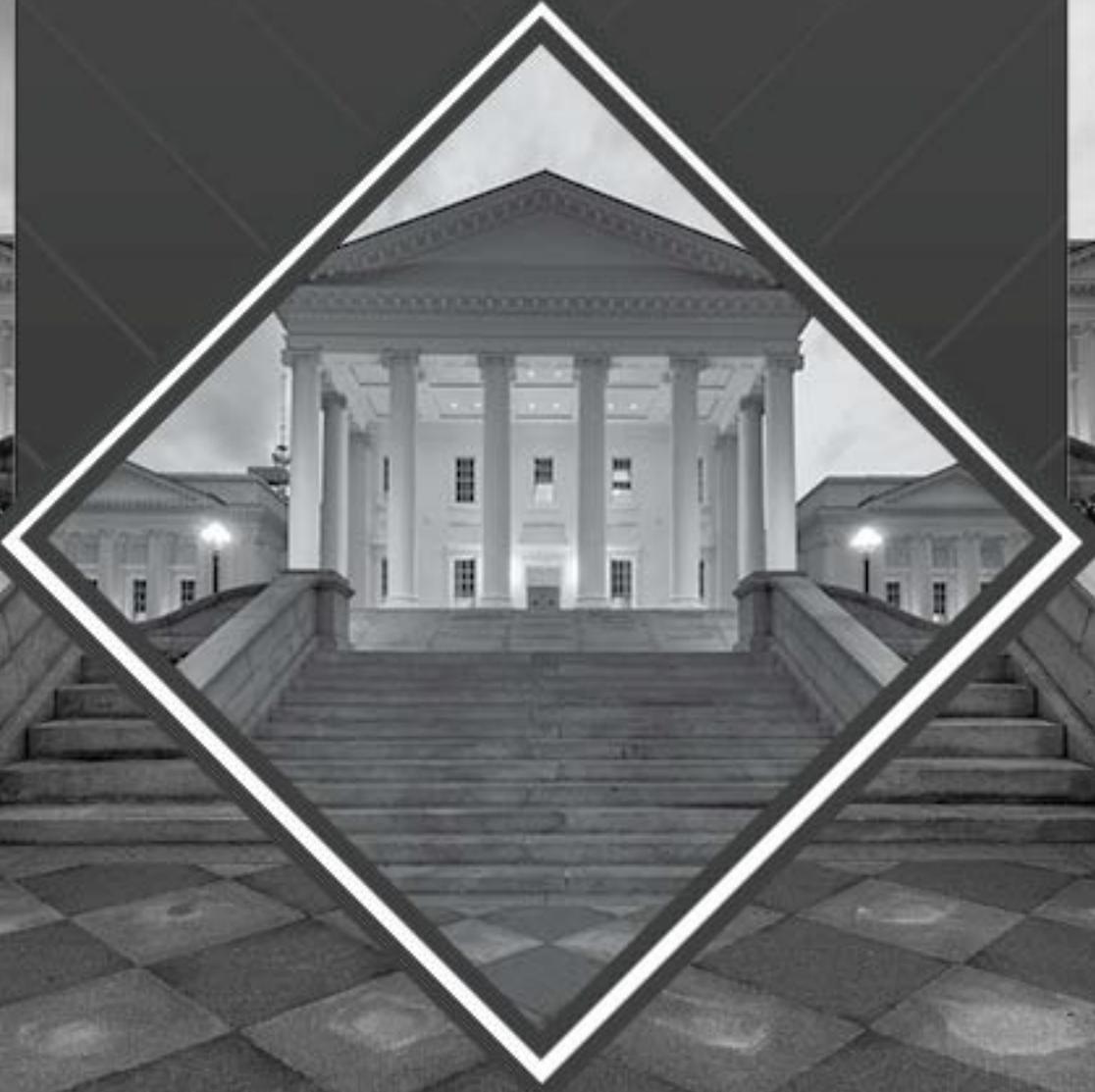


# 2021

Effective: January 18th, 2024



## Virginia Existing Building Code



# PREFACE

## Introduction

The Virginia Uniform Statewide Building Code (USBC) is a state regulation promulgated by the Virginia Board of Housing and Community Development, a Governor-appointed board, for the purpose of establishing minimum regulations to govern the construction and maintenance of buildings and structures.

The provisions of the USBC are based on nationally recognized model building and fire codes published by the International Code Council, Inc. The model codes are made part of the USBC through a regulatory process known as incorporation by reference. The USBC also contains administrative provisions governing the use of the model codes and establishing requirements for the enforcement of the code by the local building departments and other code enforcement agencies.

In keeping with the designations of the USBC used previously, since the 2021 editions of the International Codes are incorporated by reference into this version of the USBC, it is known as the 2021 edition of the USBC.

## Arrangement

The USBC is part of the Virginia Administrative Code (VAC), the official compilation of state regulations published under the authority and guidance of the Virginia Code Commission. Due to the difference in the section numbering system between the VAC and the model codes incorporated by reference into the USBC, the USBC utilizes a dual section numbering system. In the USBC, the VAC section numbers are listed first, followed by a section number matching the model code system. In this printing of the USBC, the VAC section numbers are omitted and only the model code numbering system is utilized. The version of the USBC containing both the VAC section numbers and the model code numbering is available from the Virginia Department of Housing and Community Development (DHCD) and may also be accessed through the website of the Virginia Code Commission or by subscription to the VAC.

## Overview

The USBC is divided into three stand-alone parts. Part I contains regulations specific to the construction of new buildings and structures and is known as the Virginia Construction Code. Part II contains regulations specific to the rehabilitation of existing buildings, including repair, alterations, additions and change of occupancy in existing buildings and structures, and is known as the Virginia Existing Building Code. Part III of the USBC contains the regulations for the maintenance of existing structures which is enforced at the option of the local governments. It is known as the Virginia Property Maintenance Code.

## Codes Purchased from ICC

The 2021 edition of the USBC is being made available in pamphlet form as in past editions of the USBC. In addition to the pamphlet form of the USBC published by DHCD, the International Code Council (ICC) publishes versions of the Virginia Construction Code, Virginia Existing Building Code, Virginia Maintenance Code and a series of Virginia specific trade codes. In the ICC published versions, marginal markings are provided to distinguish between text which is part of the International Codes and text which is part of the state regulations. Double vertical lines in the margins within the body of the codes indicate state amendments to the International Codes. As in the standard printings of the International Codes, a single vertical line in the margins within the body of the code indicates a technical change from the previous edition of the International Codes. Deletions from the previous editions of the International Codes are indicated in the form of an arrow ( → ) 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.

## Technical Assistance

The local building departments and enforcing agencies may be contacted for further information concerning the USBC. Contact information for DHCD is below.

**DHCD, Division of Building and Fire Regulation**  
**State Building Codes Office**  
**600 East Main Street, Suite 300**  
**Richmond, Virginia 23219**  
**Phone: (804) 371-7150 – Email: [sbco@dhcd.virginia.gov](mailto:sbco@dhcd.virginia.gov)**  
**Website: [www.dhcd.virginia.gov](http://www.dhcd.virginia.gov)**

## PREVIOUS ADOPTIONS and AMENDMENTS of the USBC and SFPC

The *Virginia Uniform Statewide Building Code* (USBC) was first adopted in 1973 by the State Board of Housing. Responsibility for the USBC passed to the State Board of Housing and Community Development on July 1, 1978. The *Virginia Statewide Fire Prevention Code* was first adopted by the Board of Housing and Community Development on March 1, 1988. The initial adoption and subsequent amendments by these Boards are indicated below:

### 1973 Edition

- Effective date: September 1, 1973
- Title: Virginia Uniform Statewide Building Code, Administrative Amendments, 1973 Edition
- Major reference standards:
  - BOCA Basic Building Code/1970, with 1972 Accumulative Supplement
  - BOCA Basic Mechanical Code/1971
  - BOCA Basic Plumbing Code/1970, with 1972 Accumulative Supplement
  - NFPA National Electrical Code/1971
  - One- and Two-Family Dwelling Code/1971

### 1974 Accumulative Supplement

- Effective date: April 1, 1974
- Title: 1974 Accumulative Supplement to Virginia Uniform Statewide Building Code
- Major reference standards:
  - BOCA Basic Building Code/1970, with 1972 Accumulative Supplement
  - BOCA Basic Mechanical Code/1971
  - BOCA Basic Plumbing Code/1970, with 1972 Accumulative Supplement
  - NFPA National Electrical Code/1971

### 1975 Accumulative Supplement

- Effective date: February 7, 1976
- Title: 1975 Accumulative Supplement to Virginia Uniform Statewide Building Code
- Major reference standards:
  - BOCA Basic Building Code/1975
  - BOCA Basic Mechanical Code/1975
  - BOCA Basic Plumbing Code/1975
  - NFPA National Electrical Code/1975
  - One- and Two-Family Dwelling Code/1975

### 1978 Accumulative Supplement

- Effective date: August 1, 1978
- Title: 1978 Accumulative Supplement to Virginia Uniform Statewide Building Code
- Major reference standards:
  - BOCA Basic Building Code/1978
  - BOCA Basic Mechanical Code/1978
  - BOCA Basic Plumbing Code/1978
  - NFPA National Electrical Code/1978
  - One- and Two-Family Dwelling Code/1975

### 1978 Accumulative Supplement (First Amendment)

- Effective date: January 1, 1981

- NOTE: The 1978 Accumulative Supplement to the Virginia Uniform Statewide Building Code was continued, but with a few changes to the previously referenced BOCA Basic Building Code/1978.

#### **1981 Edition**

- Effective date: July 16, 1982
- Title: Virginia Uniform Statewide Building Code, 1981 Edition
- Major reference standards:
  - BOCA Basic Building Code/1981
  - BOCA Basic Mechanical Code/1981
  - BOCA Basic Plumbing Code/1981
  - NFPA National Electrical Code/1981
  - One- and Two-Family Dwelling Code/1979 with 1980 Amendments

#### **1981 Edition (First Amendment)**

- Effective date: June 20, 1984
- Title: Sections 515.4 and 515.5 of Article 5 of the 1981 Edition, Virginia Uniform Statewide Building Code

#### **1984 Edition**

- Effective date: April 1, 1986
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1984 Edition
- Major reference standards:
  - BOCA Basic Building Code/1984
  - BOCA Basic Mechanical Code/1984
  - BOCA Basic Plumbing Code/1984
  - NFPA National Electrical Code/1984
  - One- and Two-Family Dwelling Code/1983 with 1984 Amendments

#### **1987 Edition**

- Effective date: March 1, 1988
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1987 Edition
- Major reference standards:
  - BOCA Basic Building Code/1987
  - BOCA Basic Mechanical Code/1987
  - BOCA Basic Plumbing Code/1987
  - NFPA National Electrical Code/1987
  - One- and Two-Family Dwelling Code/1986 with 1987 Amendments
- Title: Virginia Statewide Fire Prevention Code, 1987 Edition
- Major reference standard:
  - BOCA National Fire Prevention Code/1987

#### **1987 Edition (First Amendment)**

- Effective date: March 1, 1989
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1987 Edition
- Major reference standards: Same as 1987 Edition

#### **1987 Edition (Second Amendment)**

- Effective date: March 1, 1990
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1987 Edition
- Major reference standards: Same as 1987 Edition

#### **1987 Edition (Third Amendment)**

- Effective date: October 1, 1990
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1987 Edition
- Major reference standards: Same as 1987 Edition

#### **1990 Edition**

- Effective date: March 1, 1991
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1990 Edition
- Major reference standards:
  - BOCA National Building Code/1990
  - BOCA National Mechanical Code/1990
  - BOCA National Plumbing Code/1990
  - NFPA National Electrical Code/1990
  - CABO One- and Two-Family Dwelling Code/1989 with 1990 Amendments
- Title: Virginia Statewide Fire Prevention Code, 1990 Edition
- Major reference standard:
  - BOCA National Fire Prevention Code/1990

#### **1990 Edition (First Amendment)**

- Effective date: November 1, 1991
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1990 Edition - First Amendment
- Major reference standards: Same as 1990 Edition

#### **1990 Edition (Third Amendment)**

- Effective date: March 1, 1993
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1990 Edition - Third Amendment
- Major reference standards: Same as 1990 Edition.

#### **1993 Edition**

- Effective date: April 1, 1994
- Title: Virginia Uniform Statewide Building Code, Volume I - New Construction Code, 1993 Edition
- Major reference standards:
  - BOCA National Building Code/1993
  - BOCA National Mechanical Code/1993
  - BOCA National Plumbing Code/1993
  - BOCA National Fire Prevention Code/1993
  - NFPA National Electrical Code/1993
  - CABO One- and Two-Family Dwelling Code/1992 with 1993 Amendments
- Title: Virginia Statewide Fire Prevention Code, 1993 Edition
- Major reference standard:
  - BOCA National Fire Prevention Code/1993

#### **1996 Edition**

- Effective date: April 15, 1997 with minor revision August 20, 1997
- Title: Virginia Uniform Statewide Building Code, 1996 Edition
- Major reference standards:
  - BOCA National Building Code/1996
  - International Mechanical Code/1996
  - International Plumbing Code/1995 with 1996 Supplement
  - NFPA National Electrical Code/1996
  - CABO One- and Two-Family Dwelling Code/1995
- Title: Virginia Statewide Fire Prevention Code, 1996 Edition
- Major reference standard:
  - BOCA National Fire Prevention Code/1996

#### **1996 Edition w/2000 Amendments**

- Effective date: September 15, 2000

- Title: Virginia Uniform Statewide Building Code, 1996 Edition with 2000 Amendments
- Major reference standards:
  - Same as 1996 edition except with International Fuel Gas Code 1997

#### **2000 Edition**

- Effective date: October 1, 2003
- Title: Virginia Uniform Statewide Building Code “USBC” (2000 Edition)
- Major referenced standards:
  - International Code Council (ICC)
  - International Building Code 2000
  - International Plumbing Code 2000
  - International Mechanical Code 2000
  - NFPA National Electrical Code 1999
  - International Fuel Gas Code 2000
  - International Energy Conservation Code 2000
  - International Residential Code (IRC) 2000
- NOTE: An amendment addressing the fire separation distance between dwellings under the IRC became effective on September 9, 2004.
- Title: Virginia Statewide Fire Prevention Code, 2000 Edition
- Major reference standard:
  - ICC International Fire Code 2000

#### **2003 Edition**

- Effective date: November 16, 2005
- Title: Virginia Uniform Statewide Building Code “USBC” (2003 Edition)
- Major referenced standards:
  - International Code Council (ICC)
  - ICC International Building Code 2003
  - ICC International Plumbing Code 2003
  - ICC International Mechanical Code 2003
  - NFPA National Electrical Code 2005
  - ICC International Fuel Gas Code 2003
  - ICC International Energy Conservation Code 2003
  - ICC International Residential Code (IRC) 2003
- Title: Virginia Statewide Fire Prevention Code, 2003 Edition
- Major reference standard:
  - ICC International Fire Code 2003

#### **2006 Edition**

- Effective date: May 1, 2008
- Title: Virginia Uniform Statewide Building Code “USBC” (2006 Edition)
- Major referenced standards:
  - ICC International Building Code 2006
  - ICC International Plumbing Code 2006
  - ICC International Mechanical Code 2006
  - NFPA National Electrical Code 2005
  - ICC International Fuel Gas Code 2006
  - ICC International Energy Conservation Code 2006
  - ICC International Residential Code 2006
- Title: Virginia Statewide Fire Prevention Code, 2006 Edition

- Major reference standard:
  - ICC International Fire Code 2006

### **2009 Edition**

- Effective Date: March 1, 2011
- Title: Virginia Uniform Statewide Building Code “USBC” (2009 Edition)
- Major referenced standards:
  - ICC International Building Code 2009
  - ICC International Plumbing Code 2009
  - ICC International Mechanical Code 2009
  - NFPA National Electrical Code 2008
  - ICC International Fuel Gas Code 2009
  - ICC International Energy Conservation Code 2009
  - ICC International Residential Code 2009
- Title: Virginia Statewide Fire Prevention Code, 2009 Edition
- Major reference standard:
  - ICC International Fire Code 2009

### **2012 Edition**

- Effective Date: July 14, 2014
- Title: Virginia Uniform Statewide Building Code “USBC” (2012 Edition)
- Major referenced standards:
  - ICC International Building Code 2012
  - ICC International Plumbing Code 2012
  - ICC International Mechanical Code 2012
  - NFPA National Electric Code 2011
  - ICC International Fuel Gas Code 2012
  - ICC International Energy Conservation Code 2012
  - ICC International Residential Code 2012
- Title: Virginia Statewide Fire Prevention Code, 2012 Edition
- Major reference standard:
  - ICC International Fire Code 2012

### **2015 Edition**

- Effective Date: September 4, 2018
- Title: Virginia Uniform Statewide Building Code “USBC” (2015 Edition)
- Major referenced standards:
  - ICC International Building Code 2015
  - ICC International Plumbing Code 2015
  - ICC International Mechanical Code 2015
  - NFPA National Electric Code 2014
  - ICC International Fuel Gas Code 2015
  - ICC International Energy Conservation Code 2015
  - ICC International Residential Code 2015
- Effective date: October 16, 2018
- Title: Virginia Statewide Fire Prevention Code, 2015 Edition
- Major reference standard:
  - ICC International Fire Code 2015

### **2018 Edition**

- Effective Date: July 1, 2021

- Title: Virginia Uniform Statewide Building Code “USBC” (2018 Edition)
- Major referenced standards:
  - ICC International Building Code 2018
  - ICC International Plumbing Code 2018
  - ICC International Mechanical Code 2018
  - NFPA National Electric Code 2017
  - ICC International Fuel Gas Code 2018
  - ICC International Energy Conservation Code 2018
  - ICC International Residential Code 2018
- Title: Virginia Statewide Fire Prevention Code, 2018 Edition
- Major reference standard:
  - ICC International Fire Code 2018

# TABLE OF CONTENTS

<b>CHAPTER 1</b>	<b>ADMINISTRATION</b>	
Section		
101	General.....	1
102	Purpose and Scope .....	3
103	Application of Code.....	4
<b>CHAPTER 2</b>	<b>DEFINITIONS .....</b>	<b>6</b>
<b>CHAPTER 3</b>	<b>GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS.....</b>	<b>8</b>
<b>CHAPTER 4</b>	<b>ACCESSIBILITY .....</b>	<b>16</b>
<b>CHAPTER 5</b>	<b>REPAIRS.....</b>	<b>22</b>
<b>CHAPTER 6</b>	<b>ALTERATIONS .....</b>	<b>27</b>
<b>CHAPTER 7</b>	<b>CHANGE OF OCCUPANCY.....</b>	<b>36</b>
<b>CHAPTER 8</b>	<b>ADDITIONS.....</b>	<b>46</b>
<b>CHAPTER 9</b>	<b>HISTORIC BUILDINGS .....</b>	<b>52</b>
<b>CHAPTER 10</b>	<b>MOVED BUILDINGS AND STRUCTURES.....</b>	<b>57</b>
<b>CHAPTER 11</b>	<b>RETROFIT REQUIREMENTS .....</b>	<b>59</b>
<b>CHAPTER 12</b>	<b>CONSTRUCTION SAFEGUARDS .....</b>	<b>64</b>
<b>CHAPTER 13</b>	<b>REFERENCED STANDARDS.....</b>	<b>71</b>
<b>CHAPTER 14</b>	<b>COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY.....</b>	<b>74</b>
<b>APPENDIX B</b>	<b>SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS FOR EXISTING BUILDINGS AND FACILITIES.....</b>	<b>91</b>



# CHAPTER 1

## ADMINISTRATION

### SECTION 101 GENERAL

**Section 101.1 Short title.** The Virginia Uniform Statewide Building Code, Part II, Existing Buildings, may be cited as the "Virginia Existing Building Code" or as the "VEBC."

