

**EVALUATION OF  
A CHANGE IN OCCUPANCY  
FROM F-1 to R-2  
2005 CONNECTICUT STATE BUILDING CODE**

Prepared for  
**Office of Education and Data Management**  
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March 2011

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**Agenda**

- Part A: General Code Application
- Part B: Connecticut Building Code
- Part C: CT Building Code Chapter 34 (3410)
- Part D: International Existing Building Code
- Questions, Summary and Conclusions

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**PART A  
General Code Applications**

**EVALUATION OF  
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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **CONNECTICUT STATE BUILDING CODE**
  - Various Sections of the IBC portion of the Building Code and Especially Chapter 34
    - Chapter 34 Sections 3401 through 3409
    - Option to use Section 3410
  - Option to use the International Existing Building Code portion of the Building Code
  - In any case, portions or features of the building not altered must comply with Parts IV and V of the CT Fire Safety Code

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- The Connecticut State Building Code/2005, became effective December 31, 2005. This Code is based on the International Code Council (ICC) International Building Code 2003, a model building code published by the International Code Council. **The 2009 CT Amendments became effective August 1, 2009.**

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PART A  
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**EXISTING BUILDINGS**

- This code's applicability to existing structures, including additions, alterations and changes of use/occupancy is outlined in Section 101.2 Scope Exception 2, Section 101.4.5 (CT) Property Maintenance, Section 102.6 (CT) Existing Structures, Section 105.2.2 Repairs, Section 110.1 Use and Occupancy, Section 115.0 Unsafe Structures and Equipment, **Section 117.0 Vacant Buildings**, Section 501.1 Scope (Building Height and Area), Section 704.3 Buildings on the same lot, Section 903.3.5.2 Secondary water supply, Section 907.9.1 Visible alarms, Section 1007.1 Accessible means of egress required, Section 1009.3 Stair treads and risers, Section 1001.3 Maintenance (of Means of Egress), Section 1007.1 Accessible means of egress required, Section 1009.3 (CT) Stair treads and risers, Section 1025.4 Operational constraints, Chapter 11 Accessibility Section 1103.2.2 Existing buildings, Section 1510.3 (Roof) Recovering versus replacement, Section 1612 Flood Loads, Section 1614 Earthquake loads, Section 1808.2.18 Use of existing piers or piles, Section 3302 Construction safeguards, Section 3310.2, Maintenance of Exits (during construction) and Chapter 34, Existing Structures:

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **101.2 Scope.** The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.
- **Exceptions:**
  1. Detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the 2003 International Residential Code.
  2. Existing buildings undergoing repair, movement, alterations or additions and change of occupancy shall be permitted to comply with the International Existing Building Code. The choice to comply with this code or the 2003 International Existing Building Code shall be made by the permit applicant at the time of application for the building permit and shall be indicated on the construction documents in writing.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **101.4.5 Property maintenance.** The 2003 International Property Maintenance Code is not adopted by the State of Connecticut. Property maintenance shall be in accordance with the requirements of this code and the applicable provisions of the 2005 Connecticut State Fire Safety Code. All references to the 2003 International Property Maintenance Code found within the body of the model document shall be considered null and void.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **102.6 Existing structures.** The legal use and occupancy of any building or structure existing on the date of adoption of this code shall be permitted to continue without change, except as specifically covered in this code or the 2005 Connecticut State Fire Safety Code.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **105.2.2 Repairs.** Application or notice to the building official is **not required for ordinary repairs to structures, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.** Such repairs **shall not include** the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; **nor shall ordinary repairs include** addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- 105.4 Validity of permit. **The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction.** Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction **shall not be valid.** The issuance of a permit based on construction documents and other data shall not prevent the building official from requiring the correction of errors in the construction documents and other data. The building official is also authorized to prevent occupancy or use of a structure where in violation of this code or of any other ordinances of this jurisdiction.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **110.1 Use and occupancy.** No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefor as provided herein. **Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.**

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **SECTION 115 UNSAFE STRUCTURES AND EQUIPMENT**
- **115.1 Conditions.** Structures or existing equipment that are or hereafter become unsafe, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the building official deems necessary and as provided for in this section. A vacant structure that is not secured against entry shall be deemed unsafe.
- **115.2 Record.** The building official shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition.
- **115.3 Notice.** If an unsafe condition is found, the building official shall serve on the owner, agent or person in control of the structure, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or that requires the unsafe structure to be demolished within a stipulated time. Such notice shall require the person thus notified to declare immediately to the building official acceptance or rejection of the terms of the order.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **115.4 Method of service.** Such notice shall be deemed properly served if a copy thereof is (a) delivered to the owner personally; (b) sent by certified or registered mail addressed to the owner at the last known address with the return receipt requested; or (c) delivered in any other manner as prescribed by local law. If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner upon the owner's agent or upon the person responsible for the structure shall constitute service of notice upon the owner.
- **115.5 Restoration.** The structure or equipment determined to be unsafe by the building official is permitted to be restored to a safe condition. To the extent that repairs, alterations or additions are made or a change of occupancy occurs during the restoration of the structure, such repairs, alterations, additions or change of occupancy shall comply with the requirements of Section 105.2.2 and Chapter 34.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **SECTION 117 – VACANT BUILDINGS**
- **117.1 General.** Temporarily unoccupied buildings, structures, premises or portions thereof, including tenant spaces, shall be safeguarded and maintained in accordance with this section.
- **117.1.1 Abandoned premises.** Buildings, structures and premises for which an owner cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured; which have been occupied by unauthorized persons or for illegal purposes; or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated or demolished in accordance with this code.
- **117.2 Safeguarding vacant premises.** Temporarily unoccupied buildings, structures, premises or portions thereof shall be secured and protected in accordance with this section.

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PART A  
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- **117.2.1 Security.** Exterior openings and interior openings accessible to other tenants or unauthorized persons shall be boarded, locked, blocked or otherwise protected to prevent entry by unauthorized individuals.
- **117.2.2 Fire protection.** Fire alarm, sprinkler and standpipe systems shall be maintained in an operable condition at all times.
- **Exceptions:**
  - When the premises have been cleared of all combustible materials and debris and, in the opinion of the code official, the type of construction, fire separation distance and security of the premises do not create a fire hazard.
  - Where buildings will not be heated and fire protection systems will be exposed to freezing temperatures, fire alarm and sprinkler systems are permitted to be placed out of service and standpipes are permitted to be maintained as dry systems (without an automatic water supply) provided the building has no contents or storage, and windows, doors and other openings are secured to prohibit entry by unauthorized persons.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **117.2.3 Fire separation.** Fire-resistance-rated partitions, fire barriers and fire walls separating vacant tenant spaces from the remainder of the building shall be maintained.
- **117.3 Removal of combustibles.** Persons owning, or in charge or control of, a vacant building or portion thereof, shall remove all accumulations of combustible materials and flammable or combustible waste or rubbish from such space. The premises shall be maintained clear of waste or hazardous materials.
- **Exceptions:**
  - Buildings or portions of buildings undergoing additions, alterations, repairs or change of occupancy under a valid permit in accordance with this code.
  - Seasonally occupied buildings.
- **117.4 Removal of hazardous materials.** Persons owning, or in charge or control of, a vacant building or portion thereof, shall remove all accumulations of hazardous materials as defined by this code.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **Section 202 DEFINITIONS**
- **ADDITION.** An extension or increase in floor area or height of a building or structure.
- **ALTERATION.** Any construction or renovation to an existing structure other than repair or addition.
- **Occupancy: (not defined)**
- **Occupancy, change of: (not defined)**
- **REPAIR.** The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **1025.4 Operational constraints.** 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 the minimum net clear opening size complies with Section 1025.2 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 in existing buildings, smoke alarms shall be installed in accordance with Section 907.2.10 regardless of the valuation of the alteration.

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- **Chapter 11 Accessibility**
- **1103.2.2 Existing buildings.** Existing buildings shall comply with Section 3409.

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PART A  
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**EXISTING BUILDINGS**

- **Chapter 15 Roof Assemblies and Rooftop Structures**
- **Section 1510 Reroofing**
- **1510.3 Recovering versus replacement.** New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:
  1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
  2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
  3. Where the existing roof has two or more applications of any type of roof covering.
- **Exceptions:**
  1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
  2. Metal panel, metal shingle, and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.

