

2024



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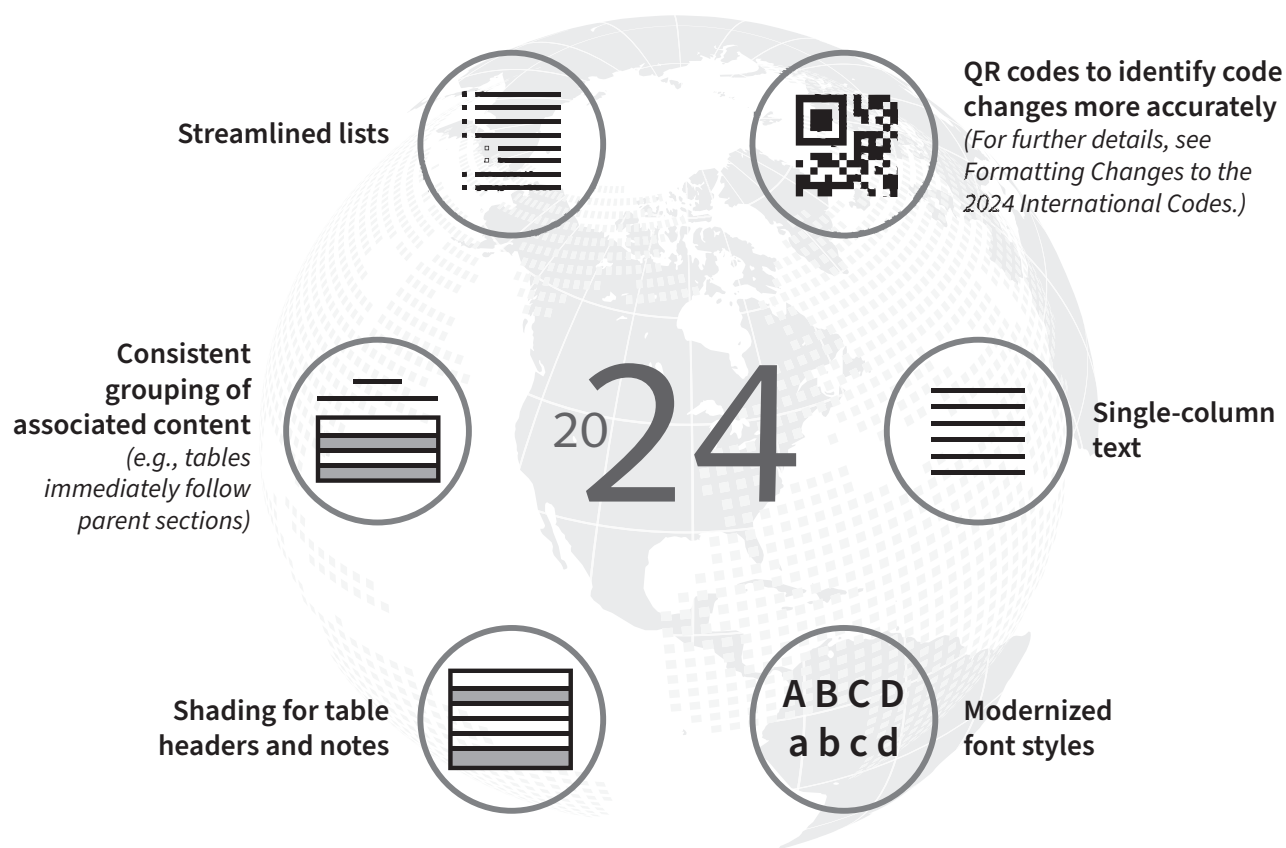
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NEW DESIGN FOR THE 2024 INTERNATIONAL CODES



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 Codes® content.

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



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



PREFACE

FORMATTING CHANGES TO THE 2024 INTERNATIONAL CODES

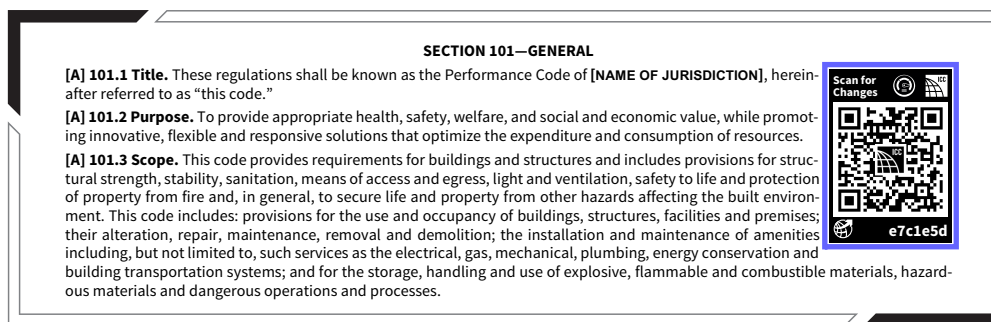
The 2024 International Codes® (I-Codes®) have undergone substantial formatting changes as part of the digital transformation strategy of the International Code Council® (ICC®) to improve the user experience. The resulting product better aligns the print and PDF versions of the I-Codes with the ICC's 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 Code Council Performance Code® for Buildings and Facilities* (ICCPC®), a QR code indicates there are changes to Section 101 from the 2021 ICCPC. 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/e7c1e5d"). 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.

ACCESSING ADDITIONAL FEATURES VIA REGISTRATION OF BOOK

Beginning with the 2024 *International Mechanical Code®* (IMC®) and the 2024 *International Plumbing Code®* (IPC®), users will be able to validate the authenticity of their book and register it with the ICC to receive incentives. Digital Codes Premium (codes.iccsafe.org) provides advanced features and exclusive content to enhance code compliance. To validate and register, the user will tap the ICC tag (pictured here and located on the front cover) with a near-field communication (NFC) compatible device. Visit iccsafe.org/nfc for more information and troubleshooting tips regarding NFC tag technology.



ABOUT THE I-CODES

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

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

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

- Voluntary compliance programs.
- The insurance industry.

- Certification and credentialing for building design, construction and safety professionals.
- Certification of building and construction-related products.
- Facilities management.
- “Best practices” benchmarks for designers and builders.
- College, university and professional school textbooks and curricula.
- Reference works related to building design and construction.

Code Development Process

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

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

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

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

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

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

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

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

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

- [A] = Administrative Code Development Committee
- [BE] = IBC—Egress Code Development Committee
- [BF] = IBC—Fire Safety Code Development Committee
- [BG] = IBC—General Code Development Committee
- [BS] = IBC—Structural Code Development Committee
- [E] = Developed under the ICC’s Standard Development Process
- [EB] = International Existing Building Code Development Committee
- [F] = International Fire Code Development Committee
- [FG] = International Fuel Gas Code Development Committee
- [M] = International Mechanical Code Development Committee

[P] = International Plumbing Code Development Committee

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

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

Code change proposals submitted for code sections that have a letter designation in front of them will be heard by the respective committee responsible for such code sections. Because different committees hold Committee Action Hearings in different years, proposals for most codes will be heard by committees in both the 2024 (Group A) and the 2025 (Group B) code development cycles. It is very important that anyone submitting code change proposals understands which code development committee is responsible for the section of the code that is the subject of the code change proposal.

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

Coordination of the I-Codes

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

Italicized Terms

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

Adoption of International Code Council Codes and Standards

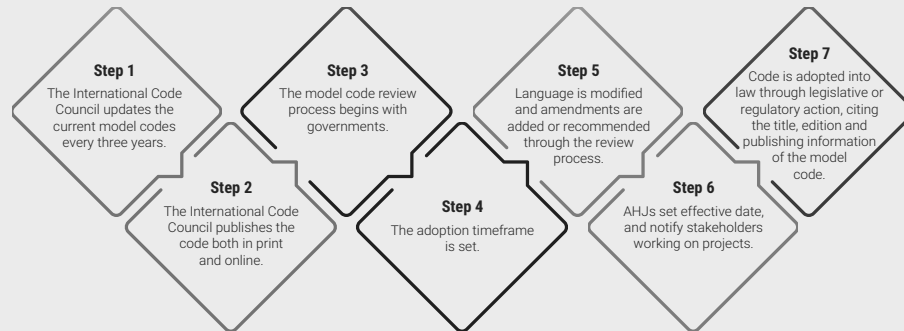
The International Code Council maintains a copyright in all of its codes and standards. Maintaining copyright allows the Code Council to fund its mission through sales of books in both print and digital format. The Code Council welcomes incorporation by reference of its codes and standards by jurisdictions 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.



ADOPTION OF INTERNATIONAL CODE COUNCIL CODES AND STANDARDS INCORPORATED BY REFERENCE

What does “incorporate by reference” mean? If a governmental agency or authority having jurisdiction (AHJ) over code adoption wishes to adopt a model code for legislative or regulatory purposes, it will enact an ordinance, regulation or law to incorporate by reference (IBR) the relevant code. The actual text of the model code is not included in the law, but the enacting law will include the full text of any changes or amendments enacted by the legislative body of the AHJ.



23-2259

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.

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.



To facilitate adoption of the ICCPC, the jurisdiction must establish the following performance groups for new and/or existing use groups or specific buildings or facilities for the application of this code (see Chapter 3):

ALLOCATION OF USE AND OCCUPANCY CLASSIFICATIONS AND SPECIFIC BUILDINGS OR FACILITIES TO PERFORMANCE GROUPS	
PERFORMANCE GROUP	USE AND OCCUPANCY CLASSIFICATION OR SPECIFIC BUILDINGS OR FACILITIES
I	
II	
III	
IV	

INTRODUCTION TO THE INTERNATIONAL PERFORMANCE CODE

Internationally, the design and regulatory community has embraced the need for a code that emphasizes performance requirements rather than prescriptive requirements. This need is not unique to the international community. As such, the *International Code Council Performance Code® for Buildings and Facilities* (ICCPC®), in this 2024 edition, is designed to meet this need through model code regulations that safeguard the public health and safety in all communities, large and small.

The ICCPC clearly defines the objectives for achieving the intended levels of occupant safety, property protection and community welfare. The code provides a framework to achieve the defined objectives in terms of tolerable levels of damage and magnitudes of design events, such as fire and natural hazards.

The concepts covered by this code are not intended to be any different in scope than those covered by the 2024 edition of the I-Codes. However, this code is distinctly different from the other I-Codes, which, in many cases, direct the user to a single solution to address a safety concern for a building or facility. The ICCPC allows the user to achieve various solutions, systematically. It should be up to the user to

family of I-Codes provides solutions that will comply with the ICCPC. Conversely, this code provides a procedure to address design and review issues associated with the alternative materials and methods sections of the other I-Codes.

It is strongly recommended that users of this code consult the User's Guide located in the second portion of this publication to gain additional insight into the provisions of this code.

ARRANGEMENT AND FORMAT OF THE 2024 ICCPC

The format of the ICCPC allows each chapter to be devoted to a particular subject. The following table shows how the ICCPC is divided. The chapter synopses detail the scope and intent of the provisions of the ICCPC.

CHAPTER TOPICS	
CHAPTER	SUBJECTS
1	Scope and Administration
2	Definitions
3	Design Performance Levels
4	Reliability and Durability
5	Stability
6	Pedestrian Circulation
7	Safety of Users
8	Moisture
9	Interior Environment
10	Mechanical
11	Plumbing
12	Fuel Gas
13	Electricity
14	Energy Efficiency
15	Fire Prevention and Impact Management
16	Management of People
17	Emergency Access and Facilities
18	Emergency Responder Safety
19	Hazardous Materials
20	Referenced Standards
Appendix A	Risk Factors of Use and Occupancy Classifications
Appendix B	Worksheet for Assigning Specific Structures to Performance Groups
Appendix C	Individually Substantiated Design Method
Appendix D	Qualification Characteristics for Design and Review of Performance-Based Designs
Appendix E	Use of Computer Models

Chapter 1 Scope and Administration.

Chapter 1 contains administrative provisions such as intent, scope and requirements related to qualifications, documentation, review, maintenance and change of use or occupancy. Also, provisions for approving acceptable methods are provided.

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 Design Performance Levels.

Chapter 3 sets the framework for determining the appropriate performance desired from a building or facility based on a particular event, such as an earthquake or a fire. Specifically, the user of the code can more easily determine the expected performance level of a building during an earthquake. In the prescriptive codes, the required performance is simply prescribed with no method provided to determine or quantify the level of the building's or facility's performance.

Chapter 4 Reliability and Durability.

Chapter 4 deals with the topics of reliability and durability and how these issues interact with the overall performance of a building or facility over its life. This issue has always been relevant to codes and standards but becomes more obvious when a performance code requires a designer to regard buildings as a system. Reliability includes redundancy, maintenance, durability, quality of installation, integrity of the design and, generally, the qualifications of those involved in this process.

Chapters 5 through 19 (technical provisions).

Chapters 5 through 19 address the technical provisions referred to in the preceding Chapter Topics table and provide topic-specific qualitative statements of intent that relate to current prescriptive code requirements. Generally, such topic-specific qualitative statements are the basic elements missing from prescriptive codes. The statements follow a particular hierarchy, described below.

Objective. The objectives define what is expected in terms of societal goals or what society “demands” from buildings and facilities. Objectives are topic-specific and deal with particular aspects of performance required in a building, such as safeguarding people during escape and rescue.