**Section 101.2 Incorporation by reference.** Chapters 2 through 16 of the 2021 International Existing Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the VEBC. The term "IEBC" means the 2021 International Existing Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IEBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference.

**Section 101.3 Numbering system.** A dual numbering system is used in the VEBC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IEBC. IEBC numbering system designations are provided in the catchlines of the Virginia Administrative Code sections and cross references between sections or chapters of the VEBC use only the IEBC numbering system designations. The term "chapter" is used in the context of the numbering system of the IEBC and may mean a chapter in the VEBC, a chapter in the IEBC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

**Section 101.4 Arrangement of code provisions.** The VEBC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 through 16 of the IEBC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added. The terminology "changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added" shall also be referred to as the "state amendments to the IEBC." Such state amendments to the IEBC are set out using corresponding chapter and section numbers of the IEBC numbering system. In addition, since Chapter 1 of the IEBC is not incorporated as part of the VEBC, any reference to a provision of Chapter 1 of the IEBC in the provisions of Chapters 2 through 16 of the IEBC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established in this section, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

**Section 101.5 Use of terminology and notes.** The provisions of this code shall be used as follows:

1. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 through 16 of the IEBC, or in the state amendments to the IEBC, means the VEBC, unless the context clearly indicates otherwise.
2. The term "this code," or "the code," where used in a code or standard referenced in the VEBC, means that code or standard, unless the context clearly indicates otherwise.
3. The term "USBC" where used in this code, means the VCC, unless the context clearly indicates otherwise.
4. The use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision.

## ADMINISTRATION

5. Notes in the IEBC, in the codes and standards referenced in the IEBC and in the state amendments to the IEBC, may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.
6. References to International Codes and standards, where used in this code, include state amendments made to those International Codes and standards in the VCC.

Note: See Section 101.2 of the VCC for a list of major codes and standards referenced in the VCC.

**Section 101.6 Order of precedence.** The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any provisions of Chapters 2 through 16 of the IEBC that address the same subject matter and impose differing requirements.
2. The provisions of Chapter 1 of this code supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.
3. The state amendments to the IEBC supersede any provisions of Chapters 2 through 16 of the IEBC that address the same subject matter and impose differing requirements.
4. The state amendments to the IEBC supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.
5. The provisions of Chapters 2 through 16 of the IEBC supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.

**Section 101.7 Administrative provisions.** The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope and enforcement of the code. Any provisions of Chapters 2 through 16 of the IEBC or any provisions of the codes and standards referenced in the IEBC that address the same subject matter to a lesser or greater extent are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IEBC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the provisions in this section, where administrative requirements of Chapters 2 through 16 of the IEBC or of the codes and standards referenced in the IEBC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IEBC, then such requirements are not deleted and replaced.

**Note:** The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

**Section 101.8 Definitions.** The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

## SECTION 102 PURPOSE AND SCOPE

**Section 102.1 Purpose.** In accordance with § 36-99.01 of the Code of Virginia, the General Assembly of Virginia has declared that (i) there is an urgent need to improve the housing conditions of low and moderate income individuals and families, many of whom live in substandard housing, particularly in the older cities of the Commonwealth; (ii) there are large numbers of older residential buildings in the Commonwealth, both occupied and vacant, which are in urgent need of rehabilitation and must be rehabilitated if the state's citizens are to be housed in decent, sound, and sanitary conditions; and (iii) the application of those building code requirements currently in force to housing rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

The General Assembly further declares that (i) there is an urgent need to improve the existing condition of many of the Commonwealth's stock of commercial properties, particularly in older cities; (ii) there are large numbers of older commercial buildings in the Commonwealth, both occupied and vacant, that are in urgent need of rehabilitation and that must be rehabilitated if the citizens of the Commonwealth are to be provided with decent, sound and sanitary work spaces; and (iii) the application of the existing building code to such rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

**Section 102.2 Scope.** The provisions of this code shall govern construction and rehabilitation activities in existing buildings and structures.

**102.2.1 Group I-2 or I-3 applicability.** A change of occupancy to Group I-2 or I-3 from another occupancy classification shall comply with the provisions of the VCC as required for new construction, not Chapter 7 of this code. All other provisions of the VEBC, including change of occupancy within an existing Group I-2 or I-3 classification, are applicable to Group I-2 or I-3.

**102.2.2 Reconstruction, alteration, or repair in Group R-5 occupancies.** Compliance with this section shall be an acceptable alternative to compliance with this code at the discretion of the owner or owner's agent. The VCC may be used for the reconstruction, alteration, or repair of Group R-5 buildings or structures subject to the following criteria:

1. Any reconstruction, alteration or repair shall not adversely affect the performance of the building or structure, or cause the building or structure to become unsafe or lower existing levels of health and safety.
2. Parts of the building or structure not being reconstructed, altered, or repaired shall not be required to comply with the requirements of the VCC applicable to newly constructed buildings or structures.
3. The installation of material or equipment, or both, that is neither required nor prohibited shall only be required to comply with the provisions of the VCC relating to the safe installation of such material or equipment.
4. Material or equipment, or both, may be replaced in the same location with material or equipment of a similar kind or capacity.
5. In accordance with § 36-99.2 of the Code of Virginia, installation or replacement of glass shall comply with Section R308 or Chapter 24 of the VCC.

### Exceptions:

1. This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of the VCC.

## ADMINISTRATION

2. Reconstructed decks, balconies, porches, and similar structures located 30 inches (762 mm) or more above grade shall meet the current code provisions for structural loading capacity, connections, and structural attachment. This requirement excludes the configuration and height of handrails and guardrails.
3. Repair or replacement of smoke alarms shall be with devices listed in accordance with UL217 and that are no more than 10 years from the date of manufacture. Battery-only powered devices shall be powered by a 10-year sealed battery.

**102.2.3 Additions.** Where one or more newly constructed fire walls that comply with Section 706 of the VCC is provided between an addition and the existing building or structure or portions thereof, the addition shall be considered a separate building, and therefore, not an addition within the scope of this code. Such separate building, including the fire wall, shall be constructed in accordance with the VCC and shall not place the existing building or structure in nonconformance with the building code under which the existing building or structure or the affected portions thereof was built, or as previously approved.

## SECTION 103 APPLICATION OF CODE

**103.1 General.** All administrative provisions of the VCC, including requirements for permits, inspections and approvals by the local building department, provisions for appeals from decisions of the local building department and the issuance of modifications, are applicable to the use of this code, except where this code sets out differing requirements. Where there is a conflict between a general requirement and a specific requirement in the VEBC, the specific requirement shall govern.

**103.1.1 Use of performance code.** Compliance with the provisions of a nationally recognized performance code when approved as a modification shall be considered to constitute compliance with this code. All documents submitted as part of such consideration shall be retained in the permanent records of the local building department.

**103.1.2 Preliminary meeting.** When requested by a prospective permit applicant or when determined necessary by the code official, the code official shall meet with the prospective permit applicant prior to the application for a permit to discuss plans for the proposed work or change of occupancy in order to establish the specific applicability of the provisions of this code.

**103.2 Change of occupancy.** A building or structure undergoing a change of occupancy shall comply with the provisions of this code for change of occupancy, except as provided for in Section 102.2.1 for Group I-2 or I-3. Permitting, inspections, and certificate of occupancy issuance shall be in accordance with the administrative provisions of the VCC.

When impractical to achieve compliance with this code for the new occupancy, the building official shall consider modifications upon application and as provided for in Section 106.3 of the VCC.

**103.3 Retrofit requirements.** The local building department shall enforce the provisions of Section 1101 that require certain existing buildings to be retrofitted with fire protection systems and other safety equipment. Retroactive fire protection system requirements contained in the IFC shall not be applicable unless required for compliance with the provisions of Section 1101.

**103.4 Nonrequired equipment.** The following criteria for nonrequired equipment are in accordance with § 36-103 of the Code of Virginia. Building owners may elect to install partial or full fire alarms or other safety equipment that was not required by the edition of the VCC in effect at the time a building was constructed without meeting current requirements of the code, provided the installation does not create a hazardous condition. Permits for installation shall

be obtained in accordance with the VCC. In addition, as a requirement of this code, when such nonrequired equipment is to be installed, the building official shall notify the appropriate fire official or fire chief.

**103.4.1 Reduction in function or discontinuance of nonrequired fire protection systems.** When a nonrequired fire protection system is to be reduced in function or discontinued, it shall be done in such a manner so as not to create a false sense of protection. Generally, in such cases, any features visible from interior areas shall be removed, such as sprinkler heads, smoke detectors, or alarm panels or devices, but any wiring or piping hidden within the construction of the building may remain. Approval of the proposed method of reduction or discontinuance shall be obtained from the building official.

**103.5 Requirements relating to maintenance.** Any requirements of the IEBC requiring the maintenance of existing buildings or structures are invalid.

Note: Requirements for the maintenance of existing buildings and structures and for unsafe conditions are contained in the VMC.

**103.6 Use of Appendix A.** Appendix A of the IEBC provides guidelines for the seismic retrofit of existing buildings. The use of this appendix is not mandatory but shall be permitted to be utilized at the option of an owner, the owner's agent or the Registered Design Professional (RDP) involved in a rehabilitation project. However, in no case shall the use of Appendix A be construed to authorize the lowering of existing levels of health or safety in buildings or structures being rehabilitated.

**103.7 Use of Appendix B.** Appendix B of the IEBC provides supplementary accessibility requirements for existing buildings and facilities. All applicable requirements of Appendix B shall be met in buildings and structures being rehabilitated.

**103.8 Use of Resource A.** Resource A of the IEBC provides guidelines for the evaluation of fire resistance ratings of archaic materials and may be used in conjunction with rehabilitation projects.

**103.9 Construction documents.** Construction documents shall be submitted with the application for a permit. The work proposed to be performed on an existing building or structure shall be classified on the construction documents as repairs, alterations, change of occupancy, addition, historic building, or moved building. Alterations shall further be classified as Level 1 or Level 2. Any required elevation certificate shall be prepared by a certified land surveyor or registered professional civil engineer licensed in Virginia.

**Exception:** Construction documents or classification of the work does not need to be submitted when the building official determines the proposed work does not require such documents, classification, or identification.

CHAPTER 2  
DEFINITIONS

*Change Section 201.3 of the IEBC to read:*

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the other International Codes, such terms shall have the meanings ascribed to them in those codes, except that terms that are not defined in this code and that are defined in the VCC shall take precedence over other definitions.

*Change the following definitions in Section 202 of the IEBC to read:*

**BUILDING.** A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons or property. The word "building" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Building" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Commonwealth Transportation Board.

**CHANGE OF OCCUPANCY.** Either of the following shall be considered a change of occupancy where the current VCC requires a greater degree of structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.
2. Any change in the purpose of, or a change in the level of activity within, a building or structure.

Note: The use and occupancy classification of a building or structure, shall be determined in accordance with Chapter 3 of the VCC.

**EXISTING BUILDING.** A building for which a legal certificate of occupancy has been issued under any edition of the USBC or approved by the building official when no legal certificate of occupancy exists, and that has been occupied for its intended use; or, a building built prior to the initial edition of the USBC.

**EXISTING STRUCTURE.** A structure (i) for which a legal building permit has been issued under any edition of the USBC, (ii) that has been previously approved, or (iii) that was built prior to the initial edition of the USBC. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance, or standard.

*Add the following definitions to Section 202 of the IEBC to read:*

**MOVED BUILDING OR STRUCTURE.** An existing building or structure that is moved to a new location.

**ROOF COVERING.** The covering applied to the roof deck or spaced supports for weather resistance, energy performance, fire classification, or appearance.

## GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS

**STRUCTURE.** An assembly of materials forming a construction for occupancy or use including stadiums, gospel and circus tents, reviewing stands, platforms, stagings, observation towers, radio towers, water tanks, storage tanks (underground and aboveground), trestles, piers, wharves, swimming pools, amusement devices, storage bins, and other structures of this general nature but excluding water wells. The word "structure" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Structure" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

*Delete the following definitions from Section 202 of the IEBC:*

**APPROVED**

**DANGEROUS**

**DEFERRED SUBMITTAL**

**FACILITY**

**FLOOD HAZARD AREA**

**REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE**

**RELOCATABLE BUILDING**

**ROOF REPAIR**

**UNSAFE**

**WORK AREA**

CHAPTER 3  
GENERAL PROVISIONS AND SPECIAL DETAILED  
REQUIREMENTS

*Replace Chapter 3 of the IEBC with the following:*

SECTION 301  
GENERAL

**301.1 Applicability.** The applicable provisions of this chapter shall be used in conjunction with the requirements in this code, and shall apply to all construction and rehabilitation.

**301.2 Occupancy and use.** When determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the VCC.

SECTION 302  
BUILDING MATERIALS AND SYSTEMS

**302.1 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the VCC would not permit hazardous material use in buildings or structures of similar occupancy, purpose, and location.

**302.2 Existing seismic force-resisting systems.** Where the existing seismic force-resisting system is a type that can be designated ordinary, values of  $R$ ,  $\Omega_0$ , and  $C_d$  for the existing seismic force-resisting system shall be those specified by the VCC for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate, or special system.

**302.3 Smoke alarms.** Repair or replacement of smoke alarms shall be with devices listed in accordance with UL217 and that are no more than 10 years from the date of manufacture. Battery-only powered devices shall be powered by a 10-year sealed battery.

SECTION 303  
FIRE ESCAPES

**303.1 Where permitted.** Fire escapes shall comply with this section and shall not constitute more than 50% of the required number of exits nor more than 50% of the required exit capacity.

**303.1.1 Existing fire escapes.** Existing fire escapes shall continue to be accepted as a component in the means of egress.

## GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS

**303.1.2 New fire escapes.** For other than Group I-2, newly constructed fire escapes shall be permitted only where exterior stairs cannot be utilized due to lot lines limiting stair size or due to the sidewalks, alleys, or roads at grade level.

**Exception:** Replacement fire escapes or existing fire escapes undergoing repairs shall comply with Sections 303.3 and 303.4 if feasible, and if not feasible to the greatest extent possible.

**303.2 Location.** Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

**303.3 Construction.** The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Types III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

**303.4 Dimensions.** Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 9 inches (203 mm) below the door.

**303.5 Opening protectives.** Openings within 10 feet (3048 mm) of newly constructed fire escape stairways shall be protected by fire assemblies having minimum 3/4-hour-fire-resistance ratings.

**Exception:** Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.

**303.6 Fire escape access and details.** Newly constructed fire escapes shall comply with all of the following requirements:

1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.

2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Groups R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.

- 2.1. The window shall have a minimum net clear opening of 5.7 square feet (0.53 m<sup>2</sup>) or 5 square feet (0.46 m<sup>2</sup>) where located at grade.

- 2.2. The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).

- 2.3. The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.

- 2.4. The operation of the window shall comply with the operational constraints of the VCC.

## GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS

3. In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and child care centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

### SECTION 304 GLASS AND REPLACEMENT WINDOWS

**304.1 Replacement glass.** In accordance with § 36-99.2 of the Code of Virginia, installation or replacement of glass shall comply with Chapter 24 of the VCC.

**304.2 Replacement window opening devices.** In Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. The top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor;
4. The window will permit openings that will allow passage of a four-inch diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1031.3.1 of the VCC.

#### Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

**304.3 Replacement window emergency escape and rescue openings.** Where windows are required by the VCC or International Residential Code to provide emergency escape and rescue openings in Groups R-2 and R-3 occupancies and one-family and two-family dwellings and townhouses regulated by the International Residential Code, replacement windows shall be exempt from the requirements of Sections 103.1.2.1 and 1031.3 of the VCC or Sections R310.1.1, R310.2.1, R310.2.3, R310.4.1, R310.4.2, R310.4.2.1, R310.4.2.2, and R310.4.3 of the International Residential Code, provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

2. The replacement of the window is not part of a change of occupancy.

**304.3.1 Operational constraints.** Where bars, grilles, grates, or similar devices are installed over emergency escape and rescue openings as permitted by Section 1031.2.1 of the VCC, smoke alarms shall also be provided in accordance with Section 907.2.11 of the VCC. In R-5 occupancies, bars, grilles, grates, or similar devices are permitted to be installed over emergency escape and rescue openings in accordance with Section R310.4.4 of the VRC.

## SECTION 305 SEISMIC FORCE-RESISTING SYSTEMS

**305.1 General.** Where this code requires consideration of the seismic force-resisting system of an existing building subject to repair, alteration, change of occupancy, addition or moving of existing buildings, the seismic evaluation and design shall be based on Section 305.2.

**305.2 Seismic evaluation and design procedures.** The seismic evaluation and design shall be based on the procedures specified in the VCC or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 305.2.2.

**305.2.1 Compliance with VCC-level seismic forces.** Where compliance with the seismic design provisions of the VCC is required, the criteria shall be in accordance with one of the following:

1. 100% of the values in the VCC. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of  $R$ ,  $\Omega_0$ , and  $C_d$  used for analysis in accordance with Chapter 16 of the VCC shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. ASCE 41, using a Tier 3 procedure and the two level performance objective in Table 305.2.1 for the applicable risk category.

Risk Category (Based on VCC Table 1604.5)	Structural Performance Level for Use with BSE-1E Earthquake Hazard Level	Structural Performance Level for Use with BSE-2N Earthquake Hazard Level
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

## GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS

**305.2.2 Compliance with reduced VCC-level seismic forces.** Where seismic evaluation and design is permitted to meet reduced VCC seismic force levels, the criteria used shall be in accordance with one of the following:

1. The VCC using 75% of the prescribed forces. Values of  $R$ ,  $\Omega_0$  and  $C_d$  used for analysis shall be as specified in Section 305.2.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 and subject to the limitations of the respective Appendix A chapters shall be deemed to comply with this section.
  - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Risk Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
  - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Risk Category I or II are permitted to be based on the procedures specified in Chapter A2.
  - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A3.
  - 2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multi-unit residential buildings of wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A4.
  - 2.5. Seismic evaluation and design of concrete buildings assigned to Risk Category I, II, or III are permitted to be based on the procedures specified in Chapter A5.
3. ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category.

