

CHAPTER 1

SCOPE AND ADMINISTRATION

Note: Chapter 1 is entirely Seattle Amendments to the *International Existing Building Code* and is not underlined.

SECTION 101 SCOPE AND APPLICATION OF CODE

101.1 Title. This subtitle shall be known as the “International Existing Building Code.” All references to the *International Existing Building Code* contained in this code mean the *Seattle Existing Building Code*.

101.2 Scope. This code applies to the repair, alteration, change of occupancy, addition to, relocation and maintenance of existing buildings.

Exception: Buildings within the scope of the *International Residential Code* shall comply with the *International Residential Code*.

101.3 Purpose. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, occupancy, location and maintenance of certain existing buildings and structures within the City and certain equipment in those buildings, as specifically regulated herein. The purpose of this code is to provide for and promote the health, safety and welfare of the general public, and not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this code.

101.4 Compliance. Except as specifically provided in this code, additions, alterations, repairs and changes of occupancy to, and relocation of any building or structure shall comply with the requirements of the code for new construction. Except as specifically provided in this code, additions, alterations, repairs and changes of occupancy to, and relocation of any building or structure shall be such that the existing building or structure is no less complying with the provisions of the *International Building Code* than the existing building or structure was prior to the alteration, addition, repair, change of occupancy or relocation.

101.4.1 Unless approved by the code official, this code does not justify conditions in buildings or structures that do not comply with the codes in effect at the time the building or structure was built, including permitted additions, alterations, repairs, changes of occupancy and relocations.

101.4.2 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the *International Building Code* for new construction or with any current permit for such occupancy.

101.4.3 Buildings previously occupied. Buildings in existence at the time of the passage of this code that were legally constructed and occupied in accordance with the provisions of a prior code are permitted to have their existing occupancy continued, provided such occupancy is not unsafe.

101.4.3.1 Establishing occupancy for the record. An occupancy is permitted to be established for any date if:

1. The applicant can provide evidence satisfactory to the code official that the occupancy was in existence on that date, and
2. The building can be made to comply with the building code in effect on that date.

101.4.4 Compliance with retroactive ordinances. Alterations and repairs to existing buildings that are being made in response to a notice or order requiring compliance with the *Housing and Building Maintenance Code*, Subtitle II, Title 22 of the Seattle Municipal Code, the *Fire Code*, Subtitle VI, Title 22 of the Seattle Municipal Code, or other ordinances applicable to existing buildings, are permitted to be made in accordance with standards contained in those ordinances rather than the standards contained in this code.

101.5 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices and safeguards which are or were required by a code in effect when the building or structure was erected, altered or repaired shall be maintained in conformance with the code edition under which they were installed. The owner or the owner’s designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the code official shall have the authority to require a building or structure to be reinspected. The requirements of this Chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing buildings or structures.

Exception: The code official is authorized to modify the requirements of this subsection where all or a portion of a building is unoccupied, closed off and reasonably secure from unlawful entry.

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101.6 Internal Consistency. If in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive governs. If there is a conflict between a general requirement and a specific requirement, the specific requirement governs.

101.7 Referenced codes and standards. The codes and standards referenced in this code are considered part of the requirements of this code to the extent prescribed by each such reference. If differences occur between provisions of this code and referenced codes and standards, the provisions of this code apply.

101.8 References to other codes. Whenever an International, National or Uniform Code is referenced in this code, it means the Seattle edition of that code, including local amendments. References to the “Building Code”, “Residential Code”, “Fire Code”, “Mechanical Code” and “Plumbing Code” mean the Seattle editions of those codes.

101.9 Appendices. Provisions in the appendices of the *International Existing Building Code* do not apply, with the exception of Chapters A1 and A3 through A6 of Appendix A, which are herein adopted.

101.10 Metric units. Wherever in this code there is a conflict between metric units of measurement and U.S. customary units, the U.S. customary units govern.

101.11 Impracticality. In cases where total compliance with all the requirements of this code is impractical, the applicant may arrange a pre-design conference with the design team and the code official. The applicant shall identify design solutions and modifications that conform to Section 101.12 or 101.13. The code official may waive specific requirements in this code that the code official determines to be impractical.

101.12 Modifications. The code official may modify the requirements of this code for individual cases if the code official finds: (1) there are practical difficulties involved in carrying out the provisions of this code; (2) the modification is in conformity with the intent and purpose of this code; and (3) the modification will provide a reasonable level of fire protection and structural integrity when considered together with other safety features of the building or other relevant circumstances. The code official may, but is not required to, record the approval of modifications and any relevant information in the files of the code official or on the approved permit plans.

101.13 Alternate materials, methods of construction and design. This code does not prevent the use of any material, design or method of construction not specifically allowed or prohibited by this code, provided the alternate has been approved and its use authorized by the code official.

The code official may approve an alternate, provided the code official finds that the proposed alternate complies with the provisions of this code, and that the alternate, when considered together with other safety features of the building or other relevant circumstances, will provide at least an equivalent level of strength, effectiveness, fire resistance, durability, safety and sanitation.

The code official may require that sufficient evidence or proof be submitted to reasonably substantiate any claims regarding the use or suitability of the alternate. The code official may, but is not required to, record the approval of code alternates and any relevant information in the files of the code official or on the construction documents.

101.14 Unsafe conditions. The code official shall have the authority to require the elimination of conditions deemed *unsafe* in accordance with *International Building Code* Section 102.

SECTION 102 ADMINISTRATION

102.1 General. Additions, alterations, repairs and changes of occupancy to and relocations of buildings and structures are subject to Chapter 1 of the *Seattle Building Code*.

CHAPTER 2

DEFINITIONS

User note:

About this chapter: Codes, by their very nature, are technical documents. Every word, term and punctuation mark can add to or change the meaning of a technical requirement. It is necessary to maintain a consensus on the specific meaning of each term contained in the code. Chapter 2 performs this function by stating clearly what specific terms mean for the purpose of the code.

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

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.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this chapter, such terms shall have ordinarily accepted meanings such as the context implies.

SECTION 202 GENERAL DEFINITIONS

[A] **ADDITION.** An extension or increase in floor area, number of stories, or height of a building or structure.

~~[W] **ADULT FAMILY HOME.** A *dwelling*, licensed by the State of Washington Department of Social and Health Services, in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services. An existing adult family home may provide services to up to eight adults upon approval from the Department of Social and Health Services in accordance with RCW 70.128.066.~~

[A] **ALTERATION.** Any construction or renovation to an *existing structure* other than a *repair* or *addition*.

[A] **APPROVED.** Acceptable to the *code official*.

[A] **BUILDING.** Any structure utilized or intended for supporting or sheltering any occupancy.

[A] **CHANGE OF OCCUPANCY.** A change in the use of a building or a portion of a building that results in any of the following:

1. A change of occupancy classification.
2. A change from one group to another group within an occupancy classification.
3. Any change in use within a group for which there is a change in application of the requirements of this code.

~~[S][A] **CODE OFFICIAL.** The ((*officer or other designated authority charged with the administration and enforcement of this code*)) *Director of the Department of Construction and Inspections and authorized representatives.*~~

~~[S] **DAMAGE RATIO.** The ratio between the cost of work and the estimated replacement cost of the building, expressed as a percentage.~~

~~[S] ((~~[BS] **DANGEROUS.** Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:~~~~

- ~~1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground.~~
- ~~2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads.))~~

[A] **DEFERRED SUBMITTAL.** Those portions of the design that are not submitted at the time of the application and that are to be submitted to the *code official* within a specified period.

~~[S] ((~~[BS] **DISPROPORTIONATE EARTHQUAKE DAMAGE.** A condition of earthquake related damage where both of the following occur:~~~~

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1. The 0.3-second spectral acceleration at the building site as estimated by the United States Geological Survey for the earthquake in question is less than 40 percent of the mapped acceleration parameter S_g .
2. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 10 percent from its predamage condition.)

EQUIPMENT OR FIXTURE. Any plumbing, heating, electrical, ventilating, air conditioning, refrigerating, and fire protection equipment, and elevators, dumbwaiters, escalators, boilers, pressure vessels and other mechanical facilities or installations that are related to building services. Equipment or fixture shall not include manufacturing, production, or process equipment, but shall include connections from building service to process equipment.

[S][A] EXISTING BUILDING, EXISTING STRUCTURE. A building or structure erected prior to the date of adoption of ((the appropriate)) this code, or one for which a ((legal building permit)) valid Certificate of Occupancy has been issued, or one that has passed a final inspection.

[S] (([A] EXISTING STRUCTURE. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.))

[A] FACILITY. All or any portion of buildings, structures, site improvements, elements and pedestrian or vehicular routes located on a site.

[BS] FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year.
2. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

[S] (([A] HISTORIC BUILDING. Any building or structure that is one or more of the following:

1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register, state-designated or locally-designated historic district.))

[S] LANDMARK. A building or structure that is subject to a requirement to obtain a certificate of approval from the City Landmarks Preservation Board before altering or making significant changes to specific features or characteristics, that has been nominated for designation and the City Landmarks Preservation Board has not issued a determination regarding designation, that has been designated for preservation by the City Landmarks Preservation Board, that has been designated for preservation by the State of Washington, that has been listed or determined eligible to be listed in the National Register of Historic Places, or that is located in a landmark or special review district subject to a requirement to obtain a certificate of approval before making a change to the external appearance of a structure.

[S] LIFE SAFETY PERFORMANCE LEVEL. A post-earthquake damage state that includes damage to structural elements, but the building retains a margin against partial or total collapse. Injuries may occur, but the overall risk of life-threatening injury as a result of structural damage is expected to be low.

[B] NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E136 are considered noncombustible materials.

PRIMARY FUNCTION. A *primary function* is a major activity for which the facility is intended. Areas that contain a *primary function* include, but are not limited to, the customer services lobby of a bank, the dining area of a cafeteria, the meeting rooms in a conference center, as well as offices and other *work areas* in which the activities of the public accommodation or other private entity using the facility are carried out. Mechanical rooms, boiler rooms, supply storage rooms, employee lounges or locker rooms, janitorial closets, entrances, corridors and restrooms are not areas containing a *primary function*.

[A] REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A registered design professional engaged by the owner or the owner's authorized agent to review and coordinate certain aspects of the project, as determined by the *code official*, for compatibility with the design of the building or structure, including submittal documents prepared by others, *deferred submittal* documents and phased submittal documents.

REHABILITATION. Any work, as described by the categories of work defined herein, undertaken in an *existing building*.

RELOCATABLE BUILDING. A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.

[A] REPAIR. The reconstruction, replacement or renewal of any part of an *existing building* for the purpose of its maintenance or to correct damage.

[BS] REROOFING. The process of recovering or replacing an existing roof covering. See "Roof recover" and "Roof replacement."

[BS] RISK CATEGORY. A categorization of buildings and other structures for determination of flood, wind, snow, ice and earthquake loads based on the risk associated with unacceptable performance, as provided in Section 1604.5 of the *International Building Code*.

[BS] ROOF COATING. A fluid-applied adhered coating used for roof maintenance, *roof repair*, or as a component of a roof covering system or roof assembly.

[BS] ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

[BS] ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purpose of correcting damage or restoring the predamage condition.

[BS] ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

[BS] SEISMIC FORCES. The loads, forces and requirements prescribed herein, related to the response of the building to earthquake motions, to be used in the analysis and design of the structure and its components. Seismic forces are considered either full or reduced, as provided in Chapter 3.

SUBSTANTIAL ALTERATION. See Section 307.1.

[BS] SUBSTANTIAL DAMAGE. For the purpose of determining compliance with the flood provisions of this code, damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

[S][BS] SUBSTANTIAL IMPROVEMENT. ((For the purpose of determining compliance with the flood provisions of this code, any)) Any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure, before the improvement or repair is started. If the structure has sustained *substantial damage*, any repairs are considered *substantial improvement* regardless of the actual *repair* work performed. The term does not, however, include either of the following:

1. Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the *code official* and that is the minimum necessary to ensure safe living conditions.
2. Any *alteration* of a ((*historic*)) *landmark* structure, provided that the *alteration* will not preclude the structure's continued designation as a ((*historic*)) *landmark* structure.

[S] (([BS] SUBSTANTIAL STRUCTURAL ALTERATION. An alteration in which the gravity load-carrying structural elements altered within a 5-year period support more than 30 percent of the total floor and roof area of the building or structure. The areas to be counted toward the 30 percent shall include mezzanines, penthouses, and in-filled courts and shafts tributary to the altered structural elements.))

[S] (([BS] SUBSTANTIAL STRUCTURAL DAMAGE. A condition where any of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its predamage condition.
2. The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.
3. The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamage condition, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.))

TECHNICALLY INFEASIBLE. An *alteration* of a facility that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

[S] UNSAFE. ((Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "*Dangerous*," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.)) Structurally unsound, provided with inadequate egress, constituting a fire hazard, or otherwise dangerous to human life, or constituting a hazard to safety, health or public welfare.

[S] WORK AREA. That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code. The boundary of the work area includes all spaces not physically separated from rooms or spaces where work is being performed.

CHAPTER 3

PROVISIONS FOR ALL COMPLIANCE METHODS

User note:

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

SECTION 301 ~~((ADMINISTRATION))~~ COMPLIANCE METHODS

[S] 301.1 General. All repairs, alterations, changes of occupancy, additions and relocations of buildings shall comply with this chapter. The ~~((repair))~~ alteration, change of occupancy, addition or relocation of all existing buildings and structures shall also comply with Section 301.2, 301.3, or 301.4.

301.2 Repairs. Repairs shall comply with the requirements of Chapter 4.

[S] 301.3 Alteration, addition or change of occupancy. The alteration, addition or change of occupancy of all existing buildings and structures shall also comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the code official, alterations ~~((complying))~~ that comply with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing a substantial alteration. New structural members added as part of the alteration shall comply with the *International Building Code*. This exception shall not apply to alterations that constitute substantial improvement in flood hazard areas, which shall comply with Section 310. ~~((503.2, 701.3 or 1301.3.3. This exception shall not apply to the structural provisions of Chapter 5 or to the structural provisions of Sections 706, 806 and 906.))~~

301.3.1 Prescriptive compliance method. Alterations, additions and changes of occupancy complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.3.2 Work area compliance method. Alterations, additions and changes of occupancy complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

301.3.3 Performance compliance method. Alterations, additions and changes of occupancy complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

[S] 301.4 Relocated buildings. Relocated buildings shall comply with the requirements of ~~((Chapter 14))~~ Section 309.

301.5 Compliance with accessibility. Accessibility requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

[S] SECTION 302 ~~((GENERAL PROVISIONS))~~ **ADDITIONAL REQUIREMENTS FOR ALL COMPLIANCE METHODS**

[S] 302.1 Applicability. The provisions of Section 302 apply to all alterations, repairs, additions, relocations of structures and changes of occupancy regardless of the compliance method chosen by the applicant.

[S] 302.2 ~~((Dangerous conditions))~~ RESERVED. ~~((The code official shall have the authority to require the elimination of conditions deemed dangerous.))~~ **

[S] 302.3 Additional codes. ~~((Alterations))~~ Regardless of the compliance method, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in this code and the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, ~~((International))~~ *Uniform Plumbing Code*, ~~((International Private Sewage Disposal Code, International Property Maintenance Code, International Residential Code))~~ *Seattle Boiler and Pressure Vessel Code*, *Seattle Electrical Code* and NFPA 70. Elevators and other conveyances shall comply with the *International Building Code*. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

PROVISIONS FOR ALL COMPLIANCE METHODS

[S] 302.3.1 Fire prevention. Except as specifically provided for in this code, the provisions of the *International Fire Code* shall apply to matters affecting or relating to structures, processes and premises regarding:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices;
2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and
3. The construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

[S] 302.4 Existing materials. Materials already in use in a building (~~(in compliance)~~) complying with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless (~~(determined)~~) the materials are deemed unsafe by the (~~(building)~~) code official. (~~(to be unsafe-)~~)

302.5 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 that unsafe conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

[BS] 302.5.1 New structural members and connections. New structural members and connections shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.

Exception: Where alternative design criteria are specifically permitted.

302.6 Occupancy and use. Where 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 *International Building Code*.

[S] 302.7 Safeguards during construction. Regardless of compliance method, alterations, repairs additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions of Chapter 15.

[S] 302.8 Occupant load increases in Group A occupancies. Regardless of which compliance method is used, when the occupant load in an existing Group A occupancy is increased, an automatic sprinkler system shall be installed in the fire area containing the Group A occupancy if a sprinkler system would be required by *International Building Code* Section 903.2.1 for new construction.

Exception: A sprinkler system is not required if all the following conditions are met:

1. The increase in occupant load is either 50 occupants or less, or no more than 10 percent of the occupant load of the existing Group A occupancy, whichever is greater; and
2. The existing means of egress has adequate capacity to accommodate the additional occupant load; and
3. The total occupant load in the Group A occupancy does not exceed one occupant per 5 square feet; and
4. The increase in occupant load is not part of a substantial alteration.

[S] 302.9 Unsafe building appendages. Parapet walls, cornices, spires, towers, tanks, statuary and other appendages or structural members that are supported by, attached to, or a part of a building and that are in a deteriorated condition or are otherwise unable to sustain the design loads that are specified in this code, are hereby designated as *unsafe* building appendages. All such *unsafe* building appendages are public nuisances and shall be abated in accordance with Section 101.14.

[S] 302.10 Unreinforced masonry chimneys. Whenever an unreinforced masonry chimney is altered or *repaired*, or when the building in which such a chimney is located undergoes *substantial alteration*, the chimney shall conform to rules promulgated by the code official.

[S] SECTION 303 STRUCTURAL ~~((DESIGN LOADS AND EVALUATION AND DESIGN PROCEDURES))~~ REQUIREMENTS FOR ALL COMPLIANCE METHODS

* ~~[BS] 303.2 Snow loads on adjacent buildings.~~ Where an *alteration* or *addition* changes the potential snow drift effects on an adjacent building, the *code official* is authorized to enforce Section 7.12 of ASCE 7.)

[S] 303.1 Structural provisions for alterations. Alterations to any building or structure shall comply with the requirements of Sections 303.1.1 through 303.1.8.

** **[BS] 303.1.1 New structural elements.** New structural elements in alterations, including connections and anchorage, shall comply with the International Building Code.

[BS] 303.1.2 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.

** **[BS] 303.1.3 Existing structural elements carrying gravity load.** Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design ~~((dead, live or snow))~~ gravity load ~~((, including snow drift effects.))~~ of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity

~~((loads))~~ load required by the *International Building Code* 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 ~~((dead, live and snow))~~ gravity loads ~~((including snow drift effects))~~ required by the *International Building Code* for new structures.

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

- ~~2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.)~~

[BS] 303.1.3.1 ((Live loads)) Design live load. Where ~~((an addition or))~~ 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 ~~((addition or))~~ alteration. If the approved live load for storage occupancies is less than that required by Section 1607 of the *International Building Code*, the area ~~((designated))~~ designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the ~~((addition or))~~ alteration ~~((results))~~ does result in increased design live load, the live load required by Section 1607 of the *International Building Code* shall be used. **

[BS] 303.1.4 Existing structural elements carrying lateral load. ~~((Except as permitted by Section 503.13, where))~~ Where the alteration increases design lateral loads in accordance with Section 1609 or 1613 of the *International Building Code*, 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 *International Building Code*. Reduced *International Building Code*-level seismic forces in accordance with Section 303.4.2 shall be permitted. **

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent 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 Sections 1609 and 1613 of the *International Building Code*. Reduced *International Building Code*-level seismic forces in accordance with Section 303.4.2 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.