Functional Statement. The functional statement explains, in general terms, the function that a building must provide to meet the objective or what “supply” must be provided to meet the “demand.” For example, a building must be constructed to allow people adequate time to reach a place of safety without exposure to untenable conditions.

Performance Requirement. Performance requirements are detailed statements that break down the functional statements into measurable terms. This is where a link can be more readily made to acceptable methods.

Chapter 20 Referenced Standards.

Chapter 20 lists all of the product and installation standards and codes that are referenced throughout Chapters 1 through 19 and includes identification of the promulgators and the section numbers in which the standards and codes are referenced. 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.

Appendices A through E.

Appendices A through E relate to specific provisions of this code and are discussed within the User’s Guide as applicable.

GUIDE TO THE USE OF THE INTERNATIONAL CODE COUNCIL PERFORMANCE CODE FOR BUILDINGS AND FACILITIES

The following describes the procedural steps for new and existing buildings.

Procedural Steps for New Buildings.

The following process is an outline for a performance-based design for an entire project or in combination with a prescriptive approach. This procedure for performance-based design extends from design preparation through issuance of a Certificate of Occupancy. The steps are as follows:

1. Preparation of a concept report in accordance with Section 102.3.4.2.1 by a qualified design professional.
2. Design preparation by a design team headed by a qualified principal design professional.
3. Coordination and verification via the principal design professional as a design team leader, with other design professionals, owners and contractors, when applicable.
4. Submit plans and supporting documents to the code official that shall identify which portions of the design are performance based and which portions are based on the prescriptive code. The submittal must include deed restrictions proposed to cover future maintenance requirements and special conditions for the life of the building.
5. Plan review is to be conducted by the code official staff when qualified for performance-based design.
 - 5.1. When staff is deemed not qualified for a proposed project, acquire qualified contract review services.
 - 5.2. Peer review is an optional approach for obtaining an additional review that is supplemental to the plan review.
6. The code official verifies that applicable prescriptive code provisions and performance-based objectives are met. When special inspections are required, ensure that documentation is complete.
7. The code official approves plans and issues a permit.
8. The holder of the permit is responsible to construct in accordance with approved plans and documents.
9. The code official ensures that qualified inspection services are provided and documented where required in accordance with the performance-based code and other applicable codes, and testing requirements are met as follows:
 - 9.1. Phase inspections (reference IBC and other I-Codes).
 - 9.2. Special inspection (reference IBC).
 - 9.3. Testing where required by design documents.
 - 9.4. Documentation that all requirements are met.
10. Issue Certificate of Occupancy with applicable conditions, where required by the approved design documents.

Procedural Steps for Existing Buildings.

For significant remodeling, alterations and additions, the design professional shall:

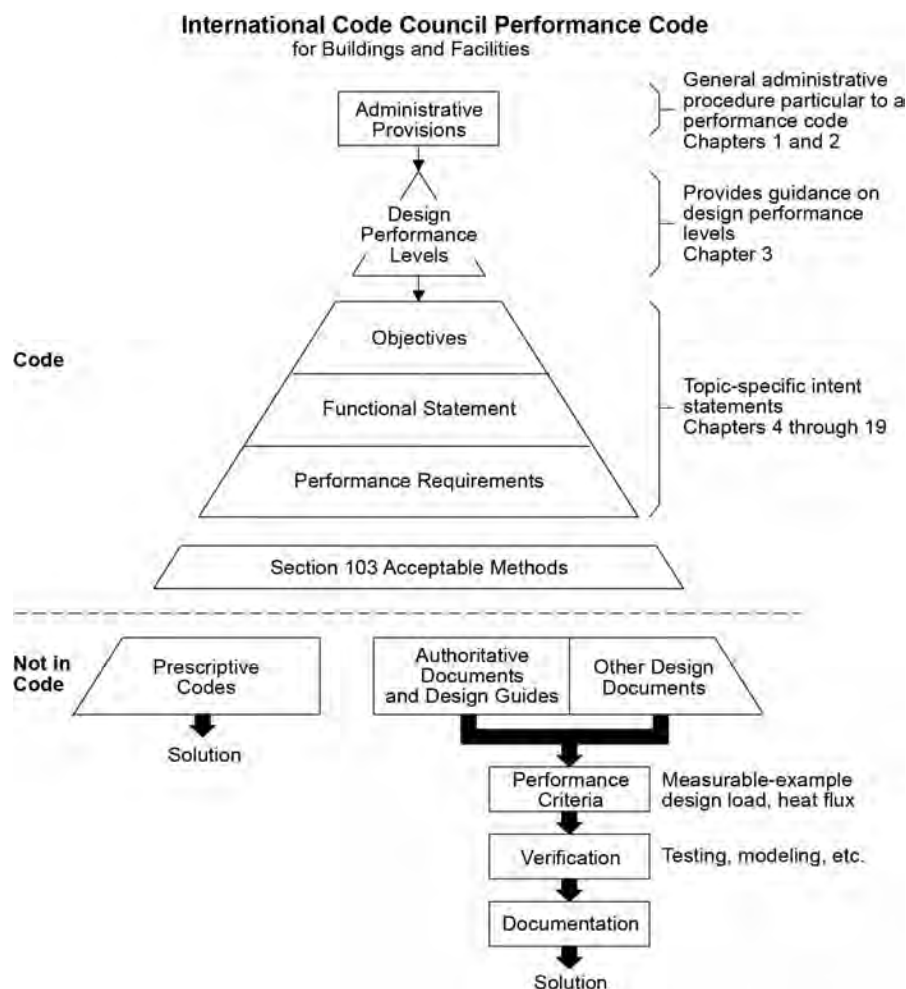
1. Examine applicable design documents, deed restrictions and maintenance requirements to determine building requirements where the original design is performance based in nature; prepare a concept report in accordance with Section 102.3.4.2.1.
2. Any features based on a performance approach need to be clearly differentiated from features of a building or facility designed using a prescriptive approach.
3. Verify compliance with the operations and maintenance manual.
4. Prepare a report specifying impact and requirements for the proposed design.
5. Prepare design documents based on applicable performance, prescriptive or combination of code provisions and specify which codes are applicable for each portion of the design, including any steps to correct identified deficiencies.
6. Submit reports to the code official for review and acceptance, similar to procedural steps for a new building.

For change of use with no proposed physical alteration, the design professional shall:

1. Document existing building features and systems that impact fire or emergency performance.
2. Verify compliance with the operations and maintenance manual.
3. Prepare appropriate design fire scenarios pertinent to the building or facility and actual use, considering existing mitigation strategies and protection features.
4. Evaluate performance against Section 304, Maximum Level of Impact or Damage to Be Tolerated.
5. Prepare a report detailing impact; design and test systems to the objectives of this code.
6. Submit for review and approval in accordance with Chapter 1.

Flow Chart

The following chart is provided to give guidance as to how the ICCPC is intended to work. Essentially, this chart walks the user through the steps of applying the code. These steps begin with understanding the administrative process and the objectives of the ICCPC and eventually determining the acceptable methods used to design, construct, test, inspect and maintain the building or facility.



RELOCATION OF CHAPTERS OR SECTIONS

The following table indicates relocation of chapters and sections in the 2024 edition of the ICCPC from the 2021 edition.

RELOCATION	
2024 LOCATION	2021 LOCATION
6	7, 19
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	Section 601, Section 602, 16, 17
16	18
17	20
18	21
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USER’S GUIDE TABLE OF CONTENTS. UG-2

SCOPE AND ADMINISTRATION

User notes:

About this chapter:

Chapter 1 establishes the limits of applicability of the code and describes how the code is to be applied and enforced. Chapter 1 is in two parts: Part 1—Scope and Application (Section 101) and Part 2—Administration and Enforcement (Sections 102 and 103). The scope statements encompass all portions of the code and provide an overall understanding of the limits and applications of the document. The administrative section discusses how this code works in terms of the practical application of the code including stakeholder qualifications and responsibilities, document submittals, and review and construction verification techniques to demonstrate that performance code objectives have been satisfied. Additionally, this section emphasizes the importance of the long-term maintenance needs of a performance-based design and the management of changes to those designs, whether such changes are large or small.

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 101—GENERAL



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

[A] 101.2 Purpose. To provide appropriate health, safety, welfare, and social and economic value, while promoting innovative, flexible and responsive solutions that optimize the expenditure and consumption of resources.

[A] 101.3 Scope. This code provides requirements for buildings and structures and includes provisions for structural strength, stability, sanitation, means of access and egress, light and ventilation, safety to life and protection of property from fire and, in general, to secure life and property from other hazards affecting the built environment. This code includes: provisions for the use and occupancy of buildings, structures, facilities and premises; their alteration, repair, maintenance, removal and demolition; the installation and maintenance of amenities including, but not limited to, such services as the electrical, gas, mechanical, plumbing, energy conservation and

building transportation systems; and for the storage, handling and use of explosive, flammable and combustible materials, hazardous materials and dangerous operations and processes.

[A] 101.4 Intent. The purpose of this code is to provide an acceptable level of health, safety, and general welfare and to limit damage to property from events that are expected to impact buildings, structures, facilities, equipment and processes. Accordingly, this code intends buildings and structures to provide for the following:

1. An environment free of unreasonable risk of death and injury from fires, explosions or dangerous conditions.
2. A structure that will withstand loads associated with normal use and of the severity associated with the location in which the structure is constructed.
3. Means of egress and access for normal and emergency circumstances.
4. Limited spread of fire both within the building and to adjacent properties.
5. Ventilation and sanitation facilities to maintain the health of the occupants.
6. Natural light, heating, cooking and other amenities necessary for the well-being of the occupants.
7. Efficient use of energy.
8. Safety to firefighters and emergency responders during emergency operations.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 102—ADMINISTRATIVE PROVISIONS



[A] **102.1 Objective.** To achieve and maintain the level of safety intended by the code.

[A] **102.2 Functional statements.**

[A] **102.2.1 Qualifications.** *Registered design professionals* shall possess the knowledge, skills and abilities necessary to demonstrate compliance with this code.

[A] **102.2.2 Construction document preparation.** *Construction documents* required by this code shall be prepared in adequate detail and submitted for review and approval.

[A] **102.2.3 Review.** *Construction documents* submitted in accordance with this code shall be reviewed for code compliance with the appropriate code provisions.

[A] **102.2.4 Construction.** Construction shall comply with approved *construction documents* submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

[A] **102.2.5 Facilities and premises.** Facilities and premises shall comply with approved *design construction documents* submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

[A] **102.2.6 Equipment and processes.** Equipment and processes and their installation and operation shall comply with approved *construction documents* submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

[A] **102.2.7 Materials and contents.** Materials and contents shall comply with approved *construction documents* submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

[A] **102.2.8 Facility operating policies and procedures.** Policies, operations, training and procedures shall comply with approved documents submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

[A] **102.2.9 Supplemental enforcement.** Administrative provisions of the International Code Council's family of codes regarding *plan review*, permit issue, inspection and enforcement shall supplement these provisions.

[A] **102.2.10 Maintenance.** Maintenance of the *performance-based design* shall be ensured through the issuance and renewal of certificates over the life of the building.

[A] **102.2.11 Management of change.** Written procedures managing change to original *construction documents*, system processes, technology, equipment and facilities shall be established and implemented.

[A] **102.2.12 Expected emergency response.** *Construction documents* shall clearly describe the level of response expected by emergency responders.

[A] **102.3 Performance requirements.**

[A] **102.3.1 Building owner's, or the owner's authorized agent's, responsibility.**

[A] **102.3.1.1 Registered design professional.** The owner or the owner's authorized agent shall have the responsibility of retaining and furnishing the services of a *registered design professional*, who shall be in responsible charge of preparing and coordinating a complete and comprehensive set of *construction documents* and other services required to prepare reports and other documents in accordance with this code. If the services required by this section are not provided, the use of this code is prohibited.

[A] **102.3.1.2 Registered design professional in responsible charge.** Where the project requires the services of multiple *registered design professionals*, a *registered design professional in responsible charge* shall be retained and furnished who shall have the contractual responsibility and authority over all required *registered design professional* disciplines to prepare and coordinate a complete and comprehensive set of *construction documents* for the project.

[A] **102.3.1.3 Peer review.** The owner or the owner's authorized agent shall be responsible for retaining and furnishing the services of a *registered design professional* or recognized expert, who will perform as a peer reviewer, where required and approved by the code official. See Section 102.3.6.3 of this code.

[A] **102.3.1.4 Costs.** The costs of special services, including *contract review*, where required by the code official, shall be borne by the owner or the owner's authorized agent.

[A] **102.3.1.5 Document retention.** The owner or the owner's authorized agent shall retain on the premises documents and reports required by this code and make them available to the code official upon request.

[A] **102.3.1.6 Maintenance.** The owner or the owner's authorized agent is responsible to operate and maintain a building, structure or facility designed and built under this code in accordance with the *bounding conditions* and the operations and maintenance manual.

[A] **102.3.1.7 Changes.** The owner or the owner's authorized agent shall be responsible to ensure that any change to the facility, process or system does not increase the hazard level beyond that originally designed without approval and that changes shall be documented in accordance with this code.