Table 305.2.2

Performance Objectives for Use in ASCE 41 for Compliance with Reduced VCC-Level Seismic Forces

Risk Category (Based on VCC Table 1604.5)	Structural Performance Level for Use with BSE-1E Earthquake Hazard Level
I	Life Safety (S-3)
II	Life Safety (S-3)
III	Damage Control (S-2 <sup>a</sup> )
IV	Immediate Occupancy (S-1)

a. Tier 1 evaluation at the Damage Control performance level shall use the Tier 1 Life Safety checklists and Tier 1 Quick Check provision midway between those specified for Life Safety and Immediate Occupancy performance

**SECTION 306**  
**HIGHER EDUCATION LABORATORIES**

**306.1 Change of occupancy in existing higher education laboratories.** Where the use of new or different hazardous materials or a change in the amount of hazardous materials in existing higher education laboratories would constitute a change of occupancy, this section shall be permitted to be used as an acceptable alternative to compliance with change of occupancy requirements to permit the increased amounts of hazardous materials stipulated without the laboratories being classified as Group H. In addition, such laboratories shall comply with the applicable operational and maintenance requirements in Chapter 38 of the SFPC. Approval under this section is contingent upon operational requirements in the SFPC being complied with and maintained.

**306.1.1 Hazardous materials in existing higher education laboratories.** The percentage of maximum allowable quantities of hazardous materials per control area and the number of control areas permitted at each floor level within an existing building shall be permitted to comply with Table 302.6.1(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC or shall be permitted to comply with Table 302.6.1(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

Table 306.1.1(1)				
Design and Number of Control Areas in Existing Buildings Equipped throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 of the VCC with Higher Education Laboratories				
Floor Level		Percentage of the Maximum Allowable Quantity per Control Area <sup>a</sup>	Number of Control Areas per Floor	Fire-Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours <sup>b</sup>
Above Grade Plane	Higher than 20	5	1	2
	10-20	10	1	2
	7-9	25	2	2
	4-6	50	2	2
	3	75	2	1
	2	100	3	1
	1	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

## GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS

Table 306.1.1(2) Design and Number of Control Areas in Existing Buildings Not Equipped throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 of the VCC with Higher Education Laboratories				
Floor Level		Percentage of the Maximum Allowable Quantity per Control Area <sup>a</sup>	Number of Control Areas per Floor	Fire-Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours <sup>b</sup>
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	2	1
	2	100	3	1
Below Grade Plane	1	100	4	1
	2	75	3	1
	Lower than 2	50	2	1
		Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

**306.1.2 Automatic fire alarm and detection systems.** A fire alarm system shall be provided throughout the building in accordance with Section 907 of the VCC. An automatic fire detection system shall be provided in the control area in accordance with Section 907 of the VCC where the building is not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

**306.1.3 System supervision and monitoring.** Automatic fire alarm and detection systems shall be electronically supervised and monitored by an approved supervising station or, where approved, shall initiate an audible and visual signal at a constantly attended onsite location.

**306.1.4 Restricted materials in storage and use.** Where approved by the building official, the storage and use of the following hazardous materials prohibited by VCC Table 307.1(1) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed within a control area at 25% of Table 307.1(1) limits for a building equipped throughout with an automatic sprinkler system:

1. Pyrophorics.
2. Class 4 oxidizers.

No additional quantity increases shall be allowed. All such materials shall be stored and used in accordance with Sections 3805.2.1 and 3805.2.2 of the SFPC.

**GENERAL PROVISIONS AND SPECIAL DETAILED REQUIREMENTS**

CHAPTER 4  
**ACCESSIBILITY**

*Replace Chapter 4 of the IEBC with the following:*

**SECTION 401  
GENERAL**

**401.1 Scope.** The applicable provisions of this chapter shall apply to all construction and rehabilitation.

**SECTION 402  
CHANGE OF OCCUPANCY**

**402.1 Change of occupancy.** Existing buildings or structures that undergo a change of occupancy are not required to be provided with additional accessibility features. Any alterations undertaken in connection with a change of occupancy shall conform to the applicable requirements of Section 404.

**SECTION 403  
ADDITIONS**

**403.1 Additions.** Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section 404.3, as applicable.

**403.2 Accessible dwelling units and sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being added, the requirements of Section 1108 of the VCC for accessible units apply only to the quantity of spaces being added.

**403.3 Type A dwelling or sleeping units.** Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1108 of the VCC for Type A units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being added.

**403.4 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3, or R-4 dwelling or sleeping units are being added, the requirements of Section 1108 of the VCC for Type B units and Chapter 9 of the VCC for visible alarms apply only to the quantity of spaces being added.

**SECTION 404  
ALTERATIONS**

**404.1 General.** An alteration of an existing facility shall not impose a requirement for greater accessibility than that which would be required for new construction. Alterations shall not reduce or have the effect of reducing accessibility of a facility or portion of a facility.

**404.2 Alterations.** A facility that is altered shall comply with the applicable provisions in this section and Chapter 11 of the VCC, except as modified by Sections 404.3 and 404.4, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

**Exceptions:**

1. The altered element or space is not required to be on an accessible route, unless required by Section 404.3.
2. Accessible means of egress required by Chapter 10 of the VCC are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provisions for a Type B dwelling unit.

**404.3 Alterations affecting an area containing a primary function.** Where an alteration affects or could affect the usability of or access to an area containing a primary function, the route to the primary function area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible.

**Exceptions:**

1. The cumulative costs of providing the accessible route, toilet facilities, and drinking fountains are not required to exceed 20% of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of a facility.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

**404.4 Scoping for alterations.** The provisions of Sections 404.4.1 through 404.1.15 shall apply to alterations to existing buildings and facilities.

**404.4.1 Entrances.** Where an alteration includes alterations to an entrance, and the facility has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 404.3. Signs complying with Section 1112 of the VCC shall be provided.

**Exception:** Where an alteration includes alterations to an entrance, and the facility has an accessible entrance, the altered entrance is not required to be accessible, unless required by Section 404.3. Signs complying with Section 1112 of the VCC shall be provided.

**404.4.2 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1/CSA B44 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

## ACCESSIBILITY

**404.4.3 Platform lifts.** Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

**404.4.4 Stairways and escalators.** Where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route shall be provided between the levels served by the escalator or stairways in accordance with Section 1104.4 of the VCC.

**404.4.5 Ramps.** Where steeper slopes than allowed by Section 1012.2 of the VCC are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 404.4.5.

Slope	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

For SI: 1 inch = 25.4 mm

**404.4.6 Accessible dwelling or sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being altered, the requirements of Section 1108 of the VCC for Accessible units apply only to the quantity of the spaces being altered.

**404.4.7 Type A dwelling or sleeping units.** Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1108 of the VCC for Type A units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being altered.

**404.4.8 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3, or R-4 dwelling or sleeping units are being altered, the requirements of Section 1108 of the VCC for Type B units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being altered.

**Exceptions:** Groups I-1, I-2, R-2, R-3, and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991, are not required to provide Type B dwelling or sleeping units.

**404.4.9 Jury boxes and witness stands.** In alterations, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.

**404.4.10 Toilet and bathing rooms.** Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible single-user or family or assisted-use toilet or bathing room constructed in accordance with Section 1110.2.1 of the VCC is permitted. The single-user, family, or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. Directional signs shall be provided the inaccessible toilet and bathing room indicating the location of the nearest single-user or family or assisted-use toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

**404.4.10.1 Additional toilet and bathing facilities.** In assembly and mercantile occupancies, where additional toilet fixtures are added, not fewer than one accessible family or assisted-use toilet room shall be provided where required by Section 1110.2.1 of the International Building Code. In recreational facilities, where additional bathing rooms are being added, not fewer than one family or assisted-use bathing room shall be provided where required by Section 1110.2.1 of the International Building Code.

**404.4.11 Dressing, fitting and locker rooms.** Where it is technically infeasible to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate-sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.

**404.4.12 Fuel dispensers.** Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum, measuring from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

**404.4.13 Thresholds.** The maximum height of thresholds at doorways shall be 3/4 inch (19.1 mm). Such thresholds shall have beveled edges on each side.

**404.4.14 Amusement rides.** Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in Section 1110.4.8 of the VCC.

**404.4.15 Dining areas.** An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and décor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

## SECTION 405 HISTORIC BUILDINGS

**405.1 General.** These provisions shall apply to facilities designated as historic buildings or structures that undergo alterations unless technically infeasible. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the facility, the alternative requirements of Sections 405.1.1 through 405.1.5 for that element shall be permitted.

**405.1.1 Site arrival points.** At least one accessible route from a site arrival point to an accessible entrance shall be provided.

**405.1.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

**405.1.3 Entrances.** Where an entrance cannot be made accessible in accordance with Section 404.4.1, an accessible entrance that is unlocked while the building is occupied shall be provided; or, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1112 of the VCC shall be provided at the primary entrances and the accessible entrance.

**405.1.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible single-user or family or assisted-use toilet or bathing room complying with Section 1110.2.1 of the VCC and Section

## ACCESSIBILITY

403.1.2 of the International Plumbing Code shall be provided.

**405.1.5 Type B units.** Type B dwelling or sleeping units required by Section 1108 of the VCC are not required to be provided in historic buildings or structures.



## CHAPTER 5

# REPAIRS

*Replace Chapter 5 of the IEBC with the following:*

### SECTION 501

#### GENERAL

**501.1 Scope.** Repairs, including the patching or restoration or replacement of damaged materials, elements, equipment or fixtures shall comply with the requirements of this chapter. Repairs to historic buildings need only comply with Chapter 9. Portions of the existing building or structure not being repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 6. Routine maintenance required by Section 302, ordinary repairs exempt from permit in accordance with Section 108.2 of the VCC, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

**501.2 Conformance.** The work shall not make the building less conforming than it was before the repair was undertaken. Repairs shall be done in a manner that maintains the following:

1. Level of fire protection that is existing.
2. Level of protection that is existing for the means of egress.
3. Level of accessibility that is existing.

### SECTION 502

#### STRUCTURAL

**502.1 General.** Structural repairs shall be in compliance with this section and Section 501.2. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the VCC for new buildings of similar structure, purpose and location.

**502.1.1 Structural concrete.** Assessment, design, and repairs to structural concrete shall be in accordance with ACI CODE 562. Assessment and design of repairs of seismic force-resisting concrete elements that result in changes of strength, stiffness, or ductility from predamage conditions shall be in accordance with Section 305.

**502.2 Less than substantial structural damage.** For damage less than substantial structural damage, repairs shall be allowed that restore the building to its predamage state.

**502.3 Substantial structural damage to vertical elements of the lateral force-resisting system.** A building that has sustained substantial structural damage to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 502.3.1 and either repaired in accordance with Section 502.3.2 or repaired and rehabilitated in accordance with Section 502.3.3, depending on the results of the evaluation.

**Exceptions:**

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One-family and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

**502.3.1 Evaluation.** The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged building would comply with the provisions of the VCC for load combinations that include wind or earthquake effects if repaired to its predamage state, except that the seismic forces shall be the reduced VCC-level seismic forces.

Wind loads for this evaluation shall be those prescribed in Section 1609 of the VCC. Earthquake loads for this evaluation, if required, shall be permitted to be 75% of those prescribed in Section 1613 of the VCC. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

**502.3.2 Extent of repair for compliant buildings.** If the evaluation establishes that the building in its predamage condition complies with the provisions of Section 502.3.1, then repairs shall be permitted that restore the building to its predamage state.

**502.3.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish that the building in its predamage condition complies with the provisions of Section 502.3.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the VCC. The earthquake loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced VCC-level seismic forces. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new buildings of similar structure, purpose and location. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake rehabilitation requirement.

**502.4 Substantial structural damage to gravity load-carrying components.** Gravity load-carrying components that have sustained substantial structural damage shall be rehabilitated to comply with the applicable provisions for dead and live loads in the VCC. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Existing gravity load carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Nondamaged gravity load-carrying components that receive dead, live, or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the rehabilitation design, or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new buildings of similar structure purpose and location.

**502.4.1 Lateral force-resisting elements.** Regardless of the level of damage to gravity elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying

components was caused primarily by wind or earthquake effects, then the building shall be evaluated in accordance with Section 502.3.1 and, if noncompliant, rehabilitated in accordance with Section 502.3.3.

### Exceptions:

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One-family and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

## SECTION 503 FLOOD HAZARD AREAS

**503.1 Flood hazard areas.** For buildings and structures, in flood hazard areas established in Section 1612.3 of the VCC, or Section R322 of the International Residential Code, as applicable, any repair that constitutes substantial improvement or repair of substantial damage of the existing building or structure shall comply with the flood design requirements for new construction and all aspects of the existing building or structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612.3 of the VCC, or Section R322 of the International Residential Code, as applicable, any repairs that do not constitute substantial improvement or repair of substantial damage of the existing building or structure are not required to comply with the flood design requirements for new construction.

## SECTION 504 ELECTRICAL

**504.1 Material.** Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material.

**504.1.1 Receptacles.** Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.4(D) of NFPA 70.

**504.1.2 Plug fuses.** Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.

**504.1.3 Nongrounding-type receptacles.** For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor in accordance with Section 250.130(C) of NFPA 70.

**504.1.4 Group I-2 receptacles.** Non-"hospital grade" receptacles in patient bed locations of Group I-2 shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.

**504.1.5 Grounding of appliances.** Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.

## SECTION 505 MECHANICAL

**505.1 General.** Existing mechanical systems undergoing repair shall not make the building less conforming than it was before the repair was undertaken.

**505.2 Mechanical draft systems for manually fired appliances and fireplaces.** A mechanical draft system shall be permitted to be used with manually fired appliances and fireplaces where such a system complies with all of the following requirements:

1. The mechanical draft device shall be listed and installed in accordance with the manufacturer's installation instructions.
2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.
3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

## SECTION 506 PLUMBING

**506.1 Materials.** Plumbing materials and supplies shall not be used for repairs that are prohibited in the International Plumbing Code.

**506.2 Water closet replacement.** The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

**Exception:** Blowout-design water closets 3.5 gallons (13 L) per flushing cycle.

## SECTION 507 ENERGY CONSERVATION

**507.1 General.** Except as permitted by Sections 302.1 and 501.1, repairs shall comply with the VECC.

**Exception:** Where a building was constructed to comply with the requirements of the building code under which the building or structure or the affected portion thereof was built, or as previously approved by the building official, repairs need not comply with the VECC, provided the repairs, as documented, do not result in reduced energy efficiency.

**507.2 Application.** For the purposes of this section, the following shall be considered repairs:

## REPAIRS

1. Glass-only replacements in an existing sash and frame.
2. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided that an existing vestibule that separates a conditioned space from the exterior shall not be removed.
3. Repairs where only the bulb, the ballast or both within the existing luminaires in a space are replaced, provided that the replacement does not increase the installed interior lighting power.

## CHAPTER 6

# ALTERATIONS

*Replace Chapter 6 of the IEBC with the following.*

### SECTION 601

#### GENERAL

**601.1 General.** Except as modified in Chapter 9 or this chapter, alterations to any building or structure shall comply with the requirements of the VCC for new construction. Alterations shall be such that the existing building or structure is no less conforming to the provisions of the VCC than the existing building or structure was prior to the alteration. Portions of the building or structure not being altered shall not be required to comply with the requirements of the VCC.

**Exceptions:**

1. Any stairway replacing an existing stairway shall not be required to comply with the requirements of Section 1011 of the VCC where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the VCC shall not be required to comply with the requirements of Section 1014.6 of the VCC regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the VCC.
4. Alterations complying with the requirements of the building code under which the building or structure or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code. New structural members added as part of the alteration shall comply with the VCC. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.

**601.2 Levels of alterations.** Alterations to any building or structure shall be classified as the following:

**601.2.1 Level 1.** Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose, or the removal without replacement of materials, elements, equipment, or fixtures. Level 1 alterations shall comply with the applicable provisions of Section of 602.

**601.2.2 Level 2.** Level 2 alterations shall comply with the applicable provisions of Sections 602 and 603 and shall include the following:

1. The addition or elimination of any door or window.

## ALTERATIONS

2. The addition or elimination of any wall, floor, or ceiling assembly.
3. The reconfiguration or extension of any system.
4. The installation of any additional equipment, materials, elements, or fixtures.

**601.3 Flood hazard areas.** In flood hazard areas, alterations that constitute substantial improvement shall require that the building comply with Section 1612 of the VCC or Section R322 of the International Residential Code, as applicable.

**601.4 Energy conservation.** Except as modified by this section, alterations to an existing building, building system, or structure shall conform to the applicable provisions of the Virginia Energy Conservation Code or Virginia Residential Code as they relate to new construction without requiring the unaltered portions of the existing building, building system, or structure to comply with the VECC or VRC.

**601.4.1 Opaque walls.** Where the existing stud wall cavity that is part of the thermal envelope is exposed during the alteration, such exposed cavities between framing members shall be filled with insulation having a minimum nominal value of not less than R-3 per inch or filled to the minimum prescriptive insulation requirement in Table R402.1.3 or Table C402.1.3 of the VECC.

**Exception:** Where less than 60 square feet (5.574 m<sup>2</sup>) of the existing stud cavities that are part of the thermal envelope are exposed.

**601.4.2 Floors.** Where the existing framed floor cavity that is part of the thermal envelope is exposed during the alteration, such exposed cavities between framing members shall be filled with insulation having a minimum nominal value of not less than R-3 per inch or filled to the minimum prescriptive insulation requirement in Table R402.1.3 or Table C402.1.3 of the VECC.

**Exception:** Where less than 60 square feet (5.574 m<sup>2</sup>) of the existing framed floor cavities that are part of the thermal envelope are exposed.

**601.4.3 Ceilings and vented attics.** Where the existing rafter cavity that is part of the thermal envelope is exposed during the alteration, such exposed cavities between framing members shall be filled with insulation having a minimum nominal value of not less than R-3 per inch or filled to the minimum prescriptive insulation requirement in Table R402.1.3 or Table C402.1.3 of the VECC. Where the existing framed floor or truss bottom chord cavity of a vented attic is exposed during the alteration, the exposed cavities shall be filled with insulation having a minimum nominal value of not less than R-3 per inch or filled to the minimum prescriptive insulation requirement in Table R402.1.3 or Table C402.1.3 of the VECC. If the existing insulation laying on such vented attic floor is removed, such insulation shall be replaced with insulation complying with the minimum prescriptive insulation requirement in Table R402.1.2 or Table C402.1.3 of the VECC.

**Exception:** Where less than 60 square feet (5.574 m<sup>2</sup>) of the existing rafter, framed vented attic floor, or truss bottom chord cavities that are part of the thermal envelope is exposed.

**601.4.4 Fenestration.** Where an existing fenestration unit is replaced, the replacement fenestration unit shall comply with the requirements for U-factor and SHGC as specified in Table R402.1.2 or Table C402.4 of the VECC, as applicable. Where more than one fenestration unit is to be replaced, an area-weighted average of the U-factor, SHGC, or both of all replacement fenestration units shall be permitted.