[BS] 303.1.5 ((Anchorage)) Wall anchorage for unreinforced masonry walls in major alterations. Where the ~~((work area))~~ portion of the building undergoing the intended alteration exceeds 50 percent of the aggregate area of the building, ~~((area))~~ the building is assigned to Seismic Design Category C, D, E or F_s and the building's structural system includes unreinforced masonry ~~((bearing))~~ walls, the alteration work shall include installation of wall anchors at the ~~((floor and))~~ roof ~~((lines))~~ line to resist seismic forces, unless an evaluation demonstrates compliance of existing wall anchorage. ~~((Reduced))~~ For purposes of this section, reduced design seismic forces shall be permitted. **

[BS] 303.1.6 Anchorage of unreinforced masonry partitions in major alterations. Where the work area exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, unreinforced masonry partitions and nonstructural walls within the work area and adjacent to egress paths from the work area shall be anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted. **

[BS] 303.1.7 Voluntary ~~((lateral force resisting system alterations))~~ seismic improvements. ~~((Structural alterations))~~ Alterations to existing structural elements or additions of new structural elements that are ~~((intended exclusively to improve the lateral force resisting system and are))~~ not otherwise required by ~~((other sections of this code))~~ 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 not be required to meet the requirements of Section 1609 or Section 1613 of the International Building Code, provided that all of the following apply))~~ shall be permitted, if an engineering analysis is submitted demonstrating the following: **

- ~~((1. The capacity of existing structural systems to resist forces is not reduced.))~~

1. The altered structure and the altered nonstructural elements are no less conforming to the provisions of the *International Building Code* with respect to earthquake design than they were prior to the alteration.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is no more than 10 percent 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 per Sections 1609 and 1613 of the *International Building Code*. For purposes of this exception, comparisons of demand capacity ratios and calculation of design lateral loads,

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forces, and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

2. New structural elements are detailed and connected to existing or new structural elements as required (~~by the *International Building Code*~~) for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required (~~by the *International Building Code*~~) 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.

**** [S] 303.2 Structural provisions for changes of occupancy.** Where a *change of occupancy* results in a structure being reclassified to a higher *risk category* determined in accordance with Table 1604.5 of the *International Building Code*, the structure shall conform to the seismic requirements for a new structure of the higher risk category. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 303.4.1 for the applicable risk category, shall be deemed to meet the requirements of Section 1613 of the *International Building Code*.

Exception: Specific seismic detailing requirements of Section 1613 of the *International Building Code* 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.

[S] 303.3 Structural provisions for additions. *Additions* to any building or structure shall comply with the requirements of Sections 303.3.1 through 303.3.2.

**** [BS] 303.3.1 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 (~~(dead, live or snow)~~) gravity load (~~(-, including snow drift effects,)~~) of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity (~~(loads)~~) load required by the *International Building Code* for new structures.

Any existing gravity load-carrying structural element whose (~~(vertical)~~) gravity load-carrying capacity is decreased (~~(as part of the *addition* and its related *alterations*)~~) shall be considered (~~(to be)~~) an altered element subject to the requirements of Section (~~(503.3)~~) 303.1.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered (~~(to be)~~) an existing lateral load-carrying structural element subject to the requirements of Section (~~(502.5)~~) 303.3.2.

~~(**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 the *addition* together comply with the conventional light frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.)~~

**** [BS] 303.3.1.1 ((Live loads)) Design live load.** Where (~~(an)~~) the *addition* (~~(or 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 *addition*, (~~(or alteration)~~). If the approved live load is less than that required by Section 1607 of the *International Building Code*, the area (~~(designated)~~) designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the *addition* (~~(or alteration results)~~) does result in increased design live load, the live load required by Section 1607 of the *International Building Code* shall be used.

**** [BS] 303.3.2 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 *International Building Code*, (~~(using full seismic forces)~~). For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 303.4.1 for the applicable risk category, shall be deemed to meet the requirements of Section 1613 of the *International Building Code*.

~~(**Exceptions**)~~ **Exception:** (~~(+)~~) Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* 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 Sections 1609 and 1613 of the *International Building Code*. 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 not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.)~~

[S][BS] ((303.3)) 303.4 Seismic evaluation and design procedures. Where required, seismic evaluation or design shall be based on the procedures and criteria (~~(in this section, regardless of which compliance method is used)~~) specified in the *Interna-*

International Building Code or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 303.4.2.

[BS] ((303.3.1)) 303.4.1 Compliance with ((full)) International Building Code-level seismic forces. Where compliance ((requires the use of full seismic forces)) with the seismic design provisions of the International Building Code is required, the criteria shall be in accordance with one of the following:

1. One-hundred percent of the values in the *International Building Code*. Where the existing seismic force-resisting system is a type that can be designated as “Ordinary,” values of R , Ω_0 and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* 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 303.3.1)) Table 303.4.1 for the applicable *risk category*.

**[BS] TABLE ((303.3.4)) 303.4.1
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH
((FULL)) INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES**

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N 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)

[BS] ((303.3.2)) 303.4.2 Compliance with reduced International Building Code seismic forces. Where seismic evaluation and design is permitted to use reduced seismic forces, the criteria used shall be in accordance with one of the following:

1. The *International Building Code* using 75 percent of the prescribed forces. Values of R , Ω_0 and C_d used for analysis shall be as specified in Section ((303.3.1)) 303.4.1 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 2.4 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 multiple-unit residential buildings of wood construction in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A4.
3. ASCE 41, using the performance objective in Table ((303.3.2)) 303.4.2 for the applicable *risk category*. Footnote a of Table 11.4.2 and Item 3 of Section 11.4.8 of ASCE 7 do not apply.

**[BS] TABLE ((303.3.2)) 303.4.2
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED SEISMIC FORCES**

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH 3/4 BSE-2E EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
II	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
III	Damage Control (S-2). See Note a	Limited Safety (S-4). See Note b
IV	Immediate Occupancy (S-1)	Life Safety (S-3). See Note c

- a. For Risk Categories I, II and III, the Tier 1 and Tier 2 procedures need not be considered for the BSE-1E earthquake hazard level.
- b. For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors that are the average of the values for Collapse Prevention and Life Safety.
- c. For Risk Category IV, the Tier 1 screening checklists shall be based on Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors for Life Safety.

SECTION 304 IN-SITU LOAD TESTS

[BS] 304.1 **General.** Where used, in-situ load tests shall be conducted in accordance with Section 1708 of the *International Building Code*.

SECTION 305 ACCESSIBILITY FOR EXISTING BUILDINGS

** 305.1 **Scope.** The provisions of Sections 305.1 through 305.9 apply to maintenance, *change of occupancy*, *additions* and *alterations* to *existing buildings*, including those identified as ~~((historic buildings))~~ *landmarks*.

305.2 **Maintenance of facilities.** A *facility* that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy.

[S] 305.3 **Extent of application.** ~~((A))~~ Maintenance, alterations, change of occupancy, additions to or relocations of existing buildings of an existing *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. ~~((Alterations))~~ Maintenance, alterations, change of occupancy, additions to or relocations of existing buildings shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*.

[S] 305.4 **Change of occupancy.** *Existing buildings* that undergo a change of group or occupancy shall comply with this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building or less than a level 3 alteration.

[S] 305.4.1 **Partial change of occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections 305.6, 305.7 and 305.8 as applicable.

305.4.2 **Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section 305.4.1 and shall have all of the following accessible features:

1. Not fewer than one accessible building entrance.
2. Not fewer than one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. Not fewer than one accessible passenger loading zone, where loading zones are provided.
6. Not fewer than one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, Items 1 through 6 shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

305.5 **Additions.** 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 305.7.

[S] 305.6 **Alterations.** A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, 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 305.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* 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 provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a change of occupancy in conjunction with alterations where the *work area* is 50 percent or less of the aggregate area of the building.

305.7 **Alterations affecting an area containing a primary function.** Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be *accessible*. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.

Exceptions:

1. The costs of providing the *accessible* route are not required to exceed 20 percent 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.

305.8 Scoping for alterations. The provisions of Sections 305.8.1 through 305.8.15 shall apply to *alterations* to *existing buildings* and *facilities*.

305.8.1 Entrances. Where an *alteration* includes alterations to an entrance that is not accessible, and the *facility* has an *accessible* entrance, the altered entrance is not required to be *accessible* unless required by Section 305.7. Signs complying with Section 1111 of the *International Building Code* shall be provided.

305.8.2 Elevators. Altered elements of existing elevators shall comply with ASME A17.1 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.

305.8.3 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.

[S] 305.8.4 Stairways and escalators in existing buildings. (~~Where~~) In alterations, change of occupancy, or additions 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 *International Building Code*.

305.8.5 Ramps. Where slopes steeper than allowed by Section 1012.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 305.8.5.

TABLE 305.8.5
RAMPS

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.

305.8.6 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 or added, the requirements of Section 1107 of the *International Building Code* for Accessible units apply only to the quantity of spaces being altered or added.

[S] 305.8.7 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered or added.

[S] 305.8.8 Type B dwelling or sleeping units. Type B dwelling or sleeping units shall comply with the applicable requirements of Section 305.8.8.1.

Exception: When using the provisions of Chapter 9, Group I-1, I-2, R-2, or R-3 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.

[S] 305.8.8.1 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, or R-3 (~~or R-4~~) dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being added. Where Group I-1, I-2, R-1, R-2, or R-3 (~~or R-4~~) dwelling or sleeping units are being altered and where the *work area* is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the *International Building Code* for (~~Type B~~) units apply only to the quantity of the spaces being altered.

305.8.9 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 the ramp or lift access restricts or projects into the required means of egress.

[S] 305.8.10 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The 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. The number of toilet facilities and water closets required by the *International Building Code* is permitted to be reduced by one, in order to provide accessible features. At the inaccessible toilet and bathing rooms, provide directional signs indicating the location of the nearest family or assisted-use toilet room or bathing

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room, ~~(shall be provided.)~~ 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.

305.8.11 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 1109.2.1 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 1109.2.1 of the *International Building Code*.

305.8.12 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.

305.8.13 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.

305.8.14 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.

305.8.15 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 *International Building Code*.

➔ [S] **305.9 (~~Historic buildings~~) Accessibility provisions for landmark structures.** These provisions shall apply to *facilities* designated as ~~(historic)~~ landmark structures that undergo *alterations* or a *change of occupancy*, 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*, as determined by the ~~(authority having jurisdiction)~~ code official, the alternative requirements of Sections 305.9.1 through 305.9.4 for that element shall be permitted.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historic buildings.

[S] **305.9.1 Site arrival points.** Not fewer than one accessible route from a site arrival point to an accessible entrance shall be provided.

[S] **305.9.2 Multiple-level buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

[S] **305.9.3 Entrances.** Not fewer than one main entrance shall be accessible.

Exception: If a public entrance cannot be made accessible, 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 1111 of the *International Building Code* shall be provided at the public entrance and the accessible entrance.

[S] **305.9.4 Toilet and bathing facilities.** Where toilet rooms are provided, not fewer than one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.

[S] SECTION 306 LANDMARKS

[B] 306.1 Landmarks. The provisions of this code relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall be mandatory for landmarks. Landmarks shall comply with the accessibility requirements of Section 305.9.

Exception: Where approved by the code official, compliance with this code is not required where preservation of historic elements precludes complete compliance and a reasonable degree of safety to the public and the occupants of the building is provided.

[S] SECTION 307 SUBSTANTIAL ALTERATION REQUIREMENTS FOR ALL COMPLIANCE METHODS

[S] 307.1 Substantial alterations or repairs. Regardless of which compliance method is used, a building or structure to which substantial alterations or repairs are made shall conform with the requirements of this section and the following sections of the International Building Code:

1. Section 403 when applicable;

2. Special requirements for the Fire District found in Chapter 4 when applicable;
3. Section 717;
4. Chapter 8;
5. Section 903 and 905;
6. Sections 909.20.5, 909.20.6 and 909.21; and
7. Chapter 10.
8. Fire alarms shall be provided as required by the *International Fire Code*.

[S] 307.1.1 Definition. For the purpose of this section, *substantial alteration* or repair means any one of the following, as determined by the *code official*:

1. Repair of a building with a *damage ratio* of 60 percent or more.
2. Remodeling or an *addition* that substantially extends the useful physical or economic life of the building or a significant portion of the building, other than typical tenant remodeling.
3. A change of a significant portion of a building to an occupancy that is more hazardous than the existing occupancy, based on the combined life and fire risk as determined by the *code official*. The *code official* is permitted to use Table 307.1 as a guideline.
4. Reoccupancy of a building that has been substantially vacant for more than 24 months in occupancies other than Group R-3.
5. A significant increase in the occupant load of an unreinforced masonry building.

[S] 307.1.2 Seismic regulations. Buildings or structures to which *substantial alterations* or *repairs* are made shall comply with Section 303.4.2. In addition, the *code official* is authorized to require testing of existing materials when there is insufficient evidence of structural strength or integrity.

Exceptions:

1. If an *alteration* is substantial only because it is a change to a more hazardous occupancy, compliance with this subsection is required only if the life hazard risk increases, as determined by the *code official*.
2. For Group R-3 occupancies, when approved by the *code official*, the applicant is permitted to evaluate and strengthen portions of the building lateral support structure, such as foundations and cripple walls.
3. For permitted one- or two- family dwellings, less than four stories, that are *substantial alterations* due to a move into the SBC, the applicant is permitted to evaluate and strengthen portions of the building lateral support structure, such as foundations and cripple walls, subject to the approval of the *building official*.

[S] 307.1.3 Report. A proposal for structural rehabilitation shall be submitted based on a comprehensive report prepared by a licensed structural engineer according to rules promulgated by the *code official*. The report shall include an investigation and structural analysis of the building based on Section 303.4.2. The report shall specify the building's seismic deficiencies, and propose measures that will provide an acceptable degree of seismic safety considering the nature, size and scope of the project. This requirement shall also apply to Section 101.14 as conditions require.

[S] 307.1.4 Energy use regulations. An *alteration* or *repair* described in Items 1, 2, or 4 of Section 307.1.1 shall comply with Section C503.8 of the *International Energy Conservation Code*.

Exceptions:

1. Existing residential buildings of three stories or less are not required to comply with this section.
2. A project that is defined as a *substantial alteration* primarily due to the seismic retrofitting of a building's unreinforced masonry walls shall not be required to comply with this section.

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**[S] TABLE 307.1
RATING OF OCCUPANCIES BY DEGREE OF HAZARD**

Occupancy	Description	Life	Fire	Combined Rating
A1	Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures	4	3	12
A2	Assembly uses intended for food and/or drink consumption	4	3	12
A3	Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A	4	3	12
A4	Assembly uses intended for viewing of indoor sporting events and activities with spectator seating	3	1	3
A5	Assembly uses intended for participation in or viewing outdoor activities	3	1	3
B	Office, professional or service-type transactions, including storage of records and accounts.	2	1	2
B	Eating & drinking establishments with an occupant load of less than 50	2	1	2
B	Buildings or portions of buildings having rooms used for educational purposes beyond 12th grade	2	1	2
E	Any building used for educational purposes by six or more persons at any one time for educational purposes through the 12th grade	3	2	6
E	Day care centers for more than five children older than 2-1/2 years of age	3	2	6
I4	Facilities that provide accommodations for less than 24 hours for more than five unrelated adults and provides supervision and personal care services; facilities that provide supervision and personal care on less than a 24-hour basis for more than five children 2-1/2 years of age or less	4	3	12
F1	Moderate hazard factory and industrial	2	2	4
F2	Low-hazard factory and industrial	1	1	1
H1	Occupancies with a detonation hazard	5	4	20
H2	Occupancies which present a deflagration hazard or a hazard from accelerated burning	5	4	20
H3	Occupancies containing materials that readily support combustion or that pose a physical hazard	5	4	20
H4	Occupancies containing materials that are health hazards	5	4	20
H5	Semiconductor fabrication facilities	5	4	20
I1	Buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care	3	3	9
I2	Buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation	4	3	12
I3	Buildings and structures that are inhabited by more than five persons who are under restraint or security	4	3	12
M	Buildings used for display and sale of merchandise	3	2	6
R1	Occupancies containing sleeping units where the occupants are primarily transient in nature	3	3	9
R2	Occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature	3	3	9
R3	Residential 3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or I	2	1	2
S1	Moderate hazard storage	2	2	4
S2	Low-hazard storage	1	1	1
U	Buildings and structures of an accessory character and miscellaneous structures	1	1	1

**[S] SECTION 308
REROOFING**

[BS] 308.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code* and the *International Energy Conservation Code*.

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-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage.

2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502 of the *International Building Code* for roofs that provide for positive roof drainage. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the *International Building Code*.

[BS] 308.2 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 system.))~~ Where addition or replacement of roofing or replacement of equipment results in additional dead loads, structural components supporting the reroofing equipment shall comply with Section 303.1.

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[BS] 308.3 Roof replacement. *Roof replacement* shall include the removal of all existing layers of roof coverings down to the roof deck.

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Exception: 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 *International Building Code*.

[BS] 308.3.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. The new roof covering is installed in accordance with the roof covering manufacturer's *approved* instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel 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, are installed.
3. Metal panel, metal shingle and concrete and clay tile roof coverings are installed over existing wood shake roofs in accordance with Section 308.4.
4. A new protective *roof coating* is applied over an existing protective *roof coating*, a metal roof panel, metal roof shingles, mineral-surfaced roll roofing, a built-up roof, modified bitumen roofing, thermoset and thermoplastic single-ply roofing or a spray polyurethane foam roofing system.

[BS] 308.3.1.1 Exceptions. A roof recover shall not be permitted where any of the following conditions occur:

1. 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. The existing roof covering is slate, clay, cement or asbestos-cement tile.
3. The existing roof has two or more applications of any type of roof covering.

[BS] 308.4 Roof recovering. Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber, glass fiber or other *approved* materials securely fastened in place.

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[BS] 308.5 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 counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

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[BS] 308.6 Flashings. Flashings shall be reconstructed in accordance with *approved* manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

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[S] SECTION 309 MOVED STRUCTURES

309.1 Nonresidential buildings or structures. Nonresidential buildings or structures moved into or within the city shall comply with standards adopted by the *code official*. The *code official* is authorized to require an inspection of the building before or after moving. The permit holder shall correct all deficiencies identified by the inspection. The *code official* is authorized to require that a bond or cash deposit in an amount sufficient to abate or demolish the building be posted prior to issuance of a permit. See Section 106 of the *International Building Code* for information required on plans. Any moved building that is not in complete compliance with standards for moved buildings within 18 months from the date of permit issuance and is found to be a public nuisance may be abated. Moved buildings and structures shall also comply with the *International Energy Conservation Code*.

309.2 Residential buildings or structures. Residential buildings or structures moved into or within the city are not required to comply with all of the requirements of this code if the original occupancy classification of the building or structure is not changed. Compliance with all of the requirements of this chapter will be required if the moved residential buildings or structures undergo substantial alteration. Work performed on new and existing foundations shall comply with all of the requirements of this code for new construction.

PROVISIONS FOR ALL COMPLIANCE METHODS

**[S] SECTION 310
FLOOD HAZARD AREAS**

** [BS] **310.1 Flood hazard areas.** Buildings and structures in flood hazard areas established in Section 1612.3 of the *International Building Code* shall comply with Sections 310.1.1 through 310.1.3.

~~(In flood hazard areas, alterations that)~~ When any combination of repairs, alterations, or additions constitute substantial improvement, ~~((shall require that))~~ the existing building and all repairs, alterations, and additions shall comply with Section 1612 of the *International Building Code*, ~~((or Section R322 of the International Residential Code, as applicable.))~~

310.1.1 Repairs. Any repair that constitutes substantial improvement of the existing structure or buildings that have been substantially damaged, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design according to Section 1612 of the *International Building Code*.

Any repairs that do not constitute substantial improvement or repair of substantial damage of the existing structure, as defined in Section 202, are not required to comply with the flood design requirements for new construction according to Section 1612 of the *International Building Code*.

Exception: For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the *International Building Code*.

** **310.1.2 Alterations.** Alterations that constitute substantial improvement of the existing structure shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design according to Section 1612 of the *International Building Code*.