[A] 102.3.1.8 Special expert. Where the scope of work is limited or focused in an area that does not require the services of a *registered design professional* or the special knowledge and skills associated with the practice of architecture or engineering, a *special expert* may be employed by the owner or the owner's authorized agent as the person in responsible charge of the limited or focused activity. It is the intent of this code that the individual shall possess the qualification characteristics required in Appendix D.

[A] 102.3.1.9 Occupant requirements. The owner or the owner's authorized agent is responsible and accountable to ensure that occupants and employees who are required to take certain actions or perform certain functions in accordance with a *performance-based design* possess the required knowledge and skills and are empowered to perform those actions.

[A] 102.3.2 Registered design professional qualifications. The *registered design professional in responsible charge*, architects, engineers and other *registered design professionals in responsible charge* of their discipline as a member of a design team shall be responsible and accountable to possess the required knowledge and skills to perform design, analysis and verification in accordance with the provisions of this code and applicable professional standards of practice. It is the intent of this code that these individuals possess the qualification characteristics as stated in Appendix D. Qualification statements shall be submitted to the code official for the *registered design professional in responsible charge*, *registered design professionals* and *special experts* to demonstrate compliance with Appendix D.

[A] 102.3.3 Registered design professionals' and special experts' responsibilities.

[A] 102.3.3.1 Registered design professional in responsible charge. Where multiple design disciplines are involved, the *registered design professional in responsible charge* is responsible to ensure that design elements are comprehensive and complete before submittals are made to the code official. During the code review process all designated reports, drawings and *construction documents* necessary to demonstrate compliance with the code shall be submitted by the *registered design professional in responsible charge*. The responsibilities of the *registered design professional in responsible charge* include those of a *registered design professional*.

[A] 102.3.3.2 Responsibilities. *Registered design professionals* are responsible to apply the performance requirements and *acceptable methods* approach in Section 103.3 for performance-based designs where using this code. This code requires design analysis and support documentation to demonstrate the design approach and to verify design objectives and compliance with this code.

[A] 102.3.3.3 Supporting documentation. *Registered design professionals* have the responsibility to provide the appropriate design analysis, research, computations and documentation to demonstrate compliance with applicable performance requirements of this code and applicable *prescriptive code* provisions.

[A] 102.3.3.4 Acceptable methods. *Registered design professionals* shall use *authoritative documents* or *design guides* to determine testing and verification methods for selecting building materials that are compatible with the building systems approach selected.

[A] 102.3.3.5 References. *Registered design professionals* are responsible to document applicable *design guides* or *authoritative documents* for a *performance-based design* and demonstrate how these documents are utilized to substantiate design solutions to show compliance with the provisions of this code. The use of documents that are not accepted as authoritative documents or *design guides* requires substantiation with the code official to obtain acceptance.

[A] 102.3.3.6 Documentation of bounding conditions. The *registered design professional* shall document all bounding conditions and establish thresholds that determine when changes must be approved by the code official.

[A] 102.3.3.7 Compliance with bounding conditions. The *registered design professional* shall review the completed construction elements, equipment, furnishings, processes and contents to verify compliance with the *bounding conditions* and the critical design features identified in the approved *construction documents*. The code official may require that the *registered design professional in responsible charge* file a report to verify compliance with the bounding conditions and the critical design features at the completion of the project as a condition of obtaining required certificates.

[A] 102.3.3.8 Special expert. The scope of work of a *special expert* shall be limited to the area of expertise as demonstrated in the documentation submitted to the code official for review and approval. Where a *special expert* performs functions of a design, the *special expert* shall assume the responsibilities of that phase of the design.

[A] 102.3.4 Design documentation.

[A] 102.3.4.1 General. The *registered design professional* shall prepare appropriate documentation for the project that clearly provides the design approach and rationale for design submittal, construction and future use of the building, facility or process.

[A] 102.3.4.1.1 Required documentation. The documentation for the project shall identify the goals and objectives; the steps undertaken in the analytical analysis; the facility maintenance and testing requirements; and limitations and restrictions on the use of the facility in order to stay within *bounding conditions*. Where requirements for documentation are specified in applicable engineering or *design guides*, documentation shall be included in the *construction documents*. Computer modeling documentation shall comply with Appendix E.

[A] 102.3.4.1.2 Extent of documentation. The level of documentation provided shall be adequate to convey the required information clearly to the involved parties and shall be commensurate with the scope and complexity of the project.

[A] 102.3.4.1.3 Verification of compliance. Documentation shall be prepared that clearly verifies that applicable performance and applicable *prescriptive code* provisions have been met.

[A] 102.3.4.1.4 Deed restriction. Design features with *bounding conditions* that require continued maintenance or supervision by the owner or the owner's authorized agent throughout the life of the building, facility or process as conditions of compliance with the objectives of this code shall be recorded as a deed restriction until released by the code official. Where required by the code official, the deed restriction shall be modified to reflect specific changes.

[A] 102.3.4.1.5 Phased and partial occupancy. The *construction documents* shall include an evaluation of hazards and proposed resolution of associated risks during construction in advance of a request for phased or partial occupancy.

102.3.4.1.6 Emergency response capabilities. Design documentation shall clearly describe the level of response expected by emergency responders under the direct control of the owner or the owner's authorized agent. Emergency response capabilities, staffing levels, training requirements and equipment availability shall be documented as a *bounding condition*.

[A] 102.3.4.2 Reports and manuals. Where required by the code official, design documentation shall include a concept report, design report and operations and maintenance manual.

[A] 102.3.4.2.1 Concept report. The concept report shall document the preliminary details of the project, identify the parties involved in the project, and define the goals and objectives to be utilized in the performance-based design analysis. The concept report shall be submitted to the code official as a means of communicating the programming and early schematic phase of a proposed project and to obtain concurrence between the code official and the project design team on the goals and objectives to be utilized in the analysis. The concept report shall address but not be limited to the following:

1. General project information, including schematic layout and site plan.
2. Definition of project scope.
3. Description of building and occupant characteristics.
4. Project goals and objectives.
5. Selected event scenarios.
6. Methods of evaluation.
7. Qualification statements for the *registered design professional in responsible charge, registered design professionals, peer reviewers and special experts*.
8. Proposed performance and *prescriptive code* usage.
9. Conceptual site and building plan.

[A] 102.3.4.2.2 Design report. The design report shall document the steps taken in the design analysis, clearly identifying the criteria, parameters, inputs, assumptions, sensitivities and limitations involved in the analysis. The design report shall clearly identify *bounding conditions*, assumptions and sensitivities that clarify the expected uses and limitations of the performance analysis. This report shall verify that the design approach is in compliance with the applicable codes and *acceptable methods* and shall be submitted for concurrence by the code official prior to the *construction documents* being completed. The report shall document the design features to be incorporated based on the analysis. The design report shall address but not be limited to the following:

1. Project scope.
2. Goals and objectives.
3. Performance criteria.
4. Hazard scenarios.
5. Design fire loads and hazards.
6. Final design.
7. Evaluation and peer review.
8. *Bounding conditions* and critical design assumptions.
9. Critical design features.
10. System design and operational requirements.
11. Operational and maintenance requirements.
12. *Commissioning* testing requirements and acceptance criteria.
13. Frequency of certificate renewal.
14. Supporting documents and references.
15. Preliminary site and floor plans.

[A] 102.3.4.2.3 Operations and maintenance manual. The operations and maintenance manual shall identify system and component *commissioning* requirements and the required interactions between these systems. The manual shall identify for the facility owner or the owner's authorized agent and the facility operator those actions that need to be performed on a regular basis to ensure that the components of the *performance-based design* are in place and operating properly. Furthermore, the operations and maintenance manual shall identify the restrictions or limitations placed on the use and operation of the facility in order to stay within the *bounding conditions* of the *performance-based design*. The operations and maintenance manual shall be submitted at the time of the *construction documents* submittal, unless the code official approves another time based on the type of project and data needed for a composite review. The operations and maintenance manual shall address but not be limited to the following:

1. Description of critical systems.
2. Description of required system interactions.
3. Occupant responsibilities.
4. Occupant and staff training requirements.
5. Periodic operational requirements.
6. Periodic maintenance requirements.
7. Periodic testing requirements.
8. Limitations on facility operations (due to *bounding conditions*).
9. Report format for recording maintenance and operation data.
10. System and component *commissioning* requirements.

[A] 102.3.5 Design submittal.

[A] 102.3.5.1 General. Applicable *construction documents* required in Sections 102.3.2, 102.3.3 and 102.3.4 for submittal in this code and other applicable codes under the jurisdiction of the code official shall be submitted to the code official for review. The documents shall be submitted in accordance with the jurisdiction's procedures and in sufficient detail to obtain appropriate permits.

[A] 102.3.5.2 Coordination of construction documents. Design documents shall be coordinated by the *registered design professional in responsible charge* for consistency, compatibility and completeness prior to submittal. Documentation shall be provided to the code official to demonstrate compliance with the performance provisions, including *acceptable methods*.

[A] 102.3.5.3 Performance-based design features. The *construction documents* shall clearly indicate those areas of the design that are performance-based and shall be provided to the code official.

[A] 102.3.5.4 Extent of documentation and references. The code official shall be provided with sufficient documentation to support the validity, accuracy, relevance and precision of the proposed methods. Copies of referenced documentation shall be made available to the code official.

[A] 102.3.5.5 Inspections, testing, operation and maintenance. The *construction documents* shall specify when and where special inspection and testing are required, the standards of acceptance for demonstrating compliance with the *construction documents*, and operations and maintenance requirements for future use of the building.

[A] 102.3.5.6 Management of change. The submittal shall include appropriate management of change protocol to address how changes in the *construction documents* will be managed for construction, operation and maintenance activities.

[A] 102.3.6 Review and approval.

[A] 102.3.6.1 Procedures. Document review and approval shall be accomplished in accordance with the code official's procedures.

[A] 102.3.6.2 Review. The code official shall be responsible to perform a knowledgeable review of the proposed design project to verify compliance with this code, or the code official shall retain competent assistance to perform the review in accordance with acceptable standards of practice.

[A] 102.3.6.3 Contract and peer review. Review may be accomplished by a contract reviewer where the reviewer is assigned by the code official. In addition, the code official may require a peer review process to review design criteria and supporting documents and *construction documents*.

[A] 102.3.6.4 Approval. After documents and other supporting data are reviewed and approved by the code official to verify compliance with the applicable codes, permits may be issued.

[A] 102.3.7 Permits and inspections.

[A] 102.3.7.1 Permits. Prior to the start of construction, appropriate permits shall be obtained in accordance with the jurisdiction's procedures and applicable codes.

[A] 102.3.7.2 Inspection. Approved inspections shall be obtained in accordance with the *construction documents*, jurisdiction's procedures and applicable codes.

[A] 102.3.7.3 Verification reports. Inspection, testing and related verification reports shall be filed with the code official to verify compliance with approved *construction documents* and applicable *prescriptive code* provisions.

[A] 102.3.7.4 Product installation. Compliance shall be verified for materials, fabrication, manufacturer's and engineer's installation procedures by product labeling, certification, *quality assurance* processes and testing, as applicable, to verify compliance.

[A] 102.3.7.5 Compliance verification. At the completion of construction, the code official shall verify that inspection and testing reports demonstrate compliance with the applicable codes and approved *construction documents*.

[A] 102.3.7.6 Operational permits. Prior to initiating facility uses and processes regulated under Part III of this code, appropriate permits shall be obtained.

[A] 102.3.8 Project documentation.

[A] 102.3.8.1 Verification of compliance. Upon completion of the project, documentation shall be prepared that verifies performance and *prescriptive code* provisions have been met. Where required by the code official in accordance with Section 102.3.3.6, the *registered design professional in responsible charge* shall file a report that verifies *bounding conditions* are met.

[A] 102.3.8.2 Extent of documentation. Approved *construction documents*, the operations and maintenance manual, inspection and testing records, and certificates of occupancy with conditions shall be included in the project documentation of the code official's records.

[A] 102.3.8.3 Deed restrictions. Design features with *bounding conditions* determined by the *registered design professional* to require continued operation and maintenance by the owner or the owner's authorized agent throughout the life of the building as conditions of compliance with the objectives of this code shall be recorded as a deed restriction as required by the code official until released by the code official.

[A] 102.3.8.4 Technical opinion. The code official has the authority to require a technical opinion and report from an individual or organization with special expertise to identify and develop methods of protection from special hazards and to determine the acceptability of technologies, processes, products, equipment, materials and uses applicable to the design, operation or use of a building or facility. The intent of this code is that the technical opinion and report shall be prepared by a qualified individual. See Appendix D.

[A] 102.3.9 Certificates.

[A] 102.3.9.1 Certificate of occupancy. Prior to occupancy of a building, a certificate of occupancy shall be obtained from the code official.

[A] 102.3.9.1.1 Continued occupancy. A certificate of occupancy is required for the continued occupancy of a building.

[A] 102.3.9.1.2 Temporary certificate of occupancy. The code official has the authority to issue a temporary certificate of occupancy for a limited time with specified conditions, providing all life-safety items are accepted.

[A] 102.3.9.1.3 Conditional certificate of occupancy. The code official has the authority to issue a certificate of occupancy with conditions valid for a specified time period that requires continued compliance with *bounding conditions* and the operations and maintenance manual. Failure to maintain compliance with the conditions of the certificate of occupancy is a violation of this code.