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- **SECTION 1612 FLOOD LOADS**
- **1612.1 General.** Within flood hazard areas as established in Section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvements and restoration of substantial damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads.
- **SUBSTANTIAL DAMAGE.** 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.
- **SUBSTANTIAL IMPROVEMENT.** Any repair, reconstruction, rehabilitation, 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:
  - 1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.
  - 2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

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PART A  
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- **1614 Earthquake Loads**
- **[EB] 1614.1.1 Additions to existing buildings.** An addition that is structurally independent from an existing structure shall be designed and constructed as required for a new structure in accordance with the seismic requirements for new structures. An addition that is not structurally independent from an existing structure shall be designed and constructed such that the entire structure conforms to the seismic-force resistance requirements for new structures unless the following conditions are satisfied: [All]
  - 1. The addition conforms with the requirements for new structures,
  - 2. The addition does not increase the seismic forces in any structural element of the existing structure by more than 5 percent, unless the element has the capacity to resist the increased forces determined in accordance with Sections 1613 through 1622, and
  - 3. Additions do not decrease the seismic resistance of any structural element of the existing structure by more than 5 percent cumulative since the original construction, unless the element has the capacity to resist the forces determined in accordance with Sections 1613 through 1622.

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PART A  
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EXISTING BUILDINGS

- **1614 Earthquake Loads**
- **[EB] 1614.2 Change of occupancy.** When a change of occupancy results in a structure being reclassified to a higher seismic use group, the structure shall conform to the seismic requirements for a new structure.
- **Exceptions:**
  - 1. Specific detailing provisions required for a new structure are not required to be met where it can be shown an equivalent level of performance and seismic safety contemplated for a new structure is obtained. Such analysis shall consider the regularity, over strength, redundancy and ductility of the structure within the context of the specific detailing provided.
  - 2. When a change of use results in a structure being reclassified from Seismic Use Group I to Seismic Use Group II and the structure is located in a seismic map area where  $SDS < 0.33$ , compliance with this section is not required.

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PART A  
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- **[EB] 1614.3 Alterations.** Alterations are permitted to be made to any structure without requiring the structure to comply with Sections 1613 through 1623 provided the alterations conform to the requirements for a new structure. Alterations that increase the seismic force in any existing structural element by more than 5 percent or decrease the design strength of any existing structural element to resist seismic forces by more than 5 percent shall not be permitted unless the entire seismic force-resisting system is determined to conform to Sections 1613 through 1623 for a new structure.
- **Exception:** Alterations to existing structural elements or additions of new structural elements that are not required by Sections 1613 through 1623 and are initiated for the purpose of increasing the strength or stiffness of the seismic force-resisting system of an existing structure need not be designed for forces conforming to Sections 1613 through 1623 provided that an engineering analysis is submitted indicating the following:
  1. The design strength of existing structural elements required to resist seismic forces is not reduced.
  2. The seismic force to required existing structural elements is not increased beyond their design strength.
  3. New structural elements are detailed and connected to the existing structural elements as required by this chapter.
  4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by this chapter.
  5. The alterations do not create a structural irregularity as defined in Section 1616.5 or make an existing structural irregularity more severe.
  6. The alterations do not result in the creation of an unsafe condition.

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PART A  
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**EXISTING BUILDINGS**

- **Chapter 18 Soils and Foundations**
- **1808.2.18 Use of existing piers or piles.** Piers or piles left in place where a structure has been demolished shall not be used for the support of new construction unless satisfactory evidence is submitted to the building official, which indicates that the piers or piles are sound and meet the requirements of this code. Such piers or piles shall be load tested or redriven to verify their capacities. The design load applied to such piers or piles shall be the lowest allowable load as determined by tests or redriving data.

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PART A  
General Code Applications  
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- **Chapter 33 Safeguards During construction**
- **3302.1 Remodeling and additions.** Required exits, existing structural elements, fire protection devices and sanitary safeguards shall be maintained at all times during remodeling, alterations, repairs or additions to any building or structure.
- **Exceptions:**
  1. When such required elements or devices are being remodeled, altered or repaired, adequate substitute provisions shall be made.
  2. When the existing building is not occupied.
- **3310.2 Maintenance of exits.** Required means of egress shall be maintained at all times during construction, demolition, remodeling or alterations and additions to any building.
- **Exception:** Approved temporary means of egress systems and facilities.

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PART A  
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- **CHAPTER 34 EXISTING STRUCTURES**
- **[EB] SECTION 3401 GENERAL**
- **3401.1 Scope.** The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing structures.
- **Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300-02.
- **3401.2 Maintenance.** Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which 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 building 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 structures.
- **3401.3 Compliance with other codes.** In addition to the requirements of this code, alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in the 2005 Connecticut State Fire Safety Code, 2003 International Plumbing Code, 2003 International Mechanical Code and the 2005 NFPA 70 National Electrical Code.

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PART A  
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**EXISTING BUILDINGS**

- **[EB] SECTION 3402 DEFINITIONS**
- **3402.1.1 Definitions.** Amend the following definition:
- **TECHNICALLY INFEASIBLE.** An alteration of a building or 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 that are in full and strict compliance with the minimum requirements for new construction and that are necessary to provide accessibility. The determination of technical infeasibility is made jointly by the State Building Inspector and the Executive Director of the Office of Protection and Advocacy for Persons with Disabilities in accordance with the provisions of subsection (b) of section 29-269 of the Connecticut General Statutes.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **[EB] SECTION 3403 ADDITIONS, ALTERATIONS OR REPAIRS**
  - [See also Part B of this presentation]
- **3403.1 Existing buildings or structures.** Additions or alterations to any building or structure shall conform with the requirements of the code for new construction. Additions or alterations shall not be made to an existing building or structure which will cause the existing building or structure to be in violation of any provisions of this code. An existing building plus additions shall comply with the height and area provisions of Chapter 5. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure.
- **Exception:** For buildings and structures in flood hazard areas established in Section 1612.3, any additions, alterations or repairs that constitute substantial improvement of the existing structure, as defined in Section 1612.2, 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.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3403.2 Structural.** Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, nor shall the strength of any structural element be decreased to less than that required by this code for new structures. Where repairs are made to structural elements of an existing building, and uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements for new structures.
- **3403.2.1 Existing live load.** Where an existing structure heretofore is altered or repaired, the minimum design loads for the structure shall be the loads applicable at the time of erection, provided that public safety is not endangered thereby.
- **3403.2.2 Live load reduction.** If the approved live load is less than required by Section 1607, the areas designed for the reduced live load shall be posted in with the approved load. Placards shall be of an approved design.

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PART A  
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**EXISTING BUILDINGS**

- **3403.3 Nonstructural.** Nonstructural alterations or repairs to an existing building or structure are permitted to be made of the same materials of which the building or structure is constructed, provided that they do not adversely affect any structural member or the fire-resistance rating of any part of the building or structure.
- **3403.4 Stairways.** An alteration or the replacement of an existing stairway in an existing structure shall not be required to comply with the maximum riser height and minimum tread depth requirements of a new stairway as outlined in Section 1009.3 where the existing space and construction will not allow a reduction in pitch or slope.
- **3403.5 Means of egress.** In addition to the requirements of this code, means of egress in existing buildings undergoing additions, alterations or repairs shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **[EB] SECTION 3404 FIRE ESCAPES**
- **3404.1 Where permitted.** Fire escapes shall be permitted only as provided for in Sections 3404.1.1 through 3404.1.4.
- **3404.1.1 New buildings.** Fire escapes shall not constitute any part of the required means of egress in new buildings.
- **3404.1.2 Existing fire escapes.** Existing fire escapes shall be continued to be accepted as a component in the means of egress in existing buildings only.
- **3404.1.3 New fire escapes.** New fire escapes for existing buildings shall be permitted only where exterior stairs cannot be utilized due to lot lines limiting stair size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.
- **3404.1.4 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.

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PART A  
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- **[EB] SECTION 3404 FIRE ESCAPES**
- **3404.2 Location.** Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).
- **3404.3 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 5 construction. Walkways and railings located over or supported by combustible roofs in buildings of Type 3 and 4 construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.
- **3404.4 Dimensions.** Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016mm) wide by 36 inches (914mm) long, located not more than 8 inches (203 mm) below the door.
- **3404.5 Opening protectives.** Doors and windows along the fire escape shall be protected with 3/4-hour opening protectives.

