

BUILDING CODE ORGANIZATION

The first part of understanding the building code is to become familiar with its organizational structure and basic content. In the early 1990s, prior to the publication of the first IBC, the three model code development organizations, with the assistance of the Council of American Building Officials (CABO), were members of the Board for the Coordination of Model Codes (BCMC), which standardized the chapter arrangement of the three model codes published at the time. This chapter arrangement, with slight modifications (mainly title revisions), continues to this day in the IBC. The 35 chapters in the IBC consist of the following:

- Chapter 1, Scope and Administration
- Chapter 2, Definitions
- Chapter 3, Use and Occupancy Classification
- Chapter 4, Special Detailed Requirements Based on Use and Occupancy
- Chapter 5, General Building Heights and Areas
- Chapter 6, Types of Construction
- Chapter 7, Fire and Smoke Protection Features
- Chapter 8, Interior Finishes
- Chapter 9, Fire Protection Systems
- Chapter 10, Means of Egress
- Chapter 11, Accessibility
- Chapter 12, Interior Environment
- Chapter 13, Energy Efficiency
- Chapter 14, Exterior Walls
- Chapter 15, Roof Assemblies and Rooftop Structures
- Chapter 16, Structural Design
- Chapter 17, Structural Tests and Special Inspections
- Chapter 18, Soils and Foundations

- Chapter 19, Concrete
- Chapter 20, Aluminum
- Chapter 21, Masonry
- Chapter 22, Steel
- Chapter 23, Wood
- Chapter 24, Glass and Glazing
- Chapter 25, Gypsum Board and Plaster
- Chapter 26, Plastic
- Chapter 27, Electrical
- Chapter 28, Mechanical Systems
- Chapter 29, Plumbing Systems
- Chapter 30, Elevators and Conveying Systems
- Chapter 31, Special Construction
- Chapter 32, Encroachments into the Public Right-of-Way
- Chapter 33, Safeguards During Construction
- Chapter 34, (Reserved)—Previously “Existing Structures”; now covered in the *International Existing Building Code*® (IEBC) only
- Chapter 35, Referenced Standards

Understanding the chapter arrangement is a beginning, but you also need to understand what is covered in each of the chapters. Knowing this fundamental information will allow you to quickly find the information you are seeking. For example, if you want to know the requirements for doors, knowing that doors are a part of the *means of egress* system will lead you to Chapter 10. The index can also be used to quickly find the location of information. With the availability of codes in multiple electronic formats, the content of codes can be searched quickly and more thoroughly.

For brief explanations on the content of each chapter, refer to the section titled “Effective Use of the International Building Code” located near the front of each IBC edition.

The second part of understanding the building code is to **not try to memorize it**. Although one is bound to involuntarily memorize code content due to frequent use, reliance on memory when applying the building code to a project could potentially lead to errors. There are several reasons for this, and the first and foremost reason is that the building code is revised every three years. What may have been required in one edition may not be required in another edition or it may have been significantly revised to include exceptions and/or special conditions and requirements.

Even though the *International Codes*® are revised consistently every three years, the jurisdictions that adopt them do not do so consistently. Design professionals who provide services covering several jurisdictions may encounter various editions of the codes. Additionally, jurisdictions will amend the codes they adopt to reflect local practice, conditions, or experience. Therefore, relying on memorization when working on projects in multiple jurisdictions could prove detrimental.

OTHER CODES AND REGULATIONS

Although the building code is the preeminent type of code adopted by jurisdictions, there are other codes that are applicable to a project that are typically required by the building code by reference. The International Code Council (ICC) publishes a series of complementary codes that are referenced by the IBC. These include the following:

- *International Fuel Gas Code*® (IFGC)
This code covers fixed fuel-gas piping systems and appliances.

- *International Mechanical Code*[®] (IMC)
This code covers mechanical systems, such as heating, ventilating, and air conditioning systems (HVAC); fireplaces and solid fuel-burning equipment; solar systems; and fuel-oil piping and storage.
- *International Plumbing Code*[®] (IPC)
This code covers plumbing fixtures; piping for supply, waste, and vents; storm drainage; special piping and storage for medical gases; and subsurface landscape irrigation systems. Some content, especially in regard to plumbing fixtures, is replicated in the IBC.
- *International Private Sewage Disposal Code*[®] (IPSDC)
This code covers septic tank and leach fields and other similar systems installed where a public sewer system is not available.
- *International Property Maintenance Code*[®] (IPMC)
This code covers existing buildings in regard to their maintenance and sanitary conditions to ensure that the public health, safety, and welfare are sustained.
- *International Fire Code*[®] (IFC)
This code covers the protection of structures and property from fire or explosion. Content includes requirements for sprinkler, smoke control, and alarm systems for new and existing buildings; fire department access; hazardous material storage and usage; and special uses and occupancies. Some content, such as sprinkler, smoke control, and alarm requirements, are replicated in the IBC.
- *International Energy Conservation Code*[®] (IECC)
This code covers the effective use of energy over the lifecycle of a building. It provides requirements for *commercial buildings (IECC)* and *residential buildings (IECC)*. A *residential building* is considered one- or two-family *dwelling*s, *townhouses*, and Group R-2, R-3, and R-4 buildings that are less than four *stories* above the *grade plane*. A *commercial building* is considered anything that is not defined as a *residential building*. If a building includes both residential and commercial occupancies, then, per IECC Sections C101.4.1 and R101.4.1, the commercial and residential occupancies will be considered separately when applying the requirements of the IECC.
- *International Existing Building Code*[®] (IEBC)
This code covers the alteration, addition, movement, and repair of existing structures. The code also provides similar requirements for historic buildings. The IBC previously had requirements for existing structures, but this has been removed and now all content for existing buildings is incorporated in the IEBC.
- *International Residential Code*[®] (IRC)
This code covers one- and two-family *dwelling*s and *townhouses* not more than three *stories* above the *grade plane*. This is a self-contained code with all requirements for electrical, mechanical, plumbing, and fuel-gas systems. It also replicates IECC requirements for energy conservation. The IRC may be used for *live/work units* within *townhouses* and for owner-occupied lodging (i.e., bed and breakfast lodging) for five or fewer guests.
- *International Wildland-Urban Interface Code*[®] (IWUIC)
This code covers additional requirements for structures built within a defined geographical area that abuts natural areas, such as forests, where there exists a high level of vegetative fuels.