[A] 102.3.9.1.4 Revocation and renewal. Failure of the building owner or the owner's authorized agent to demonstrate to the code official that the building is being operated and maintained in compliance with Sections 102.3.1.6 and 102.3.9.1 is cause to revoke or not renew a certificate of occupancy.

[A] 102.3.9.2 Certificate of compliance. Prior to use of a building, facility, process or premises subject to Part III of this code, a certificate of compliance shall be obtained from the code official.

[A] 102.3.9.2.1 Continued use. A certificate of compliance is required for the continued use or occupancy of a facility, process or equipment subject to Part III of this code throughout the life of the facility.

[A] 102.3.9.2.2 Renewal frequency. The certificate of compliance issued subject to Part III of this code shall be renewed at a frequency as determined in the design and approved by the code official.

[A] 102.3.9.2.3 Revocation and renewal. Failure of the owner or the owner's authorized agent to demonstrate compliance with this section is cause to revoke or not renew the certificate of compliance.

[A] 102.3.10 Maintenance.

[A] 102.3.10.1 Owner, or the owner's authorized agent's, responsibility. The owner or the owner's authorized agent is responsible for maintaining the building or facility in accordance with the approved documents.

[A] 102.3.10.2 Continued compliance. Compliance with the operations and maintenance manual and bounding conditions shall be verified throughout the life of the building or facility at a frequency in accordance with the approved documents.

[A] 102.3.10.3 Compliance verification. Documents verifying that the building, facilities, premises, processes and contents are in compliance with the approved *construction documents* and are maintained in a safe manner shall be filed with the code official at a frequency approved by the code official.

[A] 102.3.11 Remodeling, addition or change/approval of use.

[A] 102.3.11.1 Analysis of change. The *registered design professional* shall evaluate the existing building, facilities, premises, processes, contents and the applicable documentation of the proposed change as it affects portions of the building, facility, premises, processes and contents that were previously designed for compliance under a performance-based code. Prior to any change that was not documented in a previously approved design, the *registered design professional in responsible charge* shall examine the applicable design documents, *bounding conditions*, operation and maintenance manuals, and deed restrictions.

[A] 102.3.11.2 Coordination of design. Where multiple design disciplines are involved, one *registered design professional* shall be responsible to ensure that design elements are comprehensive and complete before submittals are made to the code official. During the code review process, designated reports, drawings and *construction documents* necessary to demonstrate compliance with the code shall be submitted by the *registered design professional*.

[A] 102.3.11.3 Change in activity or contents. Any change in activity or contents that results in an increase in hazard or risk that exceeds the *bounding conditions* requires an evaluation and approval. The code official shall have the authority to require a full evaluation of the design.

[A] 102.3.11.4 Additions, renovations and related construction changes. Construction activities in existing buildings, facilities, premises or processes shall be evaluated by a *registered design professional* and documented in a written report, which shall be submitted for review and approval in conjunction with the permit request. The report shall identify whether the proposed construction exceeds the *bounding conditions*, which will result in an increase in hazard or risk beyond that expected in the approved original *construction document*. Where *bounding conditions* are not exceeded, the original construction document need not be revised. Where *bounding conditions* are exceeded, the original *construction document* shall be revised so that compliance with this code is perpetuated.

[A] 102.3.11.5 Designs exceeding bounding conditions. Where a proposed change exceeds the bounding conditions and does not result in an increase to hazard or risk, as approved by the code official, any person authorized by the laws of the jurisdiction is allowed to prepare *construction documents* and reports for submittal.

[A] 102.3.11.6 Change in design objectives and bounding conditions. Where changes are proposed to the design objectives and bounding conditions of an existing building, facility, process or contents, a written report by the *registered design professional* shall be prepared to specify the new design objectives and demonstrate compliance with the current code.

[A] 102.3.12 Administration and enforcement.

[A] 102.3.12.1 Supplemental administrative provisions. Administrative provisions of the International Code Council's family of codes shall supplement the performance provisions for *plan review*, permit issuance, inspection, certificate of occupancy or compliance, and enforcement.

[A] 102.3.13 Violations.

[A] 102.3.13.1 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 facility regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

[A] 102.3.13.2 Notice of violation. The code official shall 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 facility in violation of the provisions of this code or in violation of a detail statement or *construction documents* 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.

[A] 102.3.13.3 Violation. If the notice of violation is not complied with promptly, the code official has the authority 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.

[A] 102.3.13.4 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, structure or facility in violation of the approved *construction documents* or directive of the code official or of a permit or certificate issued under the provisions of this code shall be subject to penalties as prescribed by law.

SECTION 103—ACCEPTABLE METHODS

[A] 103.1 Objective. To require the use of recognized *authoritative documents* or *design guides* for analysis, measurement of performance and determination of criteria used to evaluate compliance with the performance requirements of this code. See Chapter 2 for definitions.

[A] 103.2 Functional statements.

[A] 103.2.1 Approved methodologies. Design approaches shall utilize *authoritative documents* and *design guides* to demonstrate that designs are based on applicable and valid technical and scientific methodologies.

[A] 103.2.2 Construction documents. *Construction documents* shall indicate the method by which the design and construction are to be verified and applicable systems are to be measured.

[A] 103.2.3 Testing and inspection. Testing and inspection of materials and systems shall be based on applicable *authoritative documents* and *design guides*.

[A] 103.3 Performance requirements and acceptance method approach.

[A] 103.3.1 Construction documents. *Registered design professionals* shall utilize *acceptable methods*. *Construction documents* shall contain the design approach, analysis, research, computation and criteria for acceptance that specify the applicable *design guides*, and *authoritative documents* utilized to demonstrate that design objectives are met.

[A] 103.3.2 Construction documents. *Construction documents* shall include design verification methods that are required to demonstrate compliance with design objectives and applicable *authoritative documents* and *design guides*.

[A] 103.3.3 Individually substantiated design methods. Documents that do not meet the criteria for *authoritative documents* or *design guides* shall comply with the individually substantiated design method criteria in Appendix C.

[A] 103.3.4 Peer review. Designs that propose to use documents that do not meet the criteria for *authoritative documents* or *design guides* shall not be permitted unless approval is given by the code official. The resulting *performance-based design* shall undergo an independent *peer review* process.

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.

SECTION 201—GENERAL

[BG] 201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

[BG] 201.2 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.

[BG] 201.3 Terms not defined in other codes. 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 202—DEFINED TERMS

[A] ACCEPTABLE METHODS. Design, analysis and testing methods that have been approved for use in developing design solutions for compliance with the requirements of this code. See Section 103.

[M] ACCESS (TO). That which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel or similar obstruction [see also “Ready access (to)”].

[BG] AMENITY. An attribute of, or system in, the building that provides services or functions related to the use of the building by the occupants or that contributes to the comfort of the occupants, and that is not necessary for the minimum protection of the occupants. For example, an automatic sprinkler system is not a building amenity.

[A] ARCHITECT/ENGINEER. The individual architect or engineer who is registered or licensed to practice his or her respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed. See Qualification Characteristics in Appendix D.

[A] AUTHORITATIVE DOCUMENT. A document containing a body of knowledge commonly used by practicing architects or engineers. It represents the state of the art, including accepted engineering practices, test methods, criteria, loads, safety factors, reliability factors and similar technical matters. The document portrays the standard of care normally observed with a particular discipline. The content is promulgated through an open consensus process or a review by professional peers conducted by recognized authoritative professional societies, codes or standards organizations, or governmental bodies.

[A] BOUNDING CONDITIONS. Conditions that, if exceeded, invalidate the *performance-based design*. These could be maximum allowable conditions such as fuel load or type and arrangement of fuel load that must be maintained throughout the life of a building to ensure that design parameters are not exceeded.

[A] CODE. The term used in this document to refer to the *International Code Council Performance Code for Buildings and Facilities*. Other codes in the International Code Council’s family of codes and the *National Electrical Code* are identified where used.

[A] COMMISSIONING. The process of verifying that a system meets design, technical standards and code expectations via inspection, testing and operational functionality.

[A] CONSTRUCTION DOCUMENTS. Design drawings and 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 permit.

[A] CONSULTANT. An individual who provides specialized services to an owner, designer, code official or contractor.

[A] CONTRACT REVIEW. *Plan review*, as defined below, performed by a *consultant* who is retained by the code official for that purpose.

[A] DESIGN GUIDE. A document containing a body of knowledge or information used by practicing architects and engineers that is not required to meet an open consensus requirement. It represents accepted architectural/engineering principles and practices, tests and test data, criteria, loads, safety factors, reliability factors and similar technical data.

[BS] ESSENTIAL FACILITIES. Buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow or earthquake.

[A] FACILITY. (General Application) Includes all buildings or structures (permanent or temporary), including all fire- and life-safety systems installed therein. A facility includes interior and exterior storage areas, equipment and processes dealing with flammable and combustible substances and hazardous materials, on site. The term includes tents, membrane structures, mobile and manufactured structures, storage tanks, piers, wharves and all required access roads and areas.

FACILITY. (Only applicable to Section 1502). The entire building or any portion of a building, structure or area, including the site on which such building, structure or area is located, wherein specific services are provided or activities are performed.

[A] PEER REVIEW. An independent and objective technical review of the design of a building or structure to examine the proposed conceptual and analytical concepts, objectives and criteria of the design and construction. It shall be conducted by an *architect* or *engineer* who has a level of experience in the design of projects similar to the one being reviewed at least comparable to that of the *architect* or *engineer* responsible for the project.

[A] PERFORMANCE-BASED DESIGN. An engineering approach to design elements of a building based on agreed upon performance goals and objectives, engineering analysis and quantitative assessment of alternatives against the design goals and objectives using accepted engineering tools, methodologies and performance criteria.

[A] PLAN REVIEW. A review of the *construction documents* by the code official to verify conformance to applicable performance and *prescriptive code* requirements.

[A] PRESCRIPTIVE CODES. The International Code Council's family of codes, which provide specific (design, construction and maintenance) requirements for building, energy conservation, fire prevention, mechanical, plumbing and so forth.

[A] QUALITY ASSURANCE. Inspection by code officials, and special inspection and testing by qualified persons and observation by architects/engineers, where applicable, of the construction of a building or structure to verify general conformance with the *construction documents*, and applicable performance and *prescriptive code* requirements.

[M] READY ACCESS (TO). That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel or similar obstruction [see "Access (to)"].

[A] REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice his or her respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

[A] REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A *registered design professional* engaged by the owner or the owner's authorized agent to review and coordinate certain aspects of the project, as determined by the code official, for compatibility with the design of the building or structure, including submittal documents prepared by others, deferred submittal documents and phased submittal documents.

[BG] SAFE PLACE. An interior or exterior area wherein protection from hazards is provided by construction or appropriate separation distance.

[BF] SAFETY SYSTEMS. Designed systems in the building provided to serve as the protection for the occupants and the building and contents from hazards.

[BG] SERIOUS INJURY. An injury requiring hospitalization or multiple visits to a healthcare provider to effect treatment.

[A] SPECIAL EXPERT. An individual who has demonstrated qualifications in a specific area, outside the practice of architecture or engineering, by education, training and experience.

[A] THIRD-PARTY REVIEW. A term associated with *quality assurance* and independence from another party whose work product is being reviewed. Third-party review does not apply to the *peer review* process.

DESIGN PERFORMANCE LEVELS

User notes:

About this chapter:

Chapter 3 is unique to this code. It is intended to provide a framework to establish minimum levels to which buildings or facilities should perform when subjected to events such as fires and natural hazards. The minimums established by this chapter are based on the types of risks associated with the use of the building or facility, the intended function of the building or facility and the importance of the building or facility to a community. This information is then compared with the type and sizes of events that may affect the building or facility. As noted in the Effective Use portion of this document, it is intended that this chapter provide a link between the policy makers and the designers. In many respects, this chapter is the performance code equivalent of the height and area requirements, occupancy classifications and related requirements.

SECTION 301—MINIMUM PERFORMANCE



[BG] 301.1 Purpose. This chapter provides the basis for developing the acceptable level of design based on building use, risk factors, magnitudes of event and acceptable level of damage. Magnitudes are defined in subsequent chapters of this code but interrelate with this chapter in the development of design methods for the mitigation of hazards.

[BG] 301.2 Objective. To establish performance groups for buildings and other structures and to establish minimum acceptable losses based on those performance groups.

[BG] 301.3 Functional statements.

[BG] 301.3.1 Performance level. The performance of a building or facility is based on the ability of the building or facility to tolerate specified magnitudes of event within tolerable limits of damage.

[BG] 301.3.2 Demonstration of performance. Performance is acceptable where the design performance levels are demonstrated to be met or exceeded, to the satisfaction of the code official, in accordance with the assigned or designated use groups, performance groups, magnitudes of event and maximum tolerable damage limits; and the objectives, functional statements and performance requirements of this code.

SECTION 302—USE AND OCCUPANCY CLASSIFICATION



[BG] 302.1 General. The objective of the assignment of use and occupancy classification is to identify the primary uses of buildings and other structures, and portions of buildings and other structures, and to identify risk factors associated with these uses, in order to facilitate design and construction in accordance with other provisions of this code.

[BG] 302.2 Determination of use. In determining the primary use of a building or other structure, or portion of a building or other structure, the following shall be considered:

1. **Principal purpose or function.** The principal purpose or function of the building or other structure.
2. **Hazards.** The hazard-related risk(s) to the users of the building or other structure.

