

ICCPC[®]

INTERNATIONAL CODE COUNCIL
PERFORMANCE CODE[®]
for Buildings and Facilities

A Member of the International Code Family[®]

2021



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2021 International Code Council Performance Code® for Buildings and Facilities

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PREFACE

Introduction

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 2021 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 2021 edition of the International Codes® (I-Codes®) published by the International Code Council® (ICC®). 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 noted that the family of I-Codes, including the *International Building Code®* (IBC®), *International Energy Conservation Code®* (IECC®), *International Existing Building Code®* (IEBC®), *International Fire Code®* (IFC®), *International Fuel Gas Code®* (IFGC®), *International Green Construction Code®* (IgCC®), *International Mechanical Code®* (IMC®), *International Plumbing Code®* (IPC®), *International Private Sewage Disposal Code®* (IPSDC®), *International Property Maintenance Code®* (IPMC®), *International Residential Code®* (IRC®), *International Swimming Pool and Spa Code®* (ISPSC®), *International Wildland-Urban Interface Code®* (IWUIC®) and *International Zoning Code®* (IZC®), is considered to provide an acceptable solution 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 codes cited above.

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.

The ICCPC provisions provide many benefits, including the model code development process, which offers an international forum for design professionals, code officials and other interested parties to discuss performance code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

The I-Codes, including the ICCPC, are used in a variety of ways in both the public and private sectors. Most industry professionals are familiar with the I-Codes as the basis of laws and regulations in communities across the U.S. and in other countries. However, the impact of the codes extends well beyond the regulatory arena, as they are used in a variety of nonregulatory settings, including:

- Voluntary compliance programs such as those promoting sustainability, energy efficiency and disaster resistance.
- The insurance industry, to estimate and manage risk, and as a tool in underwriting and rate decisions.
- Certification and credentialing of individuals involved in the fields of building design, construction and safety.
- Certification of building and construction-related products
- US federal agencies, to guide construction in an array of government-owned properties.
- Facilities management.
- "Best practices" benchmarks for designers and builders, including those who are engaged in projects in jurisdictions that do not have a formal regulatory system or a governmental enforcement mechanism.
- College, university and professional school textbooks and curricula.
- Reference works related to building design and construction.

In addition to the codes themselves, the code development process brings together building professionals on a regular basis. It provides an international forum for discussion and deliberation about building design, construction methods, safety, performance requirements, technological advances and innovative products.

Development

This 2021 edition presents the code as originally issued, with changes reflected in the 2003 through 2018 editions and further changes approved by the ICC Code Development Process through 2019. A new edition such as this is promulgated every 3 years.

This code is intended to establish provisions consistent 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.

Maintenance

The ICCPC is kept up to date through the review of proposed changes submitted by code enforcement officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The ICC Code Development Process reflects principles of openness, transparency, balance, due process and consensus, the principles embodied in OMB Circular A-119, which governs the federal government's use of private-sector standards. The ICC process is open to anyone; there is no cost to participate, and people can participate without travel cost through the ICC's cloud-based app, cdpAccess®. A broad cross-section of interests are represented in the ICC Code Development Process. The codes, which are updated regularly, include safeguards that allow for emergency action when required for health and safety reasons.

In order to ensure that organizations with a direct and material interest in the codes have a voice in the process, the 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 Institute of Architects (AIA)
- National Association of Home Builders (NAHB)
- National Association of State Fire Marshals (NASFM)

The 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 contents of this work are subject to change through the 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.

While the I-Code development procedure is thorough and comprehensive, the ICC, its members and those participating in the development of the codes disclaim any liability resulting from the publication or use of the I-Codes, or from compliance or noncompliance with their provisions. The ICC does not have the power or authority to police or enforce compliance with the contents of this code.

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

In each code development cycle, proposed changes to this code are considered at the Committee Action Hearings by nine different code development committees. The committee responsible for each section of this code is noted by the bracketed letter in front of that section. For example, proposed changes to code sections that have [BS] in front of them (e.g., [BS] 501.1) are considered by the IBC—Structural Code Development Committee at the Committee Action Hearing in the 2022 (Group B) code development cycle.

The bracketed letter designations for committees responsible for portions of this code are as follows:

[A] = Administrative Code Development Committee;

[BF] = IBC—Fire Safety Code Development Committee;

[BG] = IBC—General Code Development Committee;

[BS] = IBC—Structural Code Development Committee;

[CE] = Commercial Energy Conservation Code Development Committee

[F] = International Fire Code Development Committee;

[M] = International Mechanical Code Development Committee; and

[P] = International Plumbing Code Development Committee.

For the development of the 2024 edition of the I-Codes, there will be two groups of code development committees and they will meet in separate years, as shown in the following Code Development Hearings Table.

Code change proposals submitted for this code will be heard by the code development committees noted in brackets [] in the text of the code. Because different committees hold Committee Action Hearings in different years, proposals for this code will be heard by committees in both the 2021 (Group A) and 2022 (Group B) code change cycles.