**601.4.4.1 Converting fenestration unit to opaque wall.** Where existing fenestration units are converted into an opaque exterior wall assembly, the new portion of wall shall comply with Section 601.4.1.

**601.4.5 Roof replacement.** Roof replacements shall comply with Section C402.2.1 and Section C402.1.3, C402.1.4, C402.1.5, or C407 of the VECC where all of the following conditions are met. For purposes of this section, roof area shall mean an area of the existing roof of the same building that is bounded by exterior walls, different roof levels, roof edges or perimeters, roof dividers, building expansion joints, or parapets.

1. The roof replacement exceeds 75% or 30,000 square feet (2787.1 m<sup>2</sup>) of the roof area, whichever is less.
2. The roof assembly is part of the building thermal envelope, as defined by the VECC.
3. The roof assembly contains insulation entirely above the roof deck.

**601.4.6 Lighting.** Lighting alterations shall comply with Section 601.4.6.1 or 601.4.6.2, as applicable.

**601.4.6.1 Commercial Lighting.** Altered commercial lighting shall comply with Section C405 of the VECC.

**Exception:** Alterations that replace less than 10% of the luminaires within a space, provided the replacement luminaires do not increase the existing interior lighting power as determined by Section C405.3.1 of the VECC.

**601.4.6.2 Residential lighting.** Altered residential lighting shall comply with Section R404 of the VECC.

**Exception:** Alterations that replace less than 50% of the total luminaires within a space, provided the replacement luminaires do not decrease the efficacy of the lighting equipment as required by Section R404.1 of the VECC.

**601.4.7 Ducts.** In R-5 occupancies, where ducts from an existing heating and cooling system are extended, such duct systems with less than 40 linear feet (12.19 m) in unconditioned spaces shall not be required to be tested in accordance with Section R403.3.3 of the VECC.

**601.4.8 System sizing.** Altered heating and cooling equipment shall comply with Section 601.4.8.1 or 601.4.8.2 through 601.4.8.2.1, as applicable.

**601.4.8.1 Commercial system sizing.** New commercial heating and cooling equipment that is part of an alteration shall be sized in accordance with Section C403.1.1 of the VECC based on the existing building features as modified by the alteration.

**Exception:** Where it has been demonstrated to the code official that compliance with this section would result in heating or cooling equipment that is incompatible with the rest of the heating or cooling system.

**601.4.8.2 Residential heating and cooling systems.** New residential heating and cooling and duct systems that are part of the alteration shall comply with Section R403 of the VECC and this section.

**Exception:** Where ducts from an existing heating and cooling system are extended to an addition.

## ALTERATIONS

**601.4.8.2.1 Residential system sizing.** New residential heating and cooling equipment that is part of an alteration shall be sized in accordance with Section R403.7 of the VECC based on the existing building features as modified by the alteration.

**601.5 Accessibility.** Accessibility shall be provided in accordance with applicable provisions of Section 404.

## SECTION 602 ALTERATION – LEVEL 1

**602.1 Scope.** Level 1 alterations as described in Section 601.2.1 shall comply with the requirements of this section.

**602.2 Conformance.** Alterations shall be done in a manner that maintains the following:

1. Level of fire protection that is existing.
2. Level of protection that is existing for the means of egress.

**602.3 Building elements and materials.** Building elements and materials shall comply with the applicable provisions of Sections 302 and 602.3.1 through 602.3.3.

**602.3.1 Interior finishes and trim.** All newly installed interior finish and trim materials and wall, floor, and ceiling finishes shall comply with Chapter 8 of the VCC.

**602.3.2 Materials and methods.** All new building elements and materials shall comply with the materials and methods requirements in the VCC, International Energy Conservation Code, International Mechanical Code, and International Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

**602.3.2.1 Reroofing.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with Chapter 15 of the VCC, except as modified by Section 302.1 and this section.

### Exceptions:

1. Roof replacement or roof recover of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2.0% slope) in Section 1507 of the VCC for roofs that provide positive roof drainage.
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement of secondary (emergency overflow) drains or scuppers in Section 1502 of the VCC for roofs that provide positive roof drainage. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with the VCC shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the VCC.
3. Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be

permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507 of the VCC.

**602.3.2.1.1 Roof recover permitted.** The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface is covered with gypsum board, mineral fiber, glass fiber or other approved materials securely fastened in place.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tearoff of existing roof coverings
4. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.

**602.3.2.1.2 Roof recover not permitted.** A roof recover shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement, or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

**602.3.2.1.3 Reinstallation of materials.** Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked, or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars, and metal counter-flashings shall not be reinstalled where rusted, damaged, or deteriorated. Aggregate surfacing materials shall not be reinstalled. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

**602.3.2.2 Structural and construction loads.** Structural roof components shall be capable of supporting the roof covering system and the material and equipment loads that will be encountered during installation of the systems.

**Exception:** Structural elements where the additional dead load from the roofing or equipment does not increase the force in the element by more than 5.0%; or where the addition of a second layer of roof covering weighing three pounds per square foot (0.1437kN/m<sup>2</sup>) or less over an existing, single layer of roof covering.

**602.3.3 International Fuel Gas Code.** The following sections of the International Fuel Gas Code shall constitute the fuel gas materials and methods requirements for Level 1 alterations.

## ALTERATIONS

1. All of Chapter 3, entitled "General Regulations," except Sections 303.7 and 306.
2. All of Chapter 4, entitled "Gas Piping Installations," except Sections 401.8 and 402.3.2.1. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. All of Chapter 5, entitled "Chimneys and Vents."
4. All of Chapter 6, entitled "Specific Appliances."

### SECTION 603 ALTERATION – LEVEL 2

**603.1 Scope.** Level 2 alterations as described in Section 601.2.2 shall comply with the requirements of this section.

**Exception:** Buildings in which the alteration is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall be permitted to comply with Section 602.

**603.2 Level 1 alteration compliance.** In addition to the requirements of this section, all alterations shall comply with the applicable requirements of Section 602.

**603.3 Compliance.** All new construction elements, components, systems, and spaces shall comply with the requirements of the VCC.

#### Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the VCC.
2. Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the VCC. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.
3. In other than Groups A and H occupancies, the maximum length of a newly constructed or extended dead-end corridor shall not exceed 50 feet (15240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the VCC.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be seven feet (2134 mm).
5. Where provided in below-grade transportation stations, new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

**603.4 Fire-resistance ratings.** In buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the VCC has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code.

**603.5 Mechanical.** In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than five cubic feet per minute (cfm) (0.0024 m<sup>3</sup>/s) per person of outdoor air and not less than 15 cfm (0.0071 m<sup>3</sup>/s) of ventilation air per person or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.1.

**603.5.1 Local exhaust.** All newly introduced devices, equipment, or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust.

**603.7 Structural.** Structural elements and systems within buildings undergoing Level 2 alterations shall comply with Sections 603.7.1 through 603.7.6.

**603.7.1 New structural elements.** New structural elements in alterations, including connections and anchorage, shall comply with the VCC.

**603.7.2 Minimum design loads.** The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

**603.7.3 Existing structural elements carrying gravity loads.** Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5.0% shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the VCC for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be shown to have the capacity to resist the applicable design gravity loads required by the VCC for new structures.

**Exception:** Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

**603.7.3.1 Design live load.** Where the alteration does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the alteration. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the alteration does result in increased design live load, the live load required by Section 1607 of the VCC shall be used.

**603.7.4 Existing structural elements resisting lateral loads.** Except as permitted by Section 603.7.5, where the alteration increases design lateral loads in accordance with Section 1609 or 1613 of the VCC, or where the alteration results in a prohibited structural irregularity as defined in ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613 of the VCC. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the requirements of Section 1613 of the VCC.

**Exceptions:**

## ALTERATIONS

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10% greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with VCC Sections 1609 and 1613. Reduced VCC level seismic forces in accordance with Section 305.2.2 shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the VCC or in compliance with the provisions of the IRC.
3. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 7 do not apply, only the lateral force-resisting components in and below that story need comply with this section.

**603.7.5 Voluntary lateral force-resisting system alterations.** Alterations of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the VCC, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. The lateral loading to existing structural elements is not increased either beyond its capacity or more than 10%;
3. New structural elements are detailed and connected to the existing structural elements as required by the VCC;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the VCC; and
5. Voluntary alterations to lateral force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

**603.7.6 Voluntary seismic improvements.** Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force resisting system of an existing structure or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less conforming to the provisions of the VCC with respect to earthquake design than they were prior to the alteration.
2. New structural elements are detailed as required for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required for new construction.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.



## CHAPTER 7

# CHANGE OF OCCUPANCY

*Replace Chapter 7 of the IEBC with the following:*

### SECTION 701

#### GENERAL

**701.1 Scope.** The provisions of this chapter shall apply where a change of occupancy occurs, except as modified by Section 906 for historic buildings. Compliance with the current VCC for the change of occupancy shall only be required as prescribed in this chapter. Compliance shall be only as necessary to meet the specific provisions of the applicable International Codes and is not intended to require the entire building be brought into compliance.

**Exception:** Chapter 14 shall be permitted in as a compliance alternative to this chapter for a change of occupancy to buildings that will not continue to be or are not proposed to be Institutional Group I occupancies, High-Hazard Group H occupancies, or Residential Group R-5.

**701.2 Work undertaken in connection with a change of occupancy.** Any repairs, alterations, or additions undertaken in connection with a change of occupancy shall conform to the applicable requirements for the work as classified in this code and as modified by this chapter.

### SECTION 702

#### SPECIAL USE AND OCCUPANCY

**702.1 Compliance with the building code.** Where a building undergoes a change of occupancy to one of the special use or occupancy categories described in Chapter 4 of the VCC, the building shall comply with all of the requirements of Chapter 4 of the VCC applicable to the special use or occupancy.

**702.2 Incidental uses.** Where a portion of a building undergoes a change of occupancy to one of the incidental uses listed in Table 509 of the VCC, the incidental use shall comply with the applicable requirements of Section 509 of the VCC.

### SECTION 703

#### BUILDING ELEMENTS AND MATERIALS

**703.1 Interior finish.** In areas of the building undergoing a change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the VCC for the new occupancy classification.

**703.2 Enclosure of vertical openings.** When a change of occupancy classification is made to a higher hazard category as shown in Table 705.2, protection of existing vertical openings shall be in accordance with Sections 703.2.1 through 703.2.3.

**703.2.1 Stairways.** Interior stairways shall be protected as required by Section 705.1.

**703.2.2 Other vertical openings.** Interior vertical openings, other than stairways, within the area of the change of occupancy shall be protected as required by the VCC.

**Exceptions:**

1. Existing one-hour interior shaft enclosures shall be accepted where a higher rating is required.
2. Vertical openings, other than stairways, in buildings of other than Group I occupancy and connecting less than six stories shall not be required to be enclosed are permitted if the entire building is provided with an approved automatic sprinkler system.

**703.2.3 Shaft openings.** All openings into existing vertical shaft enclosures shall be protected by fire assemblies having a fire protection rating of not less than one hour and shall be maintained self-closing or shall be automatic-closing by actuation of a smoke detector. All other openings shall be fire protected in an approved manner. Existing fusible link-type automatic door-closing devices shall be permitted in all shafts except stairways if the fusible link rating does not exceed 135°F (57°C).

## SECTION 704 FIRE PROTECTION

*Change Section 704 to Fire Protection.*

**704.1 Fire protection systems.** Fire protection systems shall be provided in accordance with Sections 704.2 through 704.4.

**704.2 Fire sprinkler system.** Where a building undergoes a change of occupancy that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Section 903 of the VCC, such automatic fire sprinkler system shall be provided throughout the area where the change of occupancy occurs.

**704.3 Fire alarm and detection system.** Where a building undergoes a change of occupancy that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Section 907 of the VCC, such fire alarm and detection system shall be provided throughout the area where the change of occupancy occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the change of occupancy occurs in accordance with Section 907 of the VCC as required for new construction.

**704.4 Standpipe system.** Where a building undergoes a change of occupancy that requires a standpipe system to be provided based on the new occupancy in accordance with Section 905 of the VCC, such standpipe system shall be provided to serve the area where the change of occupancy occurs.

## SECTION 705

### MEANS OF EGRESS

**705.1 General.** Means of egress in buildings undergoing a change of occupancy shall comply with Sections 705.2 through 705.4.

**705.2 Means of egress, hazards.** Hazard categories in regard to life safety and means of egress shall be in accordance with Table 705.2.

TABLE 705.2 MEANS OF EGRESS HAZARD CATEGORIES	
RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2, I-3, I-4
3	A, E, I-1, M, R-1, R-2, R-4
4	B, F-1, R-3, S-1, R-5
5 (Lowest Hazard)	F-2, S-2, U

**705.3 Means of egress for change to higher hazard category.** When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 705.2, the means of egress serving the area of the change of occupancy shall comply with the requirements of Chapter 10 of the VCC, except as modified in Sections 705.3.1 through 705.3.7.

**705.3.1 Corridor fire-resistance ratings.** The following exceptions apply to the fire-resistance rated corridor provisions in the VCC:

1. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard are equivalent to a one-hour fire-resistance rating. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
2. Dwelling unit or sleeping unit corridor doors and transom openings are permitted to comply with any of the following:
  - 2.1 Be at least 1-3/8-inch (35 mm) solid-core wood or approved equivalent and shall not have any glass panels other than approved wired glass or other approved glazing material in metal frames and shall be equipped with approved door closers.
  - 2.2 Meet the requirements of "Guidelines on Fire Ratings of Archaic Materials and Assemblies" (VEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
  - 2.3 In buildings protected throughout with an approved automatic sprinkler system, resist smoke, be reasonably tight fitting, and not contain louvers.
  - 2.4 In group homes with a maximum of 15 occupants and that are protected with an approved automatic smoke detection system, closing devices may be omitted.
  - 2.5 Transoms in corridor walls shall be either glazed with 1/4-inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire-protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

3. Openings in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.

**705.3.2 Dead-end corridors.** Dead-end corridors shall not exceed 35 feet (10670 mm).

**Exceptions:**

1. Where dead-end corridors of greater length are permitted by the VCC.
2. In other than Groups A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the VCC.
3. In other than Groups A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the VCC.
4. In other than Groups A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the VCC.

**705.3.3 Emergency escape and rescue openings.** An existing operable window with clear opening area no less than 4 square feet (0.38 m<sup>2</sup>) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.

**705.3.4 Fire escapes.** Fire escapes shall be in compliance with Section 303.

**705.3.5 Interior stairway fire-resistance ratings.** Existing interior stairways connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less than one hour with approved opening protectives from the highest floor where the change of occupancy classification occurs to, and including, the level of exit discharge and all floors below.

**Exceptions:**

1. Where interior stairway enclosure is not required by the VCC.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by one-hour fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. The openings between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water supply systems, provided the system is of adequate pressure, capacity, and sizing for the combined domestic and sprinkler requirements.
3. In Group A occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories.
4. In Group B occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:
  - 4.1 Buildings not exceeding 3,000 square feet (279 m<sup>2</sup>) per floor.
  - 4.2 Buildings protected throughout by an approved automatic fire sprinkler system.
5. In Group E occupancies, the enclosure shall not be required for interior stairways not exceeding three stories when the building is protected throughout by an approved automatic fire sprinkler system.
6. In Group F occupancies, the enclosure shall not be required in the following locations:

## CHANGE OF OCCUPANCY

- 6.1 Interior stairways not exceeding three stories.
- 6.2 Special purpose occupancies where necessary for manufacturing operations and direct access is provided to at least one protected stairway.
- 6.3 Buildings protected throughout by an approved automatic sprinkler system.
7. In Group H occupancies, the enclosure shall not be required for interior stairways not exceeding three stories where stairways are necessary for manufacturing operations and every floor level has direct access to at least two remote enclosed stairways or other approved exits.
8. In Group M occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:
  - 8.1 Stairways connecting only two floor levels.
  - 8.2 Occupancies protected throughout by an approved automatic sprinkler system.
9. In Group R-1 occupancies, the enclosure shall not be required for interior stairways not exceeding three stories in the following locations:
  - 9.1 Buildings protected throughout by an approved automatic sprinkler system.
  - 9.2 Buildings with fewer than 25 dwelling units or sleeping units where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and where:
    - 9.2.1 Any exit access corridor exceeding eight feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, has at least one of the means of egress separated from the vertical opening by a one-hour fire barrier; and
    - 9.2.2 The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the VCC.
10. In Group R-2 occupancies, a minimum 30-minute enclosure shall be permitted to protect interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:
  - 10.1 Interior stairways not exceeding two stories with not more than four dwelling units per floor.
  - 10.2 Buildings protected throughout by an approved automatic sprinkler system.
  - 10.3 Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm), and the building is protected throughout by an automatic fire alarm system complying with the VCC.
11. Stairway enclosure is not required in one-family and two-family dwellings.
12. Group S occupancies where connecting not more than two floor levels or where connecting not more than three floor levels and the structure is equipped throughout with an approved automatic sprinkler system.
13. Group S occupancies where stairway protection is not required for open parking garages and ramps.

**705.3.6 Stairway geometry.** Existing stairways are not required to be altered to meet tread depth and riser height requirements of the VCC.

**705.3.7 Stairway handrails.** Existing stairways are required to have a VCC compliant handrail on one side up to a required egress width of 66 inches (1676 mm) and both sides when the required egress width exceeds 66 inches (1676 mm).

**705.4 Means of egress for change of occupancy to equal or lower hazard category or without a change in classification.** When a change of occupancy classification is made to an equal or lesser hazard category (higher number) as shown in Table 705.2 or a change of occupancy without a change of classification is made, the means of egress shall be deemed acceptable provided the means of egress serving the area of the change of occupancy meets the egress capacity and occupant load based means of egress provisions in Chapter 10 of the VCC for the new occupancy.

## SECTION 706 HEIGHTS AND AREAS

**706.1 General.** Heights and areas of buildings and structures undergoing a change of occupancy classification shall comply with Sections 706.2 through 706.5.

**706.2 Heights and areas, hazards.** Hazard categories in regard to height and area shall be in accordance with Table 706.2.

TABLE 706.2 HEIGHTS AND AREAS HAZARD CATEGORIES	
RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1, A-2, A-3, A-4, I, R-1, R-2, R-4
3	E, F-1, S-1, M
4 (Lowest Hazard)	B, F-2, S-2, A-5, R-3, R-5, U

**706.3 Height and area for change to higher hazard category.** When a change of occupancy classification is made to a higher hazard category as shown in Table 706.2, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the VCC for the new occupancy classification.

**Exception:** For high-rise buildings constructed in compliance with a previously issued permit, the type of construction reduction specified in Section 403.2.1 of the VCC is permitted. This shall include the reduction for columns. The high-rise building is required to be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

**706.3.1 Fire wall alternative.** In other than Groups H, F-1 and S-1, fire barriers and horizontal assemblies constructed in accordance with Sections 707 and 711, respectively, of the VCC shall be permitted to be used in lieu of fire walls to subdivide the building into separate buildings for the purpose of complying with the area limitations required for the new occupancy where all of the following conditions are met:

1. The buildings are protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the International Building Code.
2. The maximum allowable area between fire barriers, horizontal assemblies, or any combination thereof shall not exceed the maximum allowable area determined in accordance with Chapter 5 of the VCC without an increase allowed for an automatic sprinkler system in accordance with Section 506 of the VCC.