[BG] 302.3 Guidance. The use and occupancy classifications found in the *International Building Code* shall be permitted to be used for guidance in determining the principal purposes or functions for buildings or other structures.

[BG] 302.4 Risk factors. In determining the hazard-related risk(s) to users of buildings and other structures, the following risk factors shall be considered:

[BG] 302.4.1 Nature of the hazard. The nature of the hazard, whether it is likely to originate internal or external to the building or facility, and how it may impact the occupants, the building or other structure, and the contents.

[BG] 302.4.2 Number of occupants. The number of persons normally occupying, visiting, employed in or otherwise using the building, other structure or portion of the building or other structure.

[BG] 302.4.3 Length of occupancy. The length of time the building or other structure is normally occupied by people.

[BG] 302.4.4 Sleeping characteristics. Whether people normally sleep in the building.

[BG] 302.4.5 Familiarity. Whether the building or other structure occupants and other users are expected to be familiar with the building or other structure layout and means of egress.

[BG] 302.4.6 Vulnerability. Whether a significant percentage of the building or other structure occupants are, or are expected to be, members of vulnerable population groups such as infants, young children, elderly persons, persons with physical disabilities, persons with mental disabilities, or persons with other conditions or impairments that could affect their ability to make decisions, egress without the physical assistance of others or tolerate adverse conditions.

[BG] 302.4.7 Relationships. Whether a significant percentage of building or other structure occupants and other users have family or dependent relationships.

SECTION 303—PERFORMANCE GROUPS

[BG] 303.1 Performance group allocation. Use groups and hazard-related occupancies have been allocated to performance groups using the risk factors identified in Section 302.4. Specific buildings and other structures have been allocated to performance groups using the risk factors identified in Section 302.4 combined with the relative importance of protecting the building or other structure to the community. The allocated performance group shall not be lower than the corresponding risk category determined in accordance with Table 303.1.



[BS] TABLE 303.1—RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES	
RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: Agricultural facilities. Certain temporary facilities. Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of the public assembly spaces of greater than 2,500. Buildings and other structures containing Group E or Group I-4 occupancies or a combination thereof, with an occupant load greater than 250. Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500. Group I-3 occupancies. Any other occupancy with an occupant load greater than 5,000. ^a Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: - Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) of the <i>International Building Code</i> or per outdoor control area in accordance with the <i>International Fire Code</i>. - Are sufficient to pose a threat to the public if released.^b
IV	Buildings and other structures designated as <i>essential facilities</i> , including but not limited to: Group I-2, Condition 2 occupancies. Ambulatory care facilities having emergency surgery or emergency treatment facilities. Fire, rescue, ambulance and police stations and emergency vehicle garages. Designated earthquake, hurricane or other emergency shelters. Designated emergency preparedness, communications and operations centers and other facilities required for emergency response. Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures. Buildings and other structures containing quantities of highly toxic materials that: - Exceed maximum allowable quantities per control area as given in Table 307.1(2) of the <i>International Building Code</i> or per outdoor control area in accordance with the <i>International Fire Code</i>. - Are sufficient to pose a threat to the public if released.^b Aviation control towers, air traffic control centers and emergency aircraft hangars. Buildings and other structures having critical national defense functions. Water storage facilities and pump structures required to maintain water pressure for fire suppression.
a. For purposes of occupant load calculation, occupancies required by Table 1004.5 of the <i>International Building Code</i> to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages. b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.	

[BG] 303.2 Unique performance group allocation. Where necessary or desired, allocation of specific buildings or other structures to performance groups differing from the corresponding risk category in Table 303.1 is permitted based on the needs specific to a community or owner or if there are unusual circumstances associated with the building or other structures.

[BG] 303.3 Magnitudes of event and level of damage. Performance groups identify the minimum required performance of buildings or other structures through a relationship of the magnitude of an event to the maximum level of impact or damage to be

tolerated shown in Table 303.3. The use of Table 303.3 shall be an iterative process. It shall be used to determine the acceptable impact of certain events based on their magnitude, and then used iteratively to evaluate various designed mitigation features. The use of Table 303.3 shall consider, explicitly or implicitly, all four design event magnitudes for the assigned performance group. Assignment of performance groups is accomplished through consideration of building or other structure uses, building or other structure risk factors, and the importance of a building or other structure to a community.

[BG]TABLE 303.3—MAXIMUM LEVEL OF DAMAGE TO BE TOLERATED BASED ON PERFORMANCE GROUPS AND DESIGN EVENT MAGNITUDES

		INCREASING LEVEL OF PERFORMANCE →→→→→→→→→→→→→→→→→→			
		PERFORMANCE GROUPS			
		Performance Group I	Performance Group II	Performance Group III	Performance Group IV
MAGNITUDE OF DESIGN EVENT ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑	VERY LARGE (Very Rare)	SEVERE	SEVERE	HIGH	Moderate
	LARGE (Rare)	SEVERE	HIGH	Moderate	MILD
	MEDIUM (Less Frequent)	HIGH	Moderate	MILD	MILD
	SMALL (Frequent)	Moderate	MILD	MILD	MILD

[BG] 303.4 Performance groups. There are four performance groups (PG), identified as I, II, III and IV.

[BG] 303.4.1 Performance Group I. The minimum design performance level with which all buildings or other structures shall comply where allocated to Risk Category I in accordance with Table 303.1 or posing a low risk to human life, should the buildings or other structures fail.

[BG] 303.4.2 Performance Group II. The minimum design performance level with which all buildings or other structures subject to this code, except those classified as PG I, PG III or PG IV, shall comply.

[BG] 303.4.3 Performance Group III. The minimum design performance level with which buildings or other structures shall comply where allocated to Risk Category III in accordance with Table 303.1 or of an increased level of societal benefit or importance.

[BG] 303.4.4 Performance Group IV. The minimum design performance level with which buildings or other structures shall comply where allocated to Risk Category IV in accordance with Table 303.1 or that present an unusually high risk or that are deemed essential.

[BG] 303.5 Alternative performance group designations. The performance group for specific buildings or other structures or classes of buildings or other structures is permitted to be redesignated with the approval of the code official. If a higher design performance level is desired, the design team, with the approval of the code official, shall be permitted to choose a higher performance group. For existing buildings or other structures, the code official is authorized to adjust tolerable limits of impact to a building or other structure and its contents.

SECTION 304—MAXIMUM LEVEL OF IMPACT OR DAMAGE TO BE TOLERATED



[BG] 304.1 General. Design performance levels establish how a building or other structure is expected to perform, in terms of tolerable limits, under varying load conditions. For each magnitude of event (small to very large), considered as a design load, based on realistic event scenarios, the design shall provide high confidence that the corresponding maximum level of damage to be tolerated for the appropriate performance group will be met. This relationship is illustrated in Table 303.3.

[BG] 304.2 Level of impact or damage. There are four design performance levels defined in terms of tolerable limits of impact or damage to the building or other structure, its contents and its occupants: mild, moderate, high and severe.

[BG] 304.2.1 Mild impact or damage. The tolerable impacts of the design loads are assumed as follows:

[BG] 304.2.1.1 Structural damage. The building or other structure does not have structural damage and is safe to occupy.

[BG] 304.2.1.2 Nonstructural systems. Nonstructural systems needed for normal building or other structure use and emergency operations are fully operational.

[BG] 304.2.1.3 Occupant hazards. Injuries to building or other structure occupants from hazard-related applied loads are minimal in numbers and minor in nature. There is a very low likelihood of single or multiple life loss. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.1.4 Overall extent of damage. Damage to building or other structure contents from hazard-related applied loads is minimal in extent and minor in cost.

[BG] 304.2.1.5 Hazardous materials. There is no significant release of hazardous materials outside of the building or other structure. The risk to the community is minimal, and an emergency relocation or shelter in place order is not necessary.

[BG] 304.2.2 Moderate impact or damage. The tolerable impacts of the design loads are assumed as follows:

[BG] 304.2.2.1 Structural damage. There is moderate structural damage, which is repairable; some delay in reoccupancy can be expected.

[BG] 304.2.2.2 Nonstructural systems. Nonstructural systems needed for normal building or other structure use are fully operational, although some cleanup and repair may be needed. Emergency systems remain fully operational.

[BG] 304.2.2.3 Occupant hazards. Injuries to building or other structure occupants from hazard-related applied loads may be locally significant, but generally moderate in numbers and in nature. There is a low likelihood of single life loss with a very low likelihood of multiple life loss. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.2.4 Overall extent of damage. Damage to building or other structure contents from hazard-related applied loads may be locally significant, but is generally moderate in extent and cost. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.2.5 Hazardous materials. There is no significant release of hazardous materials outside of the building or other structure. The risk to the community is minimal and an emergency relocation or shelter in place order is not necessary.

[BG] 304.2.3 High impact or damage. The tolerable impacts of the design loads are assumed as follows:

[BG] 304.2.3.1 Structural damage. There is significant damage to structural elements but there is not large falling debris; repair is possible. Significant delays in reoccupancy can be expected.

[BG] 304.2.3.2 Nonstructural systems. Nonstructural systems needed for normal building or other structure use are significantly damaged and inoperable; egress routes may be impaired by light debris; emergency systems may be significantly damaged, but remain operational.

[BG] 304.2.3.3 Occupant hazards. Injuries to building or other structure occupants from hazard-related applied loads may be locally significant with a high risk to life, but are generally moderate in numbers and in nature. There is a moderate likelihood of single life loss, with a low probability of multiple life loss. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.3.4 Overall extent of damage. Damage to building or other structure contents from hazard-related applied loads may be locally total and generally significant. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.3.5 Hazardous materials. There is no major release of hazardous materials outside of the facility. The risk to the community is minimal, and an emergency relocation or shelter in place order is not necessary.

[BG] 304.2.4 Severe impact or damage. The tolerable impacts of the design loads are assumed as follows:

[BG] 304.2.4.1 Structural damage. There is substantial structural damage, but all significant components continue to carry gravity load demands. Repair may not be technically possible. The building or other structure is not safe for application of loads, as reoccupancy could cause collapse.

[BG] 304.2.4.2 Nonstructural systems. Nonstructural systems for normal building or other structure use may be completely nonfunctional. Egress routes may be impaired; emergency systems may be substantially damaged and nonfunctional.

[BG] 304.2.4.3 Occupant hazards. Injuries to building or other structure occupants from hazard-related applied loads may be high in numbers and significant in nature. Significant risk to life may exist. There is a high likelihood of single life loss and a moderate likelihood of multiple life loss. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.4.4 Overall extent of damage. Damage to building or other structure contents from hazard-related applied loads may be total. The nature of the applied load, such as fire hazards, may result in higher levels of expected injuries and damage in localized areas, whereas the balance of the areas may sustain fewer injuries and less damage.

[BG] 304.2.4.5 Hazardous materials. Hazardous materials are released outside of the building or facility and an emergency relocation or shelter in place order may be needed.

SECTION 305—MAGNITUDES OF EVENT



[BG] 305.1 General. Magnitude of event encompasses all loads that can be reasonably expected to impact on a building or other structure, its users and its contents, during construction and throughout its intended life. This includes building and facility-related and occupancy-related loads, as well as loads resulting from natural and technological hazards.

Determination of magnitude of event shall take into account the design performance levels established by this code, the risk factors identified in Section 302.4 and specific performance criteria established by relevant authoritative documents.

[BG] 305.1.1 Natural hazards. The types of loads affecting main-force-resisting systems, components and contents that may be reasonably expected to impact on the building or other structure, its users and its contents during its intended life are provided in Chapter 5.

[BG] 305.1.2 Technological hazards. The types of loads due to technological hazards that may be reasonably expected to impact on the building or other structure, its users and its contents during construction and throughout its intended life include, but are not limited to:

[BG] 305.1.2.1 Fires (Chapter 15).

[BG] 305.1.2.2 Explosions (Chapters 5 and 19).

[BG] 305.1.2.3 Toxic materials (Chapter 19).

[BG] 305.1.2.4 Corrosive materials (Chapter 19).

[BG] 305.1.2.5 Infectious materials or agents (Chapter 19).

[BG] 305.2 Definition of magnitude of event. Magnitude of event can be defined, quantified and expressed either deterministically or probabilistically in accordance with the best current practice of the relevant profession as published in recognized authoritative documents. In some authoritative documents, magnitude of event may be expressed only for a single performance group. In other cases, magnitude of event may be provided for all performance levels such as seismic provisions. In all cases, it is the responsibility of the design engineer to demonstrate that the design performance levels are met for the loads anticipated.

[BG] 305.2.1 Classification of event magnitude. For the purpose of this code, the magnitude of event shall be classified as: small, medium, large and very large. Where authoritative documents do not present magnitude of event in this format, it will be the responsibility of the designer to relate the loads to this format and to demonstrate that the minimum design performance levels will be met by the proposed design.

User notes:**About this chapter:**

Chapter 4 underscores the importance of the reliability of individual protection systems and strategies, as well as the reliability of the interaction of these systems in achieving the design performance level for a particular building or facility addressed in Chapter 3. Reliability is a function of many factors, including redundancy, maintenance, durability of materials, quality of installations and integrity of design.

SECTION 401—RELIABILITY

[BG] 401.1 Objective. To ensure reliability of the system necessary to meeting the performance objectives of building, facility or processes in accordance with the design.