Any alterations that do not constitute substantial improvement of the existing structure are not required to comply with the flood design requirements for new construction according to Section 1612 of the *International Building Code*.

Exception: For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the *International Building Code*.

310.1.3 Additions. Additions shall comply with the flood design requirements for new construction according to Section 1612 of the *International Building Code*.

If the addition constitutes substantial improvement, the existing structure shall be brought into compliance with the requirements for new construction for flood design according to Section 1612 of the *International Building Code*.

CHAPTER 4

REPAIRS

User note:

About this chapter: Chapter 4 provides requirements for repairs of existing buildings. The provisions define conditions under which repairs may be made using materials and methods like those of the original construction or the extent to which repairs must comply with requirements for new buildings. *Requirements from Section 303 of the 2015 Seattle Existing Building Code have been relocated to this chapter.*

SECTION 401 GENERAL

[S] 401.1 Scope. (~~Repairs shall comply with the requirements of this chapter. Repairs to historic buildings need only comply with Chapter 12.~~) Damaged buildings and structures, and parts thereof shall be repaired in compliance with this chapter. Work on undamaged parts of a building or structure that is necessary for the required repair of damaged parts shall be considered part of the repair and shall not be subject to the requirements for alterations except as specifically required in this chapter. Routine maintenance, ordinary repairs exempt from permit in accordance with International Building Code Section 106.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

[SI] 401.1.1 Determining repair levels. Repairs shall be classified as repair of minor damage, repair of moderate damage, repair of significant damage, or repair of extensive damage. Required repair levels shall be based on the damage ratio as defined in Section 202. Damage ratios shall be determined according to rules promulgated by the Director.

[SI] 401.1.2 Requirements for repair of minor damage. Repair of buildings with damage ratios less than 10 percent shall comply with this Section 401.1.2. Repair of unreinforced masonry chimneys shall comply with Section 302.9.

1. Damage to structural elements and fire/life safety systems shall be repaired.
2. New or replaced elements shall comply with current code requirements.

Exception: Like materials shall be permitted for nonstructural alterations, provided no hazard to life, health or property is created, and the materials do not adversely affect any structural member or result in a change to the fire-resistance rating of any part of the building or structure.

3. New or replaced structural elements shall be tied into new or existing structure in accordance with the structural engineer's recommendations and accepted practice.
4. All structural repairs shall be designed and approved by a structural engineer licensed in the State of Washington.
5. Cracked concrete and masonry shall be repaired if repair is required by FEMA 306, 307 and 308.
6. Strengthening of the entire building or structure is not required.
7. Fire protection and life safety systems required when the building was built or altered shall be repaired in accordance with Section 101.5.
8. No portion of the building shall be repaired in such a manner that the building becomes less safe than it was before the damage occurred, nor shall the repair create an unsafe condition as defined in Section 101.14.

[SI] 401.1.3 Requirements for repair of moderate damage. Repair of buildings with damage ratios of at least 10 percent and less than 30 percent shall comply with Section 401.1.2 and this Section 401.1.3. All structures supporting and supported by the damaged portions of the building shall be repaired in accordance with items 1 through 6 below.

1. The capacity of existing structural elements supporting and supported by the damaged portion of the building shall not be less than the capacity of those elements before the damage occurred.
2. The lateral loading to existing elements of the lateral force resisting systems shall not be increased beyond their capacity.
3. New work shall not introduce new irregularities, and shall not worsen existing irregularities.
4. New structural elements shall be detailed and connected to the existing structural elements as required by this code.
5. New or relocated nonstructural elements shall be detailed and connected to existing or new structural elements as required by this code.
6. The alterations shall not create an unsafe condition.

[SI] 401.1.4 Requirements for repair of significant damage. Repair of buildings with damage ratios of at least 30 percent and less than 50 percent shall comply with Sections 401.1.2, 401.1.3 and this Section 401.1.4.

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1. The engineer shall submit a report identifying structural damage, and falling hazards to exitways, pedestrian walkways and public rights of way. The report shall also contain a statement acknowledging that compliance with this section may not satisfy the requirements for *substantial alteration* of Section 307.
2. All identified falling hazards in exits and exit discharges shall be mitigated so as to limit damage at primary means of egress.
3. The walls, roofs and floors of unreinforced masonry buildings shall comply with the sections of ASCE 41 or Appendix A1 in Table 401.1. Seismic forces shall comply with reduced International Building Code forces per Section 303.4.2.
Exception: If the tested mortar strength is less than the minimums indicated in Table 401.1, Item a, the structure shall comply with all requirements of 303.4.2.
4. Repair of damage for buildings subject to this Section 401.1.4 will be considered when determining whether Section 307 provisions for *substantial alterations* apply.

[S] 401.1.5 Requirements for repair of extensive damage. Repair of buildings with *damage ratios* of at least 50 percent and less than 60 percent shall comply with Sections 401.1.2 through 401.1.4 and this Section 401.1.5.

1. The structure shall be *repaired* and designed to satisfy the requirements of ASCE 41 and the performance criteria in Table 303.4.2.
2. A seismic evaluation report shall be submitted. The report shall comply with rules promulgated by the *code official*, and the following requirements:
 - 2.1 The report shall be prepared by a structural engineer registered in the state of Washington.
 - 2.2 The report shall be based on ASCE 41 and the performance criteria in Table 303.4.2.
Exception: Unreinforced masonry buildings are permitted to comply with Appendix A1. The reduction of Section 401.1.4 Item 3 is not allowed.
 - 2.3 At a minimum, the report shall contain the information listed below. A previously written report may be submitted if it satisfies the requirements of this section.
 - 2.3.1 An overall description of the building, including size (number of stories and basements, approximate floor area) and the occupancies or uses in the building.
 - 2.3.2 Identification of building deficiencies.

401.1.6 Requirements for repair of more than extensive damage. Repair of buildings with *damage ratios* of 60% or more shall comply with Section 307.

**[S] TABLE 401.1
REQUIREMENTS FOR UNREINFORCED MASONRY BUILDINGS**

<u>COMPONENT</u>	<u>ASCE 41 SECTION</u>	<u>APPENDIX A SECTION</u>
a. <u>Masonry strength (mortar and anchor tests) for anchorage to masonry and for wall bracing</u>	<u>16.2.2.2</u>	<u>A106.2.3</u>
b. <u>Diaphragm shear transfer</u>	<u>16.2.3.2.6</u>	<u>A111.5</u>
c. <u>Out-of-plane transfer</u>	<u>16.2.4.3</u>	<u>A113.1</u>
d. <u>Wall bracing</u>	<u>16.2.4.2</u>	<u>A113.5</u>

- * **401.2 Compliance.** The work shall not make the building less complying than it was before the *repair* was undertaken.
- [S][BS] 401.3 Flood hazard areas.** In flood hazard areas, *repairs* that constitute a *substantial improvement* of the existing structure or buildings that have been *substantially damaged* shall ((~~require that the building~~)) comply with ((~~Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable~~)) the requirements for repairs in Section 310 of this code.

**SECTION 402
BUILDING ELEMENTS AND MATERIALS**

402.1 Glazing in hazardous locations. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *International Building Code* or *International Residential Code* as applicable.

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

SECTION 403 FIRE PROTECTION

403.1 General. *Repairs* shall be done in a manner that maintains the level of fire protection provided.

SECTION 404 MEANS OF EGRESS

404.1 General. *Repairs* shall be done in a manner that maintains the level of protection provided for the means of egress.

SECTION 405 STRUCTURAL

[S][BS] **405.1 General.** Structural *repairs* shall be in compliance with ~~((this section and))~~ Section ~~((401.2))~~ 303.

[S] ~~(([BS] 405.2 Repairs to damaged buildings. Repairs to damaged buildings shall comply with this section.~~

~~[BS] 405.2.1 Repairs for less than substantial structural damage.~~ Unless otherwise required by this section, for damage less than *substantial structural damage*, the damaged elements shall be permitted to be restored to their predamage condition.

~~[BS] 405.2.1.1 Snow damage.~~ Structural components whose damage was caused by or related to snow load effects shall be repaired, replaced or altered to satisfy the requirements of Section 1608 of the *International Building Code*.

~~[BS] 405.2.2 Disproportionate earthquake damage.~~ A building assigned to Seismic Design Category D, E or F that has sustained *disproportionate earthquake damage* shall be subject to the requirements for buildings with substantial structural damage to vertical elements of the lateral force resisting system.

~~[BS] 405.2.3 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 405.2.3.1, and either repaired in accordance with Section 405.2.3.2 or repaired and retrofitted in accordance with Section 405.2.3.3, 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 retrofitted for load combinations that include earthquake effects.~~
- ~~2. One and two family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.~~

~~[BS] 405.2.3.1 Evaluation.~~ The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced seismic forces.

~~[BS] 405.2.3.2 Extent of repair for compliant buildings.~~ If the evaluation establishes that the building in its predamage condition complies with the provisions of Section 405.2.3.1, then the damaged elements shall be permitted to be restored to their predamage condition.

~~[BS] 405.2.3.3 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 405.2.3.1, then the building shall be retrofitted to comply with the provisions of this section. The wind loads for the *repair* and *retrofit* shall be those 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 *International Building Code*. The seismic loads for this *retrofit* design shall be those required by the building code in effect at the time of original construction, but not less than the reduced seismic forces.

~~[BS] 405.2.4 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 *International Building Code*. Snow loads shall be considered if the *substantial structural damage* was caused by or related to snow load effects. Undamaged 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.

~~[BS] 405.2.4.1 Lateral force resisting elements.~~ Regardless of the level of damage to vertical elements of the lateral force resisting system, if *substantial structural damage* to gravity load carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 405.2.3.1 and, if noncompliant, retrofitted in accordance with Section 405.2.3.3.

~~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 retrofitted for load combinations that include earthquake effects.~~

REPAIRS

2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

~~[BS] 405.2.5 Flood hazard areas.~~ In *flood hazard* areas, buildings that have sustained *substantial damage* shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.))

[S] ((SECTION 406 ELECTRICAL

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

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

406.1.2 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.

406.1.3 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.

406.1.4 Group I-2 receptacles. Receptacles in patient bed locations of Group I-2 that are not “hospital grade” shall be replaced with “hospital grade” receptacles, as required by NFPA 99 and Article 517 of NFPA 70.

406.1.5 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.))

[S] ((SECTION 407 MECHANICAL

407.1 General. Existing mechanical systems undergoing *repair* shall not make the building less complying than it was before the damaged occurred.

407.2 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.))

[S] ((SECTION 408 PLUMBING

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

408.2 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.))

CHAPTER 5

PRESCRIPTIVE COMPLIANCE METHOD

User note:

About this chapter: Chapter 5 provides details for the prescriptive compliance method—one of the three main options of compliance available in this code for buildings and structures undergoing alteration, addition or change of occupancy.

SECTION 501 GENERAL

[S] **501.1 Scope.** The provisions of this chapter shall control the *alteration, addition and change of occupancy* of existing buildings and structures, ~~((including historic buildings and structures as referenced in Section 301.3.1.))~~

Exception: Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

[S] **501.1.1 Compliance with other methods.** *Alterations, additions and changes of occupancy* to existing buildings and structures shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.

Note: All alterations, additions and changes of occupancy are also required to comply with Chapter 3.

501.2 Fire-resistance ratings. Where *approved* by the code official, in buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code* 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. The building is required to meet the other applicable requirements of the *International Building Code*.

Plans, investigation and evaluation reports, and other data shall be submitted indicating which building elements and materials the applicant is requesting the code official to review and approve for determination of applying the current building code fire-resistance ratings. Any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means of egress conditions, fire code deficiencies, *approved* modifications or *approved* alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted.

SECTION 502 ADDITIONS

[S] **502.1 General.** *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. Alterations to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the *International Building Code*.

Note: A significant addition to an existing building may be considered a substantial alteration in accordance with Section 307.

[S] **502.1.1 Fire walls.** An existing nonconforming building to which an *addition* is made is permitted to exceed the height, number of stories and area specified for new buildings if a fire wall is provided, the *existing building* is not made more nonconforming, and the *addition* conforms to this code.

[S][BS] ~~((502.2 Disproportionate earthquake damage. A building assigned to Seismic Design Category D, E or F that has sustained disproportionate earthquake damage shall be subject to the requirements for buildings with substantial structural damage to vertical elements of the lateral force-resisting system.))~~

[S] **502.2 Structural.** *Additions to existing buildings* shall comply with Section 303.3.

[S] ~~((502.6))~~ **502.3 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms in accordance with Section 1103.8 of the *International Fire Code*.

PRESCRIPTIVE COMPLIANCE METHOD

[S] ~~((502.7))~~ **502.4 Carbon monoxide alarms in existing portions of a building.** Where an *addition* is made to a building or structure of Group I-1, I-2, I-4 or R occupancy, the existing building shall be provided with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315 of the *International Residential Code*, as applicable.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, alteration or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

[S] ~~((502.8 Additions to Group E facilities. For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.))~~

[S] 502.5 Addition of dwelling units. Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 1 through 5 below. This provision is permitted to be used to add one unit after October 29, 1990.

1. One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section. If more than one unit is added, the new units shall be equipped with a sprinkler system.
2. In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.
3. In buildings undergoing *substantial alteration*, an automatic sprinkler system shall be installed where required by this code for new construction.
4. One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 4.1 The project is considered a *substantial alteration* only because of the change of occupancy; and
 - 4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
5. Where one unit is added to an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;
 - 5.2 The project is considered a *substantial alteration* only because of the *change of occupancy*;
 - 5.3 The new unit is constructed as an *addition* to the duplex;
 - 5.4 The new unit is separated from the existing duplex by a fire wall; and
 - 5.5 The *addition* by itself complies with the requirements for a Group R-2 occupancy.

SECTION 503 ALTERATIONS

[S] **503.1 General.** Except as provided by Section 302.4, 302.5 or this section, *alterations* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* shall be such that the *existing building* or structure is not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *alteration*.

Exceptions:

1. ~~((An))~~ Subject to the approval of the code official, existing stairways shall not be required to comply with the requirements of Sections 1011.3 and 1011.5.2 of the *International Building Code* where the existing space and construction ~~((does))~~ do not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 of the *International Building Code* regarding full extension of the handrails where such extensions would be hazardous because of plan configuration.
3. Where changes to offices, outpatient clinics or medical offices occur on a multi-tenant floor that contains non-conforming corridors, new tenant walls associated with the tenant change need not meet the standards for one-hour corridor construction, unless the project is considered a *substantial alteration*.
4. Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 4.1 through 4.6 below. This exception is permitted to be used to add one unit after October 29, 1990.

- 4.1 One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section. If more than one unit is added, the new units shall be equipped with a sprinkler system.
 - 4.2 In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.
 - 4.3 In buildings undergoing *substantial alteration*, an automatic sprinkler system shall be installed where required by this code for new construction.
 - 4.4 One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 4.4.1 The project is considered a *substantial alteration* only because of the *change of occupancy*; and
 - 4.4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
 - 4.5 Where one unit is added to an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 4.5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;
 - 4.5.2 The project is considered a *substantial alteration* only because of the *change of occupancy*;
 - 4.5.3 The new unit is constructed as an *addition* to the duplex;
 - 4.5.4 The new unit is separated from the existing duplex by a fire wall; and
 - 4.5.5 The addition by itself complies with the requirements for a Group R-2 occupancy.
 - 4.6 A sprinkler system is not required when a Group U occupancy that is accessory to a Group R-3 occupancy is converted to a dwelling unit.
5. Ceilings in basements are permitted to project to within 6 feet 8 inches (2032 mm) of the finished floor, and beams, girders, ducts or other obstructions are permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.
6. Ceiling height in buildings in existence prior to October 17, 1979, shall be permitted to comply with rules promulgated by the code official.
- ((3)) 7. Where provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of no less than 32 inches (815 mm).

[SI 503.2 Structural. Alterations to existing buildings and structures shall comply with Section 303.1.

[S] (([BS] 503.5 Seismic Design Category F. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category F, the structure of the altered building shall meet the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.))

[S] (([BS] 503.6 Bracing for unreinforced masonry parapets on reroofing. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.))

[S] (([BS] 503.7 Anchorage for concrete and reinforced masonry walls. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* work shall include installation of wall anchors at the roof line, unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces shall be permitted.))

[S] (([BS] 503.9 Bracing for unreinforced masonry parapets in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, parapets constructed of unreinforced masonry shall have bracing installed as needed to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.))

[S] (([BS] 503.11 Substantial structural alteration. Where the *work area* exceeds 50 percent of the building area and where work involves a *substantial structural alteration*, the lateral load resisting system of the altered building shall satisfy the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.

Exceptions:

- 1. Buildings of Group R occupancy with not 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 *International Building Code* or in compliance with the provisions of the *International Residential Code*.

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2. Where the intended *alteration* involves only the lowest story of a building, only the lateral load-resisting components in and below that story need comply with this section.)

[S] (~~(BS)~~ **503.12 Roof diaphragms resisting wind loads in high wind regions.** Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 115 mph (51 m/s) in accordance with Figure 1609.3(1) of the *International Building Code* or in a special wind region as defined in Section 1609 of the *International Building Code*, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the *International Building Code*.)

- * [S] (~~(503.14)~~ **503.3 Smoke alarms.** Individual sleeping units and individual dwelling units in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with Section 1103.8 of the *International Fire Code*.)

[S] (~~(503.15)~~ **503.4 Carbon monoxide alarms.** Carbon monoxide alarms shall be provided to protect sleeping units and dwelling units in Group I-1, I-2, I-4 and R occupancies in accordance with Section 1103.9 of the *International Fire Code*.)

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, alteration or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

[S] (~~(503.16)~~ **503.5 Refuge areas.** Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below that required in Sections (~~(503.16.1)~~ **503.5.1** through (~~(503.16.3)~~ **503.5.3**.)

[S] (~~(503.16.1)~~ **503.5.1 Smoke compartments.** In Group I-2 and I-3 occupancies, the required capacity of the refuge areas for smoke compartments in accordance with Sections 407.5.1 and 408.6.2 of the *International Building Code* shall be maintained.

[S] (~~(503.16.2)~~ **503.5.2 Ambulatory care.** In ambulatory care facilities required to be separated by Section 422.2 of the *International Building Code*, the required capacity of the refuge areas for smoke compartments in accordance with Section 422.3.2 of the *International Building Code* shall be maintained.

[S] (~~(503.16.3)~~ **503.5.3 Horizontal exits.** The required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the *International Building Code* shall be maintained.

SECTION 504 FIRE ESCAPES

[S] **504.1 Where permitted.** Fire escapes that are altered shall (~~(be permitted only as provided for in Sections 504.1.1 through 504.1.4)~~ comply with this section. Existing fire escapes shall continue to be accepted as a component in the means of egress in existing buildings only.

(~~(504.1.1 New buildings.~~ Fire escapes shall not constitute any part of the required means of egress in new buildings.

~~**504.1.2 Existing fire escapes.** Existing fire escapes shall continue to be accepted as a component in the means of egress in existing buildings only.~~

~~**504.1.3 New fire escapes.** New fire escapes for *existing buildings* shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting stairway size or because of sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.~~

~~**504.1.4 Limitations.** Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.)~~

[S] **504.2 Location.** Where located on the front of the building and where projecting beyond the building line, the lowest landing shall be not less than (~~7 feet (2134 mm)~~) **8 feet (2438 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 be not less than 12 feet (3658 mm).

[S] **504.3 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 Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.)~~)

504.4 Dimensions. Stairways shall be not less than 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 stairways not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

505.5 Opening protectives. Doors and windows within 10 feet (3048 mm) of fire escape stairways shall be protected with 3/4-hour opening protectives.

