

Jamaican Standard  
**2023 Jamaica Small Building/Residential Code**

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# PREFACE

## Introduction

The *Jamaica Small Building/Residential Code (JSB/RC)* establishes minimum requirements for one- and two-family dwellings, townhouses, general purpose buildings up to 300 m<sup>2</sup> (3,232 ft<sup>2</sup>) that are noncomplex in structure, and using prescriptive provisions. It is founded on broad-based principles that make possible the use of new materials and new building designs and seeks to facilitate the construction of mostly reinforced concrete buildings which will withstand sustained hurricane winds of at least 248 kilometres per hour (155 mph) and earthquakes of 6.5 on the Richter Scale. This 2023 edition is, to a large degree, a standalone code and, therefore, has its own Administration and Enforcement Requirements; Energy Efficiency Specifications and Applications; Building Planning, Sub- and Superstructure Requirements and Specifications; Mechanical Equipment Systems and Installations; Plumbing Fixtures and Installation Requirements, Fuel Gas Appliances and Installation Requirements, Electrical Systems Equipment; Fixtures and Installation Requirements; as well as Sewage and Drainage Disposal Systems. In addition, there is a section in Chapter 1 on Preapproved Plans that aims at making code-compliant buildings available to that section of the population who cannot afford the design fees for registered *Building Professionals* or licensed *Building Practitioners*.

The Jamaican Building Codes, including this *Jamaica Small Building/Residential Code*, are used in a variety of ways in both the public and private sectors and are part of the Jamaica Building Laws and Regulations. The Codes play an invaluable role in setting the standard for building design and construction but the impact of the codes extends well beyond the regulatory arena, as they are used, being used and will be used in a variety of nonregulatory settings, including:

1. Voluntary compliance programmes such as those promoting sustainability, energy efficiency and disaster resistance.
2. The insurance industry, to estimate and manage risk, and as a tool in underwriting and rate decisions.
3. Certification and credentialing of individuals involved in the fields of building design, construction and safety.
4. Certification of building and construction-related products.
5. Facilities management.
6. “Best practices” benchmarks for designers and builders, including those who are engaged in projects that do not have a formal regulatory system or a governmental enforcement mechanism.
7. University and professional school textbooks and curricula.
8. Reference works related to building design and construction.

## Development

This 2023 edition of the *Jamaica Small Building/Residential Code (JSB/RC)* presents an updated version of the 2009 JSB/RC, with changes reflected in the 2012 through 2018 *International Residential Code*<sup>®</sup> (IRC<sup>®</sup>) editions, and the Jamaica Application Document emanating from the 2009 to 2015 IRC versions. Residential electrical provisions are based on the 2017 National Electrical Code<sup>®</sup> (NFPA 70). A new edition such as this is promulgated every 3 years.

Fuel gas provisions have been included in this code through an agreement that the International Code Council, owners of the IRC, has with the American Gas Association (AGA). Electrical provisions have been included through an agreement that the Bureau of Standards Jamaica has with the National Fire Protection Association (NFPA). This code is founded on principles intended to establish

provisions consistent with the scope of a residential and a small general purpose building code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that give preferential treatment to reinforced concrete building construction capable of withstanding sustained hurricane winds of at least 248 kilometres per hour (155 mph) and earthquakes of 6.5 on the Richter Scale. The preference for reinforced concrete buildings of the masonry units, poured-in-place and prestressed types, is based on the fact that Jamaica must try at all cost to avoid a single natural disaster from creating such widespread damage and death that preclude recovery in longer than 20 years. This code also allows wood-constructed residential buildings because it is the quickest way to put a roof over the head of persons displaced by a natural disaster and also because it is the only type of houses built for homeless persons by Private Sector Social Housing Organizations. The support for wooden houses has the important caveat that it must be on a scale that cannot create a conflagration that the local fire-fighting capability is unable to handle. Notwithstanding the limited material preferences, the code supports any new construction types or classes of materials, products or methods of construction that result in a building that can demonstrate withstanding sustained hurricane winds of at least 248 kilometres per hour (155 mph) and earthquakes of 6.5 on the Richter Scale.

## Maintenance

The *Jamaica Small Building/Residential Code* is kept up-to-date through the review of proposed changes submitted by code enforcement officials, industry representatives, design professionals, hired code reviewers and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate through a representative.