[BG] 401.2 Functional statements.

[BG] 401.2.1 Design, installation and maintenance. Design, install and maintain systems, system components and equipment that provide a safety function in strict accordance with the manufacturers' instructions and with any applicable codes and standards.

[BG] 401.2.2 Testing and inspection. Test and inspect systems, system components and equipment that provide a safety function in strict accordance with the manufacturers' instructions and with any applicable codes and standards for both the methods employed and the frequency.

[BG] 401.2.3 Active fire protection systems. Active fire protection systems such as fire alarm, suppression and smoke management systems shall undergo *commissioning* testing when first placed into service or following any substantial alteration.

[BG] 401.2.4 Training. Provide appropriate training to any people who operate, test, maintain or interpret information from any safety systems. Where such work is done by contractors, ensure that they have the necessary training and skills.

[BG] 401.3 Performance requirements.

[BG] 401.3.1 Qualifications. Design, installation and maintenance shall be performed only by qualified people as approved. Certification or records of training shall be provided.

[BG] 401.3.2 Documentation. Documentation shall be maintained at the building that details the systems installed and their required maintenance and testing methods and frequency. Records of such maintenance and testing shall be maintained that demonstrate compliance, the persons conducting the work and their qualifications.

SECTION 402—DURABILITY

[BG] 402.1 Objective. To assist in the selection of appropriate materials and construction systems.

[BG] 402.2 Functional statement. To ensure that a building will continue to satisfy the objectives of this code throughout its life.

[BG] 402.3 Performance requirements.

[BG] 402.3.1 Normal maintenance. From the time a certificate of occupancy is issued, primary building elements shall, with only normal maintenance, continue to satisfy the performance requirements of this code for the intended life of the building.

[BG] 402.3.2 Intended life of a building. Where the useful life of building or facility elements or systems is less than the intended life of the building, provisions shall be made for timely replacement of those elements, so that the objectives of this code and the design are maintained.

[BG] 402.3.3 Damage and deterioration. Where damage or deterioration to building or facility elements or systems will impact the objectives of this code or the design, those elements or systems shall be repaired or replaced in order to maintain the level of performance intended by this code.

[BG] 402.3.4 Determination of durability and service life. In determining the useful service life of building elements, products or systems, an acceptable method for determining durability and service life shall be used.

User notes:**About this chapter:**

Chapter 5 provides the requirements for the structural design of buildings and other structures. Section 501 specifies the forces for which structures need to be designed and the required performance. This chapter requires a structure to be designed for the expected forces it will be subjected to throughout its life. This is the same requirement found in Chapter 16 of the International Building Code.

Code development reminder: Code change proposals to this appendix will be considered by the IBC—General Code Development Committee during the 2025 (Group B) Code Development Cycle.

SECTION 501—STRUCTURAL FORCES

[BS] 501.1 Objective. To provide a desired level of structural performance when structures are subjected to the loads that are expected during construction or alteration and throughout their intended lives.

[BS] 501.2 Functional statements.

[BS] 501.2.1 Life safety and injury prevention. Structures shall be designed and constructed to prevent injury to occupants due to loading of a structural element or system consistent with the design performance level determined in Chapter 3.

[BS] 501.2.2 Property and amenity protection. Structures shall be designed and constructed to prevent loss of property and *amenity* consistent with the design performance level determined in Chapter 3.

[BS] 501.3 Performance requirements. Performance of the structure shall be determined based on loads derived to satisfy the requirements of this section. Where the provisions of this section are not used to develop loads, loads shall be determined in accordance with Chapter 16 of the *International Building Code*.

[BS] 501.3.1 Stability. Structures, or portions thereof, shall remain stable and not collapse during construction or alteration and throughout their lives.

[BS] 501.3.2 Disproportionate failure. Structures shall be designed to sustain local damage, and the structural system as a whole shall remain stable and not be damaged to an extent disproportionate to the original local damage.

[BS] 501.3.3 Loss of amenity. Structures, or portions thereof, shall have a low probability of causing damage or loss of *amenity* through excessive deformation, vibration or degradation during construction or alteration and throughout their lives.

[BS] 501.3.4 Expected loads. Structures, or portions thereof, shall be designed and constructed taking into account expected loads, and combination of loads, associated with the event(s) magnitude(s) that would affect their performance, including, but not limited to:

1. Dead loads.
2. Live loads.
3. Impact loads.
4. Explosion loads.
5. Soil and hydrostatic pressure loads.
6. Flood loads (mean return period).
 - 6.1. Small: 100 years.
 - 6.2. Medium: 500 years.
 - 6.3. Large: Determined on a site-specific basis.
 - 6.4. Very Large: Determined on a site-specific basis.
7. Wind loads (mean return period).
 - 7.1. Small: 300 years.
 - 7.2. Medium: 700 years.
 - 7.3. Large: 1,700 years.
 - 7.4. Very Large: 3,000 years.
8. Windborne debris loads.
9. Snow loads (mean return period).
 - 9.1. Small: 25 years.
 - 9.2. Medium: 50 years.
 - 9.3. Large: 100 years.

- 9.4. Very Large: 500 years.
- 9.5. Snow loads shall include but not be limited to consideration for drifting, unbalanced loads, sliding snow loads and ice damming.
- 10. Rain loads. See Table 501.3.4.
- 11. Earthquake loads.
 - 11.1. Small: 43 years (mean return period).
 - 11.2. Medium: 72 years (mean return period).
 - 11.3. Large: Two-thirds of the intensity of very large loads.
 - 11.4. Very large: The Risk-Targeted Maximum Considered Earthquake defined in Chapter 21 of ASCE 7.
- 12. Ice loads, atmospheric icing (mean return period).
 - 12.1. Small: 25 years.
 - 12.2. Medium: 50 years.
 - 12.3. Large: 100 years.
 - 12.4. Very Large: 200 years.
- 13. Hail loads.
- 14. Thermal loads.
- 15. Loads due to Tsunamis.
 - 15.1. Very Large: The Maximum Considered Tsunami Defined in Chapter 6 of ASCE 7.

[BS] TABLE 501.3.4—RAIN LOADS			
MAGNITUDE OF EVENT	DRAINAGE SYSTEM	MRI (years)	STORM DURATION (min.)
Small	Primary	25	60
Small	Secondary	25	15
Medium	Primary	50	60
Medium	Secondary	50	15
Large	Primary	100	60
Large	Secondary	100	15
Very Large	Primary	100	30
Very Large	Secondary	100	10

[BS] 501.3.5 Target reliabilities. The design of buildings and structures shall consider appropriate factors of safety to provide the target reliabilities stipulated in Chapter 1 of ASCE 7 considering:

1. Effects of uncertainties resulting from construction activities.
2. Variation in the properties of materials and the characteristics of the site.
3. Accuracy and limitations inherent in the methods used to predict the stability of the building, load effects and capacities of members and their connections.
4. Self-straining forces arising from differential settlements of foundations and from restrained dimensional changes due to temperature, moisture, shrinkage, creep and similar effects.
5. Uncertainties in the determination of the expected loads.
6. The level of quality control and *quality assurance* in construction.

[BS] 501.3.6 Demolition and alteration. The demolition or alteration of buildings and structures shall be carried out in a way that avoids the likelihood of premature collapse.

[BS] 501.3.7 Site work. Site work, where necessary, shall be carried out to provide stability for construction on the site and avoid the likelihood of damage to adjacent property.

PEDESTRIAN CIRCULATION

User notes:

About this chapter:

Chapter 6 provides performance requirements for three aspects of pedestrian circulation in a building:

1. *Means of egress: Section 601 provides guidance by which egress systems for buildings and facilities are designed, evaluated and maintained.*
2. *Accessibility: Section 602 provides guidelines to ensure disabled persons have reasonable access to and use of buildings to an extent consistent with that to which people without disabilities are able to access and use buildings. This is consistent with the intent of federal statutes enacted to protect the rights of people with disabilities.*
3. *Transportation equipment: Section 603 provides general safety guidelines for installation of elevators, dumbwaiters and escalators inside or outside buildings. These provisions include use during normal operations, use by firefighters during emergency operations and use by maintenance personnel during activities associated with adjusting, servicing and inspecting elevators.*

SECTION 601—MEANS OF EGRESS

[BE] 601.1 Objective. To protect people during egress and rescue operations.

[BE] 601.2 Functional statement. Enable occupants to exit the building, facility and premises or reach a *safe place* as appropriate to the design performance level determined in Chapter 3.

[BE] 601.3 Performance requirements.

[BE] 601.3.1 General. The construction, arrangement and number of means of egress, exits and safe places for buildings shall be appropriate to the travel distance, number of occupants, occupant characteristics, building height, and *safety systems* and features.

[BE] 601.3.2 Identification, illumination and safety of means of egress. Means of egress shall be clearly identified, provided with adequate illumination and be easy and safe to use.

[BE] 601.3.3 Unobstructed path. Means of egress shall provide an unobstructed path of travel from each *safe place* to not less than one exit.

[BE] 601.3.4 Protection from untenable conditions. Each *safe place* shall provide adequate protection from untenable conditions, an appropriate communication system and adequate space for the intended occupants.

[BE] 601.3.5 Human biomechanics and expectation of consistency. Means of egress shall enable reasonable use by the occupants in the building with due regard to human biomechanics and expectation of consistency.

[BE] 601.3.6 Maintenance of means-of-egress systems. Suitable means of egress shall be provided in satisfactory arrangement throughout all buildings, facilities and premises, regardless of when they were constructed, based on the number and character of occupants, length of travel, provision of existing alternative paths, timeline of emergency detection and response, risk level, time to exit and *safety systems* provided.

[BE] 601.3.7 Maintenance of clear path. Means of egress shall be maintained without obstructions or reductions in capacity that would hinder the ability of the occupants to egress safely.

[BE] 601.3.8 Interference with identification of exits. Means of egress shall be readily identifiable. Buildings shall be operated and maintained in a manner that does not interfere with the identification of exits.

[BE] 601.3.9 Ease of use. Means of egress shall be maintained and operated in such a manner to ensure that all egress facilities are readily openable and available without special knowledge or effort consistent with the use or occupancy characteristics.

[BE] 601.3.10 Maintenance of illumination. Means of egress shall be maintained and operated in such a manner to ensure that adequate lighting to facilitate safe egress is available.

SECTION 602—ACCESSIBILITY

[BE] 602.1 Objective. To provide people with disabilities reasonable use of the built environment in a manner consistent with that provided to people without disabilities in nonemergency conditions.

[BE] 602.2 Functional statement. Buildings and their site-adjacent facilities shall allow all people, including but not limited to people with disabilities, functional use of spaces based on a space's intended purpose.

[BE] 602.3 Performance requirements. Safe and usable routes shall be provided that allow people to:

1. Approach, enter and leave buildings and sites to and from adjacent transportation stops, walkways and parking areas.
2. Move within and use building and site spaces based on a facility's intended purpose.

SECTION 603—TRANSPORTATION EQUIPMENT

[BG] 603.1 Objective. To ensure the safety of all people using, maintaining and inspecting elevators, escalators and similar building transportation equipment inside or outside of buildings.

[BG] 603.2 Functional statement. Building transportation equipment installations for access into, within and outside of buildings shall provide for the safe movement of all people and the safety of maintenance and inspection personnel.

[BG] 603.3 Performance requirements.

[BG] 603.3.1 General. Building transportation equipment shall:

1. Move people safely when starting, stopping, accelerating, decelerating or changing direction of travel, and hold the rated loads.
2. Be constructed to avoid the likelihood of people falling, tripping, becoming caught and coming in contact with sharp edges or projections under normal and reasonably foreseeable conditions of use.
3. Be guided and have sufficient running clearances.
4. Have controls to stop and prevent restarting in the event of activation of a safety device.
5. Be capable of being isolated for inspection, testing and maintenance.
6. Have adequate lighting and ventilation during normal conditions or upon loss of normal power.

[BG] 603.3.2 Elevators. Elevators shall be designed and constructed to provide:

1. A means of communication for trapped passengers in stalled elevators.
2. Emergency recall operation that discharges passengers at the required designated or alternate landing in the event of a fire emergency.
3. Emergency in-car operation for firefighting and rescue operations.
4. An environment that ensures the safe operation of the equipment for the anticipated use or application.

User notes:**About this chapter:**

Chapter 7 addresses protection of people from hazards related to building materials, such as glazing or materials that emit radiation, and construction and demolition hazards. The chapter specifically provides performance requirements for signs and emergency notification. Hazardous materials are regulated in Chapter 19.

SECTION 701—HAZARDS FROM BUILDING MATERIALS

[BG] 701.1 Objective. To safeguard people from injury caused by exposure to hazards from building materials.

[BG] 701.2 Functional statement. Building materials that are potentially hazardous shall be used in ways to avoid undue risk to people.

[BG] 701.3 Performance requirements.

[BG] 701.3.1 Construction materials. The quantities of gas, liquid, radiation or solid particles emitted by materials used in the construction of buildings shall not give rise to harmful concentrations at the surface of the material where the material is exposed or in the atmosphere of any space.

[BG] 701.3.2 Glazing. Glass or other brittle materials with which people are likely to come into contact shall comply with one or more of the following:

1. If broken upon impact, break in a way that is unlikely to cause injury.
2. Resist a reasonably foreseeable impact without breaking.
3. Be reasonably protected from impact.

