms of rigid *foam plastic insulation*, a hybrid of cement and foam insulation, a hybrid of cement and wood chips, or other insulating material for constructing cast-in-place concrete walls.

[RB] INSULATING SHEATHING. A rigid panel or board insulation material having a thermal resistance of not less than R-2 of the *core* material with properties suitable for use on walls, floors, roofs or foundations. For the definition applicable in Chapter 11, see Section N1101.6.

[RE] INTERMITTENT IGNITION. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] INTERMODAL SHIPPING CONTAINER. A six-sided steel unit originally constructed as a general cargo container used for the transport of goods and materials.

[RE] INTERRUPTED IGNITION. For the definition applicable in Chapter 11, see Section N1101.6.

[MP] JOINT, FLARED. For the definition applicable in Chapter 24, see Section G2403.

[MP] JOINT, MECHANICAL. For the definition applicable in Chapter 24, see Section G2403.

[MP] JOINT, PLASTIC ADHESIVE. For the definition applicable in Chapter 24, see Section G2403.

[RB] JURISDICTION. The governmental unit that has adopted this code.

[RB] KITCHEN. An area used, or designated to be used, for the preparation of food.

[RE] KNEE WALL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] LABEL. An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an *approved agency* and that indicates that the representative sample of the product or material has been tested and evaluated by an *approved agency*. (See also "*Manufacturer's designation*" and "*Mark*.")

[RB] LABELED. Equipment, materials or products to which have been affixed a *label*, seal, symbol or other identifying *mark* of a nationally recognized testing laboratory, *approved* agency or other organization concerned with product evaluation that maintains periodic inspection of the production of such *labeled* items and whose labeling indicates either that the *equipment*, material or product meets identified standards or has been tested and found suitable for a specified purpose. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[MP] LEAK CHECK. For the definition applicable in Chapter 24, see Section G2403.

[RB] LIGHT-FRAME CONSTRUCTION. Construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or cold-formed steel framing members.

[MP] LIQUEFIED PETROLEUM GAS OR LPG (LP-GAS). For the definition applicable in Chapter 24, see Section G2403.

[RE] LIQUID FUEL. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that maintains periodic inspection of production of *listed equipment* or materials or periodic evaluation of services and whose listing states either that the *equipment*, material, product or service meets identified standards or has been tested and found suitable for a specified purpose. Terms that are used to identify listed equipment, products or materials include "listed," "certified," "classified" or other terms as determined appropriate by the listing organization. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[RB] LIVE LOADS. Those loads produced by the use and occupancy of the *building* or other structure and do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or *dead load*.

[RB] LIVE/WORK UNIT. A *dwelling unit* or *sleeping unit* in which a significant portion of the space includes a nonresidential use that is operated by the tenant.

[MP] LIVING SPACE. Space within a *dwelling unit* utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

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