The BSJ Code Development Process reflects principles of openness, transparency, balance, due process and consensus—the principles embodied in the International Standards Organization, principles and guidelines for developing national standards. The BSJ process is open to any stakeholder; there is no cost to participate, and people can participate without travel cost through the BSJ's on-line meeting system. A broad cross section of interests are represented in BSJ Code Development Process. The codes, which are updated every six (6) years, include safeguards that allow for emergency action when required for health and safety reasons.

In order to ensure that organizations with a direct and material interest in the codes have a voice in the process, the BSJ writes to the CEO of the companies or organization or representatives from which participation is required and informs them of the proposed code to be developed and the impact it will have on their business or organization and the country. Participation is then requested on the basis that it will prevent adverse impact on that business or organization. Businesses or organizations are generally allowed to select their participant for the Building Code Technical Review Committee but occasionally the BSJ requests a named person that has specialized expertise that it wants on the committee.

The Building Code Technical Review Committee (BCTRC) evaluates suggested changes proposed by hired code evaluators and makes recommendations regarding proposed changes which, when factored into the code, becomes the First Draft document. The First Draft recommendations are then subject to public comment and are reviewed by the development committee and incorporated into the Second Draft document. The Standards Council (BSJ Board of Directors) does a review of the Second Draft and any changes it requests are incorporated in the Final Draft, which is sent to the Minister of Industry for signature and gazetting as a mandatory Technical Standard (Regulations).

The contents of this work are subject to change through the code development cycles. For more information regarding the code development process, contact the Standards Development Department of the Bureau of Standards Jamaica.

While the BSJ's Code development procedure is thorough and comprehensive, the BSJ, its members and those participating in the development of this code disclaim any liability resulting from the publication or use of this code, or from compliance or noncompliance with their provisions. The BSJ does not have the power or authority to police or enforce compliance with the contents of this code. Government of Jamaica delegation of duties, delegate this authority to police and enforce compliance with the contents of this code to the Local Authorities otherwise called Municipalities.

## Code Development Committee and Responsibilities

In each code development cycle, proposed changes to the code are considered by the BCTRC through meetings and any Action Hearings it may hold. In establishing the BCTRC the Standards Act of Jamaica requires that the broadest stakeholder's representation be built into this committee. This committee had to be large to facilitate the diverse subject matter of this code. Review meetings were virtual and quorums were relatively easy to obtain. The following were the persons who served on the BCTRC and the organization they represented:

1. Mr. Roosevelt DaCosta—Technical Secretary & Code Consultant—Endacosta Limited
2. Mrs. Lise Walter—Jamaica Institution of Engineers
3. Mr. Peter Jervis—Jamaica Institution of Engineers
4. Mr. Percival Stewart—Jamaica Institution of Engineers
5. Dr. Marva Blankson—Jamaica Institution of Engineers
6. Mr. Oneil Josephs—Jamaica Institution of Engineers
7. Mr. Alex Bernard—Jamaica Institution of Engineers
8. Mr. Kevin Sinclair—Jamaica Institution of Engineers
9. Mr. Noel Whyte—Jamaica Institution of Engineers
10. Mr. Gary Walters—Jamaica Institution of Engineers
11. Mr. Dwight Ricketts—Jamaica Institution of Engineers
12. Mr. Howard Chin—Jamaica Institution of Engineers
13. Mr. Karl Kaiser—Private Fire Consultant, Kaiser Fire Prevention
14. Mrs. Nilsia Johnson—Ministry of Health & Wellness, Environmental Health Unit
15. Mrs. Winsome Grant—Jamaica Fire Brigade
16. Mr. Sirnal Sangster—Jamaica Fire Brigade
17. Mr. Derval McKenzie—Jamaica Fire Brigade
18. Mr. Alfred Fennel—Jamaica Fire Brigade
19. Mr. Dwight Wilson—Ministry of Local Government & Community Development
20. Mr. Carl Drummond—Ministry of Local Government & Community Development
21. Mr. Shane Slater—Bureau of Standards Jamaica
22. Mr. Eldon Livingston—Bureau of Standards Jamaica
23. Mr. Wilfred Francis—Bureau of Standards Jamaica
24. Mr. Romaine McLean—Bureau of Standards Jamaica
25. Mr. Richard Lawrence—Bureau of Standards Jamaica
26. Mr. Sheldon Grant—Office of Disaster Preparedness and Emergency Management
27. Mr. David Allen—Code Consultant, Endacosta Limited
28. Mr. Noel DaCosta—Code Consultant, Endacosta Limited
29. Mrs. Erica Whondell Monroe—Legal Consultant, Endacosta Limited
30. Mr. David Chung—Code Consultant, Endacosta Limited
31. Dr. Yolanda Silvera—Academia, University of Technology, Jamaica
32. Mr. Chris Lue—Jamaica Institute of Architects
33. Mr. Lascelles Dixon—Consulting Architect, Lascelles Dixon Associates Limited
34. Dr. Paul Aiken—Academia, University of the West Indies
35. Mr. Africo Adams—Structural Engineering Consultant, SMADA Consultants Limited
36. Mr. Wayne Adams—Structural Engineering Consultant —SMADA Consultants Limited
37. Mr. Mark Taylor—Consulting Architect, Taylor Architects Limited
38. Mr. Burchell Solomon—Government Electrical Inspectorate