SECTION 702—PREVENTION OF FALLS

[BG] 702.1 Objective. To prevent people from unintentionally falling from one level to another.

[BG] 702.2 Functional statement. Buildings and their facilities shall be constructed to reduce the likelihood of unintentional falls.

[BG] 702.3 Performance requirements.

[BG] 702.3.1 Required barriers. A barrier shall be provided where people could fall 30 inches (762 mm) or more from an opening in the external envelope or floor of a building or its facilities.

[BG] 702.3.2 Roofs. Roofs with permanent access shall have barriers provided.

[BG] 702.3.3 Barrier construction. Barriers shall be constructed and installed appropriate to the hazard.

[BG] 702.3.4 Openings in barriers. Where barriers have openings, the openings shall be of an appropriate size and configuration to keep people from falling through based on the anticipated age of the occupants.

SECTION 703—CONSTRUCTION AND DEMOLITION HAZARDS

[BG] 703.1 Objective. To safeguard people from injury or illness and to protect property from damage during the construction or demolition processes.

[BG] 703.2 Functional statement. Provisions are required during construction and demolition work to:

1. Protect authorized personnel from injury resulting from falling objects, fire, blasts, tripping or falling, or any other risk posed by the construction or demolition operation.
2. Prevent the entry of unauthorized personnel on the construction or demolition site.
3. Protect property off site from damage resulting from falling objects, fire, blasts or any other risk posed by the construction or demolition operations.

[BG] 703.3 Performance requirements.

[BG] 703.3.1 Operations and procedures. Sequencing of tasks, procedural methods and equipment shall be such that:

1. Personnel are protected from injury and illness attributable to hazards present because of the given operation.
2. Adjacent property, property on site and equipment are protected from damage from execution of the given tasks.
3. Safety procedures limit the accumulation of combustible materials on site and provide safeguards for equipment and operations that represent ignition sources.

[BG] 703.3.2 Protection from natural hazards. The structure under construction shall be protected from damage due to wind, rain or other natural hazards likely to occur during construction.

[BG] 703.3.3 Protection of personnel. Provisions for personnel movement, transport and support shall be such that:

1. Personnel are protected from injury due to falling.
2. Personnel are protected from injury due to falling objects.

3. Personnel are protected from injury that could be caused by the particular operations being conducted.
4. Exposure to materials that are known to be health hazards is eliminated.

[BG] 703.3.4 Unauthorized entry. The job site shall be protected from the intrusion of unauthorized personnel.

SECTION 704—SIGNS

[F] 704.1 Objective. To identify essential features of the building to its users.

[F] 704.2 Functional statement. Signs shall identify escape and rescue routes, hazards, accessible elements where not all elements are accessible and other essential features of a building.

[F] 704.3 Performance requirements.

[F] 704.3.1 Visibility. Signs shall be clearly visible and readily recognizable under the conditions expected for their purpose.

[F] 704.3.2 Identification of exits and safe places. Signs shall identify exits and safe places, and be located sufficiently to mark escape/rescue routes and guide people to exits and safe places.

[F] 704.3.3 Power failure. Signs that identify exits, safe places and escape/rescue routes shall remain visible in the event of a power failure.

[F] 704.3.4 Hazard identification. Signs indicating hazards shall be provided in sufficient locations to notify people before they encounter the hazard.

[F] 704.3.5 Accessible building feature signage. Signs shall identify accessible facilities and be located sufficiently to mark accessible routes.

SECTION 705—EMERGENCY NOTIFICATION

[F] 705.1 Objective. To provide notification of the need to take some manual action to preserve the safety of occupants or to limit property damage.

[F] 705.2 Functional statements.

[F] 705.2.1 Occupant notification. Where required in accordance with the design report per Section 102.3.4.2.2, adequate means of occupant notification shall be provided to warn of the presence of a fire or other emergency in sufficient time to enable occupants to take the contemplated action without being exposed to unreasonable risk of injury or death.

[F] 705.2.2 Emergency responder notification. Where systems are designed to notify emergency responders, such systems shall indicate the type of emergency and the location of the buildings, premises or other structures. Where such buildings, premises or other structures are large enough to expect difficulty in prompt location of the fire or other public emergency, identification of the area or zone of the emergency shall be provided at the buildings, premises or other structures.

[F] 705.3 Performance requirements.

[F] 705.3.1 Type of notification. Notification of occupants shall be by means appropriate to the needs of the occupants, the use of the building and the emergency egress strategy employed.

[F] 705.3.2 Sleeping occupants. Where required by the anticipated use of the building, notification systems shall be capable of alerting sleeping occupants in reasonable time to enable them to reach a *safe place* before the occurrence of untenable conditions at any point along the primary egress path.



User notes:**About this chapter:**

Chapter 8 is intended to prevent moisture from adversely affecting occupant health and safety and the structural and functional performance of a building. This chapter deals with both the liquid and vapor forms of water.

SECTION 801—SURFACE WATER

[BS] 801.1 Objective. To safeguard people from injury and protect the building or other property from damage caused by surface water and to protect outfalls of drainage systems that may become contaminated from on-site hazardous material storage.

[BS] 801.2 Functional statements.

[BS] 801.2.1 Surface water hazards. Buildings and sites shall be constructed in a way that protects people and other property from the adverse effects of surface water.

[BS] 801.2.2 Hazardous materials contamination. Building or building sites used for the storage or use of hazardous materials shall include provisions to ensure that hazardous materials are not accidentally transported across property lines into drainage outfalls.

[BS] 801.3 Performance requirements.

[BS] 801.3.1 Removal of surface water. Surface water shall be removed in a manner that avoids damage or nuisance to the building or other property.

[BS] 801.3.2 Contaminated water. Surface water or water used for firefighting and other uses shall be routed so as not to transport hazardous material across property lines or into drainage outfalls.

[BS] 801.3.3 Surface water runoff. Surface water drainage systems shall convey surface water runoff to an appropriate outfall.

[BS] 801.3.4 Blockage. Drainage systems shall be constructed so as to avoid the likelihood of blockage.

[BS] 801.3.5 Access for cleaning. Drainage systems shall be constructed so as to have reasonable access for cleaning.

SECTION 802—EXTERNAL MOISTURE

[BS] 802.1 Objective. To safeguard people from injury and to protect the building, facilities, equipment, processes, materials, and contents from damage that could result from external moisture entering the building.

[BS] 802.2 Functional statement. Buildings shall be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.

[BS] 802.3 Performance requirements.

[BS] 802.3.1 Water penetration. Roofs and exterior walls shall prevent the unwanted penetration and accumulation of moisture or water that causes damage to the building, facilities, equipment, processes, materials or contents, and shall provide a means for unwanted penetration of water or moisture to dissipate.

[BS] 802.3.2 Building elements in contact with the ground. Walls, floors and structural support elements in contact with the ground shall not absorb or transmit moisture in quantities that could cause damage to the building facilities, equipment, processes, materials or contents.

[BS] 802.3.3 Concealed spaces and cavities. Concealed spaces and cavities in buildings shall be constructed in a way that prevents unwanted penetration and accumulation of moisture or water that causes damage to the building, facilities, equipment, processes, materials or contents, and shall provide a means for any unwanted penetration of water or moisture to dissipate without causing damage.

[BS] 802.3.4 Moisture during construction. Excess moisture present at the completion of construction shall be capable of being dissipated without permanent damage to building elements.

SECTION 803—INTERNAL MOISTURE

[BS] 803.1 Objective. To safeguard people against illness or injury that could result from accumulation of internal moisture, and to protect an occupancy from damage caused by free water from another occupancy in the same building.

[BS] 803.2 Functional statement. Buildings shall be constructed to avoid the likelihood of:

1. Fungal growths or the accumulation of contaminants on linings and other building elements.
2. Free water overflow penetrating to an adjoining occupancy.
3. Damage to building elements being caused by the use of water.

[BS] 803.3 Performance requirements.

[BS] 803.3.1 Excess moisture removal and protection. An adequate means shall be provided to remove excess moisture from the structure or protect it from the effects of excess moisture and condensation in all habitable spaces, bathrooms, laundries and other locations where moisture is potentially generated.

[BS] 803.3.2 Overflow. Accidental overflow from sanitary fixtures or laundering facilities shall be constrained from penetrating another occupancy in the same building.

[BS] 803.3.3 Floor surfaces. Floor surfaces of any space containing sanitary fixtures or laundering facilities shall be impervious to water and easily cleaned.

[BS] 803.3.4 Wall surfaces. Wall surfaces adjacent to sanitary fixtures or laundering facilities shall be impervious to water and easily cleaned.

[BS] 803.3.5 Surfaces and building elements. Surfaces of building elements likely to be splashed or to become contaminated in the course of the intended use of the building shall be impervious to water and easily cleaned.

[BS] 803.3.6 Water splash. Water splash shall be prevented from penetrating behind linings or into concealed spaces.

INTERIOR ENVIRONMENT

User notes:

About this chapter:

Chapter 9 describes the performance provisions of a building's environment. It is divided into four areas:

1. Section 901 addresses the space and climate appropriate for the needs of the occupants, the activities and the furnishings.
2. Section 902 addresses the need to provide adequate clean air in a building or facility. This includes controlling the moisture content, odors, poisonous fumes, etc. This section is aimed at such problems as "sick building syndrome."
3. Section 903 requires that tenant, common and habitable spaces be insulated against sound transmission.
4. Section 904 establishes the criteria for light for everyday use in habitable spaces and means of egress.

SECTION 901—CLIMATE AND BUILDING FUNCTIONALITY

[BG] 901.1 Objective. To safeguard people from illness caused by air temperature and to safeguard people from injury or loss of amenity caused by inadequate activity space.

[BG] 901.2 Functional statements. Buildings shall be constructed to provide:

1. Adequately controlled interior temperatures.
2. Adequate activity space for the intended use.

[BG] 901.3 Performance requirements.

[BG] 901.3.1 Temperature. Habitable spaces, bathrooms and recreation rooms shall be designed to maintain the internal temperature at a level sufficient for the occupants while the space is adequately ventilated.

[BG] 901.3.2 Space. Habitable spaces shall have sufficient space for activity, furniture and sanitary needs of the occupants.

SECTION 902—INDOOR AIR QUALITY

[BG] 902.1 Objective. To maintain the habitable spaces of buildings and facilities with an environment that is conducive to the comfort, health and safety of the occupants.

[BG] 902.2 Functional statement. Habitable spaces within buildings shall be provided with air that contains sufficient oxygen and limits the levels of moisture and contaminants to levels that are consistent with good health, safety and comfort.

[BG] 902.3 Performance requirements.

[BG] 902.3.1 Ventilation. Habitable spaces within buildings shall have a means of ventilation that maintains air quality at all times that the spaces are occupied and with the maximum number of occupants anticipated.

[BG] 902.3.2 Collection and removal. Buildings shall have a means of collecting or otherwise removing the following products from the spaces in which they are generated:

1. Cooking fumes and odors.
2. Excessive water vapor from laundering, utensil washing, bathing and showering.
3. Odors from sanitary and waste storage spaces.
4. Gaseous byproducts and excessive moisture from commercial or industrial processes.
5. Poisonous fumes and gases.
6. Airborne particles.
7. Products of combustion.
8. Off-gases from building materials, fixtures and contents.

[BG] 902.3.3 Building materials. Building materials that release quantities of contaminants that cannot be maintained at safe levels shall not be used.

[BG] 902.3.4 Contaminated air. Contaminated air shall be disposed of in a way that avoids creating a nuisance or hazard to people and other property.

[BG] 902.3.5 Sufficient supply air. The quantity of air supplied for ventilation shall account for the demands of any fixed combustion appliances.

SECTION 903—AIRBORNE AND IMPACT SOUND

[BG] 903.1 Objective. To safeguard people from loss of amenity as a result of excessive noise being transmitted between adjacent tenants or occupancies.

[BG] 903.2 Functional statement. Building elements that are common between tenants or occupancies shall be constructed to prevent excessive noise transmission from other tenants or occupancies or common spaces to habitable spaces.

[BG] 903.3 Performance requirements.

[BG] 903.3.1 Tenant separations. The airborne transmission of sound through tenant separation walls and floors shall be reduced to a level that minimizes its effect on adjacent occupants.

[BG] 903.3.2 Floors. The structure-borne transmission of sound through floors shall be reduced to a level that minimizes its effect on adjacent occupants.

SECTION 904—ARTIFICIAL AND NATURAL LIGHT

[BG] 904.1 Objective. To safeguard people from injury or loss of *amenity* due to lack of adequate lighting.

[BG] 904.2 Functional statements.

[BG] 904.2.1 Lighting for safe movement. Habitable spaces and means of egress within buildings shall be provided with adequate artificial lighting to enable safe movement.

[BG] 904.2.2 General lighting. Adequate natural or artificial light shall be provided in all habitable spaces.

[BG] 904.3 Performance requirements.

[BG] 904.3.1 Illumination. Adequate illumination shall be provided appropriate to the use and occupancy of the habitable spaces and means of egress served.

[BG] 904.3.2 Natural light. Natural light shall provide a luminance appropriate to the use and occupancy of the habitable spaces served.