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PART A  
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- **[EB] SECTION 3405 GLASS REPLACEMENT**
- **3405.1 Conformance.** The installation or replacement of glass shall be as required for new installations.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **[EB] SECTION 3406 CHANGE OF OCCUPANCY**  
[See also Part B of this presentation]
- **3406.1 Conformance.** No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancy. Subject to the approval of the building official, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.
- **3406.2 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.
- **3406.3 Stairways.** Existing stairways in an existing structure shall not be required to comply with the maximum riser height and minimum tread depth requirements of a new stairway as outlined in Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.
- **3406.4 Means of egress.** In addition to the requirements of this code, means of egress in existing buildings undergoing additions, alterations or repairs shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **EBJ SECTION 3407 HISTORIC BUILDINGS**
- **3407.1 Historic buildings.** Exemptions may be granted to the provisions of this code for historic structures pursuant to section 29-259 of the Connecticut General Statutes.
- **3407.2 Flood hazard areas.** Within flood hazard areas established in accordance with Section 1612.3, where the work proposed constitutes substantial improvement as defined in Section 1612.2, the building shall be brought into conformance with Section 1612.
- **Exception:** Historic buildings that are:
  - a. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; or
  - b. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
  - c. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **EBJ SECTION 3408 MOVED STRUCTURES**
- **3408.1 Conformance.** Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.
- **Exception:** Buildings or structures moved into or within the jurisdiction shall be permitted to comply with the 2003 International Existing Building Code for relocated or moved buildings or structures.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **[EB] SECTION 3409 ACCESSIBILITY FOR EXISTING BUILDINGS**
- **3409.1 Scope.** The provisions of Sections 3409.1 through 3409.8 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.
- **Exception:** Type B dwelling or sleeping units required by Section 1107 are not required to be provided in existing buildings and facilities undergoing alteration or in the existing portion of buildings to which additions are being made.
- **3409.2 Maintenance of facilities.** A building, facility or element that is constructed or altered to be accessible shall be maintained accessible during occupancy.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3409.3 Change of occupancy.** Existing buildings, or portions thereof, that undergo a change of group or occupancy shall have all of the following accessible features:
  1. At least one accessible building entrance.
  2. At least one accessible route from an accessible building entrance to primary function areas.
  3. Signage complying with Section 1110.
  4. Accessible parking, where parking is being provided.
  5. At least one accessible passenger loading zone, when passenger loading zones are provided.
  6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.
  7. At least one accessible toilet room or toilet and bathing facility per gender complying with Section 1109.2.
  8. At least one accessible means of egress complying with Section 1007.
  9. Type A and Type B units as required by Section 1107.
- Where it is technically infeasible as defined in Section 3402.1 to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible. Change of group or occupancy that incorporates any alterations or additions shall comply with this section and Sections 3409.4, 3409.5, 3409.6 and 3409.7.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3409.4 Additions.** Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of primary function, shall comply with the requirements in Section 3409.6 for accessible routes.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3409.5 Alterations.** A building, facility or element that is altered shall comply with the applicable provisions in Chapter 11 and ICC/ANSI A117.1-2003, unless technically infeasible. When it has been determined that the alteration is technically infeasible, as defined herein, 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 3409.6.
  2. Accessible means of egress required by Chapter 10 are not required to be provided in existing buildings and facilities undergoing alteration. [Ed. – unless also a Change of Occupancy!]
  3. *Alterations to individually owned Type A dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units and shall comply with the applicable provisions of Chapter 11 and ICC/ANSI A117.1-2003.*

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.5.1 Extent of application.** An alteration of an existing element, space or area of a building or facility shall not impose a requirement for greater accessibility than that which would be required for new construction. Alterations shall not reduce or have the effect of reducing accessibility of a building, portion of a building or facility.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.6 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 or 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 an existing building, facility or element.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.7 Scoping for alterations.** The provisions of Sections 3409.7.1 through 3409.7.12 shall apply to alterations to existing buildings and facilities.
- **3409.7.1 Entrances.** Accessible entrances shall be provided in accordance with Section 1105.
- Exception: Where an alteration includes alterations to an entrance, and the building or facility has an accessible entrance, the altered entrance is not required to be accessible, unless required by Section 3409.6. Signs complying with Section 1110 shall be provided.
- **3409.7.2 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.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3409.7.3 Lifts and limited use, limited access elevators in existing buildings.** Vertical wheelchair or incline lifts, inclined stairway chairlifts and limited use, limited access elevators shall not be a part of an accessible route in existing buildings undergoing alteration or repair except that vertical wheelchair lifts and limited use, limited access elevators shall be permitted in existing buildings where permitted in the locations set forth in Section 1109.7. Pursuant to section 29-200 of the Connecticut General Statutes, the following additional exceptions are allowed:
  - **Exceptions:**
    1. In existing buildings principally used for meeting, gathering or assembling by any civic, religious, fraternal or charitable organization.
    2. In residential buildings designed to be occupied by one or two families.
    3. In other existing buildings and structures only if the Executive Director of the Office of Protection and Advocacy for Persons with Disabilities and the State Building Inspector jointly approve such installation.
- Lifts and limited use, limited access elevators shall be installed in accordance with regulations adopted under authority of section 29-200 of the Connecticut General Statutes. Limited use, limited access elevators shall also be installed in accordance with regulations adopted under authority of section 29-192 of the Connecticut General Statutes .

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **1109.7 Lifts.** Plat form (wheel chair) lifts are permitted to be a part of a required accessible route in new construction where indicated in items 1 through 7. Platform (wheel chair) lifts shall be installed in accordance with ASME A18.1.
- 1. An accessible route to a performing area and speakers' plat forms in occupancies in Group A.
- 2. An accessible route to wheel chair spaces required to comply with the wheel chair space dispersion requirements of Section 1108.2.2 through 1108.2.4.
- 3. An accessible route to spaces that are not open to the general public with an occupant load of not more than five.
- 4. An accessible route within a dwelling or sleeping unit.
- 5. An accessible route to wheel chair seating spaces located in outdoor dining terraces in A-5 occupancies where the means of egress from the dining terraces to a public way are open to the out doors.
- 6. An accessible route to raised judges' benches, clerks' stations, jury boxes, witness stands and other raised or depressed areas in a court.
- 7. An accessible route where existing exterior site constraints make use of a ramp or elevator infeasible.
- **1109.7.1 Limited use, limited access elevators.** Limited use, limited access elevators shall be permitted to be installed in new construction in the same locations specified in Section 1109.7. Limited use, limited access elevators shall be installed in accordance with the Connecticut Safety Code for Elevators and Escalators, adopted under authority of section 29-192 of the Connecticut General Statutes and with regulations adopted under authority of section 29-200 of the Connecticut General Statutes.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3409.7.4 Stairs and escalators in existing buildings.** In alterations where an escalator or stair is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5.
- **3409.7.5 Ramps.** Where steeper slopes than allowed by Section 1010.2 are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 3409.7.5.
- **TABLE 3409.7.5 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     |

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.7.6 Performance areas.** Where it is technically infeasible to alter performance areas to be on an accessible route, at least one of each type of performance area shall be made accessible.
- **3409.7.7 Dwelling or sleeping units.** Where 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 for Accessible, Type A or Type B units and Chapter 9 for accessible alarms apply only to the quantity of spaces being altered or added.
- **3409.7.8 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 means of egress.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.7.9 Toilet rooms.** Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.
- **3409.7.9.1 Directional signage.** Where existing toilet or bathing rooms are being altered and are not made accessible, directional signage shall be provided indicating the location of the nearest accessible toilet or bathing facility within the facility.
- **3409.7.10 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.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.7.11 Check-out aisles.** Where check-out aisles are altered, at least one of each check-out aisle serving each function shall be made accessible until the number of accessible check-out aisles complies with Section 1109.12.2.
- **3409.7.12 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.
- **3409.7.13 Assembly seating.** Where it is technically infeasible to disperse accessible seating throughout an altered assembly area, accessible seating areas may be clustered. Each accessible wheelchair space shall have provisions for companion seating and shall be located on an accessible route that also serves as an accessible means of egress.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.8 Historic buildings.** These provisions shall apply to buildings and facilities designated as historic structures that undergo alterations or a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 3409.8.1 through 3409.8.5 for that element shall be permitted.
- **3409.8.1 Site arrival points.** At least one accessible route from a site arrival point to an accessible entrance shall be provided.
- **3409.8.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3409.8.3 Entrances.** At least one main entrance shall be accessible.
- **Exceptions:**
  1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
  2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.
- Signs complying with Section 1110 shall be provided at the primary entrance and the accessible entrance.
- **3409.8.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible toilet room complying with Section 1109.2.1 shall be provided.
- **3409.8.5 Ramps.** The slope of a ramp run of 24 inches (610 mm) maximum shall not be steeper than one unit vertical in eight units horizontal (12 - percent slope).

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **[EB] SECTION 3410 COMPLIANCE ALTERNATIVES**  
[See also Part C this presentation]
- **3410.1 Compliance.** The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, alteration, addition and change of occupancy without requiring full compliance with Chapters 2 through 33, or Sections 3401.3, and 3403 through 3407, except where compliance with other provisions of this code is specifically required in this section.
- **3410.1.1 Means of egress.** In addition to the requirements of this code, means of egress in existing buildings utilizing the compliance alternatives of Section 3410 shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.2 Applicability.** Structures existing prior to the adoption date of the 2005 State Building Code, in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this section or the provisions of Sections 3403 through 3407. The provisions in Sections 3410.2.1 through 3410.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Groups H or I.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.2.1 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.
- **3410.2.2 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 wall assemblies having a fire-resistance rating as required by Table 302.3.2 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 separation assemblies having a fire-resistance rating as required by Table 302.3.2 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.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.2.3 Additions.** Additions to existing buildings shall comply with the requirements of this 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. Where a fire wall that complies with Section 705 is provided between the addition and the existing building, the addition shall be considered a separate building.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3410.2.4 Alterations and repairs.** An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the alteration or repair, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3410.2.5 Accessibility requirements.** All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of Chapter 11.
- [Ed. Section 1103.2.2 references Section 3409 for existing buildings. See 3409.3 Change of Occupancy.]

