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# IEBC®

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INTERNATIONAL  
**EXISTING BUILDING CODE**®



2018 International Existing Building Code®

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# PREFACE

## Introduction

The *International Existing Building Code*® (IEBC®) establishes minimum requirements for existing buildings using prescriptive and performance-related provisions. It is founded on broad-based principles intended to encourage the use and reuse of existing buildings while requiring reasonable upgrades and improvements. This 2018 edition is fully compatible with all of the *International Codes*® (I-Codes®) published by the International Code Council® (ICC®), including the *International Building Code*®, *International Energy Conservation Code*®, *International Fire Code*®, *International Fuel Gas Code*®, *International Green Construction Code*®, *International Mechanical Code*®, *International Plumbing Code*®, *International Private Sewage Disposal Code*®, *International Property Maintenance Code*®, *International Residential Code*®, *International Swimming Pool and Spa Code*®, *International Wildland-Urban Interface Code*®, *International Zoning Code*® and *International Code Council Performance Code*®.

The I-Codes, including this *International Existing Building Code*, 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 non-regulatory 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.
- U.S. 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 2018 edition presents the code as originally issued, with changes reflected in the 2006 through 2015 editions and further changes approved by the ICC Code Development Process through 2017. A new edition such as this is promulgated every 3 years.

This code is founded on principles intended to encourage the use and reuse of existing buildings that adequately protect public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

## Maintenance

The *International Existing Building Code* 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, *cdp-Access*<sup>®</sup>. 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)

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 International Code Council.

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 the International Existing Building Code Development Committee. Proposed changes to a code section having a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that are preceded by the designation [F] (e.g., [F] 1404.2) are considered by the International Fire Code Development Committee at the Committee Action Hearings.

The content of sections in this code that begin with a letter designation is maintained by another code development committee in accordance with the following:

- [A] = Administrative Code Development Committee;
- [BE] = IBC—Means of Egress Code Development Committee;
- [BG] = IBC—General Code Development Committee;
- [BS] = IBC—Structural Code Development Committee;
- [E] = International Commercial Energy Conservation Code Development Committee or International Residential Energy Conservation Code Development Committee;

- [F] = International Fire Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [M] = International Mechanical Code Development Committee; and
- [P] = International Plumbing Code Development Committee.

For the development of the 2021 edition of the I-Codes, there will be two groups of code development committees and they will meet in separate years.

<b>Group A Codes (Heard in 2018, Code Change Proposals Deadline: January 8, 2018)</b>	<b>Group B Codes (Heard in 2019, Code Change Proposals Deadline: January 7, 2019)</b>
<b>International Building Code</b> – 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, administrative updates to currently referenced standards, and designated definitions)
<b>International Fire Code</b>	<b>International Building Code</b> – Structural (Chapters 15–25, Appendices F, G, H, I, J, L, M)
<b>International Fuel Gas Code</b>	<b>International Existing Building Code</b>
<b>International Mechanical Code</b>	<b>International Energy Conservation Code—Commercial</b>
<b>International Plumbing Code</b>	<b>International Energy Conservation Code—Residential</b> – IECC—Residential – IRC—Energy (Chapter 11)
<b>International Property Maintenance Code</b>	<b>International Green Construction Code</b> (Chapter 1)
<b>International Private Sewage Disposal Code</b>	<b>International Residential Code</b> – IRC—Building (Chapters 1–10, Appendices E, F, H, J, K, L, M, O, Q, R, S, T)
<b>International Residential Code</b> – IRC—Mechanical (Chapters 12–23) – IRC—Plumbing (Chapters 25–33, Appendices G, I, N, P)	
<b>International Swimming Pool and Spa Code</b>	
<b>International Wildland-Urban Interface Code</b>	
<b>International Zoning Code</b>	
<b>Note:</b> Proposed changes to the ICC <i>Performance Code</i> ™ will be heard by the code development committee noted in brackets [ ] in the text of the ICC <i>Performance Code</i> ™.	