For example, every section of Chapter 1 of this code is designated as the responsibility of the Administrative Code Development Committee, and that committee is part of the Group B code hearings. This committee will conduct its code development hearings in 2022 to consider all code change proposals for Chapter 1 of this code and proposals for Chapter 1 of all I-Codes except the IECC, IRC and IgCC. Therefore, any proposal received for Chapter 1 of this code will be assigned to the Administrative Code Development Committee for consideration in 2022.

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. For further information on code development committee responsibilities, please visit the ICC website at www.iccsafe.org/current-code-development-cycle.

CODE DEVELOPMENT HEARINGS

Group A Codes (Heard in 2021, Code Change Proposals Deadline: January 11, 2021)	Group B Codes (Heard in 2022, Code Change Proposals Deadline: January 10, 2022)
International Building Code— Egress (Chapters 10, 11, Appendix E) – Fire Safety (Chapters 7, 8, 9, 14, 26) – General (Chapters 2–6, 12, 27–33, Appendices A, B, C, D, K, N)	Administrative Provisions (Chapter 1 of all codes except IECC, IRC and IgCC; IBC Appendix O; the appendices titled “Board of Appeals” for all codes except IECC, IRC, IgCC, ICCPC and IZC; administrative updates to currently referenced standards; and designated definitions)
International Fire Code	International Building Code – Structural (Chapters 15–25, Appendices F, G, H, I, J, L, M)
International Fuel Gas Code	International Existing Building Code
International Mechanical Code	International Energy Conservation Code—Commercial
International Plumbing Code	International Energy Conservation Code—Residential – IECC—Residential – IRC—Energy (Chapter 11)
International Property Maintenance Code	International Green Construction Code (Chapter 1)
International Private Sewage Disposal Code	International Residential Code – IRC—Building (Chapters 1–10; Appendices AE, AF, AH, AJ, AK, AL, AM, AO, AQ, AR, AS, AT, AU, AV, AW)
International Residential Code – IRC—Mechanical (Chapters 12–23) – IRC—Plumbing (Chapters 25–33, Appendices AG, AI, AN, AP)	
International Swimming Pool and Spa Code	
International Wildland-Urban Interface Code	
International Zoning Code	

Note: Proposed changes to the ICCPC will be heard by the code development committee noted in brackets [] in the text of the ICCPC.

Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2018 edition. Deletion indicators in the form of an arrow (➡) are provided in the margin where an entire section, exception or table has been deleted or an item in a list of items or a row of a table has been deleted.

Coordination of the International Codes

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

Italicized Terms

Terms italicized in code text, other than document titles, are defined in Chapter 2. The terms selected to be italicized have definitions that the user should read carefully to better understand the code. Where italicized, the Chapter 2 definition applies. If not italicized, common-use definitions apply.

Adoption

The ICC maintains a copyright in all of its codes and standards. Maintaining copyright allows the ICC to fund its mission through sales of books, in both print and electronic formats. The ICC welcomes adoption of its codes by jurisdictions that recognize and acknowledge the ICC's copyright in the code, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the ICC.

The ICC also recognizes the need for jurisdictions to make laws available to the public. All I-Codes and I-Standards, along with the laws of many jurisdictions, are available for free in a nondownloadable form on the ICC's website. Jurisdictions should contact the ICC at adoptions@iccsafe.org to learn how to adopt and distribute laws based on the ICCPC in a manner that provides necessary access, while maintaining the ICC's copyright.

To facilitate adoption, 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	



EFFECTIVE USE OF THE INTERNATIONAL CODE COUNCIL PERFORMANCE CODE FOR BUILDINGS AND FACILITIES

The purpose of the ICCPC is to promote innovative, flexible and responsive solutions that optimize the expenditure and consumption of resources while preserving social and economic value. This approach is unique to the structure of a performance-based code.

The methodology employed in performance-based codes focuses on outcomes. In other words, a performance code approach would identify and quantify the level of damage that is acceptable during and after a fire, earthquake or other event. Generally, but not in all cases, the current prescriptive code focuses on solutions that achieve a certain outcome. The difficulty is that the outcome is unclear. Therefore, when a design is proposed that is different from the prescriptive code, it is often difficult to determine whether the approach will be equivalent. There may be other more appropriate and innovative solutions available. A performance-based code creates a framework that both clearly defines the intent of the code and provides a process to understand quantitatively what the code is trying to achieve. Without this framework, the new techniques would be fairly difficult to accomplish and new methods of construction take longer to implement.

The code is organized into four major parts:

Part I—Administrative (Chapters 1–4)

Part II—Building Provisions (Chapters 5–15)

Part III—Fire Provisions (Chapters 16–22)

Part IV—Appendices (A–E)

Part I—Administrative. Part I of the document contains four chapters in which common approaches were found for both building and fire. 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 provides definitions specific to this document.

Chapter 3, Design Performance Levels, 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 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.