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **3410.3 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 building official.
- **3410.3.1 Hazards.** Where the building official determines that an unsafe condition exists, as provided for in Section 115, such unsafe condition shall be abated in accordance with Section 115.
- **3410.3.2 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. [Ed. CT Fire Safety Code.]

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.4 Investigation and evaluation.** For proposed work covered by this section, the building owner shall cause the existing building to be investigated and evaluated in accordance with the provisions of this section.
- **3410.4.1 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 existing building shall be capable of supporting the minimum load requirements of Chapter 16.
- **3410.4.2 Submittal.** The results of the investigation and evaluation as required in Section 3410.4, along with proposed compliance alternatives, shall be submitted to the building official.
- **3410.4.3 Determination of compliance.** The building 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 3410.5 through 3410.9.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.5 Evaluation.** The evaluation shall be comprised of three categories: fire safety, means of egress and general safety, as defined in Sections 3410.5.1 through 3410.5.3.
- **3410.5.1 Fire safety.** Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm and fire suppression system features of the facility.
- **3410.5.2 Means of egress.** Included within the means of egress category are the configuration, characteristics and support features for means of egress in the facility.
- **3410.5.3 General safety.** Included within the general safety category are the fire safety parameters and the means of egress parameters.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **3410.6 Evaluation process.** The evaluation process specified herein shall be followed in its entirety to evaluate existing buildings. Table 3410.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation 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 3410.6.16, 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.
- Where the separation between the mixed occupancies qualifies for any category indicated in Section 3410.6.16, the score for each occupancy shall apply to each portion of the building based on the occupancy of the space.  
[See Part C of this Presentation]

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **SUMMARY - CSBC** : These Sections point out that:
- (a) Changes may be required, at the discretion of the Local Building Official, in existing structures which do not conform to the requirements for new buildings, when he believes that it is necessary for the general safety and welfare of the occupants and the public, even in cases when no new work or change of use or occupancy is proposed. Inspection and enforcement in existing buildings is traditionally performed, however, by the Fire Marshal, under the Connecticut State Fire Safety Code.
- (b) Where there is a Change of Occupancy, Accessibility provisions for new construction shall apply to the change of occupancy as referenced. In addition, the Code Official can exercise discretion as to which provisions of the CSBC will apply, in response to the relative level of hazard to the public. Any special provisions for the new Use which are more stringent than the requirements for the previous use will apply.
- (c) Addition or alteration work itself must comply with the requirements for new construction, without requiring the existing structure to comply with all the requirements of the CSBC, however, alterations to a primary functional area triggers a requirement to provide access for persons with disabilities to that area and to the restrooms and drinking fountains serving that area.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- (d) When a building is in a flood hazard zone, repair work in excess of 50% of the replacement value will require the building to be in compliance with the code requirements for new construction.
- (e) Any building plus new addition shall not exceed the height, number of stories and area specified for new buildings.
- (f) The use of Chapter 34, Section 3410 is an option available to the designer for a rehabilitation project, but it is not mandatory. Alternatively one could provide full compliance with Chapters 2 through 33, Sections 3401.3, and 3403 through 3409.
- (g) Existing buildings undergoing repair, alterations or additions and change of occupancy shall be permitted to comply with the International Existing Building Code.
- (h) The Building Official does have jurisdiction over maintenance of existing means of egress, however this is traditionally allocated to the Fire Marshal, under the Connecticut State Fire Safety Code.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **CONNECTICUT STATE FIRE SAFETY CODE**
  - Part III applies to New Construction, Renovations and Change of Use
  - Part IV applies to Existing Occupancies
  - Part V addresses Maintenance and Operational issues for Existing as well as new buildings
- **CONNECTICUT FIRE PREVENTION CODE**
  - CT Public Act 04-59, as amended by PA 07-84 mandated adoption October 8, 2008.
  - Currently it is effective as of July 1, 2010.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

• **CONNECTICUT STATE FIRE SAFETY CODE**

- The Connecticut State Fire Safety Code/2005, became effective December 31, 2005. This Code is based on the 2003 Edition of the International Fire Code, for new work and alterations and additions Part III), and the 2003 edition of NFPA 101 Life Safety Code, for existing occupancies (Part IV). It is also based on the 2003 Edition of NFPA 1 Fire Prevention Code for Maintenance and Operations of new and existing buildings (Part V). The 2009 CT Amendments became effective August 1, 2009.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

• **Part III of the CSFSC/2005 applies to New Construction, renovations and Change of Use.**

- As an alternative to meeting the requirements of the International Fire Code, the applicant has the option of complying with the International Existing Building Code, as adopted by the CSBC/2005.

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PART A  
General Code Applications  
**EXISTING BUILDINGS**

- **Sec. 29-292-7e. Inspections** (2009 Amend – not in handout)
- **(c) The minimum requirements for the frequency of inspections as prescribed in section 29-305 of the Connecticut General Statutes shall be as follows:**
  - Annual inspections for the occupancy classifications, all R Residential, A-1, A-2, E, H-1, I-1.
  - Inspections every two years for the occupancy classifications, A-3, H-2, I-2, I-3, I-4, B-Medical, B-College.
  - Inspections every three years for occupancy classifications B, H-3, M, S-1, A-4, A-5.
  - Inspections every four years for the occupancy classifications, F-1, F-2, H-4, H-5, S-2, U.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **Sec. 29-292-15e Alternative Compliance**

- Any building or structure, or portion thereof, evaluated and determined to be in compliance with the International Existing Building Code®, as adopted and amended by the State Building Code, shall be deemed in compliance with this Part III of the Connecticut State Fire Safety Code. Those portions not affected by alteration, addition or change of occupancy shall comply with Part IV of this code.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- **SUMMARY CSFSC:** It has been clear since 1981 that the CSFSC is retroactive for existing buildings. The CSFSC/2005 code has separate parts and referenced standards for existing buildings or portions of buildings, and for new construction, additions, renovations and Change of Use. It also has a part for Maintenance and Operational Issues that applies to all buildings, whether new or existing.

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PART A  
General Code Applications  
EXISTING BUILDINGS

- QUESTIONS???
- COMMENTS???

Want to take a 10 Minute Break???

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**PART B**  
**CT Building Code**

EVALUATION OF  
A CHANGE IN OCCUPANCY  
FROM F-1 to R-2  
2005 CONNECTICUT STATE BUILDING CODE

Prepared by  
**Bruce J. Spiewak, AIA**  
**Consulting Architect, LLC**  
375 Morgan Lane #405  
West Haven, CT 06516  
(203) 931-9945  
May 2010

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**Part B Agenda**

- Selected Relevant Code Sections (CSBC)
- Code Interpretation by ICC
- Code Commentary by ICC
- Evaluation of Code Provisions
- Summary and Conclusions

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**Selected Relevant Code**  
**Sections (CSBC)**

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**[EB] Section 3403  
Additions, Alterations or Repairs**

- 3403.1 Existing buildings or structures.
  - Exception:
- 3403.2 Structural.
- 3403.2.1 Existing live load.
- 3403.2.2 Live load reduction.
- 3403.3 Nonstructural.
- 3403.4 Stairways.

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**[EB] Section 3406  
Change Of Occupancy**

- 3406.1 Conformance.
- 3406.2 Certificate of occupancy.
- 3406.3 Stairways.

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**Code Interpretation by ICC**

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## Code Interpretation No. 47/105/78

- **QUESTION:** Does Section 3406.1 apply only to changes in occupancy involving special uses and occupancies identified in Chapter 4?
- **ANSWER:** No. The intent of section 3406.1 is that the code official be notified of and act to approve or deny any change in occupancy. Change of occupancy is a change in the purpose or level of activity within a structure that involves a change in application of the requirements of this code. The extent of code compliance for the existing building involved in the change of occupancy depends on the code official's determination of the intent of the provisions of law for the new use and occupancy. The primary consideration is to determine that no greater hazard to public safety or welfare results because of a change in occupancy.

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## Code Commentary by ICC

- **3406.1 Conformance:** A change in occupancy in an existing structure may change the level of inherent hazards that the code was initially intended to address.
- Regardless of whether the change is to an occupancy considered to be more or less hazardous, this section applies the provisions of the code for new construction to an existing structure having a new occupancy. This is done so that the applicable code requirements adequately address the specific hazards of the new occupancy. For example, a change from an existing mercantile occupancy to a business occupancy renders all Group B provisions applicable to all portions of the structure where the occupancy has changed.
- This section is one of the most frequently used provisions of the code for application to existing structures, since the occupancy in a building or structure is subject to change during the life of the building.

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## Evaluation of Code Provisions

- Some code provisions are specifically identified as applicable to the occupancy group involved.