Code change proposals submitted for code sections that have a letter designation in front of them will be heard by the respective committee responsible for such code sections. Because different committees hold Committee Action Hearings in different years, it is possible that some proposals for this code will be heard by a committee in a different year than the year in which the primary committee for this code meets. In the case of the IEBC, the primary committees that maintain this code will meet in 2019.

For instance, Section 503.3 is designated as the responsibility of the IBC—Structural Code Development Committee, along with all structural-related provisions of the IEBC. This committee will conduct its code development hearings in 2019 to consider all code change proposals to the *International Building Code* and any portions of other codes that it is responsible for, including Section 503.3 of the IEBC and other structural provisions of the IEBC (designated with [BS] in front of those sections). Therefore, any proposals received for Section 503.3 will be considered in 2019 by the IBC—Structural Code Development Committee.

As another example, every section of Chapter 1 of this code is designated as the responsibility of the Administrative Code Development Committee, which is part of the Group B portion of the hear-

ings. This committee will hold its Committee Action Hearings in 2019 to consider code change proposals for Chapter 1 of all I-Codes except the *International Energy Conservation Code*, *International Residential Code* and *International Green Construction Code*. Therefore, any proposals received for Chapter 1 of this code will be assigned to the Administrative Code Development Committee for consideration in 2019.

It is very important that anyone submitting code change proposals understand 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 the Code Development Committee responsibilities, please visit the ICC website at [www.iccsafe.org/scoping](http://www.iccsafe.org/scoping).

## Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2015 edition. Deletion indicators in the form of an arrow (➡) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

A single asterisk [\*] placed in the margin indicates that text or a table has been relocated within the code. A double asterisk [\*\*] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code. The following table indicates such relocations in the 2018 edition of the *International Existing Building Code*:

2018 LOCATION	2015 LOCATION
302.2	401.3
305	410
904.1.4	804.2.4
1201.5	1202.2
1206.1	1202.3

## Chapter Reorganization

The 2018 edition of the IEBC had several chapters moved based on the need for more effective and consistent application of the provisions. The following table shows the chapter numbering changes:

Chapter, 2018	Chapter, 2015	Title
4	6	Repairs
5	4	Prescriptive Method
6	5	Classification of Work
13	14	Performance Method
14	13	Relocated or Moved Buildings

## Coordination of the International Codes

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

## Italicized Terms

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

## Adoption

The International Code Council 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](mailto:adoptions@iccsafe.org) to learn how to adopt and distribute laws based on the *International Existing Building Code* in a manner that provides necessary access, while maintaining the ICC's copyright.

To facilitate adoption, several sections of this code contain blanks for fill-in information that needs to be supplied by the adopting jurisdiction as part of the adoption legislation. For this code, please see:

Section 101.1 Insert: [NAME OF JURISDICTION]



# EFFECTIVE USE OF THE INTERNATIONAL EXISTING BUILDING CODE

The *International Existing Building Code* is a model code in the *International Code* family of codes intended to provide requirements for repair and alternative approaches for alterations and additions to existing buildings. A large number of existing buildings and structures do not comply with the current building code requirements for new construction. Although many of these buildings are potentially salvageable, rehabilitation is often cost-prohibitive because compliance with all the requirements for new construction could require extensive changes that go well beyond the value of the building or the original scope of the alteration. At the same time, it is necessary to regulate construction in existing buildings that undergo additions, alterations, extensive repairs or change of occupancy. Such activity represents an opportunity to ensure that new construction complies with the current building codes and that existing conditions are maintained, at a minimum, to their current level of compliance or are improved as required to meet basic safety levels. To accomplish this objective, and to make the alteration process easier, this code allows for options for controlled departure from full compliance with the *International Codes* dealing with new construction, while maintaining basic levels for fire prevention, structural and life safety features of the rehabilitated building.