Parts II and III—Building and Fire. Parts II and III provide topic-specific qualitative statements of intent that relate to current prescriptive code requirements. As noted, Parts II and III are building and fire components, respectively. The building and fire components were not fully integrated because of concerns relating to how such a document might be used. For instance, a fire department might want to utilize the document for existing buildings or facilities but would not be able to adopt chapters dealing with issues such as structural stability or moisture. Therefore, the code is designed so that a fire department could adopt Parts I and III only. When Part II is adopted, the entire document should be adopted. Part III should always be included in the adoption of this code.

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 the link is made to the acceptable methods.

Part IV—Appendices. Part IV contains the appendices to the code document. Each of the appendices relates to specific provisions of this code and is discussed within the User’s Guide as applicable.

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

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 a 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.

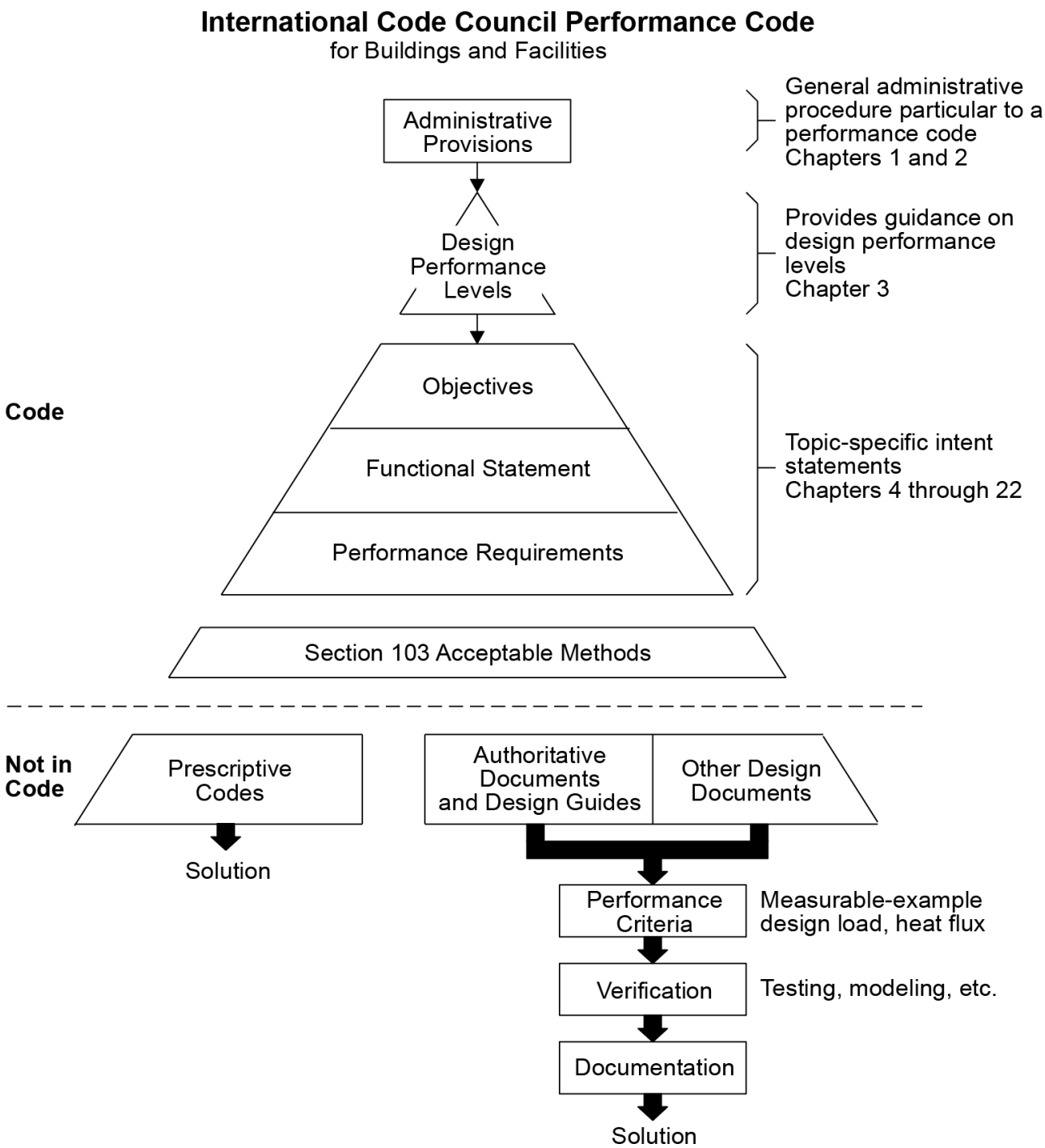
3. Verify compliance with the operations and maintenance manual.
4. Prepare a report specifying impact and requirements for the proposed design.
5. Prepare design documents based on applicable performance, prescriptive or combination of code provisions and specify which codes are applicable for each 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 Damage to Be Tolerated.
5. Prepare a report detailing impact; design and test systems to the objectives in Part III 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.



ICCPC Flow Chart



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Part I—Administrative

CHAPTER 1 SCOPE AND ADMINISTRATION

User note:

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.

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.

[A] 101.3.1 Building. Part II of 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, demolition, and 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.