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## Evaluation of Code Provisions

| SPECIAL PROVISION   | REQUIREMENT FOR F-1  | REQUIREMENT FOR R-2  |
|---|--|--|
| 106.1.2 Means of Egress - Number of Occupants to be designated on documents | Required   | Not Required   |
| 302.1.1 Incidental Use Areas - Protection/Separation                        | Required   | Not required within dwelling units   |
| 302.3.2 Mixed Use Separation  | Separation more restrictive than R-2 in most Occupancy groups, except H.   | Less restrictive than F-1, except H and S-2 are more restrictive.          |
| 503 & T503 Height and Area Limitations (nic increases)                      | More restrictive than R-2 for all Construction Types except Type I and IIA | Less restrictive than F-1 for all Construction Types except Type I and IIA |
| T602 - Exterior Wall Fire-resistance Ratings                                | 2 hrs < 5 ft.<br>2 hr $\geq$ 5 to < 10 for Type 1A                         | 1 hr < 5 ft.<br>1 hr $\geq$ 5 to < 10 for Type 1A                          |
| 705.4, T705.4 Fire Wall Fire-resistance Ratings                             | 3 hr.  | 3 hr except 2 hr in Type II or V   |

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### SPECIAL PROVISION REQUIREMENT FOR F-1 REQUIREMENT FOR R-2

| SPECIAL PROVISION  | REQUIREMENT FOR F-1   | REQUIREMENT FOR R-2  |
|--|---|--|
| 803.5, T803.5 Interior Wall & Ceiling Finish Classifications | Less restrictive than R-2   | More restrictive in exits and corridors of non-sprinklered buildings.  |
| 903.2 (Automatic Sprinkler Systems) Where required           | Throughout all buildings where fire area exceeds 12,000 s.f., or if fire area is more than 3 stories above grade, or if all F-1 fire areas exceed 24,000 s.f. | Throughout all buildings with R-2 fire area. NFPA 13R OK up to 4 stories above grade and 60 ft. height.  |
| 905 Standpipe Systems  | Same as for R-2   | Same as for F-1  |
| 907 Fire Alarm and Detection Systems                         | Manual Fire Alarm required if 2 or more stories and occupant load of 500 or more above or below lowest level of exit discharge. Exception for sprinklers.     | Manual fire alarm required if 3 or more stories above lowest level of exit discharge, or more than one story below the highest level of exit discharge, or if building contains more than 11 dwelling or sleeping units. Some exceptions for sprinklers. |
| 907.2.10 Single- and Multiple-Station Smoke                  | Not Required  | Required in sleeping rooms, outside of sleeping rooms, and   |

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### SPECIAL PROVISION REQUIREMENT FOR F-1 REQUIREMENT FOR R-2

| SPECIAL PROVISION                           | REQUIREMENT FOR F-1  | REQUIREMENT FOR R-2   |
|---|--|---|
| 1003.2 Ceiling Height                       | 7 ft – 6 inches  | 7 ft. – 6 inches  |
| 1004.1.2, T1004.1.2 - Occupant Load         | 100 gsf per person   | 200 gsf per person  |
| 1005.1, T1005.1 - Egress Width per Occupant | Same as for R-2  | Same as for F-1   |
| 1008.1.8.6 Delayed egress locks             | Same as for R-2  | Same as for F-1   |
| 1008.1.8.3 Locks & Latches                  | F-1 allows main exterior doors to be locked with conditions. | R-2 allows security locks for dwelling unit entry door if operable from inside. |
| 1010.5.1 (Egress Ramp) Width                | Same as for B  | Same as for F-1   |

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| SPECIAL PROVISION                                 | REQUIREMENT FOR F-1   | REQUIREMENT FOR R-2                                     |
|---|---|---|
| 1012.3 (Guard) Opening Limitations                | Areas not open to the public can have 21" sphere not pass       | 4" sphere shall not pass                                |
| 1013.3 Common path of egress travel               | F-1 allows ≤100 ft. in a sprinklered building                   | R-2 allows ≤ 75 feet                                    |
| 1014.1, T1014.1 - Spaces with One Means of Egress | F-1 allows ≤ 50 occupants                                       | R-2 allows ≤ 10 occupants                               |
| 1015.1, T1015.1 - Length of Exit Access Travel    | 200 / 250 ft unsprinklered / sprinklered                        | 200 / 250 ft unsprinklered / sprinklered                |
| 1016.1, T1016.1 - Corridor Fire Resistance Rating | F-1: greater than 30 occupants – 1 hour or 0 hour w/ sprinklers | R-2: greater than 10 occupants – ½ hour with sprinklers |
| 1016.2 Corridor Width                             | Same as for R-2   | Same as for F-1   |

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| SPECIAL PROVISION                                       | REQUIREMENT FOR F-1   | REQUIREMENT FOR R-2   |
|---|---|---|
| 1018.1, T1018.2 - Buildings with One Exit               | F-1: 2 stories, 30 occupants and 75 ft. travel                | R-2: 1 story, 10 occupants and 75 feet travel –or- 2 story, 4 d.u. and 50 feet travel, wih sprinklers |
| 1019 Vertical Exit Enclosures                           | Same as for R-2   | Same as for F-1   |
| Chapter 11, Accessibility                               | Required based on scope of work                               | Special requirements Type A and Type B dwelling units   |
| 1203.1 Mechanical Ventilation / Mechanical Code T-403.3 | Not generally regulated except for some specific occupancies. | R-2 Specific requirements more restrictive than for F-1   |
| 1301.1 Energy Conservation                              | Per International Energy Conservation Code 2006               | Per International Energy Conservation Code 2006   |

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| SPECIAL PROVISION                                     | REQUIREMENT FOR F-1                                  | REQUIREMENT FOR R-2   |
|---|--|---|
| 1607.0, T1607.1 Live Loads                            | Light Mfg. - 125 psf<br>Heavy Mfg. - 250 psf         | Private rooms and corridors - 40 psf<br><br>Public rooms and corridors – 100 psf  |
| 1607.0, T1607.1 Concentrated Loads                    | Light - 2000 lbs.<br>Heavy - 3000 lbs.               | none  |
| 1616.2, T1604.5 (footnote a) Seismic Use Group        | Seismic Use Group I<br>Exceptions - see Table 1604.5 | Seismic Use Group I<br>Exceptions - see Table 1604.5                              |
| 2902.1, T2902.1 Minimum Number of Plumbing Facilities | wc - 1 / 100 occupants                               | wc - 1 / d.u.   |
|   | lav - 1 / 100 occupants                              | lav - 1 / d.u.  |
|   | df - 1 / 400 occupants                               | df - none   |
| 3004.1 (Hoistway Venting) Requirements                | F-1 – not required in sprinklered building           | R-2 – Required for hoistways penetrating more than 3 stories, even if sprinklered |

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**Part B**  
**Summary and Conclusions**

- The 2005 Connecticut State Building Code specifically addresses Change of Occupancy in Section 3406.1, and requires both the Code Official's approval; and his/her certification that the structure meets code provisions applicable to the proposed new occupancy, and that the Change of Occupancy does not result in any greater hazard to public safety or welfare.
- If the requirements for the new Use Group or occupancy are *less* restrictive than those for the old (pre-existing) Use Group or occupancy, then no change is required.
- If the requirements for the new Use Group or occupancy are *more* restrictive than those for the old (pre-existing) Use Group or occupancy, then that aspect of the building or structure must be altered or changed to comply with the more restrictive requirement for the new Use Group or occupancy.

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**Part B**  
**Summary and Conclusions**

- In a Change of Occupancy from Use Group F-1 to Use Group R-2, where specific requirements for Use Group R-2 are more restrictive than those for Use Group F-1, the requirements for Use Group R-2 must be met whether or not the requirement relates directly to an item of new work.
- In a Change of Occupancy from Use Group F-1 to Use Group R-2, where requirements for both Use Groups are the same, there is no requirement to retroactively invoke the specific requirement in an existing non-conforming building, unless the requirement relates directly to an item of new work. (The requirements of the 2005 Connecticut State Fire Safety Code are retroactive for existing buildings and would apply regardless of whether any particular provision relates to an item of new work or simply to the existing building.)

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**Part B**  
**CT Building Code**

- QUESTIONS???
- COMMENTS???

Want to take a 10 Minute Break???