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

SECTION 505 WINDOWS AND EMERGENCY ESCAPE OPENINGS

505.1 Replacement glass. The installation or replacement of glass shall be as required for new installations.

505.2 Replacement window opening control devices. In Group R-2 or R-3 buildings containing dwelling units, ~~((and one and two family dwellings and townhouses regulated by the *International Residential Code*))~~ window opening control devices complying with ASTM F2090 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. One of the following applies:
 - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
 - ~~((3.2. In one and two family dwellings and townhouses regulated by the *International Residential Code*, the top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor.))~~
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
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 1030.2 of the *International Building Code*.

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 F2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

[S] 505.3 Replacement window emergency escape and rescue openings. Where windows are required to provide *emergency escape* and *rescue openings* in Group R-2 and R-3 occupancies ~~((and one and two family dwellings and townhouses regulated by the *International Residential Code*))~~ replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.4 of the *International Building Code* and Sections R310.2.1, R310.2.2 and R310.2.3 of the *International Residential Code*, provided that 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*.

Window opening control devices complying with ASTM F2090 shall be permitted for use on windows required to provide emergency escape and rescue openings.

[S] 505.4 Emergency escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided that the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings. ~~((Smoke alarms shall be installed in accordance with Section 907.2.10 of the *International Building Code* regardless of the valuation of the alteration.))~~

PRESCRIPTIVE COMPLIANCE METHOD

**SECTION 506
CHANGE OF OCCUPANCY**

[S] **506.1 Compliance.** A *change of occupancy* shall not be made in any building or portion thereof unless that building is made to comply with the requirements of the *International Building Code* for the use or occupancy. Changes of occupancy in a building or portion thereof shall be such that the *existing building* is not less complying with the provisions of ~~((this code))~~ the *International Building Code* than the *existing building* or structure was prior to the change. Subject to the approval of the *code official*, changes of occupancy shall be permitted without complying with all of the requirements of this code for the new occupancy, provided that the new occupancy is less hazardous, based on life and fire risk, than the existing occupancy.

Note: Conditions arising after the adoption of this code, and conditions not legally in existence at the time of adoption of this code may trigger requirements based on *International Fire Code* Section 102.1, including building upgrades.

Exceptions:

1. The building need not be made to comply with Chapter 16 of the *International Building Code* unless required by Section ~~((506.4))~~ 303.2.
2. Subject to the approval of the *code official*, an automatic sprinkler system is not required in dwelling units according to Items 2.1 through 2.6 below. This exception is permitted to be used for the change in occupancy for one dwelling unit after October 29, 1990.
 - 2.1 The occupancy of one unit is permitted to be changed to a dwelling unit without an automatic sprinkler system unless sprinklers are otherwise required by this chapter. If more than one unit is changed, the new units shall be equipped with a sprinkler system.
 - 2.2 In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the occupancy of the unit is changed, an automatic sprinkler system shall be provided in the new unit. The *change of occupancy* shall not be allowed if it increases the nonconformity.
 - 2.3 In buildings undergoing *substantial alteration*, an automatic sprinkler system shall be installed where required by this code for new construction.
 - 2.4 The occupancy of one unit is permitted to be changed to a dwelling unit in an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 2.4.1 The project is considered a *substantial alteration* only because of the *change of occupancy*; and
 - 2.4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
 - 2.5 Where the occupancy of one unit is changed to a dwelling unit in an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 2.5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;
 - 2.5.2 The project is considered a *substantial alteration* only because of the *change of occupancy*;
 - 2.5.3 The new unit is constructed as an *addition* to the duplex;
 - 2.5.4 The new unit is separated from the existing duplex by a fire wall; and
 - 2.5.5 The addition by itself complies with the requirements for a Group R-2 occupancy.
 - 2.6 A sprinkler system is not required when a Group U occupancy that is accessory to a Group R-3 occupancy is converted to a dwelling unit.

[S] **506.1.1 Change in the ~~((character of))~~ group or use.** A change of occupancy with no *change of occupancy* classification shall not be made to any structure that will subject the structure to any special provisions of the applicable *International Codes*, without approval of the *code official*. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.

Note: The following illustrate how *change of occupancy* is interpreted:

- Change in classification is a change in the letter designation. An example is a change from B occupancy to R occupancy.
- Change in occupancy group is change in the number designation within an occupancy classification. An example is a change from group R-1 occupancy to R-2 occupancy.
- Change of use is a change in the subcategory within the occupancy group. An example is a change from R-2 apartment to R-2 boarding house.

[S] ~~((506.2 Certificate of occupancy. A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.))~~

[S] 506.2 Conversion to residential occupancy. Upon conversion of an *existing building*, or portion thereof, to residential occupancy, *International Building Code* Sections 420, 1203 and 2902 shall apply, and the elements of the dwelling unit envelope that are altered shall comply with the sound transmission control requirements of *International Building Code* Section 1207.

[S] 506.3 Stairways. ~~((An))~~ Subject to the approval of the *code official*, existing stairways shall not be required to comply with the requirements of Section 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.

[S] 506.4 Structural. Any building undergoing a *change of occupancy* that results in the building being reclassified to a higher risk category shall satisfy the requirements of ~~((this section))~~ **Section 303.2.**

~~((506.4.1 Live loads. Structural elements carrying tributary live loads from an area with a *change of occupancy* shall satisfy the requirements of Section 1607 of the *International Building Code*. Design live loads for areas of new occupancy shall be based on Section 1607 of the *International Building Code*. Design live loads for other areas shall be permitted to use previously approved design live loads.~~

~~**Exception:** Structural elements whose demand capacity ratio considering the *change of occupancy* is not more than 5 percent greater than the demand capacity ratio based on previously approved live loads need not comply with this section.~~

~~**506.4.2 Snow and wind loads.** Where a change of occupancy results in a structure being assigned to a higher risk category, the structure shall satisfy the requirements of Sections 1608 and 1609 of the *International Building Code* for the new risk category.~~

~~**Exception:** Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.~~

~~**506.4.4 Access to Risk Category IV.** Any structure that provides operational access to an adjacent structure assigned to *Risk Category IV* as the result of a *change of occupancy* shall itself satisfy the requirements of Sections 1608, 1609 and 1613 of the *International Building Code*. For compliance with Section 1613, *International Building Code* level seismic forces shall be used. Where operational access to the *Risk Category IV* structure 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.~~

[S] 506.5 Substantial alterations. *Changes of occupancy* that are *substantial alterations* shall comply with Section 307.

[S] SECTION 507 (~~(HISTORIC BUILDINGS)~~) LANDMARKS

507.1 (~~(Historic)~~) Landmark buildings. ~~((The provisions of this code that require improvements relative to a building's existing condition or, in the case of *repairs*, that require improvements relative to a building's predamage condition, shall not be mandatory for *historic buildings* unless specifically required by this section.))~~ Landmark buildings shall comply with Section 306.

~~((507.2 Life safety hazards. The provisions of this code shall apply to *historic buildings* judged by the code official to constitute a distinct life safety hazard.~~

~~**[BS] 507.3 Flood hazard areas.** Within flood *hazard areas* established in accordance with Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, where the work proposed constitutes *substantial improvement*, the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.~~

~~**Exception:** *Historic buildings* meeting any of the following criteria need not be brought into compliance:~~

- ~~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.~~
- ~~3. Designated as historic under a state or local historic preservation program that is *approved* by the Department of Interior.~~

~~**[BS] 507.4 Structural.** Historic buildings shall comply with the applicable structural provisions in this chapter.~~

~~**Exceptions:**~~

- ~~1. The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.~~
- ~~2. Repair of *substantial structural damage* is not required to comply with Sections 405.2.3, and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.~~

CHAPTER 6

CLASSIFICATION OF WORK

User note:

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

SECTION 601 GENERAL

[S] 601.1 Scope. The provisions of this chapter shall be used in conjunction with Chapters 7 through ~~((42)) 11 and 14~~ and shall apply to the *alteration, addition and change of occupancy of existing structures*. ~~((including historic and moved structures, as referenced in Section 301.3.2.))~~ The work performed on an *existing building* shall be classified in accordance with this chapter.

Note: All alterations, additions and changes of occupancy are required to comply with Chapter 3.

[S] 601.1.1 Compliance with other alternatives. *Alterations, additions and changes of occupancy to existing structures* shall comply with the provisions of Chapters 3 and 7 through ~~((42)) 11~~ or with one of the alternatives provided in Section 301.3.

601.2 Work area. The *work area*, as defined in Chapter 2, shall be identified on the construction documents.

SECTION 602 ALTERATION—LEVEL 1

602.1 Scope. 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.

602.2 Application. Level 1 *alterations* shall comply with the provisions of Chapter 7.

SECTION 603 ALTERATION—LEVEL 2

603.1 Scope. Level 2 *alterations* include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

603.2 Application. Level 2 *alterations* shall comply with the provisions of Chapter 7 for Level 1 *alterations* as well as the provisions of Chapter 8.

SECTION 604 ALTERATION—LEVEL 3

604.1 Scope. Level 3 *alterations* apply where the *work area* exceeds 50 percent of the *building area*.

604.2 Application. Level 3 *alterations* shall comply with the provisions of Chapters 7 and 8 for Level 1 and 2 *alterations*, respectively, as well as the provisions of Chapter 9.

SECTION 605 CHANGE OF OCCUPANCY

605.1 Scope. *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

605.2 Application. *Changes of occupancy* shall comply with the provisions of Chapter 10.

SECTION 606 ADDITIONS

606.1 Scope. Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.

606.2 Application. *Additions to existing buildings* shall comply with the provisions of Chapter 11.

[S] SECTION 607 ~~((HISTORIC BUILDINGS))~~ LANDMARKS

[S] **607.1 Scope.** ~~((*Historic building* provisions))~~ *Landmarks* shall ~~((apply to buildings classified as historic as defined in Chapter 2))~~ comply with the provisions of Section 306.

[S] ~~((**607.2 Application.** Except as specifically provided for in Chapter 12, *historic buildings* shall comply with applicable provisions of this code for the type of work being performed.))~~

SECTION 608 RELOCATED BUILDINGS

608.1 Scope. Relocated building provisions shall apply to relocated or moved buildings.

[S] **608.2 Application.** Relocated buildings shall comply with the provisions of ~~((Chapter 14))~~ Section 309.

CHAPTER 7

ALTERATIONS—LEVEL 1

User note:

About this chapter: Chapter 7 provides the technical requirements for those existing buildings that undergo Level 1 alterations as described in Section 503, which includes replacement or covering of existing materials, elements, equipment or fixtures using new materials for the same purpose. This chapter, similar to other chapters of this code, covers all building-related subjects, such as structural, mechanical, plumbing, electrical and accessibility as well as the fire and life safety issues when the alterations are classified as Level 1. The purpose of this chapter is to provide detailed requirements and provisions to identify the required improvements in the existing building elements, building spaces and building structural system. This chapter is distinguished from Chapters 8 and 9 by involving only replacement of building components with new components. In contrast, Level 2 alterations involve more space reconfiguration, and Level 3 alterations involve more extensive space reconfiguration, exceeding 50 percent of the building area.

SECTION 701 GENERAL

[S] 701.1 Scope. Level 1 alterations as described in Section 602 shall comply with the requirements of this chapter. ~~((Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 12.))~~

701.2 Conformance. An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.

Exception: Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

[S] 701.4 Emergency escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices placed over emergency escape and rescue openings shall comply with the minimum net clear opening size required by the code that was in effect at the time of construction. Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings. ~~((Smoke alarms shall be installed in accordance with Section 907.2.10 of the *International Building Code* regardless of the valuation of the alteration.))~~

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SECTION 702 BUILDING ELEMENTS AND MATERIALS

702.1 Interior finishes. Newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *International Building Code*.

702.2 Interior floor finish. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *International Building Code*.

702.3 Interior trim. Newly installed interior trim materials shall comply with Section 806 of the *International Building Code*.

[S] 702.4 Window opening control devices on replacement windows. In Group R-2 or R-3 buildings containing dwelling units, ~~((and one- and two-family dwellings and townhouses regulated by the *International Residential Code*))~~ window opening control devices complying with ASTM F2090 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. One of the following applies:))~~

~~((3.1))~~ 3. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor.

~~((3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the top sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor.))~~

4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
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).

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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 1030.2 of the *International Building Code*.

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 F2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

[S] 702.5 Replacement window emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies, ~~((and one- and two-family dwellings and townhouses regulated by the *International Residential Code*))~~ replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.4 of the *International Building Code*, ~~((and Sections R310.2.1, R310.2.2 and R310.2.3 of the *International Residential Code*))~~ provided that 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.
2. The replacement window is not part of a *change of occupancy*.

Window opening control devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*.

[S] 702.6 Materials and methods. New work shall comply with the materials and methods requirements in the *International Building Code*, *International Energy Conservation Code*, *International Mechanical Code*, and ~~((*International*))~~ *Uniform 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.

[FG] 702.6.1 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*.

1. Chapter 3, entitled “General Regulations,” except Sections 303.7 and 306.
2. Chapter 4, entitled “Gas Piping Installations,” except Sections 401.8 and 402.3.
 - 2.1. Sections 401.8 and 402.3 shall apply where 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. Chapter 5, entitled “Chimneys and Vents.”
4. Chapter 6, entitled “Specific Appliances.”

**SECTION 703
FIRE PROTECTION**

703.1 General. *Alterations* shall be done in a manner that maintains the level of fire protection provided.

**SECTION 704
MEANS OF EGRESS**

704.1 General. *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress.

**[S] ((SECTION 705
REROOFING))**

**[S] ((SECTION 706
STRUCTURAL**

~~**[BS] 706.1 General.** Where *alteration* work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.~~

~~**[BS] 706.2 Addition or replacement of roofing or replacement of equipment.** Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5~~

percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

~~[BS] 706.3 Additional requirements for reroof permits.~~ The requirements of this section shall apply to *alteration* work requiring reroof permits.

~~[BS] 706.3.1 Bracing for unreinforced masonry bearing wall parapets.~~ Where a permit is issued for reroofing for more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.

~~[BS] 706.3.2 Roof diaphragms resisting wind loads in high wind regions.~~ Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the ultimate design wind speed, V_{ult} , determined in accordance with Figure 1609.3(1) of the *International Building Code*, is greater than 115 mph (51 m/s) or in a special wind region, as defined in Section 1609 of the *International Building Code*, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof to wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.)

**[S] ((SECTION 707
ENERGY CONSERVATION**

~~707.1 Minimum requirements.~~ Level 1 *alterations* to existing buildings or structures do not require the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.)

CHAPTER 8

ALTERATIONS—LEVEL 2

User note:

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

SECTION 801 GENERAL

801.1 Scope. Level 2 alterations as described in Section 603 shall comply with the requirements of this chapter.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 305.7 shall be permitted to comply with Chapter 7.

801.2 Alteration Level 1 compliance. In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.

[S] 801.3 Compliance. New construction elements, components, systems, and spaces shall comply with the requirements of the *International Building Code*.

Exceptions:

1. Where windows are added they are not required to comply with the light and ventilation requirements of the *International Building Code*.
- ~~((2. Newly installed electrical equipment shall comply with the requirements of Section 807.~~
- 3) 2. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 805.6.
- ~~((4)~~ 3. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).
- ~~((5)~~ 4. Where provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of no less than 32 inches (815 mm).
- ~~((6)~~ 5. New structural members and connections shall be permitted to comply with alternative design criteria in accordance with Section 302.
6. Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 6.1 through 6.6 below. This exception is permitted to be used to add one unit after October 29, 1990.
 - 6.1 One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section. If more than one unit is added, the new units shall be equipped with a sprinkler system.
 - 6.2 In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.
 - 6.3 In buildings undergoing substantial alteration, an automatic sprinkler system shall be installed where required by this code for new construction.
 - 6.4 One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 6.4.1 The project is considered a substantial alteration only because of the change in occupancy; and
 - 6.4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
 - 6.5 Where one unit is added to an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 6.5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;

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- 6.5.2 The project is considered a *substantial alteration* only because of the change in occupancy;
- 6.5.3 The new unit is constructed as an addition to the duplex;
- 6.5.4 The new unit is separated from the existing duplex by a fire wall; and
- 6.5.5 The addition by itself complies with the requirements for a Group R-2 occupancy.
- 6.6 A sprinkler system is not required when a Group U occupancy that is accessory to a Group R-3 occupancy is converted to a dwelling unit.
- 7. Ceilings in basements are permitted to project to within 6 feet 8 inches (2032 mm) of the finished floor, and beams, girders, ducts or other obstructions are permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.
- 8. Ceiling height in buildings in existence prior to October 17, 1979, shall be permitted to comply with rules promulgated by the code official.

SECTION 802
BUILDING ELEMENTS AND MATERIALS

802.1 Scope. The requirements of this section are limited to *work areas* in which Level 2 *alterations* are being performed and shall apply beyond the work area where specified.

802.2 Vertical openings. Existing vertical openings shall comply with the provisions of Sections 802.2.1, 802.2.2 and 802.2.3.

[S] **802.2.1 Existing vertical openings.** Existing interior vertical openings connecting two or more floors shall be enclosed with *approved* assemblies having a fire-resistance rating of not less than 1 hour with *approved* opening protectives.

Exceptions:

1. Where vertical opening enclosure is not required by the *International Building Code* or the *International Fire Code*.
2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the *work area* by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.
3. The enclosure shall not be required where:
 - 3.1. Connecting the main floor and mezzanines; or
 - 3.2. All of the following conditions are met:
 - 3.2.1. The communicating area has a low-hazard occupancy or has a moderate-hazard occupancy that is protected throughout by an automatic sprinkler system.
 - 3.2.2. The lowest or next-to-the-lowest level is a street floor.
 - 3.2.3. The entire area is open and unobstructed in a manner such that it is reasonable to assume that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.
 - 3.2.4. Exit capacity is sufficient to provide egress simultaneously for all occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.
 - 3.2.5. Each floor level, considered separately, has not less than one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
4. In Group A occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories.
5. In Group B occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
 - 5.1. Buildings not exceeding 3,000 square feet (279 m²) per floor.
 - 5.2. Buildings protected throughout by an *approved* automatic fire sprinkler system.
6. In Group E occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where the building is protected throughout by an *approved* automatic fire sprinkler system.
7. In Group F occupancies, the enclosure shall not be required in the following locations:
 - 7.1. Vertical openings not exceeding three stories.
 - 7.2. Special-purpose occupancies where necessary for manufacturing operations and direct access is provided to not fewer than one protected stairway.
 - 7.3. Buildings protected throughout by an *approved* automatic sprinkler system.

8. In Group H occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where necessary for manufacturing operations and every floor level has direct access to not fewer than two remote enclosed stairways or other *approved* exits.
9. In Group M occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
 - 9.1. Openings connecting only two floor levels.
 - 9.2. Occupancies protected throughout by an *approved* automatic sprinkler system.
10. In Group R-1 occupancies, the enclosure shall not be required for vertical openings not exceeding three stories in ~~((the following locations: 10.1. Buildings))~~ buildings protected throughout by an *approved* automatic sprinkler system.
~~((10.2. Buildings with less 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 both of the following conditions are met:
 - 10.2.1. Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have not fewer than one of the means of egress separated from the vertical opening by a 1-hour fire barrier.
 - 10.2.2. The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the *International Building Code*.)~~
11. In Group R-2 occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
 - 11.1. Vertical openings not exceeding two stories with not more than four dwelling units per floor.
 - 11.2. Buildings protected throughout by an *approved* automatic sprinkler system.~~((11.3. 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 Section 803.4.~~
- ~~12. One and two family dwellings.~~
- ~~13))~~ 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.
- ~~((14))~~ 13. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.

802.2.2 Supplemental shaft and floor opening enclosure requirements. Where the *work area* on any floor exceeds 50 percent of that floor area, the enclosure requirements of Section 802.2 shall apply to vertical openings other than stairways throughout the floor.

Exception: Vertical openings located in tenant spaces that are entirely outside the *work area*.

802.2.3 Supplemental stairway enclosure requirements. Where the *work area* on any floor exceeds 50 percent of that floor area, stairways that are part of the means of egress serving the *work area* shall, at a minimum, be enclosed with smoke-tight construction on the highest *work area* floor and all floors below.