## CHANGE OF OCCUPANCY

- The fire-resistance rating of the fire barriers and horizontal assemblies shall be not less than that specified for fire walls in Table 706.4 of the VCC.

**Exception:** Where horizontal assemblies are used to limit the maximum allowable area, the required fire-resistance rating of the horizontal assemblies shall be permitted to be reduced by one hour provided the height and number of stories increases allowed for an automatic sprinkler system by Section 504 of the VCC are not used for the buildings.

**706.4 Height and area for change to equal or lesser hazard category.** When a change of occupancy classification is made to an equal or lesser hazard category as shown in Table 706.2, the height and area of the existing building shall be deemed acceptable.

**706.5 Fire barriers.** When a change of occupancy classification is made to a higher hazard category as shown in Table 706.2, fire barriers in separated mixed use buildings shall comply with the fire-resistance requirements of the VCC.

**Exception:** Where the fire barriers are required to have a one-hour-fire-resistance rating, existing wood lath and plaster in good condition or existing 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted.

## SECTION 707

### EXTERIOR WALL FIRE-RESISTANCE RATINGS

**707.1 Exterior wall fire-resistance ratings, hazards.** Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table 707.1.

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	F-1, M, S-1
3	A, B, E, I, R
4 (Lowest Hazard)	F-2, S-2, U

**707.2 Exterior wall rating for change of occupancy classification to a higher hazard category.** When a change of occupancy classification is made to a higher hazard category as shown in Table 707.1, exterior walls shall have fire resistance and exterior opening protectives as required by the VCC.

**707.3 Exterior wall rating for change of occupancy classification to an equal or lesser hazard category.** When a change of occupancy classification is made to an equal or lesser hazard category as shown in Table 707.1, existing exterior walls, including openings, shall be accepted.

**707.4 Opening protectives.** Openings in exterior walls shall be protected as required by the VCC. Where openings in the exterior walls are required to be protected because of their distance from the lot line, the sum of the area of such openings shall not exceed 50% of the total area of the wall in each story.

**Exceptions:**

1. Where the VCC permits openings in excess of 50%.
2. Protected openings shall not be required in buildings of Group R occupancy that do not exceed three stories in height and that are located not less than three feet (914 mm) from the lot line.
3. Where exterior opening protectives are required, an automatic sprinkler system throughout may be substituted for opening protection.
4. Exterior opening protectives are not required when the change of occupancy group is to an equal or lower hazard classification in accordance with Table 707.1.

## SECTION 708

### ELECTRICAL AND LIGHTING

**708.1 Special occupancies.** Where a building undergoes a change of occupancy to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70:

1. Hazardous locations.
2. Commercial garages, repair, and storage.
3. Aircraft hangars.
4. Gasoline dispensing and service stations.
5. Bulk storage plants.
6. Spray application, dipping, and coating processes.
7. Health care facilities.
8. Places of assembly.
9. Theaters, audience areas of motion picture and television studios, and similar locations.
10. Motion picture and television studios and similar locations.
11. Motion picture projectors.
12. Agricultural buildings.

**708.2 Service upgrade.** When a new occupancy is required to have a higher electrical load demand per NFPA 70 and the service cannot accommodate the increased demand, the service shall be upgraded to meet the requirements of NFPA 70 for the new occupancy.

**708.3 Number of electrical outlets.** Where a building undergoes a change of occupancy, the number of electrical outlets shall comply with NFPA 70 for the new occupancy.

**708.4 Lighting.** Lighting shall comply with the requirements of the VCC for the new occupancy.

## SECTION 709

### MECHANICAL AND VENTILATION

**709.1 Mechanical and ventilation requirements.** Where a building undergoes a change of occupancy such that the new occupancy is subject to different kitchen exhaust requirements or to increased ventilation

## CHANGE OF OCCUPANCY

requirements in accordance with the International Mechanical Code, the new occupancy shall comply with the respective International Mechanical Code provisions.

### SECTION 710 PLUMBING

**710.1 Increased demand.** Where a building or portion thereof undergoes a change of occupancy, such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the International Plumbing Code, the new occupancy shall comply with the respective International Plumbing Code provisions.

**Exception:** In other than Group R or I occupancies or child care facilities classified as Group E, where the occupant load is increased by 20% or less in the area where the change of occupancy occurs, additional plumbing fixtures required based on the increased occupant load in quantities specified in the International Plumbing Code are not required.

**710.2 Interceptor required.** If the new occupancy will produce grease or oil-laden wastes, interceptors shall be provided as required in the International Plumbing Code.

**710.3 Chemical wastes.** If the new occupancy will produce chemical wastes, the following shall apply:

1. If the existing piping is not compatible with the chemical waste, the waste shall be neutralized prior to entering the drainage system, or the piping shall be changed to a compatible material.
2. No chemical waste shall discharge to a public sewer system without the approval of the sewage authority.

### SECTION 711 STRUCTURAL

**711.1 Gravity loads.** Buildings subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Table 1607.1 of the VCC shall comply with the gravity load provisions of the VCC.

**Exception:** Structural elements whose stress is not increased by more than 5.0%.

**711.2 Snow and wind loads.** Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind or snow risk categories based on Table 1604.5 of the VCC shall be analyzed and shall comply with the applicable wind or snow load provisions of the VCC.

**Exception:** Where the new occupancy with a higher risk category is less than or equal to 10% of the total building floor area. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.

**711.3 Seismic loads.** Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 711.3.1 and 711.3.2.

**711.3.1 Compliance with VCC-level seismic forces.** Where a building is subject to a change of occupancy that results in the building being assigned to a higher risk category based on Table 1604.5 of the VCC, the building shall comply with the requirements for VCC-level seismic forces as specified in Section 305.2.1 for the new risk category.

**Exceptions:**

1. Specific detailing provisions required for a new structure are not required to be met where it can be shown that an equivalent level of performance and seismic safety is obtained for the applicable risk category based on the provision for reduced VCC-level seismic forces as specified in Section 305.2.2.
2. Where the area of the new occupancy with a higher hazard category is less than or equal to 10% of the total building floor area and the new occupancy is not classified as Risk Category IV. For the purposes of this exception, buildings occupied by two or more occupancies not included in the same risk category, shall be subject to the provisions of Section 1604.5.1 of the VCC. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.
3. Unreinforced masonry bearing wall buildings in Risk Category III when assigned to Seismic Design Category A or B shall be allowed to be strengthened to meet the requirements of Appendix Chapter A.
4. Specific seismic detailing requirements of Section 1613 of the VCC for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, overstrength, redundancy, and ductility of the structure.
5. When a change of occupancy results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, SDS, is less than 0.33, compliance with the seismic requirements of Section 1613 of the VCC is not required.

**711.3.2 Access to Risk Category IV.** Where a change of occupancy is such that compliance with Section 711.3.1 is required and the building is assigned to Risk Category IV, the operational access to the building shall not be through an adjacent structure, unless that structure conforms to the requirements for Risk Category IV structures. Where operational access is less than 10 feet (3048 mm) from either an interior lot line or from another structure, access protection from potential falling debris shall be provided by the owner of the Risk Category IV structure.

## SECTION 712 ACCESSIBILITY

**712.1 General.** Existing buildings that undergo a change of occupancy classification shall comply with Section 402.

## CHAPTER 8

# ADDITIONS

*Replace Chapter 8 of the IEBC with the following:*

### SECTION 801

#### GENERAL

**801.1 Scope.** Additions to any building or structure shall comply with the requirements of the VCC for new construction without requiring the existing building or structure to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an addition impacts the existing building or structure, that portion shall comply with this code. Where a fire wall that complies with Section 706 of the VCC is provided between the addition and the existing building, the addition shall be considered a separate building.

Note: Where one or more newly constructed fire walls that comply with Section 706 of the VCC are provided between an existing building or structure or portions thereof, and a new building, this chapter is not applicable per Section 102.2.3.

**801.2 Creation or extension of nonconformity.** An addition shall not create or extend any nonconformity in the existing building to which the addition is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems. Alterations to the existing building or structure shall be made so that the existing building or structure, together with the addition, are no less conforming to the provisions of the VCC than the existing building or structure was prior to the addition.

**801.3 Other work.** Any repair or alteration work within an existing building to which an addition is being made shall comply with the applicable requirements for the work as classified in this code.

### SECTION 802

#### HEIGHTS AND AREAS

**802.1 Height limitations.** No addition shall increase the height of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the VCC for new buildings.

**802.2 Area limitations.** No addition shall increase the area of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the VCC for new buildings unless fire separation as required by the VCC is provided.

**Exceptions:** The following shall be permitted beyond that permitted by the VCC.

1. In-filling of floor openings such as elevator and exit stairway shafts.
2. The addition of nonoccupiable spaces such as elevators, stairs, and vestibules.

**802.3 Fire protection systems.** Existing fire areas increased by the addition shall comply with Chapter 9 of the VCC.

## SECTION 803 STRUCTURAL

**803.1 Compliance with the VCC.** Additions to existing buildings or structures are new construction and shall comply with the VCC.

**803.2 Existing structural elements carrying gravity load.** Any existing gravity load-carrying structural element for which an addition and its related alterations cause an increase in design gravity load of more than 5.0% shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the VCC for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 603.7.3. Any existing element that will form part of the lateral load path for any part of the addition shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 803.3.

**Exception:** Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

**803.2.1 Design live load.** Where the addition does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the addition. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the addition does result in increased design live load, the live load required by Section 1607 of the VCC shall be used.

**803.3 Existing structural elements carrying lateral load.** Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613 of the VCC. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 305.2.1 for the applicable risk category, shall be deemed to meet the requirements of Section 1613.

### Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is not more than 10% greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations involving VCC-level seismic forces in accordance with Section 305.2.1.

## ADDITIONS

2. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.
3. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10% of the roof dead load. For the purposes of this exception, "roof" shall mean the roof level above a particular story.

**803.4 Voluntary addition of structural elements to improve the lateral force-resisting system.** Voluntary addition of structural elements to improve the lateral force-resisting system of an existing building shall comply with Section 603.7.5.

**803.5 Snow drift loads.** Any structural element of an existing building subject to additional loads from the effects of snow drift as a result of an addition shall comply with the VCC.

### Exceptions:

1. Structural elements whose stress is not increased by more than 5.0%.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

## SECTION 804 FLOOD HAZARD AREAS

**804.1 Flood hazard areas.** Additions and foundations in flood hazard areas shall comply with the following requirements:

1. For horizontal additions that are structurally interconnected to the existing building:
  - 1.1. If the addition and all other proposed work, when combined, constitute substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
  - 1.2. If the addition constitutes substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
2. For horizontal additions that are not structurally interconnected to the existing building:
  - 2.1. The addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
  - 2.2. If the addition and all other proposed work when combined constitute substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
3. For vertical additions and all other proposed work that when combined constitute substantial improvement, the existing building shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

4. For a raised or extended foundation, if the foundation work and all other proposed work when combined constitute substantial improvement, the existing building shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

## SECTION 805

### ENERGY CONSERVATION

**805.1 General.** Additions to an existing building, or portion thereof, shall conform to the provisions of the VECC as those provisions relate to new construction without requiring the unaltered portion of the existing building to comply with the VECC. Additions shall not overload existing building systems. An addition shall be deemed to comply with the VECC if the addition alone complies or if the existing building and addition comply with the VECC as a single building.

**805.2 Residential compliance.** Residential additions shall comply with Section 805.2.1 or 805.2.2.

**805.2.1 Prescriptive compliance.** Additions shall comply with Sections 805.2.1.1 through 805.2.1.4.

**805.2.1.1 Building envelope.** New building envelope assemblies that are part of the addition shall comply with Sections R402.1, R402.2, R402.3.1 through R402.3.5, and R402.4 of the VECC.

**Exception:** The building envelope of the addition shall be permitted to comply through a Total UA analysis, as determined in Section R402.1.5 of the VECC, where the existing building and the addition, and any alterations that are part of the project, is less than or equal to the Total UA generated for the existing building.

**805.2.1.2 Heating and cooling systems.** New heating, cooling and duct systems that are part of the addition shall comply with Section R403 of the VECC.

**805.2.1.3 Service hot water systems.** New service hot water systems that are part of the addition shall comply with Section R403.4 of the VECC.

**805.2.1.4 Lighting.** New lighting systems that are part of the addition shall comply with Section R404.1 of the VECC.

**805.2.2 Performance compliance.** The addition shall comply with the simulated performance alternative where the annual energy cost or energy use of the addition and the existing building, and any alterations that are part of the project, is less than or equal to the annual energy code of the existing building when modeled in accordance with Section R405 of the VECC.

**805.3 Commercial Compliance.** Commercial additions shall comply with Section 805.3.1 or 805.3.2.

**Exception:** Commercial additions complying with ANSI/ASHRAE/IESNA 90.1.

## ADDITIONS

**805.3.1 Prescriptive compliance.** Additions shall comply with Sections C402, C403, C404, and C405 of the VECC.

**805.3.2 Performance compliance.** The addition shall comply with the simulated performance alternative where the annual energy cost or energy use of the addition and the existing building, and any alterations that are part of the project, is less than or equal to the annual energy cost or use of the existing building when modeled in accordance with Section C407 of the VECC.



**CHAPTER 9**  
**HISTORIC BUILDINGS**

*Replace Chapter 9 of the IEBC with the following:*

**SECTION 901**  
**GENERAL**

**901.1 Scope.** It is the intent of this chapter to provide means for the preservation of historic buildings. The provisions of this code relating to construction involving historic buildings shall not be mandatory unless such construction constitutes a life safety hazard. Accessibility shall be provided in accordance with Section 405.

**901.2 Report.** The code official shall be permitted to require that a historic building undergoing repair, alteration or change of occupancy be investigated and evaluated by a registered design professional (RDP) or other qualified person or agency as a condition of determining compliance with this code.

**901.3 Special occupancy exceptions.** When a building in Group R-3 is also used for Group A, B, or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m<sup>2</sup>), the code official may determine that the occupancy is Group B when life safety conditions can be demonstrated in accordance with Section 901.2. Adequate means of egress in such buildings, which may include a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

**SECTION 902**  
**FLOOD HAZARD AREAS**

**902.1 Flood hazard areas.** In flood hazard areas, if all proposed work, including repairs, work required because of a change of occupancy, and alterations, constitutes substantial improvement, then the existing building shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

Exception: If an historic building will continue to be an historic building after the proposed work is completed, then the proposed work is not considered a substantial improvement. For the purposes of this exception, an historic building is:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

**903.1 General.** Repairs to any portion of an historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

**903.2 Moved buildings.** Foundations of moved historic buildings and structures shall comply with the VCC. Moved historic buildings shall otherwise be considered an historic building for the purposes of this code. Moved historic buildings and structures shall be sited so that exterior wall and opening requirements comply with the VCC or with the compliance alternatives of this code.

**903.3 Replacement.** Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the VCC.

**Exception:** Glass block walls, louvered windows, and jalousies repaired with like materials.

## SECTION 904 (RESERVED)

### SECTION 905 ALTERATIONS

**905.1 General.** The provisions of Chapter 6, as applicable, shall apply to facilities designated as historic structures that undergo alterations, unless technically infeasible.

**905.2 Exit signs and egress path markings.** Where new exit signs or egress path markings would damage the historic character of the building or structure, alternative exit signs and egress path markings are permitted with approval of the code official. Alternative signs and egress path markings shall identify the exits and egress path.

### SECTION 906 CHANGE OF OCCUPANCY

**906.1 General.** Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 7, except as specifically permitted in this chapter. When Chapter 7 requires compliance with specific requirements of Chapter 6 and when those requirements are subject to exceptions elsewhere in this code, the same exceptions shall apply to this section.

**906.2 Building area.** When a change of occupancy classification is made to a higher hazard category as indicated in Table 706.2, the allowable floor area for historic buildings undergoing a change of occupancy shall be permitted to exceed by 20% the allowable areas specified in Chapter 5 of the VCC.

## HISTORIC BUILDINGS

**906.3 Location on property.** Historic structures undergoing a change of use to a higher hazard category in accordance with Section 707.1 may use alternative methods to comply with the fire-resistance and exterior opening protective requirements. Such alternatives shall comply with Section 901.2.

**906.4 Occupancy separation.** Required occupancy separations of one hour may be omitted when the building is provided with an approved automatic sprinkler system throughout.

**906.5 Automatic fire-extinguishing systems.** Every historical building or portion thereof, that cannot be made to conform to the construction requirements specified in Chapter 7 or this chapter for the occupancy or use and such change constitutes a fire hazard, shall be deemed to be in compliance if those spaces undergoing a change of occupancy are provided with an approved automatic fire-extinguishing system.

**Exception:** When the building official approves an alternative life-safety system.

**906.6 Means of egress.** Existing door openings and corridor and stairway widths less than those required elsewhere in this code shall be permitted, provided there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load or where other operational controls to limit occupancy are approved by the code official.

**906.7 Door swing.** Existing front doors need not swing in the direction of exit travel, provided that other approved exits having sufficient capacity to serve the total occupant load are provided.

**906.8 Transoms.** In corridor walls required by Chapter 7 to be fire-resistance rated, existing transoms may be maintained if fixed in the closed position and fixed wired glass set in a steel frame or other approved glazing shall be installed on one side of the transom.

**906.9 Interior finishes and trim materials.** When a change of occupancy classification is made to a higher hazard category as indicated in Table 705.2, existing nonconforming interior finish and trim materials shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required fire rating.

**Exception:** Such nonconforming materials need not be treated with an approved fire-retardant coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the VCC and the nonconforming materials can be substantiated as being historic in character.

**906.10 One-hour-fire-resistant assemblies.** Where one-hour-fire-resistance-rated construction is required by this code, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

**906.11 Stairways, railings, and guards.** Existing stairways, railings, and guards shall comply with the requirements of Section 705. The code official shall approve alternative stairways, railings, and guards if found to be acceptable or judged to meet the intent of Section 705.

**Exception:** For buildings less than 3,000 square feet (279 m<sup>2</sup>), existing conditions are permitted to remain at all stairways, railings, and guards.

**906.12 Exit stair live load.** When a change of occupancy classification is made to a higher hazard category as indicated in Table 706.2, existing stairways shall be permitted to remain where it can be shown that the stairway can support a 75-pounds-per-square-foot (366 kg/m<sup>2</sup>) live load.

## SECTION 907 STRUCTURAL

**907.1 General.** Historic buildings shall comply with the applicable structural provisions for the work as classified in Section 103.9.