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**PART C**  
**CT Building Code Chapter 34 (3410)**

EVALUATION OF  
A CHANGE IN OCCUPANCY  
FROM F-1 to R-2  
2005 CONNECTICUT STATE BUILDING CODE

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May 2010

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PART C  
International Existing Building Code  
CT Building Code Chapter 34  
**Section 3410**

CONNECTICUT BUILDING CODE 2005  
CHAPTER 34 EVALUATION - BUILDING PARAMETERS

Existing Use Group: F-1 Proposed Use Group: R-2  
Year Building was Constructed: 1813 No. of Stories: 4  
Ht. in Ft.: 64

Type of Construction: Originally IV Heavy Timber  
(Make it IIB) Area per Floor: 20,000 s.f. (100' x 200')  
Percentage of Open Perimeter: 50% [Percentage of Height Reduction:]

Completely suppressed: Yes  no  Corridor wall rating: 1/2  
Compartmentation: Yes  no  Required Door Closers: yes  no

Fire resistance Rating of Vertical Opening Enclosures: 2 hours  
Type of HVAC System: Individual d.u. systems with ducts, Corridor fresh air and exhaust - central.  
Serving Number of Floors: Corridor system - 4 floors

Automatic Fire Detection: yes  no  Type and Location: S.D. throughout common areas and in d.u.  
Fire Alarm System: yes  no  Type: Per Section 907  
Smoke Control: yes  no  Type: windows in stairs  
Adequate Exit Routes: Yes  no  Dead Ends: yes  no   
Max. Exit Access Travel Dist.: 225 ft. Elevator Controls: yes  no   
Means of Egress Emergency Lighting: yes  no  Mixed Occupancies: yes  no

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS                    | FIRE SAFETY (FS) | MEANS OF EGRESS (ME) | GENERAL SAFETY (GS) |
|--------------------------------------|------------------|----------------------|---------------------|
| 3410.6.1 Building Height             | .88              | .88                  | .88                 |
| 3410.6.2 Building Area               | 12               | 17                   | 17                  |
| 3410.6.3 Compartmentation            | 0                | 0                    | 0                   |
| 3410.6.4 Tenant and d.u. separations | -2               | -2                   | -2                  |
| 3410.6.5 Corridor Walls              | -3               | -3                   | -3                  |
| 3410.6.6 Vertical Openings           | 7                | 7                    | 7                   |
| 3410.6.7 HVAC Syst.                  | 0                | 0                    | 0                   |
| 3410.6.8 Automatic Fire Detection    | 6                | 6                    | 6                   |

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS<br>GENERAL SAFETY          | FIRE SAFETY | MEANS OF EGRESS |      |
|--|-------------|-----------------|------|
|  | (FS)        | (ME)            | (GS) |
| 3410.6.9 Fire Alarm System                   | 0           | 0               | 0    |
| 3410.6.10 Smoke Control                      | *****       | 4               | 4    |
| 3410.6.11 Means of egress                    | *****       | 0               | 0    |
| 3410.6.12 Dead Ends                          | *****       | 0               | 0    |
| 3410.6.13 Max. Exit Access Travel Distance   | *****       | 2               | 2    |
| 3410.6.14 Elevator Control                   | 4           | 4               | 4    |
| 3410.6.15 Means of Egress Emergency Lighting | *****       | 0               | 0    |
| 3410.6.16 Mixed Occupancies                  | 0           | *****           | 0    |

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS              | (FS)             | (ME)         | (GS)         |
|--------------------------------|------------------|--------------|--------------|
| 3410.6.17 Automatic Sprinklers | 4                | 2            | 4            |
| 3410.6.18 Incidental Use       | 0                | 0            | 0            |
| <b>BUILDING SCORE -</b>        |                  |              |              |
| <b>TOTAL VALUE</b>             | <b>28.88</b>     | <b>37.88</b> | <b>39.88</b> |
| <b>(MANDATORY SCORE)</b>       | <b>24</b>        | <b>34</b>    | <b>34</b>    |
| <b>ALL ≥ 0 REQUIRED</b>        | <b>4.88</b>      | <b>3.88</b>  | <b>5.88</b>  |
|                                | <b>PASSED !!</b> |              |              |

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PART C  
CT Building Code Chapter 34  
**Section 3410**

**3410.6.1 Building Height (R-2, IIIB)** Allowed 5 st, 75 ft. T 501 w/ sprinkler increases

Height Value, Feet: = (AH) - (EBH) / 12.5 x CF

= (75 - 64) / 12.5 x 1 = .88

Height Value, Stories: = (AS - EBS) x CF

(5-4) x 1 = 1

Use .88

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PART C  
CT Building Code Chapter 34  
Section 3410

**3410.6.2 Building Area (R-2, IIIB)**

Allowable area =  $16,000 \times 3.25 = 52,000$   
 $52,000 / 1,200 \times [1 - (20,000/52,000)] =$   
51.46  $\times [1 - .385] =$   
51.46  $\times .615 = 26.65$

Maximum limited to 50% of the mandatory safety scores.  
24, 34, 34 therefore limited to 12, 17, 17.

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PART C  
CT Building Code Chapter 34  
Section 3410

• **3410.6.3 Compartmentation** Assume category a  
(Compartment size  $\geq 15,000$  s.f.) Use 0

• **3410.6.4 Tenant and Dwelling Unit Separations**  
Assume category b (1/2 hour – less than 1) Use -2

• **3410.6.5 Corridor Walls** Assume category b  
(1/2 hour – less than 1.) Use -3

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PART C  
CT Building Code Chapter 34  
Section 3410

• **3410.6.6 Vertical Openings**  $VO = PV \times CF$   
Use 2 hour enclosures  $2 \times 3.5 = 7$

• **3410.6.7 HVAC Systems** Assume  
Category d (compliance with code) = 0

• **3410.6.8 Automatic Fire Detection**  
Assume Category e (Smoke detection  
throughout the fire area) = 6

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PART C  
CT Building Code Chapter 34  
Section 3410

- **3410.6.9 Fire Alarm System** Assume Category c (Fire alarm system in accordance with Section 907) = 0
- **3410.6.10 Smoke Control** Assume Category f (Each stairway with operable windows) = 4
- **3410.6.11 Means of Egress** Assume Category b (number and capacity of means of egress is in compliance) = 0

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PART C  
CT Building Code Chapter 34  
Section 3410

- **3410.6.12 Dead Ends** Assume Category b (dead end of 20 ft or less) = 0

- **3410.6.13 Max. Exit Access Travel Distance**

Points = 20 x  $\frac{\text{Maximum allowable} - \text{Maximum actual}}{\text{Maximum allowable}}$

$$\text{Points} = 20 \times \frac{250 - 225}{250} = 20 \times 25/250 = \underline{2.0}$$

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PART C  
CT Building Code Chapter 34  
Section 3410

- **3410.6.14 Elevator Control** Assume Category d (new elevator with Phase I and II recall and meets code for new elevator) = 4
- **3410.6.15 Means of Egress Emergency Lighting** Assume Category b (emergency power as required for new) = 0
- **3410.6.16 Mixed Occupancies** For buildings without mixed occupancies the value = 0
- **3410.6.17 Automatic Sprinklers** Assume category e (sprinklers required and provided) = 4
- **3410.6.18 Incidental Use** Assume protection provided as required Table 302.1.1 = 0

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS                    | FIRE SAFETY<br>(FS) | MEANS OF EGRESS<br>(ME) | GENERAL SAFETY<br>(GS) |
|--------------------------------------|---------------------|-------------------------|------------------------|
| 3410.6.1 Building Height             | .88                 | .88                     | .88                    |
| 3410.6.2 Building Area               | 12                  | 17                      | 17                     |
| 3410.6.3 Compartmentation            | 0                   | 0                       | 0                      |
| 3410.6.4 Tenant and d.u. separations | -4                  | -4                      | -4                     |
| 3410.6.5 Corridor Walls              | -5                  | -5                      | -5                     |
| 3410.6.6 Vertical Openings           | 7                   | 7                       | 7                      |
| 3410.6.7 HVAC Syst.                  | 0                   | 0                       | 0                      |
| 3410.6.8 Automatic Fire Detection    | 4                   | 4                       | 4                      |

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS                            | FIRE SAFETY<br>(FS) | MEANS OF EGRESS<br>(ME) | GENERAL SAFETY<br>(GS) |
|--|---------------------|-------------------------|------------------------|
| 3410.6.9 Fire Alarm System                   | 0                   | 0                       | 0                      |
| 3410.6.10 Smoke Control                      | *****               | 4                       | 4                      |
| 3410.6.11 Means of egress                    | *****               | 0                       | 0                      |
| 3410.6.12 Dead Ends                          | *****               | 0                       | 0                      |
| 3410.6.13 Max. Exit Access Travel Distance   | *****               | 5                       | 5                      |
| 3410.6.14 Elevator Control                   | 4                   | 4                       | 4                      |
| 3410.6.15 Means of Egress Emergency Lighting | *****               | 0                       | 0                      |
| 3410.6.16 Mixed Occupancies                  | 0                   | *****                   | 0                      |

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PART C  
CT Building Code Chapter 34  
**Section 3410**

| SAFETY PARAMETERS              | (FS)         | (ME)         | (GS)         |
|--------------------------------|--------------|--------------|--------------|
| 3410.6.17 Automatic Sprinklers | 4            | 2            | 4            |
| 3410.6.18 Incidental Use       | 0            | 0            | 0            |
| <b>BUILDING SCORE -</b>        |              |              |              |
| <u>TOTAL VALUE</u>             | <u>28.88</u> | <u>37.88</u> | <u>39.88</u> |
| <b>(MANDATORY SCORE)</b>       | <b>24</b>    | <b>34</b>    | <b>34</b>    |
| <b>ALL ≥ 0 REQUIRED</b>        | <b>4.88</b>  | <b>3.88</b>  | <b>5.88</b>  |
| <b>PASSED!!</b>                |              |              |              |

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**Part C**  
**CT Building Code Chapter 34**  
**Section 3410**

- QUESTIONS???
- COMMENTS???