Exception: Where stairway enclosure is not required by the *International Building Code* or the *International Fire Code*.

802.3 Smoke compartments. In Group I-2 occupancies where the *work area* is on a story used for sleeping rooms for more than 30 patients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 407.5 of the *International Building Code* as required for new construction.

802.4 Interior finish. The interior finish of walls and ceilings in exits and corridors in any *work area* shall comply with the requirements of the *International Building Code*.

Exception: Existing interior finish materials that do not comply with the interior finish requirements of the *International Building Code* shall be permitted to be treated with an *approved* fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.

802.4.1 Supplemental interior finish requirements. Where the *work area* on any floor exceeds 50 percent of the floor area, Section 802.4 shall apply to the interior finish in exits and corridors serving the *work area* throughout the floor.

Exception: Interior finish within tenant spaces that are entirely outside the *work area*.

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802.5 Guards. The requirements of Sections 802.5.1 and 802.5.2 shall apply in all *work areas*.

802.5.1 Minimum requirement. Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards are judged to be in danger of collapsing, shall be provided with guards.

802.5.2 Design. Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the *International Building Code*.

802.6 Fire-resistance ratings. Where *approved* by the *code official*, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code* 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. The building is required to meet the other applicable requirements of the *International Building Code*.

Plans, investigation and evaluation reports, and other data shall be submitted indicating which building elements and materials the applicant is requesting the *code official* to review and approve for determination of applying the current building code fire-resistance ratings. Any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means-of-egress conditions, fire code deficiencies, *approved* modifications or *approved* alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted.

SECTION 803 FIRE PROTECTION

[S] **803.1 Scope.** The requirements of this section shall be limited to *work areas* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

Exception: The fire *code official* may modify or waive the fire protection requirements for Level 2 *alteration* projects in which the fire protection requirements constitute an excessive burden.

803.1.1 Corridor ratings. 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 *International Building Code*. 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.

803.2 Automatic sprinkler systems. Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 803.2.1 through 803.2.4. Installation requirements shall be in accordance with the *International Building Code*.

803.2.1 High-rise buildings. In high-rise buildings, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection in the entire *work area* where the *work area* is located on a floor that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that floor.

803.2.1.1 Supplemental automatic sprinkler system requirements. Where the *work area* on any floor exceeds 50 percent of that floor area, Section 803.2.1 shall apply to the entire floor on which the *work area* is located.

Exception: Occupied tenant spaces that are entirely outside the *work area*.

[S] **803.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, ((R-4;)) S-1 and S-2.** In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, ((R-4;)) S-1 and S-2, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where both of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction.
2. The *work area* exceeds 50 percent of the floor area.

Exception: If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, *work areas* shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

803.2.2.1 Mixed uses. In *work areas* containing mixed uses, one or more of which requires automatic sprinkler protection in accordance with Section 803.2.2, such protection shall not be required throughout the *work area* provided that the uses requiring such protection are separated from those not requiring protection by fire-resistance-rated construction having a minimum 2-hour rating for Group H and a minimum 1-hour rating for all other occupancy groups.

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803.4.1.6 Group R-2. A fire alarm system shall be installed in *work areas* of Group R-2 apartment buildings as required by the *International Fire Code* for existing Group R-2 occupancies.

803.4.2 Supplemental fire alarm system requirements. Where the *work area* on any floor exceeds 50 percent of that floor area, Section 803.4.1 shall apply throughout the floor.

Exception: Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.

803.4.3 Smoke alarms. Individual sleeping units and individual dwelling units in any *work area* in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with the *International Fire Code*.

Exception: Interconnection of smoke alarms outside of the *work area* shall not be required.

SECTION 804 CARBON MONOXIDE DETECTION

804.1 Carbon monoxide alarms. Any *work area* in Group I-1, I-2, I-4 and R occupancies shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code*.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, alteration or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

SECTION 805 MEANS OF EGRESS

805.1 Scope. The requirements of this section shall be limited to *work areas* that include exits or corridors shared by more than one tenant within the *work area* in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

805.2 General. The means of egress shall comply with the requirements of this section.

Exceptions:

1. Where the *work area* and the means of egress serving it complies with NFPA 101.
2. Means of egress complying with the requirements of the building code under which the building was constructed shall be considered to be compliant means of egress if, in the opinion of the *code official*, they do not constitute a distinct hazard to life.

805.3 Number of exits. The number of exits shall be in accordance with Sections 805.3.1 through 805.3.3.

805.3.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 805.3.1.1 and 805.3.1.2.

[S] 805.3.1.1 Single-exit buildings. A single exit or access to a single exit shall be permitted from spaces, any story or any occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 805.3.1.1(1) or 805.3.1.1(2).
2. In Group R-1 or R-2, nonsprinklered buildings, individual single-story or multiple-story dwelling or sleeping units shall be permitted to have a single exit or access to a single exit from the dwelling or sleeping unit provided one of the following criteria are met:
 - 2.1. The occupant load is not greater than 10 and the exit access travel distance within the unit does not exceed 75 feet (22 860 mm).
 - 2.2. The building is not more than three stories in height; all third-story space is part of dwelling with an exit access doorway on the second story; and the portion of the exit access travel distance from the door to any habitable room within any such unit to the unit entrance doors does not exceed 50 feet (15 240 mm).
3. In buildings of Group R-2 occupancy of any number of stories with not more than four dwelling units per floor served by an interior exit stairway; with a smokeproof enclosure in accordance with Sections 909.20 and 1023.11 of the *International Building Code* or an exterior stairway as an exit; and where the portion of the exit access travel distance from the dwelling unit entrance door to the exit is not greater than 20 feet (6096 mm).
4. In Group R-2 and R-3 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code*.

**TABLE 805.3.1.1(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT
FOR R-2 OCCUPANCIES**

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
Basement, first or second story above grade plane	R-2 ^a	4 dwelling units	50
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Group R-2, nonsprinklered and provided with emergency escape and rescue openings in accordance with Section 1030 of the *International Building Code*.

**TABLE 805.3.1.1(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT
FOR OTHER OCCUPANCIES**

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane	B, F-2, S-2 ^a	35	75
Second story above grade plane	B, F-2, S-2 ^a	35	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

[S] 805.3.1.2 Fire escapes. ~~((required. For other than Group I-2, where more than one exit is required, an existing or newly constructed fire escape complying with Section 805.3.1.2.1 shall be accepted as providing one of the required means of egress.))~~ Fire escapes that are altered shall comply with this section. Existing fire escapes shall continue to be accepted as a component in the means of egress in existing buildings only.

[S] ((805.3.1.2.1 Fire escape access and details. 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 Group 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 m²) or 5 square feet (0.46 m²) 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 *International Building Code*.~~
3. ~~Newly constructed fire escapes shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting the stairway size or because of the sidewalks, alleys, or roads at grade level.~~
4. ~~Openings within 10 feet (3048 mm) of 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.~~
5. ~~In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.))~~

[S] 805.3.1.2.1 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall be not less than 8 feet (2438 mm) or more than 12 feet (3658 mm) above grade, and shall be

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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 be not less than 12 feet (3658 mm).

~~[S] 805.3.1.2.2 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.)~~

805.3.1.2.3 Dimensions. Stairways shall be not less than 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm). Landings at the foot of stairways shall be not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long and located not more than 8 inches (203 mm) below the door.

[S] 805.3.1.2.4 Opening protectives. Doors and windows along the fire escape shall be protected with 3/4-hour opening protectives.

805.3.2 Mezzanines. Mezzanines in the *work area* and with an occupant load of more than 50 or in which the travel distance to an exit exceeds 75 feet (22 860 mm) shall have access to not fewer than two independent means of egress.

Exception: Two independent means of egress are not required where the travel distance to an exit does not exceed 100 feet (30 480 mm) and the building is protected throughout with an automatic sprinkler system.

805.3.3 Main entrance—Group A. Buildings of Group A with an occupant load of 300 or more shall be provided with a main entrance capable of serving as the main exit with an egress capacity of not less than one-half of the total occupant load. The remaining exits shall be capable of providing one-half of the total required exit capacity.

Exception: Where a main exit is not well defined or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total width of egress is not less than 100 percent of the required width.

805.4 Egress doorways. Egress doorways in any *work area* shall comply with Sections 805.4.1 through 805.4.5.

805.4.1 Two egress doorways required. Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 805.4.1.1 and 805.4.1.2.

805.4.1.1 Occupant load and travel distance. In any *work area*, all rooms and spaces having an occupant load greater than 50 or in which the travel distance to an exit exceeds 75 feet (22 860 mm) shall have not fewer than two egress doorways.

Exceptions:

1. Storage rooms having a maximum occupant load of 10.
2. Where the *work area* is served by a single exit in accordance with Section 805.3.1.1.

805.4.1.2 Group I-2. In buildings of Group I-2 occupancy, any patient sleeping room or suite of patient rooms greater than 1,000 square feet (93 m²) within the *work area* shall have not fewer than two egress doorways.

805.4.2 Door swing. In the *work area* and in the egress path from any *work area* to the exit discharge, all egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel.

805.4.2.1 Supplemental requirements for door swing. Where the *work area* exceeds 50 percent of the floor area, door swing shall comply with Section 805.4.2 throughout the floor.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

805.4.3 Door closing. In any *work area*, all doors opening onto an exit passageway at grade or an exit stairway shall be self-closing or automatic-closing by listed closing devices.

Exceptions:

1. Where exit enclosure is not required by the *International Building Code*.
2. Means of egress within or serving only a tenant space that is entirely outside the *work area*.

805.4.3.1 Supplemental requirements for door closing. Where the *work area* exceeds 50 percent of the floor area, doors shall comply with Section 805.4.3 throughout the exit stairway from the *work area* to, and including, the level of exit discharge.

805.4.4 Panic hardware. In any *work area*, and in the egress path from any *work area* to the exit discharge, in buildings or portions thereof of Group A assembly occupancies with an occupant load greater than 100, all required exit doors equipped with latching devices shall be equipped with *approved* panic hardware.

805.4.4.1 Supplemental requirements for panic hardware. Where the *work area* exceeds 50 percent of the floor area, panic hardware shall comply with Section 805.4.4 throughout the floor.

Exception: Means of egress within a tenant space that is entirely outside the *work area*.

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805.7.2 Supplemental requirements for means-of-egress lighting. Where the *work area* on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 805.7.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

805.8 Exit signs. Exit signs shall be in accordance with this section, as applicable.

805.8.1 Work areas. Means of egress in all *work areas* shall be provided with exit signs in accordance with the requirements of the *International Building Code*.

805.8.2 Supplemental requirements for exit signs. Where the *work area* on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 805.8.1.

Exception: Means of egress within a tenant space that is entirely outside the *work area*.

805.9 Handrails. The requirements of Sections 805.9.1 and 805.9.2 shall apply to handrails from the *work area* floor to, and including, the level of exit discharge.

805.9.1 Minimum requirement. Every required exit stairway that is part of the means of egress for any *work area* and that has three or more risers and is not provided with not fewer than one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the stairway on not fewer than one side. Exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.

805.9.2 Design. Handrails required in accordance with Section 805.9.1 shall be designed and installed in accordance with the provisions of the *International Building Code*.

805.10 Refuge areas. Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below that required in Sections 805.10.1 and 805.10.2.

805.10.1 Capacity. The required capacity of refuge areas shall be in accordance with Sections 805.10.1.1 through 805.10.1.3.

805.10.1.1 Group I-2. In Group I-2 occupancies, the required capacity of the refuge areas for smoke compartments in accordance with Section 407.5.1 of the *International Building Code* shall be maintained.

805.10.1.2 Group I-3. In Group I-3 occupancies, the required capacity of the refuge areas for smoke compartments in accordance with Section 408.6.2 of the *International Building Code* shall be maintained.

805.10.1.3 Ambulatory care. In ambulatory care facilities required to be separated by Section 422.2 of the *International Building Code*, the required capacity of the refuge areas for smoke compartments in accordance with Section 422.3.2 of the *International Building Code* shall be maintained.

805.10.2 Horizontal exits. The required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the *International Building Code* shall be maintained.

805.11 Guards. The requirements of Sections 805.11.1 and 805.11.2 shall apply to guards from the *work area* floor to, and including, the level of exit discharge but shall be confined to the egress path of any *work area*.

805.11.1 Minimum requirement. Every open portion of a stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.

805.11.2 Design. Guards required in accordance with Section 805.11.1 shall be designed and installed in accordance with the *International Building Code*.

**SECTION 806
STRUCTURAL**

[S][BS] **806.1 General.** Structural elements and systems within buildings undergoing Level 2 *alterations* shall comply with ((this section)) Section 303.

**[S] ((SECTION 807
ELECTRICAL**

~~**807.1 New installations.** Newly installed electrical equipment and wiring relating to work done in any *work area* shall comply with all applicable requirements of NFPA 70 except as provided for in Section 807.3.~~

~~**807.2 Existing installations.** Existing wiring in all *work areas* in Group A-1, A-2, A-5, H and I occupancies shall be upgraded to meet the materials and methods requirements of Chapter 7.~~

~~**807.3 Residential occupancies.** In Group R-2, R-3 and R-4 occupancies and buildings regulated by the *International Residential Code*, the requirements of Sections 807.3.1 through 807.3.7 shall be applicable only to *work areas* located within a dwelling unit.~~

~~**807.3.1 Enclosed areas.** Enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas and bathrooms shall have not fewer than two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall type lighting outlet.~~

~~**807.3.2 Kitchens.** Kitchen areas shall have not fewer than two duplex receptacle outlets.~~

~~**807.3.3 Laundry areas.** Laundry areas shall have not fewer than one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.~~

~~**807.3.4 Ground fault circuit interruption.** Newly installed receptacle outlets shall be provided with ground fault circuit interruption as required by NFPA 70.~~

~~**807.3.5 Minimum lighting outlets.** Not fewer than one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, and detached garage with electric power, and to illuminate outdoor entrances and exits.~~

~~**807.3.6 Utility rooms and basements.** Not fewer than one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.~~

~~**807.3.7 Clearance for equipment.** Clearance for electrical service equipment shall be provided in accordance with the NFPA 70-))~~

SECTION 808 MECHANICAL

~~[S] ((**808.1 Reconfigured or converted spaces.** Reconfigured spaces intended for occupancy and spaces converted to habitable or occupiable space in any *work area* shall be provided with natural or mechanical ventilation in accordance with the *International Mechanical Code*.~~

~~**Exception:** Existing mechanical ventilation systems shall comply with the requirements of Section 808.2.))~~

~~**808.1 Mechanical systems.** Mechanical systems shall comply with the *International Mechanical Code*.~~

~~[S] ((**808.2 Altered existing systems.** In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cubic feet per minute (cfm) (0.0024 m³/s) per person of outdoor air and not less than 15 cfm (0.0071 m³/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.))~~

~~[S] ((**808.3 Local exhaust.** 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.))~~

SECTION 809 PLUMBING

~~[S] **809.1 Minimum fixtures.** Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the *International ((Plumbing)) Building Code* based on the increased occupant load.~~

[S] ((SECTION 810 ENERGY CONSERVATION

~~**810.1 Minimum requirements.** Level 2 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The alterations shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.))~~

CHAPTER 9

ALTERATIONS—LEVEL 3

User note:

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

SECTION 901 GENERAL

901.1 Scope. Level 3 alterations as described in Section 604 shall comply with the requirements of this chapter.

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 802, 803, 804, and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 305.7 shall not be required to comply with this chapter.

SECTION 902 SPECIAL USE AND OCCUPANCY

[S] 902.1 High-rise buildings. Any building having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of ~~((Sections))~~ Section 902.1.1. ~~((and 902.1.2.))~~

902.1.1 Recirculating air or exhaust systems. Where a floor is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m³/s), that system shall be equipped with *approved* smoke and heat detection devices installed in accordance with the *International Mechanical Code*.

~~((902.1.2 Elevators. Where there is an elevator or elevators for public use, not fewer than one elevator serving the work area shall comply with this section. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1/CSAB44.1.))~~

[S] 902.2 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within Group I-1, I-2, I-4, R-1, and R-2 ~~((and R-4))~~ occupancies shall be enclosed by 1-hour fire-resistance-rated construction.

Exceptions:

1. Steam boiler equipment operating at pressures of 15 pounds per square inch gauge (psig) (103.4 kPa) or less is not required to be enclosed.
2. Hot water boilers operating at pressures of 170 psig (1171 kPa) or less are not required to be enclosed.
3. Furnace and boiler equipment with 400,000 British thermal units (Btu) (4.22 × 10⁸ J) per hour input rating or less is not required to be enclosed.
4. Furnace rooms protected with an automatic sprinkler system are not required to be enclosed.

SECTION 903 BUILDING ELEMENTS AND MATERIALS

903.1 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 802.2.1 from the highest *work area* floor to, and including, the level of exit discharge and all floors below.

ALTERATIONS—LEVEL 3

903.2 Fire partitions in Group R-3. Fire separation in Group R-3 occupancies shall be in accordance with Section 903.2.1.

[S] **903.2.1 Separation required.** Where the *work area* is in any attached dwelling unit in Group R-3 or any multiple single-family dwelling (townhouse), walls separating the dwelling units that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. Work shall be performed on the side of the dwelling unit wall that is part of the *work area*.

Exception: Where *alterations* (~~(or repairs)~~) do not result in the removal of wall or ceiling finishes exposing the structure, walls are not required to be continuous through concealed floor spaces.

903.3 Interior finish. Interior finish in exits serving the *work area* shall comply with Section 802.4 between the highest floor on which there is a *work area* to the floor of exit discharge.

SECTION 904 FIRE PROTECTION

904.1 Automatic sprinkler systems. An automatic sprinkler system shall be provided in a *work area* where required by Section 803.2 or this section.

904.1.1 High-rise buildings. An automatic sprinkler system shall be provided in *work areas* where the high-rise building has a sufficient municipal water supply for the design and installation of an automatic sprinkler system at the site.

904.1.2 Rubbish and linen chutes. Rubbish and linen chutes located in the *work area* shall be provided with automatic sprinkler system protection or an *approved* automatic fire-extinguishing system where protection of the rubbish and linen chute would be required under the provisions of the *International Building Code* for new construction.

904.1.3 Upholstered furniture or mattresses. *Work areas* shall be provided with an automatic sprinkler system in accordance with the *International Building Code* where any of the following conditions exist:

1. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).
2. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m²).
3. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).

904.1.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction.
2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system.

904.2 Fire alarm and detection systems. Fire alarm and detection shall be provided in accordance with Section 907 of the *International Building Code* as required for new construction.

904.2.1 Manual fire alarm systems. Where required by the *International Building Code*, a manual fire alarm system shall be provided throughout the *work area*. Alarm notification appliances shall be provided on such floors and shall be automatically activated as required by the *International Building Code*.

Exceptions:

1. Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.
2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.

904.2.2 Automatic fire detection. Where required by the *International Building Code* for new buildings, automatic fire detection systems shall be provided throughout the *work area*.

SECTION 905 MEANS OF EGRESS

905.1 General. The means of egress shall comply with the requirements of Section 805 except as specifically required in Sections 905.2 and 905.3.

905.2 Means-of-egress lighting. Means of egress from the highest *work area* floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the *International Building Code*.

905.3 Exit signs. Means of egress from the highest *work area* floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the *International Building Code*.

**SECTION 906
STRUCTURAL**

[S][BS] **906.1 General.** Where buildings are undergoing Level 3 *alterations*, the provisions of ~~((this section))~~ Section 303 shall apply.