**Exception:** The code official shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.



## CHAPTER 10

# MOVED BUILDINGS AND STRUCTURES

*Replace Chapter 10 of the IEBC with the following:*

### SECTION 1001

#### GENERAL

**1001.1 Scope.** This chapter provides requirements for moved buildings and structures.

**1001.2 Conformance.** Any repair, alteration, or change of occupancy undertaken within the moved building or structure shall comply with the requirements of this code applicable to the work being performed. Any field fabricated elements shall comply with the requirements of the VCC or the International Residential Code as applicable.

**1001.3 Required inspection and repairs.** The code official shall be authorized to inspect, or to require approved professionals to inspect at the expense of the owner, the various structural parts of a moved building or structure to verify that structural components and connections have not sustained structural damage. Any repairs required by the code official as a result of such inspection shall be made prior to the final approval.

### SECTION 1002

#### REQUIREMENTS

**1002.1 Location on the lot.** The building or structure shall be located on the lot in accordance with the requirements of the VCC or the International Residential Code as applicable.

**1002.2 Foundation.** The foundation system of moved buildings and structures shall comply with the VCC or the International Residential Code as applicable.

**1002.2.1 Connection to the foundation.** The connection of the moved building or structure to the foundation shall comply with the VCC or the International Residential Code as applicable.

**1002.3 Wind loads.** Buildings and structures shall comply with VCC or International Residential Code wind provisions at the new location as applicable.

#### **Exceptions:**

1. Detached one-family and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10%.

## MOVED BUILDINGS AND STRUCTURES

**1002.4 Seismic loads.** Buildings and structures shall comply with VCC or International Residential Code seismic provisions at the new location as applicable.

**Exceptions:**

1. Structures in Seismic Design Categories A and B and detached one-family and two-family dwellings in Seismic Design Categories A, B, and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10%.

**1002.5 Snow loads.** Buildings and structures shall comply with VCC or International Residential Code snow loads as applicable where snow loads at the new location are higher than those at the previous location.

**Exception:** Structural elements whose stress is not increased by more than 5.0%.

**1002.6 Flood hazard areas.** If moved into a flood hazard area, buildings and structures shall comply with Section 1612 of the VCC, or Section R322 of the International Residential Code, as applicable.

## CHAPTER 11

# RETROFIT REQUIREMENTS

*Replace Chapter 11 of the IEBC with the following*

### SECTION 1101

#### GENERAL

**1101.1 Scope.** In accordance with Section 103.3, the following buildings are required to be provided with certain fire protection equipment or systems or other retrofitted components.

**1101.2 Smoke alarms in colleges and universities.** In accordance with § 36-99.3 of the Code of Virginia, college and university buildings containing dormitories for sleeping purposes shall be provided with battery-powered or AC-powered smoke alarm devices installed therein in accordance with this code in effect on July 1, 1982. All public and private college and university dormitories shall have installed such alarms regardless of when the building was constructed. The chief administrative office of the college or university shall obtain a certificate of compliance with the provisions of this subsection from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services. The provisions of this section shall not apply to any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.

**1101.3 Smoke alarms in certain juvenile care facilities.** In accordance with § 36-99.4 of the Code of Virginia, battery-powered or AC-powered smoke alarms shall be installed in all local and regional detention homes, group homes, and other residential care facilities for children and juveniles that are operated by or under the auspices of the Virginia Department of Juvenile Justice, regardless of when the building was constructed, by July 1, 1986, in accordance with the provisions of this code that were in effect on July 1, 1984. Administrators of such homes and facilities shall be responsible for the installation of the smoke alarm devices.

**1101.4 Smoke alarms for the deaf and hearing-impaired.** In accordance with § 36-99.5 of the Code of Virginia, smoke alarms providing an effective intensity of not less than 100 candela to warn a deaf or hearing-impaired individual shall be provided, upon request by the occupant to the landlord or proprietor, to any deaf or hearing-impaired occupant of any of the following occupancies, regardless of when constructed:

1. All dormitory buildings arranged for the shelter and sleeping accommodations of more than 20 individuals;
2. All multiple-family dwellings having more than two dwelling units, including all dormitories and boarding and lodging houses arranged for shelter and sleeping accommodations of more than five individuals; or
3. All buildings arranged for use as one-family and two-family dwelling units.

A tenant shall be responsible for the maintenance and operation of the smoke alarm in the tenant's unit.

A hotel or motel shall have available no fewer than one such smoke alarm for each 70 units or portion thereof, except that this requirement shall not apply to any hotel or motel with fewer than 35 units. The proprietor of the hotel or motel shall post in a conspicuous place at the registration desk or counter a

## RETROFIT REQUIREMENTS

permanent sign stating the availability of smoke alarms for the hearing impaired. Visual alarms shall be provided for all meeting rooms for which an advance request has been made.

**1101.5 Assisted living facilities (formerly known as adult care residences or homes for adults).** In accordance with § 36-99.5 of the Code of Virginia, existing assisted living facilities licensed by the Virginia Department of Social Services shall comply with Sections 1101.5.1 and 1101.5.2.

**1101.5.1 Fire protective signaling system and fire detection system.** A fire protective signaling system and an automatic fire detection system meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

**Exception:** Assisted living facilities that are equipped throughout with a fire protective signaling system and an automatic fire detection system.

**1101.5.2 Single-station and multiple-station smoke alarms.** Battery-powered or AC-powered single-station and multiple-station smoke alarms meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

**Exception:** Assisted living facilities that are equipped throughout with single-station and multiple-station smoke alarms.

**1101.6 Smoke alarms in buildings containing dwelling units.** AC-powered smoke alarms with battery backup or an equivalent device shall be required to be installed to replace a defective or inoperative battery-powered smoke alarm located in buildings containing one or more dwelling units or rooming houses offering to rent overnight sleeping accommodations when it is determined by the building official that the responsible party of such building or dwelling unit fails to maintain battery-powered smoke alarms in working condition.

**1101.7 Fire suppression, fire alarm, and fire detection systems in nursing homes and facilities.** In accordance with § 36-99.5 of the Code of Virginia, fire suppression systems as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing facilities licensed by the Virginia Department of Health by January 1, 1993, regardless of when such facilities or institutions were constructed. Units consisting of certified long-term care beds located on the ground floor of general hospitals shall be exempt from the requirements of this section.

Fire alarm or fire detector systems, or both, as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing homes and nursing facilities licensed by the Virginia Department of Health by August 1, 1994.

**1101.8 Fire suppression systems in hospitals.** In accordance with § 36-99.1 of the Code of Virginia, fire suppression systems shall be installed in all hospitals licensed by the Virginia Department of Health as required by the edition of this code in effect on October 1, 1995, regardless of when such facilities were constructed.

**1101.9 Identification of disabled parking spaces by above grade signage.** In accordance with § 36-99.11 of the Code of Virginia, all parking spaces reserved for the use of persons with disabilities shall be identified by above-grade signs, regardless of whether identification of such spaces by above-grade signs was required when any particular space was reserved for the use of persons with disabilities. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above-grade sign. Any parking space not identified by an above-grade sign shall not be a parking space reserved for the disabled within the meaning of this section. All above-grade disabled parking space signs shall have the bottom edge of the sign no lower than four feet (1219 mm) nor higher than seven feet (2133 mm) above the parking surface. Such

signs shall be designed and constructed in accordance with the provisions of Chapter 11 of this code. All disabled parking signs shall include the following language: "PENALTY, \$100-500 Fine, TOW-AWAY ZONE." Such language may be placed on a separate sign and attached below existing above-grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than 4 feet above the parking surface.

**1101.10 Smoke alarms in hotels and motels.** Smoke alarms shall be installed in hotels and motels as required by the USBC, Volume II, (13VAC5-63-400 through 13VAC5-63-445) in effect on March 1, 1990, by the dates indicated, regardless of when constructed.

**1101.11 Sprinkler systems in hotels and motels.** By September 1, 1997, an automatic sprinkler system shall be installed in hotels and motels as required by the USBC, Volume II, (13VAC5-63-400 through 13VAC5-63-445) in effect on March 1, 1990, regardless of when constructed.

**1101.12 Fire suppression systems in dormitories.** In accordance with § 36-99.3 of the Code of Virginia, an automatic fire suppression system shall be provided throughout all buildings having a Group R-2 fire area that are more than 75 feet (22,860 mm) or six stories above the lowest level of exit discharge and are used, in whole or in part, as a dormitory to house students by any public or private institution of higher education, regardless of when such buildings were constructed, in accordance with the edition of this code in effect on August 20, 1997, and the requirements for sprinkler systems under the edition of the NFPA 13 standard referenced by that code. The automatic fire suppression system shall be installed by September 1, 1999. The chief administrative office of the college or university shall obtain a certificate of compliance from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.

**Exceptions:**

1. Buildings equipped with an automatic fire suppression system in accordance with Section 903.3.1.1 of the VCC or the 1983 or later editions of NFPA 13.
2. Any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.
3. Application of the requirements of this section shall be modified in accordance with the following:
  - 3.1. Building systems, equipment, or components other than the fire suppression system shall not be required to be added or upgraded except as necessary for the installation of the fire suppression system and shall only be required to be added or upgraded where the installation of the fire suppression system creates an unsafe condition.
  - 3.2. Residential sprinklers shall be used in all sleeping rooms. Other sprinklers shall be quick response or residential unless deemed unsuitable for a space. Standard response sprinklers shall be used in elevator hoistways and machine rooms.
  - 3.3. Sprinklers shall not be required in wardrobes in sleeping rooms that are considered part of the building construction or in closets in sleeping rooms when such wardrobes or closets (i) do not exceed 24 square feet (2.23 m<sup>2</sup>) in area, (ii) have the smallest dimension less than 36 inches (914 mm), and (iii) comply with all of the following:
    - 3.3.1. A single-station smoke alarm monitored by the building fire alarm system is installed in the room containing the wardrobe or closet that will activate the general alarm for the building if the single station smoke alarm is not cleared within five minutes after activation.
    - 3.3.2. The minimum number of sprinklers required for calculating the hydraulic demand of the system for the room shall be increased by two, and the two additional sprinklers shall be corridor sprinklers where the wardrobe or closet is used to

## RETROFIT REQUIREMENTS

divide the room. Rooms divided by a wardrobe or closet shall be considered one room for the purpose of this requirement.

- 3.3.3. The ceiling of the wardrobe, closet, or room shall have a fire resistance rating of not less than 1/2 hour.
- 3.4. Not more than one sprinkler shall be required in bathrooms within sleeping rooms or suites having a floor area between 55 square feet (5.12 m<sup>2</sup>) and 120 square feet (11.16 m<sup>2</sup>), provided the sprinkler is located to protect the lavatory area and the plumbing fixtures are of a noncombustible material.
- 3.5. Existing standpipe residual pressure shall be permitted to be reduced when the standpipe serves as the water supply for the fire suppression system, provided the water supply requirements of NFPA 13-94 are met.
- 3.6. Limited service controllers shall be permitted for fire pumps when used in accordance with their listing.
- 3.7. Where a standby power system is required, a source of power in accordance with Section 701-11(d) or 701-11(e) of NFPA 70-96 shall be permitted.

**1101.13 Fire extinguishers and smoke alarms in state regulated care facilities (SRCFs).** SRCFs shall be provided with at least one approved type ABC portable fire extinguisher with a minimum rating of 2A:10:BC installed in each kitchen. In addition, SRCFs shall provide at least one approved and properly installed battery-operated smoke alarm outside of each sleeping area in the vicinity of bedrooms and bedroom hallways and on each additional floor.

**1101.14 Smoke alarms in adult day care centers.** In accordance with § 36-99.5 of the Code of Virginia, battery-powered or AC-powered smoke alarm devices shall be installed in all adult day care centers licensed by the Virginia Department of Social Services, regardless of when the building was constructed. The location and installation of the smoke alarms shall be determined by the provisions of this code in effect on October 1, 1990. The licensee shall obtain a certificate of compliance from the building official of the locality in which the center is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.

**1101.15 Posting of occupant load.** Every room or space that is an assembly occupancy, and where the occupant load of that room or space is 50 or more, shall have the occupant load of the room or space as determined by the building official posted in a conspicuous place near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or owner's authorized agent.

**1101.16 ALFSTs.** Existing aboveground liquid fertilizer storage tanks (ALFSTs), regardless of when constructed, shall by October 1, 2011, meet the applicable requirements of API 653 and TFI RMIP for suitability for service and inspections and shall provide a secondary containment system complying with Section 430.3 of the VCC.

**1101.17 Address identification.** Existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of four inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of private road and the building address cannot be viewed from the public way, a monument, pole or other approved sign or means shall be used to identify the structure.

**1101.18 Fire department connection sign.** On existing buildings, wherever the fire department connection is not visible to approaching fire apparatus, the fire department connection shall be indicated by an approved sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" not less than six inches (152 mm) high and words in letters not less than two inches (51 mm) high or an arrow to indicate the location. Such signs shall be maintained and subject to the approval of the fire code official.

## CHAPTER 12

# CONSTRUCTION SAFEGUARDS

*Replace Chapter 12 of the IEBC with the following:*

### SECTION 1201

#### GENERAL

**1201.1 Scope.** The provisions of this chapter shall govern safety during construction that is under the jurisdiction of this code and the protection of adjacent public and private properties.

**1201.2 Storage and placement.** Construction equipment and materials shall be stored and placed so as not to endanger the public, the workers, or adjoining property for the duration of the construction project.

**1201.3 Alterations, repairs, and additions.** Required exits, existing structural elements, fire protection devices, and sanitary safeguards shall be maintained at all times during alterations, repairs, or additions to any building or structure.

**Exceptions:**

1. When such required elements or devices are being altered or repaired, adequate substitute provisions shall be made.
2. When the existing building is not occupied.

**1201.4 Manner of removal.** Waste materials shall be removed in a manner which prevents injury or damage to persons, adjoining properties, and public rights-of-way.

**1201.5 Fire safety during construction.** Fire safety during construction shall comply with the applicable requirements of the International Building Code and the applicable provisions of Chapter 33 of the International Fire Code.

**1201.6 Protection of pedestrians.** Pedestrians shall be protected during construction and demolition activities as required by Sections 1201.6.1 through 1201.6.7 and Table 1201.6. Signs shall be provided to direct pedestrian traffic.

**1201.6.1 Walkways.** A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be accessible in accordance with Chapter 11 of the International Building Code and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m<sup>2</sup>).

**1201.6.2 Directional barricades.** Pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.**1201.6.3 Construction railings.** Construction railings shall be at least 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.

**1201.6.4 Barriers.** Barriers shall be a minimum of eight feet (2438 mm) in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors which are normally kept closed.

**1201.6.4.1 Barrier design.** Barriers shall be designed to resist loads required in Chapter 16 of the International Building Code unless constructed as follows:

1. Barriers shall be provided with two-inch by four-inch top and bottom plates.
2. The barrier material shall be a minimum of 3/4-inch (19.1 mm) boards or 1/4-inch (6.4 mm) wood structural use panels.
3. Wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.
4. Wood structural use panels 1/4-inch (6.4 mm) or 1/16-inch (1.6 mm) in thickness shall have studs spaced not more than 2 feet (610 mm) on center.
5. Wood structural use panels 3/8-inch (9.5 mm) or 1/2-inch (12.7 mm) in thickness shall have studs spaced not more than 4 feet (1219 mm) on center, provided a two-inch by four-inch (51 mm by 102 mm) stiffener is placed horizontally at the mid-height where the stud spacing exceeds 2 feet (610 mm) on center.
6. Wood structural use panels 5/8-inch (15.9 mm) or thicker shall not span over eight feet (2438 mm).

**1201.6.5 Covered walkways.** Covered walkways shall have a minimum clear height of eight feet (2438 mm) as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided at all times. Covered walkways shall be designed to support all imposed loads. In no case shall the design live load be less than 150 psf (7.2 kN/m<sup>2</sup>) for the entire structure.

**Exception:** Roofs and supporting structures of covered walkways for new, light-frame construction not exceeding two stories above grade plane are permitted to be designed for a live load of 75 psf (3.6 kN/m<sup>2</sup>) or the loads imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:

1. Footings shall be continuous two-inch by six-inch members.
2. Posts not less than four-inches by six-inches shall be provided on both sides of the roof and spaced not more than 12 feet (3658 mm) on center.
3. Stringers not less than four-inches by 12-inches shall be placed on edge upon the posts.
4. Joists resting on the stringers shall be at least two-inches by eight-inches and shall be spaced not more than two feet (610 mm) on center.
5. The deck shall be planks at least two inches (51 mm) thick or wood structural panels with an exterior exposure durability classification at least 23/32-inch (18.3 mm) thick nailed to the joists.

## CONSTRUCTION SAFEGUARDS

6. Each post shall be knee-braced to joists and stringers by two-inch by four-inch minimum members 4 feet (1219 mm) long.
7. A two-inch by four-inch minimum curb shall be set on edge along the outside edge of the deck.

**1201.6.6 Repair, maintenance and removal.** Pedestrian protection required by Section 1201.6 shall be maintained in place and kept in good order for the entire length of time pedestrians may be endangered. The owner or the owner's agent, upon the completion of the construction activity, shall immediately remove walkways, debris, and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

TABLE 1201.6 PROTECTION OF PEDESTRIANS		
HEIGHT OF CONSTRUCTION	DISTANCE OF CONSTRUCTION TO LOT LINE	TYPE OF PROTECTION REQUIRED
8 feet or less	Less than 5 feet	Construction railings
	5 feet or more	None
More than 8 feet	Less than 5 feet	Barrier and covered walkway
	5 feet or more, but not more than 1/4 the height of construction	Barrier and covered walkway
	5 feet or more, but between 1/4 and 1/2 the height of construction	Barrier
	5 feet or more, but exceeding 1/2 the height of construction	None

**1201.6.7 Adjacent to excavations.** Every excavation on a site located 5 feet (1524 mm) or less from the street lot line shall be enclosed with a barrier not less than 6 feet (1829 mm) high. Where located more than 5 feet (1524 mm) from the street lot line, a barrier shall be erected when required by the code official. Barriers shall be of adequate strength to resist wind pressure as specified in Chapter 16 of the International Building Code.

**1201.7 Facilities required.** Sanitary facilities shall be provided during construction or demolition activities in accordance with the International Plumbing Code.

**1201.8 Separations between construction areas.** Separations used in Type I and Type II construction to separate construction areas from occupied portions of the building shall be constructed of materials that comply with one of the following:

1. Noncombustible materials.
2. Materials that exhibit a flame spread index not exceeding 25 when tested in accordance with ASTM E84 or UL 723.
3. Materials exhibiting a peak heat release rate not exceeding 300 kW/m<sup>2</sup> when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m<sup>2</sup> in the horizontal orientation on specimens at the thickness intended for use.

## SECTION 1202

### PROTECTION OF ADJOINING PROPERTIES

**1202.1 Protection required.** Adjoining public and private property shall be protected from damage during construction and demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights, and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to be made and that the adjoining buildings should be protected. This notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.