The BCTRC was required to discharge the following responsibilities:

1. Consider the hired code reviewer’s proposed changes to the code and decide whether they were technically sound and implementable in Jamaica without creating widespread disruptions in the construction industry or the import/export market or the manufacturing industry.
2. Consider the advantages of the proposed changes and decide whether they represented real improvement on what exists.
3. Consider the changes proposed and decide what is acceptable to the diverse stakeholders that committee members represent?
4. Consider whether the proposed changes should be accepted as proposed or rejected or altered as agreed.
5. Consider whether other changes beyond those presented by the Consultants should be made.
6. Develop the agreed additional drafts and insert them at the appropriate locations in the draft code.

## Marginal Markings

Double vertical lines in the margin denote amendments and additions promulgated by the Bureau of Standards Jamaica modifying the 2018 *International Residential Code*.

## Coordination of the International Codes

The coordination of technical provisions is one of the strengths of the ICC family of model codes. The codes can be used as a complete set of complementary documents, which will provide users with full integration and coordination of technical provisions. Individual codes can also be used in subsets or as stand-alone documents. To make sure that each individual code is as complete as possible, some technical provisions that are relevant to more than one subject area are duplicated in some of the model codes. This allows users maximum flexibility in their application of the I-Codes.

## Italicized Terms

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

## Adoption

The International Code Council and the Bureau of Standards Jamaica maintains a copyright in all of its codes and standards. Maintaining copyright allows the ICC and BSJ to fund their mission through sales of books, in both print and electronic formats. The ICC and BSJ welcomes adoption of its codes by jurisdictions that recognise and acknowledge the ICC’s and BSJ’s copyright in the code, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the ICC as well as BSJ.

The ICC also recognises the need for jurisdictions to make its laws available to the public. International jurisdictions have significant differences in promulgating laws but laws are generally available free of cost. The Jamaican Codes Chapter 1s have quoted or referenced the building laws of Jamaica which are available on the Parliament website for free in a downloadable form. In the near future the Jamaica Building Laws will be available and Chapter 1s of the codes will be available on the ICC's website free of charge in a non-downloadable format. International jurisdictions should contact the ICC or the BSJ at [adoptions@iccsafe.org](mailto:adoptions@iccsafe.org) or to learn how to adopt and distribute laws based on the *Jamaica Building Code* in a manner that provides necessary access, while maintaining the ICC's copyright.



# EFFECTIVE USE OF THE JAMAICA SMALL BUILDING/ RESIDENTIAL CODE

## Effective Use of the Jamaica Small Building/Residential Code

The 2023 *Jamaica Small Building/Residential Code* (JSB/RC) is a customized product of the 2018 IRC® and was created to serve as a complete, comprehensive code regulating the construction of single-family houses, two-family houses (duplexes), townhouses and general purpose buildings of 300 m<sup>2</sup> and less. All buildings within the scope of the JSB/RC are limited to two storeys and a basement. For example, a three-storey single-family house with a basement would fall within the scope of the *Jamaica Building Code* (JBC), not this code. 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. A mostly prescriptive small building/residential code as this one allows experienced nonprofessionals (building practitioners) to design safe noncomplex buildings to the satisfaction of government.