This code provides three main options for a designer in dealing with alterations of existing buildings. These are laid out in Section 301 of this code:

**OPTION 1:** Work for alteration, change of occupancy or addition of all existing buildings shall be done in accordance with the Prescriptive Compliance Method given in Chapter 4. It should be noted that this method originates from the former Chapter 34 of the *International Building Code* (2012 and earlier editions).

**OPTION 2:** Work for alteration, change of occupancy or addition of all existing buildings shall be done in accordance with the Work Area Compliance Method given in Chapters 6 through 12.

**OPTION 3:** Work for alteration, change of occupancy or addition of all existing buildings shall be done in accordance with the Performance Compliance Method given in Chapter 13. It should be noted that this option was also provided in the former Chapter 34 of the *International Building Code* (2012 and earlier editions).

Under limited circumstances, a building alteration can be made to comply with the laws under which the building was originally built, as long as there has been no substantial structural damage and there will be limited structural alteration.

Note that all repairs must comply with Chapter 4 and relocated buildings are addressed by Chapter 14.

## Arrangement and Format of the 2018 IEBC

Before applying the requirements of the IEBC, it is beneficial to understand its arrangement and format. The IEBC, like other codes published by ICC, is arranged and organized to follow logical steps that generally occur during a plan review or inspection. The IEBC is divided as follows:

Chapters	Subjects
1–2	Administrative Requirements and Definitions
3	Provisions for all Compliance Methods
4	Repairs
5	Prescriptive Compliance Method for Existing Buildings
6–12	Work Area Compliance Method for Existing Buildings
13	Performance Compliance Method for Existing Buildings
14	Relocated Buildings
15	Construction Safeguards

16	Referenced Standards
Appendix A	Guidelines for Seismic Retrofit of Existing Buildings
Appendix B	Supplementary Accessibility Requirements for Existing Buildings
Appendix C	Guidelines for Wind Retrofit of Existing Buildings
Resource A	Guidelines on Fire Ratings of Archaic Materials and Assemblies

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *International Existing Building Code*:

**Chapter 1 Scope and Administration.** This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. Chapter 1 is largely concerned with maintaining “due process of law” in enforcing the regulations contained in the body of the code. Only through careful observation of the administrative provisions can the code official reasonably expect to demonstrate that “equal protection under the law” has been provided.

**Chapter 2 Definitions.** All defined terms in the code are provided in Chapter 2. While a defined term may only be used in one chapter or another, the meaning provided in Chapter 2 is applicable throughout the code.

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

Guidance regarding tense, gender and plurality of defined terms as well as guidance regarding terms not defined in this code is also provided.

**Chapter 3 Provisions for All Compliance Methods.** This chapter explains the three compliance options available in the code. In addition, this chapter also lays out the methods to be used for seismic design and evaluation throughout the IEBC. Finally this chapter clarifies that provisions in other I-Codes related to repairs, alterations, additions, relocation and changes in occupancy must also be addressed unless they conflict with the IEBC. In that case, the IEBC takes precedence.

**Chapter 4 Repairs.** Chapter 6 governs the repair of existing buildings. The provisions define conditions under which repairs may be made using materials and methods like those of the original construction or the extent to which repairs must comply with requirements for new buildings.

This chapter, like Chapter 14 related to relocated or moved buildings, is independent from the three methods presented by this code.

**Chapter 5 Prescriptive Compliance Method.** This chapter provides one of the three main options of compliance available in the IEBC for buildings and structures undergoing alteration, addition or change of occupancy.

**Chapter 6 Classification of Work.** This chapter provides an overview of the Work Area Method available as an option for rehabilitation of a building. The chapter defines the different classifications of alterations and provides general requirements for alterations, change of occupancy, additions and historic buildings. Detailed requirements for all of these are given in subsequent Chapters 7 through 12.