[S] ~~(([BS] 906.3 Seismic Design Category F. Where the building is assigned to Seismic Design Category F, the structure of the altered building shall meet the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.))~~

[S] ~~(([BS] 906.4 Anchorage for concrete and masonry buildings. For any building assigned to Seismic Design Category D, E or F with a structural system that includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* work shall include installation of wall anchors at the roof line of all subject buildings and at the floor lines of unreinforced masonry buildings unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.))~~

[S] ~~(([BS] 906.6 Bracing for unreinforced masonry parapets. Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category C, D, E or F shall have bracing installed as needed to resist the reduced *International Building Code* level seismic forces in accordance with Section 303.3, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted.))~~

**[S] ((SECTION 907
ENERGY CONSERVATION**

907.1 Minimum requirements. Level 3 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.))

CHAPTER 10

CHANGE OF OCCUPANCY

User note:

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

SECTION 1001 GENERAL

[S] **1001.1 Scope.** The provisions of this chapter shall apply where a *change of occupancy* occurs, as defined in Section 202.

Note: The following illustrate how change of occupancy is interpreted:

- Change of occupancy classification is a change in the letter designation. An example is a change from B occupancy to R occupancy.
- Change in occupancy group is change in the number designation within an occupancy classification. An example is a change from group R-1 occupancy to R-2 occupancy.
- Change of use is a change in the subcategory within the occupancy group. An example is a change from R-2 apartment to R-2 boarding house.

When “change of occupancy” is italicized in this chapter, it is a global term meant to describe the act of changing the classification, group or use of a building or portion thereof. The terms “change in occupancy group,” “change in occupancy classification” or “change in use” where the phrase “change in occupancy” is not italicized have the meanings described above.

Note: Changes of occupancy that are substantial alterations as determined by Section 307.1.1 are required to comply with Section 307.

[S] **1001.2 ((Certificate)) Change of occupancy.** A *change of occupancy* or a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* shall not be made to any structure without the approval of the *code official*. ~~((A certificate of occupancy shall be issued where it has been determined that the requirements for the change of occupancy have been met.))~~

[S] **1001.2.1 Change of use.** Any work undertaken in connection with a change in use that does not involve a change of occupancy classification or a change to another group within an occupancy classification shall conform to the applicable requirements for the work as classified in Chapter 6 and to the requirements of Sections 1002 through 1010.

Exception: As modified in Section ((4204)) 310 for ~~((historic buildings))~~ landmarks.

[S] **1001.2.2 Change of occupancy classification or group.** Where the occupancy classification or group of a building changes, the provisions of Sections 1002 through 1011 shall apply. This includes a change of occupancy classification and a change to another group within an occupancy classification.

1001.2.2.1 Partial change of occupancy. Where the occupancy classification or group of a portion of an *existing building* is changed, Section 1011 shall apply.

[S] **1001.3 Certificate of occupancy required.** A certificate of occupancy shall be issued where a *change of occupancy* occurs that results in a different occupancy classification or group as determined by the *International Building Code*.

CHANGE OF OCCUPANCY

SECTION 1002 SPECIAL USE AND OCCUPANCY

[S] **1002.1 Compliance with the building code.** Where the ((character of)) use of an *existing building* or part of an *existing building* is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:

1. Covered and open mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.
10. Ambulatory care facilities.
11. Group I-2 occupancies.

[W] 12. Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.

1002.2 Underground buildings. An underground building in which there is a change of use shall comply with the requirements of the *International Building Code* applicable to underground structures.

SECTION 1003 BUILDING ELEMENTS AND MATERIALS

1003.1 General. Building elements and materials in portions of buildings undergoing a change of occupancy classification shall comply with Section 1011.

SECTION 1004 FIRE PROTECTION

1004.1 General. Fire protection requirements of Section 1011 shall apply where a building or portions thereof undergo a change of occupancy classification or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*.

SECTION 1005 MEANS OF EGRESS

1005.1 General. Means of egress in portions of buildings undergoing a change of occupancy classification shall comply with Section 1011.

SECTION 1006 STRUCTURAL

[S] **1006.1 Structural.** Buildings or portions thereof subject to a *change of occupancy* shall comply with Section 303.2.

[S] ~~(([S] **1006.1 Live loads.** Structural elements carrying tributary live loads from an area with a *change of occupancy* shall satisfy the requirements of Section 1607 of the *International Building Code*. Design live loads for areas of new occupancy shall be based on Section 1607 of the *International Building Code*. Design live loads for other areas shall be permitted to use previously *approved* design live loads.~~

~~**Exception:** Structural elements whose demand-capacity ratio considering the *change of occupancy* is not more than 5 percent greater than the demand-capacity ratio based on previously *approved* live loads.))~~

[S] ~~(([S] **1006.2 Snow and wind loads.** Where a *change of occupancy* results in a structure being assigned to a higher *risk category*, the structure shall satisfy the requirements of Sections 1608 and 1609 of the *International Building Code* for the new risk category.~~

~~**Exception:** Where the area of the new occupancy is less than 10 percent of the building area. The cumulative effect of occupancy changes over time shall be considered.))~~

~~[S] ((~~BS~~) 1006.4 Access to Risk Category IV. Any structure that provides operational access to an adjacent structure assigned to Risk Category IV as the result of a change of occupancy shall itself satisfy the requirements of Sections 1608, 1609 and 1613 of the *International Building Code*. For compliance with Section 1613, the full seismic forces shall be used. Where operational access to Risk Category IV 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.))~~

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~~[S] ((SECTION 1007 ELECTRICAL~~

~~1007.1 Special occupancies. Where the occupancy of an *existing building* or part of an *existing building* is changed to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70 whether or not a *change of occupancy* group is involved:~~

- ~~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.~~

~~1007.2 Unsafe conditions. Where the occupancy of an *existing building* or part of an *existing building* is changed, all unsafe conditions shall be corrected without requiring that all parts of the electrical system comply with NFPA 70.~~

~~1007.3 Service upgrade. Where the occupancy of an *existing building* or part of an *existing building* is changed, electrical service shall be upgraded to meet the requirements of NFPA 70 for the new occupancy.~~

~~1007.4 Number of electrical outlets. Where the occupancy of an *existing building* or part of an *existing building* is changed, the number of electrical outlets shall comply with NFPA 70 for the new occupancy.))~~

SECTION 1008 MECHANICAL

[S] 1008.1 Mechanical requirements. Mechanical equipment and systems shall comply with the *International Mechanical Code*. ((Where the occupancy of an *existing building* or part of an *existing building* is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the *International Mechanical Code*, the new occupancy shall comply with the respective *International Mechanical Code* provisions.))

SECTION 1009 PLUMBING

[S] 1009.1 Increased demand. Where ((the)) a change of occupancy ((of)) in an *existing building* or part of an *existing building* ((is changed such that the)) results in a new occupancy that is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the *International Building Code* and ((*International*)) *Uniform Plumbing Code*, the new occupancy shall comply with the ((intent of the)) respective *International Building Code* and ((*International*)) *Uniform Plumbing Code* provisions.

[S] 1009.2 Food-handling occupancies. If the new occupancy is a food-handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from contaminating food or drink. New drainage lines shall not be installed above such areas and shall be protected in accordance with the ((*International*)) *Uniform Plumbing Code*.

[S] 1009.3 Interceptor required. If the new occupancy will produce grease or oil-laden wastes, interceptors shall be provided as required in the ((*International*)) *Uniform Plumbing Code*.

CHANGE OF OCCUPANCY

1009.4 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. Chemical waste shall not discharge to a public sewer system without the approval of the sewage authority.

[S] **1009.5 Group I-2.** If the occupancy group is changed to Group I-2, the plumbing system shall comply with the applicable requirements of the (~~International~~) Uniform Plumbing Code.

SECTION 1010 OTHER REQUIREMENTS

[S] **1010.1 Light and ventilation.** Light and ventilation shall comply with the requirements of the *International Building Code* and *International Mechanical Code* for the new occupancy.

SECTION 1011 CHANGE OF OCCUPANCY ((CLASSIFICATION))

1011.1 General. The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*. Such buildings shall also comply with Sections 1002 through 1010 of this code. The application of requirements for the *change of occupancy* shall be as set forth in Sections 1011.1.1 through 1011.1.3. A *change of occupancy*, as defined in Section 202, without a corresponding change of occupancy classification shall comply with Section 1001.2.

[S] **1011.1.1 Compliance with Chapter 9.** The requirements of Chapter 9 shall be applicable throughout the building for the new occupancy classification based on the separation conditions set forth in Sections 1011.1.1.1 and 1011.1.1.2. All existing buildings with a change of occupancy classification shall comply with the seismic provisions of Section 303.2.

1011.1.1.1 Change of occupancy classification without separation. Where a portion of an *existing building* is changed to a new occupancy classification or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*, and that portion is not separated from the remainder of the building with fire barriers having a fire-resistance rating as required in the *International Building Code* for the separate occupancy, the entire building shall comply with all of the requirements of Chapter 9 of this code applied throughout the building for the most restrictive occupancy classification in the building and with the requirements of this chapter.

1011.1.1.2 Change of occupancy classification with separation. Where a portion of an *existing building* is changed to a new occupancy classification or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*, and that portion is separated from the remainder of the building with fire barriers having a fire-resistance rating as required in the *International Building Code* for the separate occupancy, that portion shall comply with all of the requirements of Chapter 9 of this code for the new occupancy classification and with the requirements of this chapter.

1011.1.2 Fire protection and interior finish. The provisions of Sections 1011.2 and 1011.3 for fire protection and interior finish, respectively, shall apply to all buildings undergoing a change of occupancy classification.

1011.1.3 Change of occupancy classification based on hazard category. The relative degree of hazard between different occupancy classifications shall be determined in accordance with the categories specified in Tables 1011.4, 1011.5 and 1011.6. Such a determination shall be the basis for the application of Sections 1011.4 through 1011.7.

1011.2 Fire protection systems. Fire protection systems shall be provided in accordance with Sections 1011.2.1 and 1011.2.2.

[S] **1011.2.1 Fire sprinkler system.** Where a change in occupancy classification occurs or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs.

Exception: Subject to the approval of the code official, an automatic fire sprinkler system is not required in dwelling units according to Items 1 through 6 below. This exception is permitted to be used for the *change of occupancy* for one dwelling unit after October 29, 1990.

1. The occupancy of one unit is permitted to be changed to a dwelling unit without an automatic sprinkler system unless sprinklers are otherwise required by this chapter. If more than one unit is changed, the new units shall be equipped with a sprinkler system.

2. In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the occupancy of the unit is changed, an automatic sprinkler system shall be provided in the new unit. The change of occupancy shall not be allowed if it increases the nonconformity.
3. In buildings undergoing *substantial alteration*, an automatic sprinkler system shall be installed where required by this code for new construction.
4. The occupancy of one unit is permitted to be changed to a dwelling unit in an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 4.1. The project is considered a *substantial alteration* only because of the change in occupancy; and
 - 4.2. The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
5. Where the occupancy of one unit is changed to a dwelling unit in an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 5.1. The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;
 - 5.2. The project is considered a *substantial alteration* only because of the change in occupancy;
 - 5.3. The new unit is constructed as an addition to the duplex;
 - 5.4. The new unit is separated from the existing duplex by a fire wall; and
 - 5.5. The addition by itself complies with the requirements for a Group R-2 occupancy.
6. A sprinkler system is not required when a Group U occupancy that is accessory to a Group R-3 occupancy is converted to a dwelling unit.

1011.2.2 Fire alarm and detection system. Where a change in occupancy classification occurs or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such 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 *International Building Code* as required for new construction.

1011.3 Interior finish. In areas of the building undergoing the change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the *International Building Code* for the new occupancy classification.

1011.4 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 1011.4.

**TABLE 1011.4
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, Condition 2
4	B; F-1; R-3; R-4, Condition 1; S-1
5 (Lowest Hazard)	F-2; S-2; U

1011.4.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.4, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

CHANGE OF OCCUPANCY

4. 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 shall be permitted. 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.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 805.5.1, 805.5.2 and 805.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 805.6.
7. An existing operable window with clear opening area not less than 4 square feet (0.38 m²) 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.

1011.4.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table 1011.4, existing elements of the means of egress shall comply with the requirements of Section 905 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exception: Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

1011.4.3 Egress capacity. Egress capacity shall meet or exceed the occupant load as specified in the *International Building Code* for the new occupancy.

1011.4.4 Handrails. Existing stairways shall comply with the handrail requirements of Section 805.9 in the area of the change of occupancy classification.

1011.4.5 Guards. Existing guards shall comply with the requirements in Section 805.11 in the area of the change of occupancy classification.

1011.5 Heights and areas. Hazard categories in regard to height and area shall be in accordance with Table 1011.5.

**TABLE 1011.5
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, Condition 2
3	E; F-1; S-1; M
4 (Lowest Hazard)	B; F-2; S-2; A-5; R-3; R-4, Condition 1; U

[S] 1011.5.1 Height and area for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category as shown in Table 1011.5, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the *International Building Code* 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 *International Building Code* 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 *International Building Code*.

1011.5.1.1 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 *International Building Code* 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 Fire 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 *International Building Code* without an increase allowed for an automatic sprinkler system in accordance with Section 506 of the *International Building Code*.
3. 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 *International Building Code*.

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 1 hour provided that the height and

CHAPTER 11 ADDITIONS

User note:

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

SECTION 1101 GENERAL

1101.1 Scope. An *addition* to a building or structure shall comply with the *International Codes* as adopted 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.

1101.2 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.

[S] 1101.3 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 Chapter 6.

SECTION 1102 HEIGHTS AND AREAS

1102.1 Height limitations. An *addition* shall not increase the height of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings.

1102.2 Area limitations. An *addition* shall not increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

Exception: In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.

1102.3 Fire protection systems. Existing fire areas increased by the *addition* shall comply with Chapter 9 of the *International Building Code*.

SECTION 1103 STRUCTURAL

[S] 1103.1 Structural. Additions to existing buildings or structures are new construction and shall comply with Section 303.3.

[S][BS] (~~1103.3~~) 1103.2 Flood hazard areas. Additions and foundations in flood hazard areas shall comply with ((the following requirements:)) Section 310.

((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.



ADDITIONS

- ~~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 1104 SMOKE ALARMS IN OCCUPANCY GROUPS R AND I-1

[S] **1104.1 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms as required by Section 1103.8 of the *International Fire Code*, ~~((or Section R314 of the *International Residential Code* as applicable.))~~

SECTION 1105 CARBON MONOXIDE ALARMS IN GROUPS I-1, I-2, I-4 AND R

1105.1 Carbon monoxide alarms in existing portions of a building. Where an *addition* is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the *existing building* shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315 of the *International Residential Code*, as applicable.

[S] ((SECTION 1106 STORM SHELTERS

~~**1106.1 Addition to a Group E occupancy.** Where an *addition* is added to an existing Group E occupancy located in an area where the shelter design wind speed for tornados is 250 mph in accordance with Figure 304.2(1) of ICC 500 and the occupant load in the *addition* is 50 or more, the *addition* shall have a storm shelter constructed in accordance with ICC 500.~~

~~Exceptions:~~

- ~~1. Group E day care facilities.~~
- ~~2. Group E occupancies accessory to places of religious worship.~~
- ~~3. *Additions* meeting the requirements for shelter design in ICC 500.~~

~~**1106.1.1 Required occupant capacity.** The required occupant capacity of the storm shelter shall include all buildings on the site, and shall be the greater of the following:~~

- ~~1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.~~
- ~~2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.~~

~~Exceptions:~~

- ~~1. Where an *addition* is being added on an existing Group E site, and where the *addition* is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all of the buildings on site, the storm shelter shall at a minimum accommodate the required capacity for the *addition*.~~
- ~~2. Where *approved* by the code official, the required occupant capacity of the shelter shall be permitted to be reduced by the occupant capacity of any existing storm shelters on the site.~~

~~**1106.1.2 Location.** Storm shelters shall be located within the buildings they serve, or shall be located where the maximum distance of travel from not fewer than one exterior door of each building to a door of the shelter serving that building does not exceed 1,000 feet (305 m).))~~

[S] ((SECTION 1107 ENERGY CONSERVATION

~~**1107.1 Minimum requirements.** *Additions to existing buildings* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction.))~~

[S] SECTION 1107
ADDITION OF DWELLING UNITS

[S] 1107.1 Automatic sprinkler systems. Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 1 through 5 below. This provision is permitted to be used to add one unit after October 29, 1990.

1. One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section. If more than one unit is added, the new units shall be equipped with a sprinkler system.
2. In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.
3. In buildings undergoing *substantial alteration*, an automatic sprinkler system shall be installed where required by this code for new construction.
4. One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:
 - 4.1 The project is considered a *substantial alteration* only because of the change in occupancy; and
 - 4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.
5. Where one unit is added to an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:
 - 5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;
 - 5.2 The project is considered a *substantial alteration* only because of the change in occupancy;
 - 5.3 The new unit is constructed as an *addition* to the duplex;
 - 5.4 The new unit is separated from the existing duplex by a fire wall; and
 - 5.5 The *addition* by itself complies with the requirements for a Group R-2 occupancy.

[S] 1107.1.1 Fire walls. An existing nonconforming building to which an *addition* is made is permitted to exceed the height, number of stories and area specified for new buildings if a fire wall is provided, the existing building is not made more nonconforming, and the *addition* conforms to this code.

CHAPTER 12

HISTORIC BUILDINGS

Note: Chapter 12 is not adopted in The City of Seattle. See Section 306 for provisions for landmark buildings.

CHAPTER 13

PERFORMANCE COMPLIANCE METHODS

User note:

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

SECTION 1301 GENERAL

[S] 1301.1 Scope. The provisions of this chapter shall apply to the *alteration, addition and change of occupancy* of existing structures, ~~((including historic structures,))~~ as referenced in Section 301.3.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings and structures* while permitting ~~((;))~~ *alteration, addition and change of occupancy* without requiring full compliance with Chapters 6 through ~~((12))~~ 11, except where compliance with other provisions of this code is specifically required in this chapter. *Alterations, additions and changes of occupancy shall also comply with Chapter 3.*

1301.1.1 Compliance with other methods. *Alterations, additions and changes of occupancy to existing structures shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.*

1301.2 Applicability. *Existing buildings* in which there is work involving *additions, alterations or changes of occupancy* shall be made to conform to the requirements of this chapter or the provisions of Chapters 6 through 12. The provisions of Sections 1301.2.1 through 1301.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3 or I-4.

1301.2.1 Change in occupancy. Where an *existing building* is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

[S] 1301.2.2 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification and that portion is separated from the remainder of the building with fire barrier or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the *International Building Code* ~~((or Section R302 of the International Residential Code))~~ for the separate occupancies, or with *approved* compliance alternatives, the portion changed shall be made to conform to the provisions of this section.

Where a portion of the building is changed to a new occupancy classification and that portion is not separated from the remainder of the building with fire barriers or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the *International Building Code* ~~((or Section R302 of the International Residential Code))~~ for the separate occupancies, or with *approved* compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

[S] 1301.2.3 Additions. *Additions to existing buildings* shall comply with the requirements of the *International Building Code* ~~((or the International Residential Code))~~ for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the *International Building Code*. Where a fire wall that complies with Section 706 of the *International Building Code* is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building.

~~**[S] ((1301.2.3.1 Additions to Group E facilities.** For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.))~~

1301.2.4 Alterations. An *existing building* or portion thereof shall not be altered in such a manner that results in the building being less safe or sanitary than such building is currently.

Exception: Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

1301.2.5 Escalators. Where escalators are provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

[S] 1301.3 Acceptance. For ~~((repairs,))~~ *alterations, additions, and changes of occupancy to existing buildings* that are evaluated in accordance with this section, compliance with this section shall be accepted by the *code official*.

PERFORMANCE COMPLIANCE METHODS

[S] **1301.3.1 Hazards.** Where the *code official* determines that an *unsafe* condition exists as provided for in Section ~~((415))~~ 101.14, such *unsafe* condition shall be abated in accordance with Section ~~((415))~~ 101.14.

[S] **1301.3.2 Compliance with other codes.** Buildings that are evaluated in accordance with this section shall comply with ~~((the International Fire Code and International Property Maintenance Code))~~ Chapter 3.

