

Effective Use of the Existing Building Code

[North Carolina Existing Building Code](#)

The *Existing Building Code* is a model code in the *International Code* family of codes intended to provide alternative approaches to remodeling, repair or alteration of 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 rehabilitation. At the same time, it is necessary to regulate construction in existing buildings that undergo additions, alterations, renovations, 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 rehabilitation 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 rehabilitation of existing buildings. These are laid out in Section 301 of this code:

OPTION 1: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the **Prescriptive Compliance Method** given in Chapter 4. It should be noted that this same method was historically provided in Chapter 34 of the *International Building Code*.

OPTION 2: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the **Work Area Compliance Method** given in Chapters 5 through 13.

OPTION 3: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the **Performance Compliance Method** given in Chapter 14. It should be noted that this option was historically provided in Chapter 34 of the *International Building Code*.

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.

Arrangement & Format of the EBC

Before applying the requirements of the EBC 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 Administrative Requirements

2 Definitions

3 Compliance Methods

4 Prescriptive Compliance Method for Existing Buildings

5-13 Work Area Compliance Method for Existing Buildings

14 Performance Compliance Method for Existing 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 Information on Fire Resistance of Archaic Materials and Assemblies

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

Chapter 1 Scope and Administration.

[NCS Administrative Code & Policies](#)

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.

[NCS EBC Chapter 2](#)

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 Compliance Methods.

[NCS EBC Chapter 3](#)

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 EBC. 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 EBC. In that case the EBC takes precedence.

Chapter 4 Prescriptive Compliance Method.

[NCS EBC Chapter 4](#)

This chapter provides one of the three main options of compliance available in the EBC for buildings and structures undergoing repair, alteration, addition or change in occupancy.

This chapter duplicates the provisions that were predominantly in Chapter 34 of the IBC, Sections 3403 through 3411.

Chapter 5 Classification of Work Method.

[NCS EBC Chapter 5](#)

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 repairs, alterations, change of occupancy, additions, historic buildings and relocated buildings.

Detailed requirements for all of these are given in subsequent Chapters 6 through 13.

Chapter 6 Repairs.

[NCS EBC Chapter 6](#)

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.

Chapter 7 Alterations — Level 1

(Former Rehab Code designation — *Renovation*)

[NCS EBC Chapter 7](#)

This chapter provides the technical requirements for those existing buildings that undergo Level 1 alterations as described in Section 403, 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 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 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

(Former Rehab Code designation — *Alteration*)

[NCS EBC Chapter 8](#)

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 (Former Rehab Code designation — Reconstruction)

[NCS EBC Chapter 9](#)

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 exceed 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.

[NCS EBC Chapter 10](#)

The purpose of this chapter is to provide regulations for the circumstances when an existing building is subject to a change in occupancy or a change in 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.

[NCS EBC Chapter 11](#)

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.**

Chapter 12 Historic Buildings.

[NCS EBC Chapter 12](#)

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 Relocated or Moved Buildings.

[NCS EBC Chapter 13](#)

Chapter 13 is applicable to any building that is moved or relocated.

Chapter 14 Performance Compliance Method.

[NCS EBC Chapter 14](#)

Compliance Alternatives, 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. **This chapter is a duplication of IBC Section 3412.**

[Performance Compliance Method Spreadsheet](#)

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.

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 & 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. Sections 410, 605, 705, 906, 1006, 1012.1.4, 1012.8, 1105, 1204.1, 1205.15, 1401.2.5 and 1508 in the code address 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 EBC 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.