**Chapter 7 Alterations—Level 1.** This chapter provides the technical requirements for those existing buildings that undergo Level 1 alterations as described in Section 503, which includes replacement or covering of existing materials, elements, equipment or fixtures using new materials for the same purpose. This chapter, similar to other chapters of this code, covers all building-related subjects, such as structural, mechanical, plumbing, electrical and accessibility as well as the fire and life safety issues when the alterations are classified as Level 1. The purpose of this chapter is to pro-

vide detailed requirements and provisions to identify the required improvements in the existing building elements, building spaces and building structural system. This chapter is distinguished from Chapters 8 and 9 by only involving replacement of building components with new components. In contrast, Level 2 alterations involve more space reconfiguration and Level 3 alterations involve more extensive space reconfiguration, exceeding 50 percent of the building area.

**Chapter 8 Alterations—Level 2.** Like Chapter 7, the purpose of this chapter is to provide detailed requirements and provisions to identify the required improvements in the existing building elements, building spaces and building structural system when a building is being altered. This chapter is distinguished from Chapters 7 and 9 by involving space reconfiguration that could be up to and including 50 percent of the area of the building. In contrast, Level 1 alterations (Chapter 7) do not involve space reconfiguration and Level 3 alterations (Chapter 9) involve extensive space reconfiguration that exceeds 50 percent of the building area. Depending on the nature of alteration work, its location within the building and whether it encompasses one or more tenants, improvements and upgrades could be required for the open floor penetrations, sprinkler system or the installation of additional means of egress such as stairs or fire escapes.

**Chapter 9 Alterations—Level 3.** This chapter provides the technical requirements for those existing buildings that undergo Level 3 alterations. The purpose of this chapter is to provide detailed requirements and provisions to identify the required improvements in the existing building elements, building spaces and building structural system. This chapter is distinguished from Chapters 7 and 8 by involving alterations that cover 50 percent of the aggregate area of the building. In contrast, Level 1 alterations do not involve space reconfiguration and Level 2 alterations involve extensive space reconfiguration that does not exceed 50 percent of the building area. Depending on the nature of alteration work, its location within the building and whether it encompasses one or more tenants, improvements and upgrades could be required for the open floor penetrations, sprinkler system or the installation of additional means of egress such as stairs or fire escapes. At times and under certain situations, this chapter also intends to improve the safety of certain building features beyond the work area and in other parts of the building where no alteration work might be taking place.

**Chapter 10 Change of Occupancy.** The purpose of this chapter is to provide regulations for the circumstances when an existing building is subject to a change of occupancy or a change of occupancy classification. A change of occupancy is not to be confused with a change of occupancy classification. The *International Building Code* (IBC) defines different occupancy classifications in Chapter 3, and special occupancy requirements in Chapter 4. Within specific occupancy classifications there can be many different types of actual activities that can take place. For instance, a Group A-3 occupancy classification deals with a wide variation of different types of activities, including bowling alleys and courtrooms, indoor tennis courts and dance halls. When a facility changes use from, for example, a bowling alley to a dance hall, the occupancy classification remains A-3, but the different uses could lead to drastically different code requirements. Therefore, this chapter deals with the special circumstances that are associated with a change in the use of a building within the same occupancy classification as well as a change of occupancy classification.

**Chapter 11 Additions.** Chapter 11 provides the requirements for additions, which correlate to the code requirements for new construction. There are, however, some exceptions that are specifically stated within this chapter. An “Addition” is defined in Chapter 2 as “an extension or increase in the floor area, number of stories or height of a building or structure.” Chapter 11 contains the minimum requirements for an addition that is not separated from the existing building by a fire wall.

There are also requirements for storm shelters when additions are being made to Group E occupancies.