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

It is important to understand that the JSB/RC contains coverage for what is conventional, common and preferred in Jamaican residential construction practice. While the JSB/RC 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. Sections such as R301.1.3, R301.2.2.1.1, R320.1, M1301.1, G2401.1 and P2601.1 refer to other codes either as an alternative to the provisions of the JSB/RC or where the JSB/RC lacks coverage for a particular type of structure, design, system, appliance or method of construction. In other words, the JSB/RC 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. The JSB/RC will constantly evolve to address new technologies and construction practices that facilitate the buildings to which they are applied, withstanding winds of at least 248 kph (155 mph) and the seismic forces emanating from earthquakes of 6.5 on the Richter Scale.

The JSB/RC, like the IRC, is unique in that much of it, including Chapters 3 through 9, 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.

The JSB/RC is divided into eight main parts, specifically: Part I—Administration; Part II—Definitions; Part III—Building Planning and Construction; Part IV—Energy Conservation; Part V—Mechanical; Part VI—Fuel Gas; Part VII—Plumbing; and Part VIII—Electrical.

The JSB/RC is a metric code that specifies all measurements in metric, the legal measurements of Jamaica. In view of the outcry by older engineers and architects for Inch Pound Units (IPU) and the need to get widest use of this code upfront, this version of the code had to show the IPU in brackets beside the metric quantities. It is of utmost importance to note the following:

1. The IPU quantities are not mathematical conversion of the metric quantities beside them.
2. The IPU quantities are from the IRC and can be used with confidence for all designs or IPU calculations.
3. The metric quantities are mostly hard metric and can be used with confidence for all designs or Systeme Internationale (SI) calculations.



4. Conversion from SI to IPU or vice versa shall use the relative quantities at the bottom of the tables from which quantities are taken for a calculation.
5. In conducting a design or calculation it is advisable to work in one measurement unit only. Having completed the design or calculations, the result can be converted to the unit of choice if it is different from the unit used in the design or calculation.

The size of pipes conduit and cables shall be carefully observed and used to prevent mixup between American and British sizes. The following guidelines will help prevent mixup:

1. American pipe and conduit sizes are the diameter of the bore.
2. British pipe and conduit sizes (still used in Jamaica) are the external diameter comprising bore and enclosure material.
3. The American  $\frac{1}{2}$ -inch pipe will carry much more liquid or gas than the British  $\frac{1}{2}$ -inch pipe.
4. The American  $\frac{1}{2}$ -inch conduit will carry many more conductors of a particular size than the British  $\frac{1}{2}$ -inch conduit.
5. The American gallon is 3.785 litres while the British gallon (used in Jamaica) is 4.5 litres.

The following provides a brief description of the content of each chapter and appendix of the IRC:

**Chapter 1 Scope and Administration.** This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. This chapter empowers *Building Practitioners* (nonprofessionals) as well as Building Professionals to design and construct buildings but limits the *Building Practitioners* to *noncomplex buildings* within the prescribed building types. Chapter 1 is largely concerned with maintaining “due process of law” in enforcing the building criteria contained in the body of the code. Only through careful observation of the administrative provisions can the *Local Authority* reasonably expect to demonstrate that “equal protection under the law” has been provided.

**Chapter 2 Definitions.** Terms defined in the code are listed alphabetically in Chapter 2. It is important to note that two chapters have their own definitions sections: Chapter 11 for the defined terms unique to energy conservation, Chapter 24 for the defined terms that are unique to fuel gas and Chapter 35 containing terms that are applicable to electrical Chapters 34 through 43. Where Chapter 24 or 35 defines a term differently than it is defined in Chapter 2, the definition applies in that chapter only. Chapter 2 definitions apply in all other locations in the code. Local terms such as *Building Professionals* and *Building Practitioners* are added for a more complete understanding of the code.

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

Guidance regarding not only tense, gender and plurality of defined terms, but also terms not defined in this code, is provided.

**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 and flood load

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. The more heavily reinforced footing foundation requirement to facilitate wall moments in addition to wall dead loads has been factored into this chapter along with the foundation for reinforced concrete columns.

**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. Suspended slabs which is a very common element in Jamaican residential buildings allowed under this code, has been factored in this chapter of the code.

**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 and live 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. The formidable structural tie-in of walls into foundation footings, ring (bond or belt) beams or suspended slabs has been factored in this chapter to conform to the common construction practice in Jamaica. Many eminent structural engineers view that this approach is best to prevent wall collapse and severe danger to building occupants during a seismic event.