* **1301.4 Investigation and evaluation.** For proposed work covered by this chapter, the building owner shall cause the *existing building* to be investigated and evaluated in accordance with the provisions of Sections 1301.4 through 1301.9.

[S][BS] **1301.4.1 Structural.** ~~((analysis. The owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed alteration, addition or change of occupancy. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the International Building Code.))~~ Alterations, additions and changes of occupancy to existing structures shall comply with Section 303.

1301.4.2 Submittal. The results of the investigation and evaluation as required in Section 1301.4, along with proposed compliance alternatives, shall be submitted to the *code official*.

1301.4.3 Determination of compliance. The *code official* shall determine whether the *existing building*, with the proposed addition, alteration, or change of occupancy, complies with the provisions of this section in accordance with the evaluation process in Sections 1301.5 through 1301.9.

1301.5 Evaluation. The evaluation shall be composed of three categories: fire safety, means of egress, and general safety, as defined in Sections 1301.5.1 through 1301.5.3.

1301.5.1 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*.

1301.5.2 Means of egress. Included within the means of egress category are the configuration, characteristics, and support features for means of egress in the *facility*.

1301.5.3 General safety. Included within the general safety category are the fire safety parameters and the means of egress parameters.

1301.6 Evaluation process. The evaluation process specified herein shall be followed in its entirety to evaluate *existing buildings* in Groups A, B, E, F, M, R, S and U. For *existing buildings* in Group I-2, the evaluation process specified herein shall be followed and applied to each and every individual smoke compartment. Table 1301.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code or other codes indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 1301.6.16, the score for each occupancy shall be determined, and the lower score determined for each section of the evaluation process shall apply to the entire building, or to each smoke compartment for Group I-2 occupancies.

Where the separation between the mixed occupancies qualifies for any category indicated in Section 1301.6.16, the score for each occupancy shall apply to each portion, or smoke compartment of the building based on the occupancy of the space.

1301.6.1 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 1301.6.1.1. Section 504 of the *International Building Code* 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 1301.7 under Safety Parameter 1301.6.1, Building Height, for fire safety, means of egress, and general safety. The maximum score for a building shall be 10.

1301.6.1.1 Height formula. The following formulas shall be used in computing the building height value.

$$\text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF \quad \text{(Equation 13-1)}$$

$$\text{Height value, stories} = (AS - EBS) \times CF \quad \text{(Equation 13-2)}$$

where:

AH = Allowable height in feet (mm) from Section 504 of the *International Building Code*.

EBH = Existing building height in feet (mm).

AS = Allowable height in stories from Section 504 of the *International Building Code*.

EBS = Existing building height in stories.

CF = 1 if $(AH) - (EBH)$ is positive.

CF = Construction-type factor shown in Table 1301.6.6(2) if $(AH) - (EBH)$ is negative.

Note: Where mixed occupancies are separated and individually evaluated as indicated in Section 1301.6, the values *AH*, *AS*, *EBH* and *EBS* shall be based on the height of the occupancy being evaluated.

covered and open mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 1301.6.19 for the building or floor area being evaluated and enter that value into Table 1301.7 under Safety Parameter 1301.6.19, 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 1301.6.19
INCIDENTAL USE AREA VALUES**

PROTECTION REQUIRED BY TABLE 509 OF THE INTERNATIONAL BUILDING CODE	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 IBC Section 509.4.2 of the *International Building Code*).

((Note: For Table 1301.7, see page 71.))

1301.6.20 Smoke compartmentation. Evaluate the smoke compartments for compliance with Section 407.5 of the *International Building Code*. Under the categories and occupancies in Table 1301.6.20, determine the appropriate smoke compartmentation value (SCV) and enter that value into Table 1301.7 under Safety Parameter 1301.6.20, Smoke Compartmentation, for fire safety, means of egress and general safety. Facilities in Group I-2 occupancies meeting Category b or c shall be considered to fail the evaluation.

**TABLE 1301.6.20
SMOKE COMPARTMENTATION VALUES**

OCCUPANCY	CATEGORIES ^a		
	a	b	c
A, B, E, F, M, R and S	0	0	0
I-2	0	NP	NP

For SI: 1 square foot = 0.093 m².

NP = Not Permitted.

a. For areas between categories, the smoke compartmentation value shall be obtained by linear interpolation.

1301.6.20.1 Categories. Categories for smoke compartment size are:

1. Category a—Smoke compartment size is equal to or less than 22,500 square feet (2092 m²).
2. Category b—Smoke compartment size is greater than 22,500 square feet (2092 m²).
3. Category c—Smoke compartments are not provided.

1301.6.21 Patient ability, concentration, smoke compartment location and ratio to attendant. In I-2 occupancies, the ability of patients, their concentration and ratio to attendants shall be evaluated and applied in accordance with this section. Evaluate each smoke compartment using the categories in Sections 1301.6.21.1, 1301.6.21.2 and 1301.6.21.3 and enter the value in Table 1301.7. To determine the safety factor, multiply the three values together; if the sum is 9 or greater, compliance has failed.

CHAPTER 14

RELOCATED OR MOVED BUILDINGS

Note: Chapter 14 is not adopted in The City of Seattle. See Section 309 for provisions applying to moved structures.

CHAPTER 15

CONSTRUCTION SAFEGUARDS

User note:

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

SECTION 1501 GENERAL

[BG] 1501.1 Scope. The provisions of this chapter shall govern safety during construction and the protection of adjacent public and private properties.

[BG] 1501.2 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.

[BG] 1501.3 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. Where such required elements or devices are being altered or repaired, adequate substitute provisions shall be made.
2. Maintenance of such elements and devices is not required where the *existing building* is not occupied.

[BG] 1501.4 Manner of removal. Waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties and public rights-of-way.

[BG] 1501.5 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*.

[S][BS] 1501.6 Protection of pedestrians. ~~((Pedestrians shall be protected during construction and demolition activities as required by Sections 1501.6.1 through 1501.6.7 and Table 1501.6. Signs shall be provided to direct pedestrian traffic.))~~ The protection of the public and of the sidewalks, streets and other public property during construction or demolition shall be provided as required by the Street Use Ordinance, Seattle Municipal Code Title 15.

**[S] (([BS] TABLE 1501.6
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 one-fourth the height of construction	Barrier and covered walkway
	5 feet or more, but between one-fourth and one-half the height of construction	Barrier
	5 feet or more, but exceeding one-half the height of construction	None

For SI: 1 foot = 304.8 mm.)

[S] (([BS] 1501.6.1 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. A walkway shall be provided for pedestrian travel that leads from a building entrance or exit of an occupied structure to a public way. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but shall be not less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface and shall be accessible in accordance with Chapter 11 of the *International Building Code*. Walkways shall be designed to support all imposed loads and the design live load shall be not less than 150 pounds per square foot (psf) (7.2 kN/m²).))

CONSTRUCTION SAFEGUARDS

[S] (~~[(BS) 1501.6.2 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.))

[S] (~~[(BS) 1501.6.3 Construction railings.~~ Construction railings shall be not less than 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.))

[S] (~~[(BS) 1501.6.4 Barriers.~~ Barriers shall be not less than 8 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 that are normally kept closed.

~~[(BS) 1501.6.4.1 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 2-inch by 4-inch (51 mm by 102 mm) top and bottom plates.~~
- ~~2. The barrier material shall be boards not less than 3/4 inch (19.1 mm) in thickness or wood structural use panels not less than 1/4 inch (6.4 mm) in thickness.~~
- ~~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 15/16 inch (23.8 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 that a 2-inch by 4-inch (51 mm by 102 mm) stiffener is placed horizontally at mid-height where the stud spacing is greater than 2 feet (610 mm) on center.~~
- ~~6. Wood structural use panels 5/8 inch (15.9 mm) or thicker shall not span over 8 feet (2438 mm).))~~

[S] (~~[(BS) 1501.6.5 Covered walkways.~~ Covered walkways shall have a clear height of not less than 8 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. The design live load shall be not less than 150 psf (7.2 kN/m²) 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/m²) 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 2-inch by 6-inch (51 mm by 152 mm) members.~~
- ~~2. Posts not less than 4 inches by 6 inches (102 mm by 152 mm) 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 4 inches by 12 inches (102 mm by 305 mm) shall be placed on edge on the posts.~~
- ~~4. Joists resting on the stringers shall be not less than 2 inches by 8 inches (51 mm by 203 mm) and shall be spaced not more than 2 feet (610 mm) on center.~~
- ~~5. The deck shall be planks not less than 2 inches (51 mm) thick or wood structural panels with an exterior exposure durability classification not less than 23/32 inch (18.3 mm) thick nailed to the joists.~~
- ~~6. Each post shall be knee-braced to joists and stringers by members not less than 2 inches by 4 inches (51 mm by 102 mm); 4 feet (1219 mm) in length.~~
- ~~7. A curb that is not less than 2 inches by 4 inches (51 mm by 102 mm) shall be set on edge along the outside edge of the deck.))~~

[S] (~~[(BS) 1501.6.6 Repair, maintenance and removal.~~ Pedestrian protection required by Section 1501.6 shall be maintained in place and kept in good order for the entire length of time pedestrians are subject to being endangered. The owner or the owner's authorized agent, on 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.))

[S] (~~[(BS) 1501.6.7 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) in height. Where located more than 5 feet (1524 mm) from the street lot line, a barrier shall be erected where 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*.))

[S] **1501.7 Facilities required.** Sanitary facilities shall be provided during construction or demolition activities in accordance with the (~~*International*~~) *Uniform Plumbing Code*.

SECTION 1502 PROTECTION OF ADJOINING PROPERTY

[S][BS] **1502.1 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. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.))~~ When the existing grade of a site is altered by filling, excavating, dredging or moving of earth materials, the owner shall protect all adjoining property during construction from encroachment or collapse by sloping the sides of the temporary grading at a slope that is safe and not more than one horizontal to one vertical. In addition, adjoining property shall be protected from encroachment or collapse by sloping the sides of the permanent grading at a slope not greater than two horizontal to one vertical. The *code official* is authorized to approve temporary or permanent slopes that are steeper based on a design by an experienced geotechnical engineer.

In areas of known unsuitable soils, the *code official* is authorized to require slopes that are less steep to assure protection of adjoining property.

SECTION 1503 TEMPORARY USE OF STREETS, ALLEYS AND PUBLIC PROPERTY

[S] ~~((**1503.1 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.))~~

[S] **1503.1 General.** Temporary use of streets, alleys and public property shall comply with the Street Use Ordinance, Seattle Municipal Code Title 15.

[S] ~~((**1503.2 Obstructions.** Construction materials and equipment shall not be placed or stored so as to obstruct 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 (6096 mm) 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.))~~

[S] ~~((**1503.3 Utility fixtures.** Building materials, fences, sheds or any obstruction of any kind shall not be placed so as to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box, or catch basin, or so as 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 1504 FIRE EXTINGUISHERS

[F] **1504.1 Where required.** Structures under construction, *alteration* or demolition shall be provided with not fewer than one *approved* portable fire extinguisher in accordance with Section 906 of the *International Fire 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, such as the storage and use of flammable and combustible liquids.

[F] **1504.2 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 1505 MEANS OF EGRESS

[BE] **1505.1 Stairways required.** Where building construction exceeds 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided. As construction progresses, such stairway shall be extended to within one floor of the highest point of construction having secured decking or flooring.

[F] **1505.2 Maintenance of means of egress.** Means of egress and required accessible means of egress shall be maintained at all times during construction, demolition, remodeling or *alterations* and *additions* to any building.

Exception: Existing means of egress need not be maintained where *approved* temporary means of egress and accessible means of egress systems and facilities are provided.

CONSTRUCTION SAFEGUARDS

SECTION 1506 STANDPIPES

[F] 1506.1 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 standpipes shall be provided with fire department hose connections at locations adjacent to *stairways*, complying with Section 1505.1. As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring.

[F] 1506.2 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 so as 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.

[F] 1506.3 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 1507 AUTOMATIC SPRINKLER SYSTEM

[S][F] 1507.1 Completion before occupancy. In buildings where an automatic sprinkler system is required by this code or the *International Building Code*, it shall be unlawful to occupy any portions of a building or structure until the automatic sprinkler system installation has been tested and *approved*, (~~except as provided in Section 140.3~~) unless approved by the code official.

[F] 1507.2 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 1508 ACCESSIBILITY

[BE] 1508.1 Construction sites. Structures, sites, and equipment directly associated with the actual process of construction, including but not limited to scaffolding, bridging, material hoists, material storage, or construction trailers are not required to be accessible.

SECTION 1509 WATER SUPPLY FOR FIRE PROTECTION

[F] 1509.1 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.

[S] SECTION 1510 DEMOLITION

1510.1 Construction documents. Construction documents and a schedule for demolition shall be submitted where required by the *code official*. Where such information is required, no work shall be done until such construction documents or schedule, or both, are approved.

1510.2 Pedestrian protection. The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by this chapter and the Street Use Ordinance, Seattle Municipal Code Title 15.

1510.3 Means of egress. A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.

1510.4 Surface condition and fill. The site shall be left level and free of debris upon completion of demolition, and all holes shall be filled or protected with secure fences. Holes are permitted to be filled with concrete, rocks or other nondecaying material no larger than 12 inches (305 mm) in diameter. Wood and other organic material shall not be buried on the site. Leaving the site level means:

1. The grade conforms to that existing on all sides;

2. Surface water will drain off;
3. Surface is smooth; and
4. Broken sections of the foundation or other material are not exposed.

The site shall be seeded upon completion of the demolition if it is to be left vacant for more than 6 months.

1510.5 Water accumulation. Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

1510.6 Utility connections. Service utility connections shall be discontinued and capped in accordance with requirements of the governing utility or agency including, but not limited to, Seattle Public Utilities, Seattle Department of Transportation, Seattle Fire Department, Seattle City Light, Puget Sound Energy and Qwest Communications.

1510.7 Fire safety during demolition. Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 56 of the *International Fire Code*.

1510.8 Removal of hazardous and combustible materials. All asbestos and other hazardous material shall be removed prior to demolition, in accordance with regulations of the Environmental Protection Agency, the Puget Sound Clean Air Agency and other pertinent agencies. Combustible waste shall be removed in accordance with the Fire Code. During demolition, streets and sidewalks shall be left clean at the end of each day's operation.

1510.9 Welding and cutting. Welding and cutting shall be performed in accordance with the *International Fire Code*.

1510.10 Erosion and sediment control. Provision shall be made to stabilize ground conditions to eliminate dust and erosion. Demolition sites shall comply with the Seattle Stormwater Code, Seattle Municipal Code (SMC) Title 22, Subtitle VIII, and the Seattle Grading Code, SMC Chapter 22.170.

1510.11 Drainage. If the demolition will result in a change of drainage patterns, the flow of all watercourses, including streams, ditches, drains, combined sewers and runoff, intercepted during the progress of the work, shall be returned to the condition present before the demolition or as specified on the permit, and in accordance with the Seattle Stormwater Code and Seattle Grading Code, SMC Title 22, Subtitle VIII, and SMC Chapter 22.170, respectively.

1510.12 Foundations and footings. All concrete or masonry floors, foundations, footings, basement walls and retaining walls not to be reused shall be removed to 18 inches (457 mm) below final grade. All concrete floors left in place shall be broken so as to allow water to drain through unless the floors are to be used.

1510.13 Engineer's report. The *code official* is permitted to require a structural engineer's analysis of proposed demolition or any portions of a structure remaining after demolition.

1510.14 Underground tanks. When demolition occurs, all underground tanks on the site shall either be removed or filled, as required by the *International Fire Code*.

[S] SECTION 1511 SITE WORK

1511.1 Excavation and fill. Excavation and fill for buildings and structures shall be constructed or protected so as not to endanger life or property. Stumps and roots shall be removed from the soil to a depth of not less than 12 inches (305 mm) below the surface of the ground in the area to be occupied by the building. Wood forms which have been used in placing concrete, if within the ground or between foundation sills and the ground, shall be removed before a building is occupied or used for any purpose. Before completion, loose or casual wood shall be removed from direct contact with the ground under the building.

1511.1.1 Slope limits. Slopes for permanent fill shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Cut slopes for permanent excavations shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Deviation from the foregoing limitations shall be permitted only upon the presentation of a soil investigation report acceptable to the *code official*.

1511.1.2 Surcharge. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or surcharge. Existing footings or foundations which can be affected by any excavation shall be underpinned adequately or otherwise protected against settlement and shall be protected against later movement.

1511.1.3 Fill supporting foundations. Fill to be used to support the foundations of any building or structure shall comply with *International Building Code* Section 1804.5. Special inspections of compacted fill shall be in accordance with *International Building Code* Section 1705.6.

CONSTRUCTION SAFEGUARDS

[S] SECTION 1512
CONSTRUCTION MATERIAL MANAGEMENT

1512.1 Storage and handling of materials. Materials stored and handled on site during construction shall comply with the manufacturer's printed instructions. Where manufacturer's printed instructions are not available, approved standards or guidelines shall be followed.

1512.2 Construction phase moisture control. Porous or fibrous materials and other materials subject to moisture damage shall be protected from moisture during construction. Material damaged by moisture or that is visibly colonized by fungi either prior to delivery or during construction shall be cleaned and dried or, where damage cannot be corrected by such means, shall be removed and replaced.