Want to take a 10 Minute Break???

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**PART D**

**EVALUATION OF  
A CHANGE IN OCCUPANCY  
FROM F-1 to R-2  
2005 CONNECTICUT STATE BUILDING CODE**

Prepared by  
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(203) 931-9945  
October 2009

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**PART D**  
**International Existing Building Code**

- The International Building Code 2003 portion of the CT State Building Code (IEBC) is an alternative referenced code for application to existing buildings undergoing repair, alteration, change of occupancy, addition, or relocation. One must also apply the requirements of the CT Fire Safety Code (CFSC) to all elements of the building that are not being renovated, altered, changed occupancy or added.
- *(IEBC) 101.2 Scope. The provisions of this code shall apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings. A building or a portion of a building that has not been previously occupied or used for its intended purpose shall comply with the provisions of the International Building Code for new construction. Repairs, alterations, change of occupancy, existing buildings to which additions are made, historic buildings and relocated buildings complying with the provisions of the International Building Code, International Mechanical Code, International Plumbing Code and International Residential Code as applicable shall be considered in compliance with the provisions of this code.*

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PART D  
**International Existing Building Code**

- (Add) **101.13 Means of egress.** In addition to the requirements of this code, means of egress in existing buildings shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

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PART D  
**International Existing Building Code**

**OCCUPANCY GROUPS: F-1 to R-2**

- Some occupancies may be accessory. (IBC 302.2)
- Mechanical/Boiler Room, Storage Room, etc may qualify as Incidental Use Areas. (IBC Table 302.1.1)
- Occupancies will qualify as Non-Separated or Separated Mixed Occupancies (IBC 302.3)

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PART D  
**International Existing Building Code**

- **CONSTRUCTION TYPE(S):** Buildings are required to be classified as one of five different categories of Construction Type. (IBC 602.1) **This building is reported to be Existing Type IV (Heavy Timber), and is being converted to Type III B.** (IBC 602.3, 602.4)

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PART D  
**International Existing Building Code**

- BUILDING HEIGHT AND AREA LIMITATIONS: Building area limits are defined either by exterior walls or by fire walls. (IBC 502.1)
  - Existing building plus addition is **20,000** sf. Per floor, and **4** stories above grade, based on current code definitions of "story above grade."
  - Building **will** be fully sprinklered, NFPA 13 automatic sprinkler system.
  - Base allowable height and area for most restrictive Occupancy Group R-2 is **16,000** s.f. / **4** stories / **55** ft. per Table 503.
    - Sprinkler increases allowable height by 20 ft. and stories by 1 to allow **5** stories, **75** ft. (IBC 504.2)
    - Sprinkler increases allowable area by **200%** to allow **48,000** s.f. per floor. (IBC 506.3)
    - **50%** open perimeter and **30** ft. separation allows another increase in area of another **25%** of the **16,000** s.f. tabular area, or an additional **4,000** s.f. added to the increased allowable area of **48,000** s.f. for a total allowable area per floor 52,000 s.f.

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PART D  
**International Existing Building Code**

- Assume classification of work includes:
  - Alteration Level 3 (>50% of area) – (Chapters 7, 6, 5)
  - Repairs (Chapter 4)
  - Change of Occupancy (Chapter 8)
  - Not a Historic Building (Not Chapter 10)
  - No new additions (Not Chapter 9)
- Since IEBC is applied from back to front, start with Chapter 8 and go backwards through the code!
- Selected examples follow:

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PART D  
**International Existing Building Code**

- **Chapter 8 - Change of Occupancy:**
- (General) 801.2 Partial change of occupancy group.
- Where a portion of an existing building is changed to a new occupancy group, Section 812 shall apply.
- (Fire Protection) 804.1 General.
- Fire protection requirements of Section 812 shall apply where a building or portions thereof undergo a change of occupancy classification.

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**PART D**  
**International Existing Building Code**

- (Structural) 807.1 Gravity loads.
- Buildings or portions thereof subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Tables 1607.1 and 1607.6 of the IBC shall comply with the gravity load provisions of the IBC.
  - Exception: Structural elements whose stress is not increased by more than 5 percent.
- (Structural) 807.2 Snow and wind loads.
- Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind or snow importance factors based on Table 1604.5 of the International Building Code shall be analyzed and shall comply with the applicable wind or snow load provisions of the IBC.
  - Exception: Where the new occupancy with a higher importance factor is less than or equal to 10 percent of the total building floor area. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.
- (Structural) 807.3 Seismic loads.
- Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 807.3.1 and 807.3.2.

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**PART D**  
**International Existing Building Code**

- (Electrical) 808.2 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 be brought up to the current edition of NFPA 70.
- (Electrical) 808.3 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.
- (Electrical) 808.4 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.

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**PART D**  
**International Existing Building Code**

- (Mechanical) 809.1 Mechanical requirements.
  - 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 IMC, the new occupancy shall comply with the intent of the respective IMC provisions.

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PART D  
**International Existing Building Code**

- (Plumbing) 810.1 Increased demand.
  - Where the occupancy of an existing building or part of an existing building is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the IPC, the new occupancy shall comply with the intent of the respective IPC provisions.

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PART D  
**International Existing Building Code**

- (Light & Ventilation) 811.1 Light and ventilation.
  - Light and ventilation shall comply with the requirements of the IBC for the new occupancy.

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PART D  
**International Existing Building Code**

- (Change of Occupancy) 812.1 Compliance with Chapter 7 (Alterations Level 3).
  - The occupancy classification of an existing building may be changed, provided that the building meets all of the requirements of Chapter 7 applied throughout the building for the new occupancy group and complies with the requirements of Sections 802 through 812.
- (Change of Occupancy) 812.2 Hazard category classifications.
  - The relative degree of hazard between different occupancy groups shall be as set forth in the hazard category classifications specified in Tables 812.4.1, 812.4.2, and 812.4.3 of Sections 812.4.1, 812.4.2, and 812.4.3.

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PART D  
**International Existing Building Code**

TABLE 812.4.1 HAZARD CATEGORIES AND CLASSIFICATIONS:  
LIFE SAFETY AND EXITS

| <u>Relative Hazard</u> | <u>Occupancy Classification</u> |
|------------------------|---------------------------------|
| 1 (Highest Hazard)     | H                               |
| 2                      | I-2, I-3, I-4                   |
| 3                      | A, E, I-1, M, R-1, <b>R-2</b> , |
| 4                      | B, <b>F-1</b> , R-3, S-1        |
| 5 (Lowest Hazard)      | F-2, S-2, U                     |

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PART D  
**International Existing Building Code**

Table 812.4.2 HAZARD CATEGORIES AND CLASSIFICATIONS:  
HEIGHTS AND AREAS

| <u>Relative Hazard</u> | <u>Occupancy Classification</u>              |
|------------------------|--|
| 1 (Highest Hazard)     | H  |
| 2                      | A-1, A-2, A-3, A-4, I, R-1, <b>R-2</b> , R-4 |
| 3                      | E, <b>F-1</b> , S-1, M                       |
| 4 (Lowest Hazard)      | B, F-2, S-2, A-5, R-3, U                     |

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PART D  
**International Existing Building Code**

Table 812.4.3 HAZARD CATEGORIES AND CLASSIFICATIONS:  
EXPOSURE OF EXTERIOR WALLS

| <u>Relative Hazard</u> | <u>Occupancy Classification</u> |
|------------------------|---------------------------------|
| 1 (Highest Hazard)     | H                               |
| 2                      | <b>F-1</b> , M, S-1             |
| 3                      | A, B, E, I, <b>R</b>            |
| 4 (Lowest Hazard)      | F-2, S-2, U                     |

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PART D  
**International Existing Building Code**

- **812.2.1 Change of occupancy classification to an equal or lesser hazard.**
  - An existing building or portion thereof may have its use changed to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in all (three) hazard category classifications, provided it complies with the provisions of Chapter 7 for the new occupancy group, applied throughout the building or portion thereof.
  - Exception: Compliance with all the provisions of Chapter 7 is not required where the change of occupancy group complies with the requirements of Section 812.3.

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PART D  
**International Existing Building Code**

- **812.3 Change of occupancy classification to an equal or lesser hazard in all three hazard classifications.**
  - A change of use to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in the three hazard category classifications addressed by Tables 812.4.1, 812.4.2, and 812.4.3 shall be permitted in an existing building or portion thereof, provided the provisions of Sections 812.3.1 through 812.3.5 are met.