The ICC also publishes other codes that are not referenced by the IBC but are coordinated with the other codes and may reference one of the codes listed above. These other ICC codes include the following:

- *International Green Construction Code*[®] (IgCC)
- *International Code Council Performance Code*[®] (ICCPC)
- *International Swimming Pool and Spa Code*[®] (ISPSA)
- *International Zoning Code*[®] (IZC)

Besides ICC, other organizations develop codes that either are referenced in the ICC codes or are frequently adopted in lieu of some of the ICC codes. These include the following:

National Fire Protection Association (NFPA; www.nfpa.org)

- NFPA 1, *Fire Code*
- NFPA 54, *National Fuel Gas Code*
- NFPA 70, *National Electrical Code*® (NEC)—Since the ICC does not publish an electrical code, the IBC references the NEC.
- NFPA 72, *National Fire Alarm and Signaling Code*—This code is also referenced by the IBC.
- NFPA 101, *Life Safety Code*®
- NFPA 900, *Building Energy Code*
- NFPA 5000, *Building Construction and Safety Code*®

International Association of Plumbing and Mechanical Officials (IAPMO; www.iapmo.org)

- *Uniform Plumbing Code*® (UPC)
- *Uniform Mechanical Code*® (UMC)
- *Uniform Swimming Pool, Spa and Hot Tub Code*® (USPSHTC)
- *Uniform Solar Energy Hydronic Code*® (USEHC)

In addition to codes, there are other regulations that have an impact on a project. These include zoning, environmental, occupational safety, and accessibility regulations.

Zoning ordinances restrict how the land within a particular area of the jurisdiction may be used, including the building use, building size, *lot* coverage, setbacks, and number of parking spaces. Some of the zoning restrictions may contradict what the building code may permit. For example, zoning ordinances typically restrict *building height*, which may be less than what the building code allows. Therefore, the requirements of both the building code and zoning ordinance need to be evaluated, with the most restrictive establishing the requirements.

Environmental regulations are typically enforced by an agency other than the building department. City or county health departments and the Environmental Protection Agency (EPA) establish requirements for air quality. Many city, county, and state health agencies establish health regulations that affect several building types, including restaurants, schools, and hospitals.

THINGS TO LOOK OUT FOR

When reviewing the code, be sure to read applicable exceptions and footnotes for tables. Exceptions are clearly identified as such and typically modify the application of a code provision preceding the exception or exceptions. Exceptions usually exclude the previous provision under specific conditions stated in the exceptions, but they may also provide compliance alternates or provide additional requirements under certain conditions. Footnotes are used in most tables and usually provide clarification or additional information; but, like exceptions, they may also modify a table's contents for specific conditions. Since they may alter the application of the building code, it is important to understand the content of related exceptions and table footnotes so that you do not unnecessarily provide more than what is required for a specific project.

KNOW THE DEFINITIONS

Building codes could not be properly utilized unless one knows the meanings of the special terms used within them. In most cases, the terms used by building codes carry the same meanings found in a common dictionary. In fact, up until the publication of the IBC, the *Uniform Building Code* (UBC)

established Webster's *Third New International Dictionary of the English Language* (editions varied depending on the code publication date) as the only source of meanings for words or terms not defined in the building code itself. The IBC has dropped the Webster's dictionary in favor of a broad statement that accepts the "ordinarily accepted meanings" for terms not defined in the code.

The purpose of having special definitions for terms that may be found in a common dictionary is that those common definitions are typically too broad for a legally based document such as the building code. Take the term *accessible* for example. According to one dictionary, *accessible* means, "Easily approached, entered, or obtainable." But in the context of the building code, one could ask to whom does this apply? Prior to the Americans with Disabilities Act (ADA), a lot of people would have considered their buildings to be *accessible* to the public. But, with the passing of the ADA, the term *accessible* took on a new meaning that most dictionaries still do not include. Therefore, the building code has to define it as "A *site, building, facility* or portion thereof, that complies with Chapter 11." The scope of Chapter 11, which is titled "Accessibility," is to "control the design and construction of facilities for accessibility to physically disabled persons." Therefore, *accessible* under the building code applies to "physically disabled persons." A meaning that could not be legally obtained from the definition found in a common dictionary.

When using the building code, you need to be aware of the fact that certain terms carry very specific meanings. When you come across a term in the building code for which you know the "ordinarily accepted meaning," you should check IBC Chapter 2 to make sure that the building code has not narrowed that definition to a more specific application. To make it easier to identify them, the 2009 IBC and later editions print all defined terms in italics within the code content.