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, wind-borne 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 vapour 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, fibre 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, vapour retarder, substrate or thermal barrier, insulation, vapour retarder and roof covering. This chapter provides the requirement for wind resistance

of roof coverings, eliminates IRC roof covering types that will not remain in place during sustained 248 kph (155 mph) hurricane winds, as well as indicates the anchorage strengthening requirements needed at the eave and ridge of allowed roof coverings to ensure that they remain on during the sustained 248 kph (155 mph) hurricane winds.

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 *Jamaica Energy Conservation Code—Residential Provisions*, as applicable which, as applicable for buildings which fall under the scope of the 2018 *Caribbean Energy Conservation Code* except that in addition to Climate Zone 0 that exists below an elevation of 731.5 m (2,400 feet) above sea level, the draft introduces the following two climate zones:

- a. Climate Zone 1 for elevated areas between 731.5 m (2,400 feet) and 1,523 m (5,000 feet) above sea level.
- b. Climate Zone 2 for elevated areas above 1,523 m (5,000 feet) above sea level.

**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 *Local Authority* appointed by the jurisdiction having authority and also establish the rights and privileges of the design professional, contractor and property owner. It also relates this chapter to the administrative provisions in Chapter 1.

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

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

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

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

**Chapter 17 Combustion Air.** Complete combustion of solid and liquid fuel is essential for the proper operation of appliances, control of harmful emissions and achieving maximum fuel efficiency. If insufficient quantities of oxygen are supplied, the combustion process will be incomplete, creating dangerous byproducts and wasting energy in the form of unburned fuel (hydrocarbons). The byproducts of incomplete combustion are poisonous, corrosive and combustible, and can cause serious appliance or equipment malfunctions that pose fire or explosion hazards.

The combustion air provisions in this code from previous editions have been deleted from Chapter 17 in favour 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. If fuel gas appliances are used, the provisions of Chapter 24 shall be followed.

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

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

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

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

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

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

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

As our world strives to find alternative 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 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 recognised 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 27A Private Sewage Disposal.** Chapter 27A has been created primarily from Appendix I to fit into the local view that a chapter is more important than an appendix. The chapter simply provides the opportunity to utilize the *Jamaica Private Sewage Disposal Code* for the design and installation of private sewage disposal systems in one- and two-family dwellings, townhouses and small general-purpose buildings all having a floor area of 300 m<sup>2</sup> (3,232 ft<sup>2</sup>) and less.

**Chapter 28 Water Heaters.** Chapter 28 regulates the design, approval and installation of water heaters and related safety devices. The intent is to minimize the hazards associated with the installation and operation of water heaters. Although this chapter does not regulate the size of a water heater, it does regulate all other aspects of the water heater installation such as temperature and pressure relief valves, safety drip pans and connections. Where a water heater also supplies water for space heating, this chapter regulates the maximum water temperature supplied to the water distribution system.

**Chapter 29 Water Supply and Distribution.** This chapter regulates the supply of potable water from both public and individual sources to every fixture and outlet so that it remains potable and uncontaminated by cross connections. Chapter 29 also regulates the design of the water distribution system, which will allow fixtures to function properly. Because it is critical that the potable water supply system remain free of actual or potential sanitary hazards, this chapter has the requirements for providing backflow protection devices.

**Chapter 30 Sanitary Drainage.** The purpose of Chapter 30 is to regulate the materials, design and installation of sanitary drainage piping systems as well as the connections made to the system. The intent is to design and install sanitary drainage systems that will function reliably, are neither undersized nor oversized and are constructed from materials, fittings and connections whose quality is regulated by this section. This chapter addresses the proper use of fittings for directing the flow into and within the sanitary drain piping system. Materials and provisions necessary for servicing the drainage system are also included in this chapter.

**Chapter 31 Vents.** Venting protects the trap seal of each trap. The vents are designed to limit differential pressures at each trap to 249 Pa (1 inch of water column). Because waste flow in the drainage system creates pressure fluctuations that can negatively affect traps, the sanitary drainage system shall 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 249 Pa (1 inch of water column) 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. This chapter 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. This chapter 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.** This chapter 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, including local terms. 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 impact the meaning of the code text and the intended results. 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.** This chapter 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. This chapter includes both American Wire Gauge (AWG) conductors and cables as well as Metric conductors and cables, many of which are manufactured locally.