[A] 101.3.2 Fire. Part III of this code establishes requirements applicable to the use and occupancy of buildings, structures and facilities; and to the prevention, control and mitigation of fire, life safety and property hazards arising from this use and from the storage, handling and use of explosive, flammable and combustible materials, hazardous materials and dangerous operations and processes.

[A] 101.4 Intent.

[A] 101.4.1 Building. 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 and structures. Accord-

ingly, Part II of this code intends buildings and structures to provide for the following:

1. An environment free of unreasonable risk of death and injury from fires.
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 fire fighters and emergency responders during emergency operations.

[A] 101.4.2 Fire. Part III of this code establishes requirements necessary to provide a reasonable level of life safety and property from the hazards of fire, explosion or dangerous conditions in facilities, equipment and processes.

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*



Documents

Document Sharing Hub

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* 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 compli-

ance 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.
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.



CHAPTER 2

DEFINITIONS

User note:

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.

[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.

DEFINITIONS

FACILITY. (Only applicable to Section 702). 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.

[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.

CHAPTER 3

DESIGN PERFORMANCE LEVELS

User note:

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 and magnitudes of event. 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 facilities 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 facilities, and portions of buildings and facilities, 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 facility, or portion of a building or facility, the following shall be considered:

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

[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 facilities.

[BG] 302.4 Risk factors. In determining the hazard-related risk(s) to users of buildings and facilities, 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 facility, and the contents.

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

[BG] 302.4.3 Length of occupancy. The length of time the building or facility 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 facility occupants and other users are expected to be familiar with the building or facility layout and means of egress.

[BG] 302.4.6 Vulnerability. Whether a significant percentage of the building or facility 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 facility 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 facilities 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 facility to the community. These performance group allocations are shown in Table 303.1.

[BG] 303.2 Unique performance group allocation. Where necessary or desired, allocation of specific buildings or facilities to performance groups differing from 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 facility.

[BG] 303.3 Magnitudes of event and level of damage. Performance groups identify the minimum required performance of buildings or facilities through a relationship of the magnitude of an event to the maximum level of 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. Assignment of performance groups is accomplished through consideration of building or facility uses, building or facility risk factors, and the importance of a building or facility to a community.

[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 facilities posing a low risk to human life, should the buildings or facilities fail, shall comply.

[BG] 303.4.2 Performance Group II. The minimum design performance level with which all buildings or facilities 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 facilities of an increased level of societal benefit or importance shall comply.

**[BG]TABLE 303.1
PERFORMANCE GROUP CLASSIFICATIONS FOR BUILDINGS AND FACILITIES**

PERFORMANCE GROUP	USE AND OCCUPANCY CLASSIFICATIONS FOR SPECIFIC BUILDINGS OR FACILITIES
I	Buildings and facilities that represent a low hazard to human life in the event of failure, including, but not limited to: 1. Agricultural facilities. 2. Certain temporary facilities. 3. Minor storage facilities.
II	All buildings and facilities except those listed in Performance Groups I, III and IV.
III	Buildings and facilities that represent a substantial hazard to human life in the event of failure, including, but not limited to: 1. Buildings and facilities where more than 300 people congregate in one area. 2. Buildings and facilities with elementary school, secondary school or day care facilities with a capacity greater than 250. 3. Buildings and facilities with a capacity greater than 500 for colleges or adult education facilities. 4. Health-care facilities with a capacity of 50 or more residents but not having surgery or emergency treatment facilities. 5. Jails and detention facilities. 6. Any other occupancy with an occupant load greater than 5,000. 7. Power-generating facilities, water treatment for potable water, wastewater treatment facilities and other public utilities facilities not included in Performance Group IV. 8. Buildings and facilities not included in Performance Group IV containing sufficient quantities of highly toxic gas or explosive materials capable of causing acutely hazardous conditions that do not extend beyond property boundaries.
IV	Buildings and facilities designated as essential facilities, including, but not limited to: 1. Hospitals and other health-care facilities having surgery or emergency treatment facilities. 2. Fire, rescue and police stations and emergency vehicle garages. 3. Designated earthquake, hurricane or other emergency shelters. 4. Designated emergency preparedness, communication, and operation centers and other facilities required for emergency response. 5. Power-generating stations and other utilities required as emergency backup facilities for Performance Group IV buildings or facilities. 6. Buildings and facilities containing highly toxic gas or explosive materials capable of causing acutely hazardous conditions beyond the property boundaries. 7. Aviation control towers, air traffic control centers and emergency aircraft hangars. 8. Buildings and facilities having critical national defense functions. 9. Water treatment facilities required to maintain water pressure for fire suppression. 10. Ancillary structures (including, but not limited to, communication towers, fuel storage tanks or other structures housing or supporting water or other fire suppression material or equipment) required for operation of Performance Group IV structures during an emergency.

[illegible]

[BG] 303.5 Alternative performance group designations. The performance group for specific buildings or facilities or classes of buildings or facilities 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 facilities, the code official is authorized to adjust tolerable limits of impact to a building or facility and its contents.