## SECTION 1203

### TEMPORARY USE OF STREETS, ALLEYS AND PUBLIC PROPERTY

**1203.1 Storage and handling of materials.** The temporary use of streets or public property for the storage or handling of materials or equipment required for construction or demolition and the protection provided to the public shall comply with the provisions of the applicable governing authority and this chapter.

**1203.2 Obstructions.** Construction materials and equipment shall not be placed or stored so as to interfere with access to fire hydrants, standpipes, fire or police alarm boxes, catch basins, or manholes nor shall such material or equipment be located within 20 feet (6.1 m) of a street intersection or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.

**1203.3 Utility fixtures.** Building materials, fences, sheds or any obstruction of any kind shall not be placed to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box, or catch basin or to interfere with the passage of water in the gutter. Protection against damage shall be provided to such utility fixtures during the progress of the work, but sight of them shall not be obstructed.

## SECTION 1204

### FIRE EXTINGUISHERS

**1204.1 Where required.** All structures under construction, alteration, or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with Section 906 of the International Building Code and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist including the storage and use of flammable and combustible liquids.

**1204.2 Fire hazards.** The provisions of this code and of the International Fire Code shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

## SECTION 1205 MEANS OF EGRESS

**1205.1 Stairways required.** Where a building has been constructed to a building height of 50 feet (15,240 mm) or four stories, or where an existing building exceeding 50 feet (15,240 mm) in building height is altered, at least one temporary lighted stairway shall be provided unless one or more of the permanent stairways are erected as the construction progresses.

**1205.2 Maintenance of means of egress.** Required means of egress shall be maintained at all times during construction, demolition, remodeling or alterations, and additions to any building.

**Exception:** Approved temporary means of egress systems and facilities.

## SECTION 1206 STANDPIPE SYSTEMS

**1206.1 Where required.** In buildings required to have standpipes by Section 905.3.1 of the International Building Code, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12,192 mm) in height above the lowest level of fire department vehicle access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairways. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

**1206.2 Buildings being demolished.** Where a building or portion of a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

**1206.3 Detailed requirements.** Standpipes shall be installed in accordance with the provisions of Chapter 9 of the International Building Code.

**Exception:** Standpipes shall be either temporary or permanent in nature and with or without a water supply, provided that such standpipes conform to the requirements of Section 905 of the International Building Code as to capacity, outlets and materials.

## SECTION 1207 AUTOMATIC SPRINKLER SYSTEMS

**1207.1 Completion before occupancy.** In portions of a building where an automatic sprinkler system is required by this code, it shall be unlawful to occupy those portions of the building until the automatic sprinkler system installation has been tested and approved, except as provided in Section 116.1.1.

**1207.2 Operation of valves.** Operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

## SECTION 1208 ACCESSIBILITY

**1208.1** Construction sites. Structures, sites, and equipment directly associated with the actual process of construction, including scaffolding, bridging, material hoists, material storage, or construction trailers are not required to be accessible.

## SECTION 1209 WATER SUPPLY AND FIRE PROTECTION

**1209.1 When required.** An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site, on commencement of vertical combustible construction, and on installation of a standpipe system during alterations, repairs, or additions to any building or structure in accordance with the Virginia Statewide Fire Prevention Code.

## SECTION 1210 DEMOLITION

**1210.1 Construction documents.** Construction documents and a schedule for demolition shall be submitted where required by the building official. Where such information is required, no work shall be done until such construction documents, schedule, or both are approved.

**1210.2 Pedestrian protection.** The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by Chapter 33 of the VCC.

**1210.3 Means of egress.** A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.

**1210.4 Vacant lot.** Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.

**1210.5 Water accumulation.** Provisions shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

**1210.6 Utility connections.** Service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the applicable governing authority.

**1210.7 Fire safety during demolition.** Fire safety during demolition shall comply with the applicable requirements of the VCC and the applicable provisions of Chapter 33 of the International Fire Code.



## CHAPTER 13

# REFERENCED STANDARDS

*Replace Chapter 13 of the IEBC with the following:*

Referenced standards are listed in the following table:

Standard number	reference	Title
ACI 562-21		Assessment, Repair, and Rehabilitation of Existing Concrete Structures
API 653-09		Tank Inspection, Repair, Alteration and Reconstruction
ASCE/SEI 7-16		American Society of Civil Engineers Structural Engineering Institute
ASCE/SEI 41-17		American Society of Civil Engineers Structural Engineering Institute
ASHRAE 62.1-2016		American Society of Heating, Refrigerating and Air Conditioning Engineers
ASHRAE 90.1-2016		American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME A17.1/CSA B44-2016		American Society of Mechanical Engineers
ASME A18.1-2014		American Society of Mechanical Engineers
ASTM F2006-17		ASTM International
ASTM F2090-17		ASTM International
IBC-21		International Building Code
ICC A117.1-17		Accessible and Usable Buildings and Facilities
IECC-21		International Energy Conservation Code
IFC-21		International Fire Code
IFGC-21		International Fuel Gas Code
IMC-21		International Mechanical Code
IPC-21		International Plumbing Code
IRC-21		International Residential Code
NFPA 13-19		Standard for the Installation of Sprinkler Systems
NFPA 70-96		National Electrical Code
NFPA 70-20		National Electrical Code
NFPA 99-18		Health Care Facilities Code
UL 217-15		Single and Multiple Station Smoke Alarms - with revisions through October 2015

**REFERENCED STANDARDS**

TFI RMIP-09	Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices
-------------	--



CHAPTER 14

COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY

*Replace Chapter 14 of the IEBC with the following:*

**SECTION 1401  
GENERAL**

**1401.1 Scope.** The provisions of this chapter are applicable when the exception to Section 701.1 is applied.

**1401.2 Change of occupancy.** The change of occupancy shall be evaluated in accordance with the evaluation process specified in Sections 1402 through 1404.

**1401.2.1 Plumbing, mechanical, and electrical systems.** Plumbing, mechanical, and electrical systems shall conform to the applicable requirements of Sections 708, 709, and 710.

**1401.3 Work undertaken in connection with a change of occupancy.** Any repairs, alterations, or additions undertaken in connection with a change of occupancy shall conform to the applicable requirements of this code for the work as classified in this code and as modified by this chapter.

**SECTION 1402  
EVALUATION PROCESS**

**1402.1 Evaluation process.** The evaluation process specified in this section shall be followed in its entirety to evaluate existing buildings for work covered by this chapter. The existing building shall be evaluated in accordance with the provisions of this section and Sections 1403 and 1404. The evaluation shall be comprised of three categories as described in Sections 1402.1.1 through 1402.1.3.

**1402.1.1 Fire safety.** Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm, automatic sprinkler system, and fire suppression system features of the facility.

**1402.1.2 Means of egress.** Included within the means of egress category are the configuration, characteristics, and support features for means of egress in the facility.

**1402.1.3 General safety.** Included within the general safety category are the fire safety parameters and the means-of-egress parameters.

**1402.2 Occupancy basis.** The evaluation of the building per this chapter shall be based on the new occupancy. A partial building change of occupancy shall be evaluated in accordance with Section 1402.2.1 or 1402.2.2 as applicable.

**1402.2.1 Separated change of occupancy.** Where a portion of the building undergoes a change of occupancy and that portion is separated from the remainder of the building in accordance with Section 508.4 of the VCC, only the portion of building undergoing the change of occupancy shall conform to the provisions of this chapter based on the new occupancy classification.

**1402.2.2 Nonseparated change of occupancy.** Where a portion of the building undergoes a change of occupancy and that portion is not separated from the remainder of the building in accordance with Section 508.4 of the VCC, the provisions of this chapter shall apply to the entire building based on all the occupancy classifications in the building.

**1402.3 Structural evaluation.** The existing building shall be evaluated to determine adequacy of the existing structural systems for the proposed change of occupancy. The evaluation shall demonstrate that the existing building with the work completed is capable of resisting the loads specified in Chapter 16 of the VCC.

**1402.4 Submittal.** The results of the evaluation as required in Section 1402.1 shall be submitted to the code official. Table 1404.1 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation outlined in this section.

## SECTION 1403 EVALUATION DATA

**1403.1 Building height and number of stories.** The value for building height and number of stories shall be the lesser value determined by the formula in Section 1403.1.1 . Section 504 of the VCC shall be used to determine the allowable height and number of stories of the building. Subtract the actual building height from the allowable height and divide by 12-1/2 feet (3810 mm). Enter the height value and its sign (positive or negative) in Table 1404.1 under Safety Parameter 1403.1, Building Height, for fire safety, means of egress, and general safety. The maximum score for a building shall be 10.

**1403.1.1 Height formula.** The following formulas shall be used in computing the building height value.

$$\text{Height value, feet} = \frac{(AH) - (EBH)}{125} \times CF$$

(Equation 14-1)

Note: Where mixed occupancies are separated and individually evaluated as indicated in Section 1404.3.1, the values AH, AS, EBH, and EBS shall be based on the height of the occupancy being evaluated.

$$\text{Height value, stories} = (AS - EBS) \times CF$$

(Equation 14-2)

AH = Allowable height in feet (mm) from Section 504 of the VCC.

EBH = Existing building height in feet (mm).

AS = Allowable height in stories from Section 504 of the VCC.

EBS = Existing building height in stories. CF = 1 if (AH) - (EBH) is positive.

CF = Construction-type factor shown in Table 1403.6(2) if (AH) - (EBH) is negative.

## COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY

**1403.2 Building area.** The value for building area shall be determined by the formula in Section 1403.2.2 . Section 506 of the VCC and the formula in Section 1403.2.1 shall be used to determine the allowable area of the building. Subtract the actual building area from the allowable area and divide by 1,200 square feet (112 m<sup>2</sup>). Enter the area value and its sign (positive or negative) in Table 1404.1 under Safety Parameter 1403.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50% of the fire safety score as listed in Table 1404.2, Mandatory Safety Scores.

**1403.2.1 Allowable area formula.** The following formula shall be used in computing allowable area:

$$A_a = A_t(NS \times I_f)$$

Equation (14-3)

Where:

$A_a$  = Allowable building area per story (square feet).

$A_t$  = Tabular allowable area factor (NS, S1, S13R, or SM value, as applicable) in accordance with Table 506.2 of the VCC.

$N_S$  = Tabular allowable area factor in accordance with Table 506.2 of the VCC for a nonsprinklered building (regardless of whether the building is sprinklered).

$I_f$  = Area factor increase due to frontage as calculated in accordance with Section 506.3 of the VCC.

**1403.2.2 Area formula.** The following formula shall be used in computing the area value. Determine the area value for each occupancy floor area on a floor-by-floor basis. For each occupancy, choose the minimum area value of the set of values obtained for the particular occupancy.

Equation 14-4:

$$Actual\ value_i = \frac{Allowable\ area_i}{1200\ square\ feet} \left[ 1 - \left( \frac{Actual\ area_i}{Allowable\ area_i} + \dots + \frac{Actual\ area_n}{Allowable\ area_n} \right) \right]$$

Equation (14-4)

Where:

$i$  = Value for an individual separated occupancy on a floor.

$n$  = Number of separated occupancies on a floor.

**1403.3 Compartmentation.** Evaluate the compartments created by fire barriers or horizontal assemblies that comply with Sections 1403.3.1 and 1403.3.2 and which are exclusive of the wall elements considered under Sections 1403.4 and 1403.5. Conforming compartments shall be figured as the net area and do not include shafts, chases, stairways, walls, or columns. Using Table 1403.3, determine the appropriate compartmentation value (CV) and enter that value into Table 1404.1 under Safety Parameter 1403.3, Compartmentation, for fire safety, means of egress, and general safety. For compartment sizes that fall between categories, the determination of the CV shall be permitted to be obtained by linear interpolation.

**TABLE 1403.3  
COMPARTMENTATION VALUES**

OCCUPANCY	CATEGORIES				
	a Compartment size equal to or greater than 15,000 square feet	b Compartment size of 10,000 square feet	c Compartment size of 7,500 square feet	d Compartment size of 5,000 square feet	e Compartment size of 2,500 square feet or less
A-1, A-3	0	6	10	14	18
A-2	0	4	10	14	18
A-4, B, E, S-2	0	5	10	15	20
F, M, R, S-1	0	4	10	16	22

For SI: 1 square foot = 0.0929m<sup>2</sup>.

**1403.3.1 Wall construction.** A wall used to create separate compartments shall be a fire barrier conforming to Section 707 of the VCC with a fire-resistance rating of not less than two hours. Where the building is not divided into more than one compartment, the compartment size shall be taken as the total floor area on all floors. Where there is more than one compartment within a story, each compartmented area on such story shall be provided with a horizontal exit conforming to Section 1026 of the VCC. The fire door serving as the horizontal exit between compartments shall be so installed, fitted, and gasketed that such fire door will provide a substantial barrier to the passage of smoke.

**1403.3.2 Floor/ceiling construction.** A floor/ceiling assembly used to create compartments shall conform to Section 711 of the VCC and shall have a fire-resistance rating of not less than two hours.

**1403.4 Tenant and dwelling unit separations.** Evaluate the fire-resistance rating of floors and walls separating tenants, including dwelling units, and not evaluated under Sections 1403.3 and 1403.5 .

**TABLE 1403.4  
SEPARATION VALUES**

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1	0	0	0	0	1
A-2	-5	-3	0	1	3
R	-4	-2	0	2	4
A-3, A-4, B, E, F, M, S-1	-4	-3	0	2	4
S-2	-5	-2	0	2	4

**1403.4.1 Categories.** The categories for tenant and dwelling unit separations are:

1. Category a—No fire partitions; incomplete fire partitions; no doors; doors not self-closing or automatic-closing.
2. Category b—Fire partitions or floor assemblies with less than one-hour fire-resistance ratings or not constructed in accordance with Section 708 or 711 of the VCC, respectively.

**COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY**

3. Category c—Fire partitions with one-hour or greater fire-resistance ratings constructed in accordance with Section 708 of the VCC and floor assemblies with one-hour but less than two-hour fire-resistance ratings constructed in accordance with Section 711 of the VCC or with only one tenant within the floor area.
4. Category d—Fire barriers with one-hour but less than two-hour fire-resistance ratings constructed in accordance with Section 707 of the VCC and floor assemblies with two-hour or greater fire-resistance ratings constructed in accordance with Section 711 of the VCC.
5. Category e—Fire barriers and floor assemblies with two-hour or greater fire-resistance ratings and constructed in accordance with Sections 707 and 711 of the VCC, respectively.

**1403.5 Corridor walls.** Evaluate the fire-resistance rating and degree of completeness of walls that create corridors serving the floor and that are constructed in accordance with Section 1020 of the VCC. This evaluation shall not include the wall elements considered under Sections 1403.3 and 1403.4. Under the categories and groups in Table 1403.5, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.5, Corridor Walls, for fire safety, means of egress, and general safety.

**TABLE 1403.5  
CORRIDOR WALL VALUES**

OCCUPANCY	CATEGORIES			
	a	b	c <sup>a</sup>	d <sup>a</sup>
A-1	-10	-4	0	2
A-2	-30	-12	0	2
A-3, F, M, R, S-1	-7	-3	0	2
A-4, B, E, S-2	-5	-2	0	5

- a. Corridors not providing at least one-half the exit access travel distance for all occupants on a floor shall use Category b.

**1403.5.1 Categories.** The categories for corridor walls are:

1. Category a—No fire partitions; incomplete fire partitions; no doors; or doors not self-closing.
2. Category b—Less than one-hour fire-resistance rating or not constructed in accordance with Section 708.4 of the VCC.
3. Category c—one-hour to less than 2-hour fire-resistance rating, with doors conforming to Section 716 of the VCC or without corridors as permitted by Section 1020 of the VCC.
4. Category d—two-hour or greater fire-resistance rating, with doors conforming to Section 716 of the VCC. 1403.6 Vertical openings. Evaluate the fire-resistance rating of interior exit stairways or ramps, hoistways, escalator openings, and other shaft enclosures within the building, and openings between two or more floors. Table 1403.6(1) contains the appropriate protection values. Multiply that value by the construction-type factor found in 1403.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 1404.1 under Safety Parameter 1403.6, Vertical Openings, for fire safety, means of egress, and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 713 of the VCC, enter a value of two. The maximum positive value for this requirement shall be two.

**TABLE 1403.6(1)  
VERTICAL OPENING PROTECTION VALUE**

PROTECTION	VALUE
None (unprotected opening)	-2 times number of floors connected
Less than 1 hour	-1 times number of floors connected
1 to less than 2 hours	1
2 hours or more	2

**TABLE 1403.6(2)  
CONSTRUCTION-TYPE FACTOR**

FACTOR	TYPE OF CONSTRUCTION									
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB	
	1.2	1.5	2.2	3.5	2.5	3.5	2.3	3.3	7	

**1403.6.1 Vertical opening formula.** The following formula shall be used in computing vertical opening value.

$$VO = PV \times CF$$

VO = Vertical opening value.

PV = Protection value from Table 1403.6(1).

CF = Construction-type factor from Table 1403.6(2).

**1403.7 HVAC systems.** Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 1403.7.1, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.7, HVAC Systems, for fire safety, means of egress, and general safety.

**1403.7.1 Categories.** The categories for HVAC systems are:

1. Category a—Plenums not in accordance with Section 602 of the International Mechanical Code. - 10 points.
2. Category b—Air movement in egress elements not in accordance with Section 1020.6 of the VCC. - 5 points.
3. Category c—Both Categories a and b are applicable. - 15 points.
4. Category d—Compliance of the HVAC system with Section 1020.6 of the VCC and Section 602 of the International Mechanical Code. - 0 points.
5. Category e—Systems serving one story; or a central boiler/chiller system without ductwork connecting two or more stories. + 5 points.

**COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY**

**1403.8 Automatic fire detection.** Evaluate the smoke detection capability based on the location and operation of automatic fire detectors in accordance with Section 907 of the VCC and Section 606 of the International Mechanical Code. Under the categories and occupancies in Table 1403.8, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.8, Automatic Fire Detection, for fire safety, means of egress, and general safety.

**TABLE 1403.8  
AUTOMATIC FIRE DETECTION VALUES**

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	-
A-2	-25	-5	0	5	9	-
A-4, B, E, S-2	-4	-2	0	4	8	-

**1403.8.1 Categories.** The categories for automatic fire detection are:

1. Category a - None.
2. Category b - Existing smoke detectors in HVAC systems.
3. Category c - Smoke detectors in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the International Mechanical Code.
4. Category d - Smoke detectors throughout all floor areas other than individual sleeping units, tenant spaces, and dwelling units.
5. Category e - Smoke detectors installed throughout the floor area.
6. Category f - Smoke detectors in corridors only.

**1403.9 Fire alarm systems.** Evaluate the capability of the fire alarm system in accordance with Section 907 of the VCC. Under the categories and occupancies in Table 1403.9, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.9, Fire Alarm System, for fire safety, means of egress, and general safety.