User notes:**About this chapter:**

Chapter 10 describes the performance provisions for building mechanical systems. It addresses the installation and functions of HVAC, refrigeration and piped services. The provisions of this chapter focus on the performance of the equipment versus issues related to indoor air quality. Chapter 9 provides more guidance on indoor air quality and climate.

SECTION 1001—HEATING, VENTILATION AND AIR-CONDITIONING EQUIPMENT (HVAC)

[M] 1001.1 Objective. To provide the safe installation of the equipment to condition the air for the health and comfort of the occupants.

[M] 1001.2 Functional statement. The installation of equipment shall safeguard maintenance personnel and building occupants from injury and deliver air at the appropriate temperature for health and comfort.

[M] 1001.3 Performance requirements.

[M] 1001.3.1 Protection from equipment. People and building elements shall be protected from contact with hot and live electrical parts.

[M] 1001.3.2 Service and replacement ability. The HVAC system shall allow safe isolation and access for service and replacement of equipment.

[M] 1001.3.3 Temperature controls. The HVAC system shall include devices to monitor and control the temperature.

[M] 1001.3.4 Securing of equipment. HVAC equipment and appliances shall be secured in place.

SECTION 1002—REFRIGERATION

[M] 1002.1 Objective. To provide the safe installation and operation of refrigeration equipment.

[M] 1002.2 Functional statement. The installation of equipment shall safeguard maintenance personnel and building occupants from injury.

[M] 1002.3 Performance requirements.

[M] 1002.3.1 Protection from equipment. People and building elements shall be protected from contact with hot or live electrical parts.

[M] 1002.3.2 Service and replacement ability. Refrigeration equipment shall allow safe isolation and access for service and replacement of equipment.

[M] 1002.3.3 Temperature controls. Refrigeration equipment shall include devices to monitor and control temperature.

[M] 1002.3.4 Toxic and flammable refrigerants. Refrigeration equipment shall have appropriate safeguards where utilizing toxic or flammable refrigeration agents.

SECTION 1003—PIPED SERVICES

[M] 1003.1 Objective. To safeguard people from injury or illness caused by extreme temperatures or hazardous substances associated with building services.

[M] 1003.2 Functional statement. In buildings with potentially hazardous services containing hot, cold, flammable, corrosive or toxic liquids or gases, the installations shall be constructed to provide adequate safety for people.

[M] 1003.3 Performance requirements.

[M] 1003.3.1 Construction. Piping systems shall be constructed to avoid the likelihood of:

1. Significant leakage or damage during normal or reasonably foreseeable abnormal conditions.
2. Detrimental contamination of the contents by other substances.
3. Adverse interaction between services or between piping and electrical systems.
4. People having contact with pipes that could cause them harm.

[M] 1003.3.2 Corrosion. Pipes shall be protected against corrosion in the environment of their use.

[M] 1003.3.3 Identification. Piping systems shall be identified with markings if the contents are not readily apparent from the location or associated equipment.

[M] 1003.3.4 Enclosed spaces. Enclosed spaces shall be constructed to avoid the likelihood of accumulating vented or leaking flammable gas.

[M] 1003.3.5 Isolation. A piped system shall have isolation devices that permit the complete system or components of the system to be isolated from the supply system for maintenance, testing, fault detection and repair.

User notes:**About this chapter:**

Chapter 11 contains performance provisions regarding facilities for personal hygiene, laundering, domestic water supplies and wastewater. Accessibility must be addressed for these provisions based on the application of Section 602. The provisions for personal hygiene require that proper sanitary fixtures, and such things as adequate toilet facilities, be provided for the occupants of a building to maintain health and to prevent the spread of disease.

SECTION 1101—PERSONAL HYGIENE

[P] 1101.1 Objective. To provide facilities with appropriate space, fixtures and equipment for personal hygiene.

[P] 1101.2 Functional statement. To provide adequate plumbing fixtures that reasonably protect people from illness and provide reasonable access to such fixtures conducive to health, safety and comfort of the occupants.

[P] 1101.3 Performance requirements.

[P] 1101.3.1 Number of plumbing fixtures. Plumbing fixtures shall be provided in sufficient numbers appropriate for the intended use.

[P] 1101.3.2 Privacy. Plumbing fixtures shall be located to provide appropriate privacy.

[P] 1101.3.3 Cleanliness. Plumbing fixtures shall be constructed to avoid food contamination and accumulation of dirt or bacteria, and permit effective cleaning.

[P] 1101.3.4 Wastewater removal. Plumbing fixtures shall be installed to discharge to drainage systems without contaminating food.

[P] 1101.3.5 Location of plumbing fixtures. Facilities for personal hygiene shall be provided in convenient locations and spaces of appropriate size to permit the use of the fixtures.

SECTION 1102—LAUNDERING

[P] 1102.1 Objective. To provide adequate facilities for laundry.

[P] 1102.2 Functional statement. Laundry facilities shall be provided for use by occupants of dwelling units.

[P] 1102.3 Performance requirement. Space shall be adequate in size for the required fixtures and equipment.

SECTION 1103—DOMESTIC WATER SUPPLIES

[P] 1103.1 Objective. To provide sanitary distribution of water for drinking, food preparation and hygiene.

[P] 1103.2 Functional statement. Sanitary water shall be delivered to fixtures, appliances and equipment at temperatures appropriate for the intended use.

[P] 1103.3 Performance requirements.

[P] 1103.3.1 Potable water. Water supplies intended for human consumption, oral hygiene, food preparation and the washing of cooking equipment shall be potable.

[P] 1103.3.2 Hot water. Plumbing fixtures and appliances used for personal hygiene, laundering and the washing of cooking equipment shall be provided with hot water.

[P] 1103.3.3 Scalding. Where hot water is provided for personal hygiene, it shall be delivered at a temperature to avoid scalding.

[P] 1103.3.4 Water supply contamination. Water supplies shall be installed to avoid potable water contamination.

[P] 1103.3.5 Flow rate and pressure. Water supplies shall be provided to plumbing fixtures, appliances and equipment at a flow rate and pressure adequate for their operation.

[P] 1103.3.6 Leak prevention. Water piping shall be installed in a leak-free manner.

[P] 1103.3.7 Access. Water systems shall be installed to allow adequate access for maintenance.

[P] 1103.3.8 Water piping isolation and protection from contamination. Water piping shall be installed with provisions for adequate isolation of the system and branches and to provide protection from contamination.

[P] 1103.3.9 Hot water vessels. Vessels used for producing hot water shall be provided with safety devices to relieve excessive pressure and limit temperatures.

SECTION 1104—WASTEWATER



[P] 1104.1 Objective. To provide safe drainage and disposal systems for wastewater from plumbing fixtures, appliances and equipment.

[P] 1104.2 Functional statement. The drainage system shall conduct wastewater to an appropriate disposal point, protect people from contamination and unpleasant odor, and avoid blockages.

[P] 1104.3 Performance requirements.

[P] 1104.3.1 Prevention of blockage and leakage. The drainage system shall conduct wastewater from all plumbing fixtures, appliances and equipment, avoiding the likelihood of blockage and leakage.

[P] 1104.3.2 Sewer gases. The drainage system shall be designed and installed to prevent sewer gases from entering the building.

[P] 1104.3.3 Access. The drainage system shall have *access* for maintenance and clearing of blockages.

[P] 1104.3.4 Sewer connection. The drainage system shall be connected to the sewer in a manner acceptable to the operator of the sewer system.

[P] 1104.3.5 On-site sewage disposal. On-site sewage disposal systems shall be designed and installed in an approved manner.

SECTION 1105—NONPOTABLE WATER SYSTEMS



[P] 1105.1 Objective. To provide safe nonpotable water systems consisting of collection, storage, treatment and distribution components for graywater, rainwater and recycled water sources.

[P] 1105.2 Functional statement. Nonpotable water systems shall collect nonpotable water from approved sources, provide treatment and storage of nonpotable water, and distribute nonpotable water to approved fixtures and outlets.

[P] 1105.3 Performance requirements. The performance requirements of nonpotable water systems shall be in accordance with Sections 1105.3.1 through 1105.3.7.2.

[P] 1105.3.1 Identification. Nonpotable water systems shall be clearly identified.

[P] 1105.3.2 Separation. Nonpotable water systems shall be provided in systems isolated from potable water systems to avoid potable water contamination.

[P] 1105.3.3 Water quality. Nonpotable water shall meet the minimum water quality requirements established by the jurisdiction.

[P] 1105.3.4 Flow rate and pressure. Nonpotable water shall be supplied to fixtures and outlets at a flow rate and pressure adequate for their operation.

[P] 1105.3.5 Leak prevention. Piping and storage tanks for nonpotable water systems shall be installed in a leak-free manner.

[P] 1105.3.6 Access. Nonpotable water systems shall be installed to allow adequate *access* for maintenance.

[P] 1105.3.7 Storage. Storage of nonpotable water collected on-site shall be provided of sufficient size and capacity to support the intended uses.

[P] 1105.3.7.1 Venting and overflow. Nonpotable water storage shall be designed and installed to allow venting of gases and to control overflow without damage to the system, in accordance with requirements established by the jurisdiction.

[P] 1105.3.7.2 Makeup water. Where required for the intended uses, other sources of water supply shall be provided to ensure that there is an uninterrupted supply of water from the nonpotable water system.

User notes:**About this chapter:**

Chapter 12 provides requirements to ensure that use of fuel gas does not create a hazard to occupants. This primarily means that the fuel gas shall not produce unsafe levels of combustible byproducts or become a source of ignition of an unwanted fire.

SECTION 1201—FUEL GAS PIPING AND VENTS

[FG] 1201.1 Objective. To ensure that fuel gas is distributed and utilized in a safe manner.

[FG] 1201.2 Functional statement. In buildings where fuel gas is used as an energy source, the vented and unvented gas piping systems shall be safe and adequate for their intended use.

[FG] 1201.3 Performance requirements.

[FG] 1201.3.1 General. Gas piping systems shall be free of leaks and operated at a safe pressure appropriate to the appliances served by the system.

[FG] 1201.3.2 Isolation. Gas piping systems shall have isolation devices that permit isolation of appliances, or isolation of the gas piping systems from the supply, for maintenance, testing, leak detection or repair.

[FG] 1201.3.3 Conveyance of products of combustion. Vented gas appliances shall convey products of combustion directly to the exterior without affecting the operation of other gas vents.

[FG] 1201.3.4 Safety controls. Vented gas appliances shall be provided with safety controls that prevent their operation in the event of failure of forced ventilation systems or natural draft systems.

User notes:**About this chapter:**

Chapter 13 provides for the installation of electrical services and equipment in a manner that minimizes the risk of shock or electrocution to people and minimizes the possibility that such systems or equipment will start a fire.

SECTION 1301—ELECTRICITY

[BG] 1301.1 Objective. To provide safe installation of electrical power and lighting for building systems and safe use by building occupants.

[BG] 1301.2 Functional statement. The electrical installations shall have safeguards against personal injury and the outbreak of fire.

[BG] 1301.3 Performance requirements.

[BG] 1301.3.1 Protection from live parts. People and building elements shall be protected against contact with live parts.

[BG] 1301.3.2 Isolation. The electrical installation shall allow safe isolation of devices, equipment and appliances.

[BG] 1301.3.3 Protection from excessive current. People shall be protected from the effects of current exceeding the rating of the installation.

[BG] 1301.3.4 Electromechanical stress. The installation shall protect all components and equipment from electromechanical stress caused by current exceeding its rating.

[BG] 1301.3.5 Thermal damage. Building elements shall be protected from thermal damage due to heat transfer or electric arc from electrical power installations.

[BG] 1301.3.6 Installation environment. The installation shall operate safely in the intended environment.

[BG] 1301.3.7 Flammable and explosive atmosphere. The installation shall prevent ignition of the atmosphere containing flammable or explosive elements.

[BG] 1301.3.8 Essential services and equipment. Essential services and equipment shall have a power supply protected in a manner to ensure continued operation for an appropriate time after a power failure.

[BG] 1301.3.9 Power supplier. The building electrical installation shall protect the safety features of the power supplier.

User notes:**About this chapter:**

Chapter 14 provides the requirements for building systems and portions of a building that impact energy use in new construction, and promotes the cost-effective use of energy.

SECTION 1401—ENERGY EFFICIENCY

[CE] 1401.1 Objective. To facilitate efficient use of energy.

[CE] 1401.2 Functional statement. Buildings shall have provisions ensuring efficient use of nonrenewable energy.

[CE] 1401.3 Performance requirements.

[CE] 1401.3.1 Energy performance indices. To provide for the efficient use of depletable energy sources, the building envelope shall be designed and constructed within stated parameters. These parameters are called the energy performance indices. These indices are the amount of energy from a depletable energy source passing through a specified building envelope area during a specified difference in internal and external temperature. These indices are based on the region of the country as well as the use of the building. Equivalent energy performance utilizing alternative energy conservation techniques is permitted. In some cases, for certain types of buildings, the local jurisdiction has the authority to choose not to specify energy performance indices.

[CE] 1401.3.2 Temperature control. For buildings requiring a controlled temperature, the building design and construction shall take into account various factors. Normally, only insulation, types of windows and related building elements are considered when addressing energy conservation. However, to provide for the efficient use of energy, there are several other items that need to be taken into consideration, such as thermal resistance, solar radiation, air tightness and heat gain or loss from building services.