[BG] 304.1 General. Design performance levels establish how a building or facility 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] 304.2.1 Mild impact. The tolerable impacts of the design loads are assumed as follows:

[BG] 304.2.2.3 Occupant hazards. Injuries to building or facility occupants from hazard-related applied loads may be locally significant, but generally moder-

ate 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 facility 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. Some hazardous materials are released to the environment, but the risk to the community is minimal. Emergency relocation is not necessary.

[BG] 304.2.3 High impact. 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 facility 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 facility 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 facility 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. Hazardous materials are released to the environment with localized relocation needed for buildings and facilities in the immediate vicinity.

[BG] 304.2.4 Severe impact. 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 facility is not safe for reoccupancy, as reoccupancy could cause collapse.

[BG] 304.2.4.2 Nonstructural systems. Nonstructural systems for normal building or facility 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 facility 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 facility 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. Significant hazardous materials are released to the environment, with relocation needed beyond the immediate vicinity.

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 facility, 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 facility, its users and its contents during its intended life are provided in Chapter 5 of this code.

[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 facility, its users and its contents during construction and throughout its intended life include, but are not limited to:

[BG] 305.1.2.1 Fires (Chapters 6, 16 and 17).

[BG] 305.1.2.2 Explosions (Chapters 5, 22 and Section 801).

[BG] 305.1.2.3 Toxic materials (Chapter 22 and Section 801).

[BG] 305.1.2.4 Corrosive materials (Chapter 22 and Section 801).

[BG] 305.1.2.5 Infectious materials or agents (Chapter 22 and Section 801).

[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; for example, nominal live and dead loads are defined only for Performance Group II. 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.



CHAPTER 4

RELIABILITY AND DURABILITY

User note:

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 objective 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.



CHAPTER 5 STABILITY

User note:

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®.

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.

[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: 1700 years
 - 7.4 Very Large: 3000 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
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.

**[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 Safety factors. The design of buildings and structures shall consider appropriate factors of safety to provide adequate performance from:

1. Effects of uncertainties resulting from construction activities.
2. Variation in the properties of materials and the characteristics of the site.
3. Accuracy limitations inherent in the methods used to predict the stability of the building.
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.

[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.

CHAPTER 6

FIRE SAFETY

User note:

About this chapter: Chapter 6 has two purposes in dealing with fire safety:

1. To reduce the potential of permanently installed building equipment, appliances and services to cause a fire because of their installation.
2. If a fire does occur, this section contains provisions to contain or limit the spread of the fire in a manner allowing safe egress of the occupants; appropriately limit the damage to the building in which the fire originated, to adjacent buildings, and to contents and amenities; allow fire fighters to perform their duties on the fire scene; and provide detection systems that allow appropriate and timely response to a fire.

SECTION 601 SOURCES OF FIRE IGNITION

[F] 601.1 Objective. To prevent unwanted ignition caused by building equipment and systems.

[F] 601.2 Functional statements.

[F] 601.2.1 Fuel-burning appliances and services. Fuel-burning appliances and services shall be installed in a manner that reduces their potential as sources of fire ignition.

[F] 601.2.2 Electrical equipment, appliances and services. Electrical equipment, appliances and services shall be installed in a manner that reduces their potential as sources of fire ignition.

[F] 601.3 Performance requirements.

[F] 601.3.1 Uncontrolled combustion and explosion. Fuel-burning appliances and services shall be installed so that the appliance or service will not cause uncontrolled combustion or explosion.

[F] 601.3.2 Fuel-burning appliances and services as sources of ignition. Fuel-burning appliances and services shall be installed so that they will not become sources of ignition.

[F] 601.3.3 Sparks and arcing. Electrical equipment, appliances and services shall be installed so that they will not allow sparks or arcing to escape their enclosures.

[F] 601.3.4 Electrical equipment, appliances and services. Electrical equipment, appliances and services shall be installed so that they will not become sources of ignition.

[F] 601.3.5 Flammable, combustible and explosive atmospheres. Separate ignition sources from areas where a flammable, combustible or explosive atmosphere may exist.

SECTION 602 LIMITING FIRE IMPACT

[F] 602.1 Objective. To provide an acceptable level of fire safety performance when facilities are subjected to fires occurring in the fire loads that may be present in the facility during construction or alteration and throughout the intended life.

[F] 602.2 Functional statement. Buildings shall be designed with safeguards against the spread of fire so that persons not directly adjacent to or involved in the ignition of a fire shall not suffer serious injury or death from a fire and so that the magnitude of the property losses are limited as follows:

Performance Group I—High

Performance Group II—Moderate

Performance Group III—Mild

Performance Group IV—Mild

[F] 602.2.1 Building and adjacent buildings. Buildings and facilities shall be designed and constructed so that the building and adjacent buildings or facilities and their occupants, contents and amenities are appropriately protected from the impact of fire and smoke.

[F] 602.2.2 Needs of fire fighters. Buildings and facilities shall be designed and constructed so that fire fighters can appropriately perform rescue operations, protect property and utilize fire-fighting equipment and controls.

[F] 602.3 Performance requirements. See Section 1701.3.