**TABLE 1403.9  
FIRE ALARM SYSTEM VALUES**

OCCUPANCY	CATEGORIES			
	a	b <sup>a</sup>	c	d
A-1, A-2, A-3, A-4, B, E, R	-10	-5	0	5
F, M, S	0	5	10	15

a. For buildings equipped throughout with an automatic sprinkler system, add two points for activation by a sprinkler water-flow device.

**1403.9.1 Categories.** The categories for fire alarm systems are:

1. Category a—None.
2. Category b—Fire alarm system with manual fire alarm boxes in accordance with Section 907.4 of the VCC and alarm notification appliances in accordance with Section 907.5.2 of the VCC.
3. Category c—Fire alarm system in accordance with Section 907 of the VCC.
4. Category d—Category c plus a required emergency voice/alarm communications system and a fire command station that conforms to Section 911 of the VCC and contains the emergency voice/alarm communications system controls, fire department communication system controls, and any other controls specified in Section 911 of the VCC where those systems are provided.

**1403.10 Smoke control.** Evaluate the ability of a natural or mechanical venting, exhaust, or pressurization system to control the movement of smoke from a fire. Under the categories and occupancies in Table 1403.10, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.10, Smoke Control, for means of egress and general safety.

**TABLE 1403.10  
SMOKE CONTROL VALUES**

OCCUPANCY	CATEGORIES					
	a	b <sup>a</sup>	c	d	e	f
A-1, A-2, A-3	0	1	2	3	6	6
A-4, E	0	0	0	1	3	5
B, M, R	0	2a	3a	3a	3a	4a
F, S	0	2a	2s	3a	3a	3a

a. This value shall be zero if compliance with Category d or e in Section 1403.8.1 has not been obtained.

**1403.10.1 Categories.** The categories for smoke control are:

1. Category a—None.
2. Category b—The building is equipped throughout with an automatic sprinkler system. Openings are provided in exterior walls at the rate of 20 square feet (1.86 m<sup>2</sup>) per 50 linear feet (15 240 mm) of exterior wall in each story and distributed around the building perimeter at intervals not exceeding 50 feet (15 240 mm). Such openings shall be readily openable from the inside without a key or separate tool and shall be provided with ready access thereto. In lieu of operable openings, clearly and permanently marked tempered glass panels shall be used.
3. Category c—One enclosed exit stairway, with ready access thereto, from each occupied floor of the building. The stairway has operable exterior windows, and the building has openings in accordance with Category b.
4. Category d—One smokeproof enclosure and the building has openings in accordance with Category b.
5. Category e—The building is equipped throughout with an automatic sprinkler system. Each floor area is provided with a mechanical airhandling system designed to accomplish smoke containment. Return and exhaust air shall be moved directly to the outside without recirculation to other floor areas of the building under fire conditions. The system shall exhaust not less than six air changes per hour from the floor area. Supply air by mechanical means to the floor area is not required. Containment of smoke shall be considered as

## COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY

confining smoke to the floor area involved without migration to other floor areas. Any other tested and approved design that will adequately accomplish smoke containment is permitted.

6. Category f—Each stairway shall be one of the following: a smokeproof enclosure in accordance with Section 1023.11 of the VCC, pressurized in accordance with Section 909.20.5 of the VCC, or shall have operable exterior windows.

**1403.11 Means of egress capacity and number.** Evaluate the means of egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to the following sections of the VCC: 1003.7, 1004, 1005, 1006, 1007, 1016.2, 1026.1, 1028.3, 1028.5, 1030.2, 1030.3, 1030.4, and 1031. The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section 303.

Under the categories and occupancies in Table 1403.11, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.11, Means of Egress Capacity, for means of egress and general safety.

**TABLE 1403.11  
MEANS OF EGRESS VALUES<sup>a</sup>**

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1, A-2, A-3, A-4, E	-10	0	2	8	10
M	-3	0	1	2	4
B, F, S	-1	0	0	0	0
R	-3	0	0	0	0

a. The values indicated are for buildings six stories or less in height. For buildings over six stories above grade plane, add an additional -10 points.

**1403.11.1 Categories.** The categories for means-of-egress capacity and number of exits are:

1. Category a—Compliance with the minimum required means-of-egress capacity or number of exits is achieved through the use of a fire escape in accordance with Section 503.
2. Category b—Capacity of the means of egress complies with Section 1005 of the VCC, and the number of exits complies with the minimum number required by Section 1006 of the VCC.
3. Category c—Capacity of the means of egress is equal to or exceeds 125% of the required means-of-egress capacity, the means of egress complies with the minimum required width dimensions specified in the VCC, and the number of exits complies with the minimum number required by Section 1006 of the VCC.
4. Category d—The number of exits provided exceeds the number of exits required by Section 1006 of the VCC. Exits shall be located a distance apart from each other equal to not less than that specified in Section 1007 of the VCC.
5. Category e—The area being evaluated meets both Categories c and d.

**1403.12 Dead ends.** In spaces required to be served by more than one means of egress, evaluate the length of the exit access travel path in which the building occupants are confined to a single path of travel. Under the categories and occupancies in Table 1403.12, determine the appropriate value and enter that value into 1404.1 under Safety Parameter 1403.12, Dead Ends, for means of egress and general safety.

**TABLE 1403.12  
DEAD-END VALUES**

OCCUPANCY	CATEGORIES <sup>a</sup>			
	a	b	c	d
A-1, A-3, A-4, B, F, M, R, S	-2	0	2	-4
A-2, E	-2	0	2	-4

a. For dead-end distances between categories, the dead-end value shall be obtained by linear interpolation.

**1403.12.1 Categories.** The categories for dead ends are:

1. Category a—Dead end of 35 feet (10 670 mm) in nonsprinklered buildings or 70 feet (21 340 mm) in sprinklered buildings.
2. Category b—Dead end of 20 feet (6096 mm); or 50 feet (15 240 mm) in Group B in accordance with Section 1020.5, Exception 2, of the VCC.
3. Category c—No dead ends; or ratio of length to width (l/w) is less than 2.5:1.4.
4. Category d—Dead ends exceeding Category a.

**1403.13 Maximum exit access travel distance to an exit.** Evaluate the length of exit access travel to an approved exit. Determine the appropriate points in accordance with the following equation and enter that value into Table 1404.1 under Safety Parameter 1403.13, Maximum Exit Access Travel Distance for means of egress and general safety. The maximum allowable exit access travel distance shall be determined in accordance with Section 1017.1 of the VCC.

$$\text{Points} = 20 \times \frac{\text{Maximum allowable travel distance} - \text{Maximum actual travel distance}}{\text{Maximum allowable travel distance}}$$

(Equation 14-6)

**1403.14 Elevator control.** Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied floors. Emergency recall and in-car operation of elevators shall be provided in accordance with the building code under which the building or the affected portion thereof was constructed or previously approved. Under the categories and occupancies in Table 1403.14, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a single-story building.

**TABLE 1403.14  
ELEVATOR CONTROL VALUES**

ELEVATOR TRAVEL	CATEGORIES
-----------------	------------

**COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY**

	a	b	c	d
Less than 25 feet of travel above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-2	0	0	2
Travel of 25 feet or more above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-4	NP	0	4
For SI: 1 foot = 304.8mm.				
NP = Not permitted.				

**1403.14.1 Categories.** The categories for elevator controls are:

1. Category a - No elevator.
2. Category b - Any elevator without Phase I emergency recall operation and Phase II emergency in-car operation.
3. Category c - All elevators with Phase I emergency recall operation and Phase II emergency in-car operation as required by the building code under which the building or the affected portion thereof was constructed or previously approved.
4. Category d - All meet Category c or Category b where permitted to be without Phase I emergency recall operation and Phase II emergency in-car operation, and there is at least one elevator that complies with new construction requirements serves all occupied floors.

**1403.15 Means-of-egress emergency lighting.** Evaluate the presence of and reliability of means-of-egress emergency lighting. Under the categories and occupancies in Table 1403.15, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.15, Means-of-Egress Emergency Lighting, for means of egress and general safety.

**TABLE 1403.15  
MEANS-OF-EGRESS EMERGENCY LIGHTING VALUES**

NUMBER OF EXITS REQUIRED BY SECTION 1006 OF THE INTERNATIONAL BUILDING CODE	CATEGORIES		
	a	b	c
Two or more exits	NP	0	4
Minimum of one exit	0	1	1

NP= Not permitted

**1403.15.1 Categories.** The categories for means-of-egress emergency lighting are:

1. Category a—Means-of-egress lighting and exit signs not provided with emergency power in accordance with Section 2702 of the VCC.
2. Category b—Means-of-egress lighting and exit signs provided with emergency power in accordance with Section 2702 of the VCC.
3. Category c—Emergency power provided to means-of-egress lighting and exit signs, which provides protection in the event of power failure to the site or building.

**1403.16 Mixed occupancies.** Where a building has two or more occupancies that are not in the same with this section. Where there is no separation between the mixed occupancies or the separation between mixed

occupancies does not qualify for any of the categories indicated in Section 1403.16.1, the building shall be evaluated as indicated in Section 1404.3.1, and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 1403.16, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

**TABLE 1403.16  
MIXED OCCUPANCY VALUES<sup>a</sup>**

OCCUPANCY	CATEGORIES		
	a	b	c
A-1, A-2, R	-10	0	10
A-3, A-4, B, E, F, M, S	-5	0	5

a. For fire-resistance ratings between categories, the value shall be obtained by linear interpolation.

**1403.16.1 Categories.** The categories for mixed occupancies are:

1. Category a—Occupancies separated by minimum one-hour fire barriers or minimum one-hour horizontal assemblies, or both.
2. Category b—Separations between occupancies in accordance with Section 508.4 of the VCC.
3. Category c—Separations between occupancies having a fire-resistance rating of not less than twice that required by Section 508.4 of the VCC.

**1403.17 Automatic sprinklers.** Evaluate the ability to suppress a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC. "Required sprinklers" shall be based on the requirements of this code. Under the categories and occupancies in Table 1403.17, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.17, Automatic Sprinklers, for fire safety, means of egress divided by two, and general safety. High-rise buildings defined in Chapter 2 of the VCC that undergo a change of occupancy to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the VCC and Chapter 9 of the VCC.

**TABLE 1403.17  
SPRINKLER SYSTEM VALUES**

OCCUPANCY	CATEGORIES					
	a <sup>a</sup>	b <sup>a</sup>	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12

a. These options cannot be taken if Category a in Section 1403.18 is used.

**1403.17.1 Categories.** The categories for automatic sprinkler system protection are:

**COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY**

1. Category a—Sprinklers are required throughout; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the VCC.
2. Category b—Sprinklers are required in a portion of the building; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the VCC.
3. Category c—Sprinklers are not required; none are provided.
4. Category d—Sprinklers are required in a portion of the building; sprinklers are provided in such portion; the system is one that complied with the code at the time of installation and is maintained and supervised in accordance with Section 903 of the VCC.
5. Category e—Sprinklers are required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the VCC.
6. Category f—Sprinklers are not required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the VCC.

**1403.18 Standpipes.** Evaluate the ability to initiate attack on a fire by a making supply of water available readily through the installation of standpipes in accordance with Section 905 of the VCC. "Required Standpipes" shall be based on the requirements of the VCC. Under the categories and occupancies in Table 1403.18, determine the appropriate value and enter that value into Table 1404.1 under Safety Parameter 1403.18, Standpipes, for fire safety, means of egress, and general safety.

**TABLE 1403.18  
STANDPIPE SYSTEM VALUES**

OCCUPANCY	CATEGORIES			
	a <sup>a</sup>	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	4	6
A-2	-4	0	2	4
A-4, B, E, S-2	-12	0	6	12
a. This option cannot be taken if Category a or Category b in Section 1403.17 is used.				

**1403.18.1 Standpipe categories.** The categories for standpipe systems are:

1. Category a—Standpipes are required; standpipe is not provided or the standpipe system design is not in compliance with Section 905.3 of the VCC.
2. Category b—Standpipes are not required; none are provided.
3. Category c—Standpipes are required; standpipes are provided in accordance with Section 905 of the VCC.
4. Category d—Standpipes are not required; standpipes are provided in accordance with Section 905 of the VCC.

**1403.19 Incidental uses.** Evaluate the protection of incidental uses in accordance with Section 509.4.2 of the VCC. Do not include those where this code requires automatic sprinkler systems throughout the building, including covered and open mall buildings, high-rise buildings, public garages, and unlimited-area buildings. Assign the lowest score from Table 1403.19 for the building or floor area being evaluated and enter that value

into Table 1404.1 under Safety Parameter 1403.19, Incidental Uses, for fire safety, means of egress and general safety. If there are no specific occupancy areas in the building or floor area being evaluated, the value shall be zero.

**TABLE 1403.19  
INCIDENTAL USE AREA VALUES**

PROTECTION REQUIRED BY TABLE 509 OF THE VCC	PROTECTION PROVIDED						
	None	1 hour	AS	AS with CRS	1 hour and AS	2 hours	2 hours and AS
2 hours and AS	-4	-3	-2	-2	-1	-2	0
2 hours, or 1 hour and AS	-3	-2	-1	-1	0	0	0
1 hour and AS	-3	-2	-1	-1	0	-1	0
1 hour	-1	0	-1	-1	0	0	0
1 hour, or AS with CRS	-1	0	-1	-1	0	0	0
AS with CRS	-1	-1	-1	-1	0	-1	0
1 hour or AS	-1	0	0	0	0	0	0

AS = Automatic sprinkler system;

CRS - Construction capable of resisting the passage of smoke (see Section 509.4.2 of the VCC).

**SECTION 1404  
EVALUATION SCORES**

**1404.1 Building Score.** After determining the appropriate data from Section 1403, enter those data in Table 1404.1 and total the building score.

**TABLE 1404.1  
SUMMARY SHEET-BUILDING CODE**

Existing occupancy _____		Proposed Occupancy _____	
Year building was constructed _____		Number of stories _____ Height in feet _____	
Type of construction _____		Area per floor _____	
Percentage of open perimeter increase _____ %			
Completely suppressed:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Corridor wall rating _____
			Type: _____
Fire-resistance rating of vertical opening enclosures _____			
Type of HVAC system _____, serving number of floors _____			
Automatic fire detection:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Type and Location: _____
Fire alarm system:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Type: _____

**COMPLIANCE ALTERNATIVE – CHANGE OF OCCUPANCY**

Smoke control:	Yes	No	Type:	
Adequate exit route:	Yes	No	Dead ends:	Yes No
Maximum exist access travel distance			Elevator controls:	Yes No
Means of egress lighting:	Yes	No	Mixed occupancies:	Yes No
Standpipes	Yes	No	Patient ability for self-preservation	
Incidental use	Yes	No	Patient concentration	
Smoke compartmentation less than 22,500 sq. feet (2092 m <sup>2</sup> )	Yes	No	Attendant-to-patient ratio	

<b>SAFETY PARAMETERS</b>	<b>FIRE SAFETY (FS)</b>	<b>MEANS OF EGRESS (ME)</b>	<b>GENERAL SAFETY (GS)</b>
1403.1 Building Height			
1403.2 Building Area			
1403.3 Compartmentation			
1403.4 Tenant and Dwelling Unit Separations			
1403.5 Corridor Walls			
1403.6 Vertical Openings			
1403.7 HVAC Systems			
1403.8 Automatic Fire Detection			
1403.9 Fire Alarm System			
1403.10 Smoke Control	****		
1403.11 Means of Egress	****		
1403.12 Dead Ends	****		
1403.13 Maximum Exit Access Travel Distance	****		
1403.14 Elevator Control			
1403.15 Means of Egress Emergency Lighting	****		
1403.16 Mixed Occupancies		****	
1403.17 Automatic Sprinklers		÷ 2 =	
1403.18 Standpipes			
1403.19 Incidental Use			
Building score - total value			

\*\*\*\*No applicable value to be inserted.

**1404.2 Safety scores.** The values in Table 1404.2 are the required mandatory safety scores for the evaluation process listed in Section 1403.

**TABLE 1404.2  
MANDATORY SAFETY SCORES<sup>a</sup>**

OCCUPANCY	FIRE SAFETY (MFS)	MEANS OF EGRESS (MME)	GENERAL SAFETY (MGS)
A-1	20	31	31
A-2	21	32	32
A-3	22	33	33
A-4, E	29	40	40
B	30	40	40
F	24	34	34
M	23	40	40
R	21	38	38
S-1	19	29	29
S-2	29	39	39

a. MFS = Mandatory Fire Safety, MME = Mandatory Means of Egress, MGS = Mandatory General Safety

**1404.3 Final scores.** The mandatory safety score in Table 1404.1 shall be subtracted from the building score in Table 1404.2 for each category. Where the final score for any category equals zero or more, the building is in compliance with the requirements of this section for that category. Where the final score for any category is less than zero, the building is not in compliance with the requirements of this section.

**1404.3.1 Mixed occupancies.** For mixed occupancies, the following provisions shall apply:

1. Where the separation between mixed occupancies does not qualify for any category indicated in Section 1403.16, the mandatory safety scores for the occupancy with the lowest general safety score in Table 1404.2 shall be utilized. (See Section 1404.3.1).
2. Where the separation between mixed occupancies qualifies for any category indicated in Section 1403.16, the mandatory safety scores for each occupancy shall be placed against the evaluation scores for the appropriate occupancy.

**TABLE 1404.3  
FINAL SCORES<sup>a</sup>**

FORMULA	T1404.1	T1404.2	SCORE	PASS	FAIL
FS - MFS ≥ 0	(FS) -	(MFS)	=		
ME - MME ≥ 0	(ME) -	(MME)	=		
GS - MGS ≥ 0	(GS) -	(MGS)	=		

a. FS = Fire Safety  
 ME = Means of Egress  
 GS = General Safety  
 MFS = Mandatory Fire Safety,  
 MME = Mandatory Means of Egress,  
 MGS = Mandatory General Safety



## APPENDIX B

# SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS FOR EXISTING BUILDINGS AND FACILITIES

*Change Sections B101.3 and B101.4 of the IEBC to read:*

**B101.3 Qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act.** Where an alteration or change of occupancy is undertaken to a qualified historic building or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. Where the state historic preservation officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the alternative requirements of Section 405 for that element are permitted.

**B101.4. Qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act.** Where an alteration or change of occupancy is undertaken to a qualified historic building or facility that is not subject to Section 106 of the National Historic Preservation Act, and the entity undertaking the alterations believes that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the entity shall consult with the state historic preservation officer. Where the state historic preservation officer determines that compliance with the accessibility requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historical significance of the building or facility, the alternative requirements of Section 405 for the element are permitted.

*Change the first sentence in Section B101.5 of the IEBC to read:*

**B101.5 Displays.** In qualified historic buildings and facilities where alternative requirements of Section 405 are permitted, displays and written information shall be located where they can be seen by a seated person.

*Change the first sentence in Section 102.2.3 of the IEBC to read:*

**B102.2.3 Direct connections.** New direct connections to commercial, retail, or residential facilities shall, to the maximum extent feasible, have an accessible route complying with Section 404.3 from the point of connection to boarding platforms and transportation system elements used by the public.