**Chapter 12 Historic Buildings.** This chapter provides some exceptions from code requirements when the building in question has historic value. The most important criterion for application of this chapter is that the building must be essentially accredited as being of historic significance by a state or local authority after careful review of the historical value of the building. Most, if not all, states have such authorities, as do many local jurisdictions. The agencies with such authority can be located at the state or local government level or through the local chapter of the American Institute of Architects (AIA). Other considerations include the structural condition of the building (i.e., is the building structurally sound), its proposed use, its impact on life safety and how the intent of the code, if not the letter, will be achieved.

**Chapter 13 Performance Compliance Methods.** This chapter allows for existing buildings to be evaluated so as to show that alterations, while not meeting new construction requirements, will improve the current existing situation. Provisions are based on a numerical scoring system involving 19 various safety parameters and the degree of code compliance for each issue.

**Chapter 14 Relocated or Moved Buildings.** Chapter 14 is applicable to any building that is moved or relocated.

This chapter, like the chapter on repairs, is independent from the three methods presented in this code.

**Chapter 15 Construction Safeguards.** The building construction process involves a number of known and unanticipated hazards. Chapter 15 establishes specific regulations in order to minimize the risk to the public and adjacent property. Some construction failures have resulted during the initial stages of grading, excavation and demolition. During these early stages, poorly designed and installed sheeting and shoring have resulted in ditch and embankment cave-ins. Also, inadequate underpinning of adjoining existing structures or careless removal of existing structures has produced construction failures.

There are also several fire safety and means of egress issues addressed by this chapter.

**Chapter 16 Referenced Standards.** The code contains numerous references to standards that are used to regulate materials and methods of construction. Chapter 16 contains a comprehensive list of all standards that are referenced in the code, including the appendices. The standards are part of the code to the extent of the reference to the standard. Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with the code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the building code official, contractor, designer and owner.

Chapter 16 is organized in a manner that makes it easy to locate specific standards. It lists all of the referenced standards, alphabetically, by acronym of the promulgating agency of the standard. Each agency's standards are then listed in either alphabetical or numeric order based upon the standard identification. The list also contains the title of the standard; the edition (date) of the standard referenced; any addenda included as part of the ICC adoption; and the section or sections of this code that reference the standard.

**Appendix A Guidelines for the Seismic Retrofit of Existing Buildings.** Appendix A provides guidelines for upgrading the seismic resistance capacity of different types of existing buildings. It is organized into separate chapters which deal with buildings of different types, including unreinforced masonry buildings, reinforced concrete and reinforced masonry wall buildings, and light-frame wood buildings.

**Appendix B Supplementary Accessibility Requirements for Existing Buildings and Facilities.** Chapter 11 of the *International Building Code* (IBC) contains provisions that set forth requirements for accessibility to buildings and their associated sites and facilities for people with physical disabilities. Section 305 addresses accessibility provisions and alternatives permitted in existing buildings. Appendix B was added to address accessibility in construction for items that are not typically enforceable through the traditional building code enforcement process.

**Appendix C Guidelines for Wind Retrofit of Existing Buildings.** This Appendix is intended to provide guidance for retrofitting existing structures to strengthen their resistance to wind forces. This appendix is similar in scope to Appendix A which addresses seismic retrofits for existing buildings except that the subject matter is related to wind retrofits. These retrofits are voluntary measures that serve to better protect the public and reduce damage from high wind events for existing buildings.

The purpose of the Appendix is to provide prescriptive alternatives for addressing retrofit of buildings in high-wind areas. Currently there are two chapters which deal with the retrofit of gable ends and the fastening of roof decks, Appendix Chapters C1 and C2, respectively.

**Resource A Guidelines on Fire Ratings of Archaic Materials and Assemblies.** In the process of repair and alteration of existing buildings, based on the nature and the extent of the work, the IEBC might require certain upgrades in the fire-resistance rating of building elements, at which time it becomes critical for the designers and the code officials to be able to determine the fire-resistance rating of the existing building elements as part of the overall evaluation for the assessment of the need for improvements. This resource document provides a guideline for such an evaluation for fire-resistance rating of archaic materials that is not typically found in the modern model building codes.



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