CHAPTER 7

PEDESTRIAN CIRCULATION

User note:

About this chapter: Chapter 7 provides performance requirements for three aspects of pedestrian circulation in a building:

1. **Means of egress:** Section 701 provides guidance by which egress systems for buildings and facilities are designed, evaluated and maintained. Section 701 and Chapter 19 contain the same provisions. It was determined that both Part II and Part III ultimately have the same objectives with regard to egress.
2. **Accessibility:** Section 702 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 703 provides general safety guidelines for installation of elevators, dumbwaiters and escalators inside or outside buildings. These provisions include use during normal operations, use by fire fighters during emergency operations and use by maintenance personnel during activities associated with adjusting, servicing and inspecting elevators.

SECTION 701 MEANS OF EGRESS

[BE] 701.1 Objective. To protect people during egress and rescue operations.

[BE] 701.2 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] 701.3 Performance requirements. See Section 1901.3.

SECTION 702 ACCESSIBILITY

[BE] 702.1 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] 702.2 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] 702.3 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 703 TRANSPORTATION EQUIPMENT

[BG] 703.1 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] 703.2 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] 703.3 Performance requirements.

703.3.1 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] 703.3.2 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 fire-fighting and rescue operations.
4. An environment that ensures the safe operation of the equipment for the anticipated use or application.



CHAPTER 8

SAFETY OF USERS

User note:

About this chapter: Chapter 8 addresses protection of people from hazardous materials, 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.

SECTION 801 HAZARDOUS MATERIALS

[F] 801.1 Objective. To protect people and property from the consequences of unauthorized discharge, fires or explosions involving hazardous materials.

[F] 801.2 Functional statements.

[F] 801.2.1 Prevention. Provide adequate safeguards to minimize the risk of unwanted releases, fires or explosions involving hazardous materials as appropriate to the design performance level determined in Chapter 3.

[F] 801.2.2 Mitigation. Provide adequate safeguards to minimize the consequences of an unsafe condition involving hazardous materials during normal operations and in the event of an abnormal condition in accordance with the design performance level determined in Chapter 3.

[F] 801.3 Performance requirements. See Section 2201.3.

SECTION 802 HAZARDS FROM BUILDING MATERIALS

[BG] 802.1 Objective. To safeguard people from injury caused by exposure to hazards from building materials.

[BG] 802.2 Functional statement. Building materials that are potentially hazardous shall be used in ways to avoid undue risk to people.

[BG] 802.3 Performance requirements.

[BG] 802.3.1 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] 802.3.2 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 803 PREVENTION OF FALLS

[BG] 803.1 Objective. To prevent people from unintentionally falling from one level to another.

[BG] 803.2 Functional statement. Buildings and their facilities shall be constructed to reduce the likelihood of unintentional falls.

[BG] 803.3 Performance requirements.

[BG] 803.3.1 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] 803.3.2 Roofs. Roofs with permanent access shall have barriers provided.

[BG] 803.3.3 Barrier construction. Barriers shall be constructed and installed appropriate to the hazard.

[BG] 803.3.4 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 804 CONSTRUCTION AND DEMOLITION HAZARDS

[BG] 804.1 Objective. To safeguard people from injury or illness and to protect property from damage during the construction or demolition processes.

[BG] 804.2 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] 804.3 Performance requirements.

[BG] 804.3.1 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] 804.3.2 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] 804.3.3 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] 804.3.4 Unauthorized entry. The job site shall be protected from the intrusion of unauthorized personnel.

SECTION 805 SIGNS

[F] 805.1 Objective. To identify essential features of the building to its users.

[F] 805.2 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] 805.3 Performance requirements.

[F] 805.3.1 Visibility. Signs shall be clearly visible and readily recognizable under the conditions expected for their purpose.

[F] 805.3.2 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] 805.3.3 Power failure. Signs that identify exits, safe places and escape/rescue routes shall remain visible in the event of a power failure.

[F] 805.3.4 Hazard identification. Signs indicating hazards shall be provided in sufficient locations to notify people before they encounter the hazard.

[F] 805.3.5 Accessible building feature signage. Signs shall identify accessible facilities and be located sufficiently to mark accessible routes.

SECTION 806 EMERGENCY NOTIFICATION

[F] 806.1 Objective. To provide notification of the need to take some manual action to preserve the safety of occupants or to limit property damage.

[F] 806.2 Functional statements.

[F] 806.2.1 Occupant notification. Where required, 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] 806.2.2 Emergency responder notification. Where systems are designed to notify emergency responders, such systems shall indicate the type of emergency and the location of the building. Where buildings are large enough to expect difficulty in prompt location of the fire or other public emergency, identification of the fire zone of origin shall be provided at the building.

[F] 806.3 Performance requirements.

[F] 806.3.1 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] 806.3.2 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.

CHAPTER 9

MOISTURE

User note:

About this chapter: Chapter 9 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 901 SURFACE WATER

[BS] 901.1 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] 901.2 Functional statements.

[BS] 901.2.1 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] 901.2.2 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] 901.3 Performance requirements.