CHAPTER 16

REFERENCED STANDARDS

User note:

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

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

ASCE/SEI

American Society of Civil Engineers
Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

7—16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures

303.2, ~~303.1.7~~, 303.3.1, 503.4, 503.12, 800.3 (~~(806.4)~~)

~~(31-03: Seismic Evaluation of Existing Buildings~~

~~303.1.4, 303.1.5, 305.4, 305.4.2, Table 305.4.2, 907.2)~~

41—17: Seismic Evaluation and Retrofit of Existing Buildings

303.3.1, Table 303.3.1, 303.3.2, Table 303.3.2

ASHRAE

ASHRAE
1791 Tullie Circle, NE
Atlanta, GA 30329

62.1—2016: Ventilation for Acceptable Indoor Air Quality

808.2

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016

ASME A17.1—2016/CSA B44—16: Safety Code for Elevators and Escalators

305.8.2, 902.1.2

A17.3—2015: Safety Code for Existing Elevators and Escalators

902.1.2

A18.1—2014: Safety Standard for Platform Lifts and Stairway Chair Lifts

305.8.3

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

C94/C94M—15A: Specification for Ready-mixed Concrete

109.3.1

E84—2016: Standard Test Method for Surface Burning Characteristics of Building Materials

1204.9

E108—16: Standard Test Methods for Fire Tests of Roof Coverings

1204.5

REFERENCED STANDARDS

ASTM—continued

E136—16: Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
202

F2006—17: Standard Safety Specification for Window Fall Prevention Devices for Non Emergency Escape (Egress) and Rescue
(Ingress) Windows
505.2, 702.4

F2090—17: Standard Specification for Window Fall Prevention Devices with Emergency (Egress) Release Mechanisms
505.2, 505.3, 702.4, 702.5

ICC

International Code Council, Inc.
500 New Jersey Avenue, NW
6th Floor
Washington, DC 20001

IBC—18: International Building Code®

101.4.1, 104.2.1, 106.2.2, 109.3.3, 109.3.6, 109.3.9, 110.2, 202, 301.3, 302.5.1, 302.6, ~~((303.1))~~
~~303.1.3, 303.1.3.1, 303.1.4, 303.1.7, 303.3.1, 303.3.1.1, 303.3.2, 304, 305.4, 305.4.2, 305.6, 305.8.1,~~
~~305.8.4, 305.8.5, 305.8.6, 305.8.7, 305.8.8, 305.8.10, 305.8.11, 305.8.15, 305.9, 305.9.3, 305.9.4,~~
~~308.1, 308.3, 310.1, 401.2, 402.3, 405.2.1.1, 405.2.3.1, 405.2.3.3, 405.2.4, 405.2.5, 501.2, 502.1,~~
~~502.3, ~~((502.4))~~ 502.5, 503.1, 503.2, 503.3, 503.4, 503.5, 503.11, 503.12, 503.13, 503.16.1, 503.16.2,~~
~~503.16.3, 505.2, 505.3, 505.4, 506.1, 506.3, 506.4.1, 506.4.2, 506.4.3, 506.4.4, 507.3, 701.2, ~~((701.3))~~~~
~~701.4, 702.1, 702.2, 702.3, 702.4, 702.5, 702.6, ~~((705.1))~~ 706.2, 801.3, 802.2.1, 802.2.3, 802.3, 802.4,~~
~~802.5.2, 802.6, 803.1.1, 803.2, 803.2.2, 803.2.3, 803.3, 805.3.1, 805.3.1.1, Table 805.3.1.1(1),~~
~~805.3.1.2.1, 805.4.3, 805.4.5, 805.5, 805.6, 805.7.1, 805.8.1, 805.9.2, 805.10.1.1, 805.10.1.2,~~
~~805.10.1.3, 805.10.2, 805.11.2, ~~((806.2, 806.3))~~ ~~((806.4))~~ 904.1.2, 904.1.3, 904.1.4, 904.2, 904.2.1,~~
~~904.2.2, 905.2, 905.3, 906.2, 906.3, 1001.2, 1001.3, 1002.1, 1002.2, 1004.1, 1006.1, 1006.2, 1006.3,~~
~~1006.4, 1010.1, 1011.1, 1011.1.1.1, 1011.1.1.2, 1011.2.1, 1011.2.2, 1011.3, 1011.4.1, 1011.4.2,~~
~~1011.4.3, 1011.5.1, 1011.5.1.1, 1011.5.3, 1011.6.1, 1011.6.3, 1011.7.1, 1011.7.2, 1011.7.3, 1102.1,~~
~~1102.2, 1102.3, ~~((1103.1))~~ 1103.2, 1103.3, 1201.4, 1202.2, 1203.12, 1204.2, 1204.9, 1206.1,~~
~~1301.2.2, 1301.2.3, 1301.2.4, 1301.3.3, 1301.4.1, 1301.6.1, 1301.6.1.1, 1301.6.2, 1301.6.2.1,~~
~~1301.6.3.1, 1301.6.3.2, 1301.6.4.1, 1301.6.5, 1301.6.5.1, 1301.6.6, 1301.6.7.1, 1301.6.8, 1301.6.9,~~
~~1301.6.9.1, 1301.6.10, 1301.6.10.1, 1301.6.11, 1301.6.11.1, 1301.6.12.1, 1301.6.13, 1301.6.15.1,~~
~~1301.6.16.1, 1301.6.17, 1301.6.17.1, 1301.6.18, 1301.6.18.1, 1301.6.19, Table 1301.6.19, 1301.6.20,~~
~~1401.2, 1402.1, 1402.2, 1402.2.1, 1402.3, 1402.4, 1402.5, 1402.6, 1501.5, 1501.6.1, 1501.6.4.1,~~
~~1501.6.7, 1506.3~~

ICC A117.1—09: Accessible and Usable Buildings and Facilities
301.5, 305.8.2, 305.8.3, 305.8.10

ICC 300—17: ICC Standard on Bleachers, Folding and Telescopic Seating and Grandstands
501.1

ICC 500—14: Standard for the Design and Construction of Storm Shelters
1106.1

IECC—18: International Energy Conservation Code®
302.3, 702.6, 707.1, 810.1, 907.1, 1107.1

IFC—18: International Fire Code®
101.4.2, 301.3.1, 302.3, ~~((502.6, 502.7))~~ 502.3, 502.4, 503.14, 503.15, 802.2.1, 802.2.3, 803.4.1.1,
803.4.1.2, 803.4.1.3, 803.4.1.4, 803.4.1.5, 803.4.1.6, 803.4.1.7, 803.4.3, 804.1, 1011.5.1.1, 1104.1,
1105.1, 1301.3.2, 1301.6.8.1, 1301.6.14, 1304.6.14.1, 1401.2, 1501.5, 1504.1, 1504.2

IFGC—18: International Fuel Gas Code®
302.3, 702.6.1

IMC—18: International Mechanical Code®
302.3, 702.6, 808.1, 902.1.1, 1008.1, 1301.6.7.1, 1301.6.8, 1301.6.8.1

IPC—18: International Plumbing Code®
302.3, 408.1, 702.6, 809.1, 1009.1, 1009.2, 1009.3, 1009.5, 1501.7

IPMC—18: International Property Maintenance Code®
101.4.2, 302.3, 1301.3.2, 1401.2

ICC—continued

IRC—18: International Residential Code®

101.2, 101.4.1, 302.3, 310.1, 310.1.1, 401.3, 402.3, 405.2.5, ((~~502.3, 502.4, 502.5, 502.7~~)) 502.4,
503.2, 503.3, 503.11, 505.2, 505.3, 507.3, 701.3, 702.4, 702.5, 706.2, 707.1, ((~~806.2~~)) 807.3, 810.1,
906.2, 907.1, ((~~1103.1, 1103.2, 1103.3, 1103.4~~)) 1104.1, 1105.1, 1107.1, 1201.4, 1301.2.2, 1301.2.3,
1301.3.3, 1401.2, 1402.1, 1402.2, 1402.2.1, 1402.3, 1402.4, 1402.5, 1402.6

NFPA

National Fire Protection Agency
1 Batterymarch Park
Quincy, MA 02169-7471

NFPA 13R—16: Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height

803.2.4

NFPA 70—17: National Electrical Code

107.3, 302.3, 406.1.1, 406.1.2, 406.1.3, 406.1.4, 406.1.5, 807.1, 807.3.4, 807.3.7, 1007.1, 1007.2,
1007.3, 1007.4

NFPA 72—16: National Fire Alarm and Signaling Code

803.2.4, 803.4

NFPA 99—18: Health Care Facilities Code

406.1.4

NFPA 101—18: Life Safety Code

805.2

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

723—08: Standard for Test for Surface Burning Characteristics of Building Materials—with Revisions through August 2013

1204.9

790—04: Standard Test Methods for Fire Tests of Roof Coverings—with Revisions through July 2014

1204.5

APPENDIX A

[BS] CROSSWALL. A new or existing wall that meets the requirements of Section A111.3. A crosswall is not a shear wall.

[BS] CROSSWALL SHEAR CAPACITY. The unit shear value times the length of the crosswall, $v_c L_c$.

[BS] DETAILED BUILDING SYSTEM ELEMENTS. The localized elements and the interconnections of these elements that define the design of the building.

[BS] DIAPHRAGM EDGE. The intersection of the horizontal diaphragm and a shear wall.

[BS] DIAPHRAGM SHEAR CAPACITY. The unit shear value times the depth of the diaphragm, $v_u D$.

[BS] FLEXIBLE DIAPHRAGM. A diaphragm of wood or untopped metal deck construction in which the horizontal deformation along its length is at least two times the average story drift.

HEAD JOINT. The vertical mortar joint placed between masonry units within the wythe.

[BS] NORMAL WALL. A wall perpendicular to the direction of seismic forces.

[BS] OPEN FRONT. An exterior building wall line on one side only without vertical elements of the seismic force-resisting system in one or more stories.

[BS] POINTING. The process of removal of deteriorated mortar from between masonry units and placement of new mortar. Also known as repointing or tuckpointing for purposes of this chapter.

[BS] REPOINTING. See "Pointing."

[BS] RIGID DIAPHRAGM. A diaphragm of concrete construction or concrete-filled metal deck construction.

[BS] TUCKPOINTING. See "Pointing."

[BS] UNREINFORCED MASONRY (URM). Includes burned clay, concrete or sand-lime brick; hollow clay or concrete block; plain concrete; and hollow clay tile. These materials shall comply with the requirements of Section A106 as applicable.

[BS] UNREINFORCED MASONRY BEARING WALL. A URM wall that provides the vertical support for the reaction of floor or roof-framing members for which the total superimposed vertical load exceeds 100 pounds per linear foot (1459 N/m) of wall length.

[BS] UNREINFORCED MASONRY WALL. A masonry wall that relies on the tensile strength of masonry units, mortar and grout in resisting design loads, and in which the area of reinforcement is less than the minimum amounts as defined for reinforced masonry walls.

[BS] YIELD STORY DRIFT. The lateral displacement of one level relative to the level above or below at which yield stress is first developed in a frame member.

SECTION A104 SYMBOLS AND NOTATIONS

[BS] A104.1 Symbols and notations. For the purpose of this chapter, the following notations supplement the applicable symbols and notations in the building code.

a_n = Diameter of core multiplied by its length or the area of the side of a square prism.

A = Cross-sectional area of unreinforced masonry pier or wall, square inches (10^{-6} m²).

A_b = Total area of the bed joints above and below the test specimen for each in-place shear test, square inches (10^{-6} m²).

A_n = Area of net mortared or grouted section of a wall or wall pier.

D = In-plane width dimension of pier, inches (10^{-3} m), or depth of diaphragm, feet (m).

DCR = Demand-capacity ratio specified in Section A111.4.2.

f'_m = Lower bound masonry compressive strength.

f_{sp} = Tensile-splitting strength of masonry.

F_{wx} = Force applied to a wall at level x , pounds (N).

H = Least clear height of opening on either side of a pier, inches (10^{-3} m).

h/t = Height-to-thickness ratio of URM wall. Height, h , is measured between wall anchorage levels and/or slab-on-grade.

L = Span of diaphragm between shear walls, or span between shear wall and open front, feet (m).

L_c = Length of crosswall, feet (m).

L_i = Effective diaphragm span for an open-front building specified in Section A111.8, feet (m).

P = Applied force as determined by standard test method of ASTM C496 or ASTM E519, pounds (N).

P_D = Superimposed dead load at the location under consideration, pounds (N). For determination of the rocking shear capacity, dead load at the top of the pier under consideration shall be used.

P_{D+L} = Stress resulting from the dead plus actual live load in place at the time of testing, pounds per square inch (kPa).

P_{test}	= Splitting tensile test load determined by standard test method ASTM C496, pounds (N).
P_w	= Weight of wall, pounds (N).
R	= Response modification factor for Ordinary plain masonry shear walls in Bearing Wall System from Table 12.2-1 of ASCE 7, where $R = 1.5$.
S_{DS}	= Design spectral acceleration at short period, in g units.
S_{D1}	= Design spectral acceleration at 1-second period, in g units.
v_a	= The shear strength of any URM pier, $v_m A/1.5$ pounds (N).
v_c	= Unit shear strength for a crosswall sheathed with any of the materials given in Table A108.1(1) or A108.1(2), pounds per foot (N/m).
v_{mL}	= Shear strength of unreinforced masonry, pounds per square inch (kPa).
V_{aa}	= The shear strength of any URM pier or wall, pounds (N).
V_{ca}	= Total shear capacity of crosswalls in the direction of analysis immediately above the diaphragm level being investigated, $v_c L_c$, pounds (N).
V_{cb}	= Total shear capacity of crosswalls in the direction of analysis immediately below the diaphragm level being investigated, $v_c L_c$, pounds (N).
V_p	= Shear force assigned to a pier on the basis of its relative shear rigidity, pounds (N).
V_r	= Pier rocking shear capacity of any URM wall or wall pier, pounds (N).
v_{test}	= Load at incipient cracking for each in-place shear test performed in accordance with Section ((A106.3.3.1) <u>A106.2.3.1</u>), pounds (N).
v_{tl}	= Lower bound mortar shear strength, pounds per square inch (kPa).
v_{to}	= Mortar shear test values as specified in Section ((A106.3.3.5) <u>A106.2.3.5</u>), pounds per square inch (kPa).
v_u	= Unit shear capacity value for a diaphragm sheathed with any of the materials given in Table A108.1(1) or A108.1(2), pounds per foot (N/m).
V_{wx}	= Total shear force resisted by a shear wall at the level under consideration, pounds (N).
W	= Total seismic dead load as defined in the building code, pounds (N).
W_d	= Total dead load tributary to a diaphragm level, pounds (N).
W_w	= Total dead load of a URM wall above the level under consideration or above an open-front building, pounds (N).
W_{wx}	= Dead load of a URM wall assigned to level x halfway above and below the level under consideration, pounds (N).
$\Sigma v_u D$	= Sum of diaphragm shear capacities of both ends of the diaphragm, pounds (N).
$\Sigma \Sigma v_u D$	= For diaphragms coupled with crosswalls, $v_u D$ includes the sum of shear capacities of both ends of diaphragms coupled at and above the level under consideration, pounds (N).
ΣW_d	= Total dead load of all the diaphragms at and above the level under consideration, pounds (N).

SECTION A105 GENERAL REQUIREMENTS

[BS] A105.1 General. The seismic force-resisting system specified in this chapter shall comply with the *International Building Code* and referenced standards, except as modified herein.

[BS] A105.2 Alterations and repairs. *Alterations* and *repairs* required to meet the provisions of this chapter shall comply with applicable structural requirements of the building code unless specifically provided for in this chapter.

[BS] A105.3 Requirements for plans. The following construction information shall be included in the plans required by this chapter:

1. Dimensioned floor and roof plans showing existing walls and the size and spacing of floor and roof-framing members and sheathing materials. The plans shall indicate all existing URM walls, and new crosswalls and shear walls, and their materials of construction. The location of these walls and their openings shall be fully dimensioned and drawn to scale on the plans.
2. Dimensioned URM wall elevations showing openings, piers, wall classes as defined in Section A106.2.3.8, thickness, heights, wall shear test locations, cracks or damaged portions requiring *repairs*, the general condition of the mortar joints, and if and where pointing is required. Where the exterior face is veneer, the type of veneer, its thickness and its bonding and/or ties to the structural wall masonry shall be noted.
3. The type of interior wall and ceiling materials, and framing.
4. The extent and type of existing wall anchorage to floors and roof where used in the design.

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5. The extent and type of parapet corrections that were previously performed, if any.
6. *Repair* details, if any, of cracked or damaged unreinforced masonry walls required to resist forces specified in this chapter.
7. All other plans, sections and details necessary to delineate required retrofit construction.
8. The design procedure used shall be stated on both the plans and the permit application.
9. Details of the anchor prequalification program required by Section A107.5.3, if used, including location and results of all tests.
10. Quality assurance requirements of special inspection for all new construction materials and for retrofit construction including: anchor tests, pointing or repointing of mortar joints, installation of adhesive or mechanical anchors, and other elements as deemed necessary to ensure compliance with this chapter.

[BS] A105.4 Structural observation, testing and inspection. Structural observation, in accordance with Section 1704.5 of the *International Building Code*, shall be required for all structures in which seismic retrofit is being performed in accordance with this chapter. Structural observation shall include visual observation of work for compliance with the *approved* construction documents and confirmation of existing conditions assumed during design.

Structural testing and inspection for new and existing construction materials shall be in accordance with the building code, except as modified by this chapter.

Special inspection as described in Section A105.3, Item 10, shall be provided equivalent to Level 3 as prescribed in TMS 402, Table 3.1(2).

SECTION A106 MATERIALS REQUIREMENTS

[BS] A106.1 Condition of existing materials. Existing materials used as part of the required vertical load-carrying or seismic force-resisting system shall be evaluated by on-site investigation and: determined to be in good condition (free of degraded mortar, degraded masonry units or significant cracking); or shall be repaired, enhanced, retrofitted or removed and replaced with new materials. Mortar joint deterioration shall be patched by pointing or repointing of the eroded joint in accordance with Section A106.2.3.9. Existing significant cracks in solid unit unreinforced and solid grouted hollow unit masonry shall be repaired.

[BS] A106.2 Existing unreinforced masonry.

[BS] A106.2.1 General. Unreinforced masonry walls used to support vertical loads or seismic forces parallel and perpendicular to the wall plane shall be tested as specified in this section. Masonry that does not meet the minimum requirements established by this chapter shall be repaired, enhanced, removed and replaced with new materials, or alternatively, shall have its structural functions replaced with new materials and shall be anchored to supporting elements.

[BS] A106.2.2 Lay-up of walls. Unreinforced masonry walls shall be laid in a running bond pattern.

[BS] A106.2.2.1 Header in multiple-wythe solid brick. The facing and backing wythes of multiple-wythe walls shall be bonded so that not less than 10 percent of the exposed face area is composed of solid headers extending not less than 4 inches (102 mm) into the backing wythes. The clear distance between adjacent header courses shall not exceed 24 inches (610 mm) vertically or horizontally. Where backing consists of two or more wythes, the headers shall extend not less than 4 inches (102 mm) into the most distant wythe, or the backing wythes shall be bonded together with separate headers for which the area and spacing conform to the foregoing. Wythes of walls not meeting these requirements shall be considered to be veneer, and shall not be included in the effective thickness used in calculating the height-to-thickness ratio and the shear capacity strength of the wall.

Exception: Where $SD1$ is 0.3 g or less, veneer wythes anchored and made composite with backup masonry are permitted to be used for calculation of the effective thickness.

[BS] A106.2.2.2 Concrete masonry units and structural clay load-bearing tile. Grouted or ungrouted hollow concrete masonry units shall be tested in accordance with ASTM C140. Grouted or ungrouted structural clay load-bearing tile shall be tested in accordance with ASTM C34.

[S][BS] A106.2.2.3 Lay-up patterns. Lay-up patterns other than those specified in Section A106.2.2.1 are allowed if their performance can be justified to the *code official*.

[BS] A106.2.3 Testing of masonry.

[BS] A106.2.3.1 In-place mortar tests. Mortar shear test values, v_{to} , shall be obtained by one of the following:

1. ASTM C1531.
2. For masonry walls that have high shear strength mortar, or where in-place testing is not practical because of crushing or other failure mode of the masonry, alternative procedures for testing shall be used in accordance with Section A106.2.3.2.

CHAPTER A2

**EARTHQUAKE HAZARD REDUCTION IN
EXISTING REINFORCED CONCRETE AND REINFORCED
MASONRY WALL BUILDINGS WITH FLEXIBLE DIAPHRAGMS**

Appendix A2 is not adopted by The City of Seattle.

CHAPTER A5 REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers
Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

7—16: Minimum Design Loads for Buildings and Other Structures with Supplement No. 1
A104, A403.3

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

A36/A36M—14: Specification for Carbon Structural Steel
A405.3.3

A653/A653M—15: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process
A304.2.6

B695—04(2009): Standard Specification for Coating of Zinc Mechanically Deposited on Iron And Steel
A304.2.6

C34—13: Specification for Structural Clay Load-Bearing Wall Tile
A106.2.2.2

C140/C140M—15: Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
A106.2.2.2

C496—96/C496M—11: Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
A104, A106.2.3.2

C1531—15: Standard Test Methods for In Situ Measurement of Masonry Mortar Joint Shear Strength Index
A106.2.3.1

E488/E488M—15: Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
A107.5.3

E 488-10: Test Method for Strength of Anchors in Concrete and Masonry Elements
A107.5

E519/E519M—2010: Standard Test Method for Diagonal Tension (Shear) in Masonry Assemblages
A104, ((A106.3.3.2)) A106.2.3.2

ICC

International Code Council
500 New Jersey Avenue, NW
6th Floor
Washington, DC 20001

BNBC—99: BOCA National Building Code®
A202

IBC—00: International Building Code®
A202.1

IBC—03: International Building Code®
A202.1

IBC—06: International Building Code®
A202.1

IBC—09: International Building Code®
A202.1

APPENDIX B

**SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS
FOR EXISTING BUILDINGS AND FACILITIES**

Appendix B is not adopted by The City of Seattle.

APPENDIX C: Guidelines for the Wind Retrofit of Existing Buildings

CHAPTER C1

GABLE END RETROFIT FOR HIGH-WIND AREAS

Appendix C1 is not adopted by The City of Seattle.

CHAPTER C2
ROOF DECK FASTENING FOR HIGH-WIND AREAS

Appendix C2 is not adopted by The City of Seattle.