**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. This chapter includes both American Wire Gauge (AWG) conductors and cables as well as Metric conductors and cables, many of which are manufactured locally.

**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. This chapter includes both American Wire Gauge (AWG) conductors and cables as well as Metric conductors and cables, many of which are manufactured locally.

**Chapter 39 Power and Lighting Distribution.** This chapter 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.** This chapter focuses on the devices, including switches and receptacles, and lighting fixtures that are typically installed during the final phase of construction.

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

**Chapter 42 Swimming Pools.** This chapter 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.** This chapter 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.** The code contains numerous references to standards that are used to regulate materials and methods of construction. Chapter 44 contains a comprehensive list of all standards that are referenced in the code. The standards are part of the code to the extent of the reference to the standard. Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with the code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the *Local Authority*, contractor, designer and owner.

Chapter 44 is organized in a manner that makes it easy to locate specific standards. It lists all of the referenced standards, alphabetically, by acronym of the promulgating agency of the standard. Each agency's standards are then listed in either alphabetical or numeric order based upon the standard identification. The list also contains the title of the standard; the edition (date) of the standard referenced; any addenda included as part of the ICC adoption; and the section or sections of this code that reference the standard.

**Appendix A Sizing and Capacities of Gas Piping.** This appendix 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 B Sizing of Venting Systems Serving Appliances Equipped with Draft Hoods, Category I Appliances, and Appliances Listed for Use with Type B Vents.** This appendix is informative and not part of the code. It contains multiple examples of how to apply the vent and chimney tables and methodologies of Chapter 24.

**Appendix C Exit Terminals of Mechanical Draft and Direct-vent Venting Systems.** This appendix is informative and not part of the code. It consists of a figure and notes that visually depict code requirements from Chapter 24 for vent terminals with respect to the openings found in building exterior walls.

**Appendix D Recommended Procedure for Safety Inspection of an Existing Appliance Installation.** This appendix 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 E 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 E are not applicable to the design and construction of manufactured homes. Appendix E 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 F 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. Radon mapping throughout Jamaica has been done by the University of the West Indies Mona and is included in the appendix. The mapping shows that radon exclusion from buildings is only necessary in parts of the Parish of St. Elizabeth. Appendix F contains requirements to mitigate the transfer of radon gases from the soil into the dwelling. The provisions of this appendix regulate the design and construction of radon-resistant measures intended to reduce the entry of radon gases into the living space of residential buildings in the parishes of St. Elizabeth and Manchester.

**Appendix G Piping Standards for Various Applications.** Appendix G provides standards for various types of plastic piping products. This appendix is informative and is not part of the code.

**Appendix H Patio Covers.** Appendix H 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 I Private Sewage Disposal.** Appendix I provides drawings and data that explain in graphic terms the sewage disposal systems of the *Jamaica Private Sewage Disposal Code*.

**Appendix J Existing Buildings and Structures.** Appendix J 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 K Sound Transmission.** Appendix K 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 K 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 L Permit Fees.** Appendix L 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 M Home Day Care—R-3 Occupancy.** Appendix M 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 this appendix is adopted, the provisions for day care and child care facilities in the IBC should be considered also.

**Appendix N Venting Methods.** 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 N 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.

**Appendix O Automatic Vehicular Gates.** Appendix O 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 P Sizing of Water Piping System.** Appendix P provides two recognised methods for sizing the water service and water distribution piping for a building. The method under Section AP103 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 AP201 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 Q Tiny Houses.** For dwelling units that are 37 m<sup>2</sup> (400 square feet) or less in floor area, excluding lofts, Appendix Q 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 R Light Straw-Clay Construction.** This appendix regulates the use of light straw-clay as a construction material. It is limited in application to nonbearing wall infill systems.

**Appendix S Strawbale Construction.** This appendix provides prescriptive requirements for the use of strawbale as a construction material. It is limited in application to the walls of one-storey structures, except where additional engineering is provided.

**Appendix T Solar-ready Provisions—Detached One- and Two-family Dwellings and Townhouses.** This appendix provides requirements for preparation of a house for future installation of solar equipment for electrical power or heating. Given the growing popularity of solar power and the possible need for the equipment in the future, this appendix, if adopted, would require an area be provided on the building roof that would accommodate solar equipment. In addition, pathways for routing of plumbing and conduit need to be provided.

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