[BS] 901.3.1 Removal of surface water. Surface water shall be removed in a manner that avoids damage or nuisance to the building or other property.

[BS] 901.3.2 Contaminated water. Surface water or water used for fire fighting and other uses shall be routed so as not to transport hazardous material across property lines or into drainage outfalls.

[BS] 901.3.3 Surface water runoff. Surface water drainage systems shall convey surface water runoff to an appropriate outfall.

[BS] 901.3.4 Blockage. Drainage systems shall be constructed so as to avoid the likelihood of blockage.

[BS] 901.3.5 Access for cleaning. Drainage systems shall be constructed so as to have reasonable access for cleaning.

SECTION 902 EXTERNAL MOISTURE

[BS] 902.1 Objective. To safeguard people from injury and property from damage that could result from external moisture entering the building.

[BS] 902.2 Functional statement. Buildings shall be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.

[BS] 902.3 Performance requirements.

[BS] 902.3.1 Water penetration. Roofs and exterior walls shall prevent the penetration of water that could cause damage to building elements.

[BS] 902.3.2 Building elements in contact with the ground. Walls, floors and structural elements in contact with the ground shall not absorb or transmit moisture in quantities that could cause damage to building elements.

[BS] 902.3.3 Concealed spaces and cavities. Concealed spaces and cavities in buildings shall be constructed in a way that prevents external moisture from causing degradation of building elements.

[BS] 902.3.4 Moisture during construction. Excess moisture present at the completion of construction shall be capable of being dissipated without permanent damage to building elements.

SECTION 903 INTERNAL MOISTURE

[BS] 903.1 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] 903.2 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] 903.3 Performance requirements.

[BS] 903.3.1 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] 903.3.2 Overflow. Accidental overflow from sanitary fixtures or laundering facilities shall be constrained from penetrating another occupancy in the same building.

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[BS] 903.3.3 Floor surfaces. Floor surfaces of any space containing sanitary fixtures or laundering facilities shall be impervious to water and easily cleaned.

[BS] 903.3.4 Wall surfaces. Wall surfaces adjacent to sanitary fixtures or laundering facilities shall be impervious to water and easily cleaned.

[BS] 903.3.5 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] 903.3.6 Water splash. Water splash shall be prevented from penetrating behind linings or into concealed spaces.

CHAPTER 10

INTERIOR ENVIRONMENT

User note:

About this chapter: Chapter 10 describes the performance provisions of a building's environment. It is divided into four areas:

1. Section 1001 addresses the space and climate appropriate for the needs of the occupants, the activities and the furnishings.
2. Section 1002 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 1003 requires that tenant, common and habitable spaces be insulated against sound transmission.
4. Section 1004 establishes the criteria for light for everyday use in habitable spaces and means of egress.

SECTION 1001 CLIMATE AND BUILDING FUNCTIONALITY

[BG] 1001.1 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] 1001.2 Functional statements. Buildings shall be constructed to provide:

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

[BG] 1001.3 Performance requirements.

[BG] 1001.3.1 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] 1001.3.2 Space. Habitable spaces shall have sufficient space for activity, furniture and sanitary needs of the occupants.

SECTION 1002 INDOOR AIR QUALITY

[BG] 1002.1 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] 1002.2 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] 1002.3 Performance requirements.

[BG] 1002.3.1 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] 1002.3.2 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] 1002.3.3 Building materials. Building materials that release quantities of contaminants that cannot be maintained at safe levels shall not be used.

[BG] 1002.3.4 Contaminated air. Contaminated air shall be disposed of in a way that avoids creating a nuisance or hazard to people and other property.

[BG] 1002.3.5 Sufficient supply air. The quantity of air supplied for ventilation shall account for the demands of any fixed combustion appliances.

SECTION 1003 AIRBORNE AND IMPACT SOUND

[BG] 1003.1 Objective. To safeguard people from loss of amenity as a result of excessive noise being transmitted between adjacent tenants or occupancies.

[BG] 1003.2 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] 1003.3 Performance requirements.

[BG] 1003.3.1 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] 1003.3.2 Floors. The structure-borne transmission of sound through floors shall be reduced to a level that minimizes its effect on adjacent occupants.

**SECTION 1004
ARTIFICIAL AND NATURAL LIGHT**

[BG] 1004.1 Objective. To safeguard people from injury or loss of amenity due to lack of adequate lighting.

[BG] 1004.2 Functional statements.

[BG] 1004.2.1 Lighting for safe movement. Habitable spaces and means of egress within buildings shall be provided with adequate artificial lighting to enable safe movement.

[BG] 1004.2.2 General lighting. Adequate natural or artificial light shall be provided in all habitable spaces.

[BG] 1004.3 Performance requirements.

[BG] 1004.3.1 Illumination. Adequate illumination shall be provided appropriate to the use and occupancy of the habitable spaces and means of egress served.

[BG] 1004.3.2 Natural light. Natural light shall provide a luminance appropriate to the use and occupancy of the habitable spaces served.

CHAPTER 11

MECHANICAL

User note:

About this chapter: Chapter 11 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 10 provides more guidance on indoor air quality and climate.

SECTION 1101 HEATING, VENTILATION AND AIR-CONDITIONING EQUIPMENT (HVAC)

[M] 1101.1 Objective. To provide the safe installation of the equipment to condition the air for the health and comfort of the occupants.

[M] 1101.2 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] 1101.3 Performance requirements.

[M] 1101.3.1 Protection from equipment. People and building elements shall be protected from contact with hot and live electrical parts.

[M] 1101.3.2 Service and replacement ability. The HVAC system shall allow safe isolation and access for service and replacement of equipment.

[M] 1101.3.3 Temperature controls. The HVAC system shall include devices to monitor and control the temperature.

[M] 1101.3.4 Securing of equipment. HVAC equipment and appliances shall be secured in place.

SECTION 1102 REFRIGERATION

[M] 1102.1 Objective. To provide the safe installation and operation of refrigeration equipment.

[M] 1102.2 Functional statement. The installation of equipment shall safeguard maintenance personnel and building occupants from injury.

[M] 1102.3 Performance requirements.

[M] 1102.3.1 Protection from equipment. People and building elements shall be protected from contact with hot or live electrical parts.

[M] 1102.3.2 Service and replacement ability. Refrigeration equipment shall allow safe isolation and access for service and replacement of equipment.

[M] 1102.3.3 Temperature controls. Refrigeration equipment shall include devices to monitor and control temperature.

[M] 1102.3.4 Toxic and flammable refrigerants. Refrigeration equipment shall have appropriate safe-

guards where utilizing toxic or flammable refrigeration agents.

SECTION 1103 PIPED SERVICES

[M] 1103.1 Objective. To safeguard people from injury or illness caused by extreme temperatures or hazardous substances associated with building services.

[M] 1103.2 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] 1103.3 Performance requirements.

[M] 1103.3.1 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] 1103.3.2 Corrosion. Pipes shall be protected against corrosion in the environment of their use.

[M] 1103.3.3 Identification. Piping systems shall be identified with markings if the contents are not readily apparent from the location or associated equipment.

[M] 1103.3.4 Enclosed spaces. Enclosed spaces shall be constructed to avoid the likelihood of accumulating vented or leaking flammable gas.

[M] 1103.3.5 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.



CHAPTER 12

PLUMBING

User note:

About this chapter: Chapter 12 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 702. 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 1201 PERSONAL HYGIENE

[P] 1201.1 Objective. To provide facilities with appropriate space, fixtures and equipment for personal hygiene.

[P] 1201.2 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] 1201.3 Performance requirements.

[P] 1201.3.1 Number of plumbing fixtures. Plumbing fixtures shall be provided in sufficient numbers appropriate for the intended use.

[P] 1201.3.2 Privacy. Plumbing fixtures shall be located to provide appropriate privacy.

[P] 1201.3.3 Cleanliness. Plumbing fixtures shall be constructed to avoid food contamination and accumulation of dirt or bacteria, and permit effective cleaning.

[P] 1201.3.4 Wastewater removal. Plumbing fixtures shall be installed to discharge to drainage systems without contaminating food.

[P] 1201.3.5 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 1202 LAUNDERING

[P] 1202.1 Objective. To provide adequate facilities for laundry.

[P] 1202.2 Functional statement. Laundry facilities shall be provided for use by occupants of dwelling units.

[P] 1202.3 Performance requirement. Space shall be adequate in size for the required fixtures and equipment.

SECTION 1203 DOMESTIC WATER SUPPLIES

[P] 1203.1 Objective. To provide sanitary distribution of water for drinking, food preparation and hygiene.

[P] 1203.2 Functional statement. Sanitary water shall be delivered to fixtures, appliances and equipment at temperatures appropriate for the intended use.

[P] 1203.3 Performance requirements.

[P] 1203.3.1 Potable water. Water supplies intended for human consumption, oral hygiene, food preparation and the washing of cooking equipment shall be potable.

[P] 1203.3.2 Nonpotable water. Water supplies and outlets providing nonpotable water shall be clearly identified.

[P] 1203.3.3 Hot water. Plumbing fixtures and appliances used for personal hygiene, laundering and the washing of cooking equipment shall be provided with hot water.

[P] 1203.3.4 Scalding. Where hot water is provided for personal hygiene, it shall be delivered at a temperature to avoid scalding.

[P] 1203.3.5 Water supply contamination. Water supplies shall be installed to avoid potable water contamination.

[P] 1203.3.6 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] 1203.3.7 Leak prevention. Water piping shall be installed in a leak-free manner.

[P] 1203.3.8 Access. Water systems shall be installed to allow adequate access for maintenance.

[P] 1203.3.9 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] 1203.3.10 Hot water vessels. Vessels used for producing hot water shall be provided with safety devices to relieve excessive pressure and limit temperatures.

SECTION 1204 WASTEWATER

[P] 1204.1 Objective. To provide safe drainage and disposal systems for wastewater from plumbing fixtures, appliances and equipment.