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PART D  
**International Existing Building Code**

- **812.3.1 Minimum requirements.**
  - Regardless of the occupancy group involved, the following requirements shall be met:
    - 1. The capacity of the means of egress shall comply with the IBC.
    - 2. The interior finish of walls and ceilings shall comply with the requirements of the IBC for the new occupancy group.

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PART D  
**International Existing Building Code**

- 812.4.1.2 Means of egress for change of use to equal or lower hazard category.
  - When a change of occupancy group is made to an equal or lesser hazard category (higher number) as shown in Table 812.4.1, existing elements of the means of egress shall comply with the requirements of Section 705 for the new occupancy group. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the IBC.
  - Exceptions:
    - 1. 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.
    - 2. Compliance with Section 705 is not required where the change of occupancy group complies with the requirements of Section 812.3.

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PART D  
**International Existing Building Code**

- 812.4.1.3 Egress capacity.
  - Egress capacity shall meet or exceed the occupant load as specified in the IBC if the change of occupancy classification is to an equal or lesser hazard category when evaluated in accordance with Table 812.4.1.
- 812.4.1.4 Handrails.
  - Existing stairways shall comply with the handrail requirements of Section 605.9 in the area of the change of occupancy classification.
- 812.4.1.5 Guards.
  - Existing guards shall comply with the requirements in Section 605.10 in the area of the change of occupancy classification.

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PART D  
**International Existing Building Code**

- 812.4.2 Heights and areas.
  - Hazard categories in regard to height and area shall be in accordance with Table 812.4.2.
- 812.4.2.1 Height and area for change to higher hazard category.
  - When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the IBC for the new occupancy group.
- Exception: A one-story building changed to Group E occupancy shall not be required to meet the area limitations of the IBC.

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PART D  
**International Existing Building Code**

- 812.4.2.2 Height and area for change to equal or lesser hazard category.
  - When a change of occupancy group is made to an equal or lesser hazard category as shown in Table 812.4.2, the height and area of the existing building shall be deemed acceptable.

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PART D  
**International Existing Building Code**

- 812.4.2.3 Fire barriers.
- When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, fire barriers in separated mixed-use buildings shall comply with the fire resistance requirements of the IBC.
- Exception: Where the fire barriers are required to have a 1-hour fire-resistance rating, existing wood lath and plaster in good condition or existing 1/2 inch-thick (12.7 mm) gypsum wallboard shall be permitted.

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PART D  
**International Existing Building Code**

- 812.4.3 Exterior wall fire-resistance ratings.
- Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table 812.4.3.
  
- 812.4.4 Enclosure of vertical shafts.
- Enclosure of vertical shafts shall be in accordance with Sections 812.4.4.1 through 812.4.4.4.

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PART D  
**International Existing Building Code**

- 812.5 Accessibility.  
Existing buildings or portions thereof that undergo a change of group or occupancy classification shall have all of the following accessible features:
  1. At least one accessible building entrance.
  2. At least one accessible route from an accessible building entrance to primary function areas.
  3. Signage complying with Section 1110 of the 2003 International Building Code.
  4. Accessible parking, where parking is provided.
  5. At least one accessible passenger loading zone, where **passenger** loading zones are provided.
  6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.
  7. At least one accessible toilet room or toilet and bathing facility per gender complying with Section 1109.2 of the 2003 International Building Code.
  8. At least one accessible means of egress complying with Section 1007 of the 2003 International Building Code.
  9. Type A and Type B units as required by Section 1107 of the 2003 International Building Code.

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PART D  
**International Existing Building Code**

- Where it is technically infeasible to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible. Changes of group or occupancy that incorporate any alterations or additions shall comply with this section and Sections 506.1, 606.1 and 905.1 as applicable.

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PART D  
**International Existing Building Code**

- Chapter 7 - Alterations - Level 3
- (General) 701.1 Scope.
  - Level 3 alterations as described in Section 305 shall comply with the requirements of this chapter.
- (General) 701.2 Compliance.
  - In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 5 and 6. The requirements of Sections 603, 604, and 605 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 506.2 shall not be required to comply with this chapter

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PART D  
**International Existing Building Code**

- (Building Elements and Materials) 703.1 Existing shafts and vertical openings.
  - Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 603.2.1 between the highest work area floor and the level of exit discharge and all floors below.
- (Building Elements and Materials) 703.3 Interior finish.
  - Interior finish in exits serving the work area shall comply with Section 603.4 between the highest floor on which there is a work area to the floor of exit discharge.

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PART D  
**International Existing Building Code**

- (Fire Protection) 704.1 Automatic sprinkler systems.
  - Automatic sprinkler systems as required and in accordance with the IBC shall be provided in all work areas.
- (Fire Protection) 704.2 Fire alarm and detection systems.
  - Fire alarm and detection systems complying with Sections 604.4.1 and 604.4.3 shall be provided throughout the building in accordance with the IBC.

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PART D  
**International Existing Building Code**

- (Means of Egress) 705.1 General.
  - The means of egress shall comply with the requirements of Section 605 except as specifically required in Sections 705.2 and 705.3.
- (Means of Egress) 705.2 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 IBC.
- (Means of Egress) 705.3 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 IBC.
- (Accessibility) 706.1 General.
  - A building, facility, or element that is altered shall comply with Section 506

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PART D  
**International Existing Building Code**

- (Structural) 707.1 General.
  - Where buildings are undergoing Level 3 alterations including structural alterations, the provisions of this section shall apply. Seismic provisions of this chapter shall apply only to buildings built after January 1, 2003, except parapet bracing referred to in Section 707.8 shall apply to all buildings undergoing Level 3 alterations
- (Structural) 707.2 Reduction of strength.
  - Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.
  - Exception: Such reduction shall be allowed provided that the structural strength and the stability of the building are not reduced to below the IBC levels.
- (Structural) 707.3 New structural members.
  - New structural members in alterations, including connections and anchorage, shall comply with the IBC.

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PART D  
**International Existing Building Code**

- (Structural) 707.4 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.
- (Structural) 707.5 Structural alterations.
  - Buildings and structures undergoing structural alterations or buildings in which the seismic base shear is increased by more than 5 percent because of alterations shall comply with this section.

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PART D  
**International Existing Building Code**

- 707.5.1 Evaluation and analysis.
  - An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official. Where more than 30 percent of the total floor and roof areas of the building or structure has been or is proposed to be involved in structural alteration within a 12month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the IBC for wind loading and with reduced IBC level seismic forces as specified in Section 407.1.1.3 for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 407.1.1.1. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components such as joists, beams, columns, walls, and other structural components that have been or will be removed, added, or altered, as well as areas such as mezzanines, penthouses, roof structures, and in-filled courts and shafts.
  - Exceptions: [Not applicable to this case study.]

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PART D  
**International Existing Building Code**

- 707.5.2 Limited structural alteration.
  - Where not more than 30 percent of the total floor and roof areas of the building is involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time the building was constructed.
- (Structural) 707.6 Additional vertical loads.
  - Where gravity loading is increased on the roof or floor of a building or structure, all structural members affected by such increase shall meet the gravity load requirements of the IBC.
  - Exceptions:
    1. Structural elements whose stress is not increased by more than 5 percent.
    2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the IBC or in compliance with the provisions of the International Residential Code.

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PART D  
**International Existing Building Code**

- (Structural) 707.7 Voluntary lateral-force-resisting system alterations.
  - Alterations of existing structural elements that are initiated for the purpose of increasing the lateral-force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the IBC provided that an engineering analysis is submitted to show that:
    1. The capacity of existing structural elements required to resist forces is not reduced;
    2. The lateral loading to existing structural elements is not increased beyond their capacity;
    3. New structural elements are detailed and connected to the existing structural elements as required by the IBC;
    4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the IBC; and
    5. A dangerous condition as defined in this code is not created.
  - Voluntary alterations to lateral-force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

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PART D  
**International Existing Building Code**

- Chapter 6 - Alterations -Level 2
- (General) **601.1 Scope**
- Level 2 alterations as described in Section 304 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 506.2 shall be permitted to comply with Chapter 5.
- (General) **601.2 Alteration Level 1 Compliance**
- In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 5.

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PART D  
**International Existing Building Code**

- (General) 601.3 Compliance.
  - All new construction elements, components, systems, and spaces shall comply with the requirements of the IBC.
  - Exceptions:
    1. Windows may be added without requiring compliance with the light and ventilation requirements of the IBC.
    2. Newly installed electrical equipment shall comply with the requirements of Section 608.
    3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 605.6.
    4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 6 feet 8 inches (2032 mm). Basement spaces of Type R, M, B and S can have a ceiling height of not less than 6 feet 4 inches (1930.4 mm) of clear height under beams, girders, ducts and similar obstructions, provided no more than 30 percent of the floor area is below 6 feet 8 inches (2302 mm) and the basement is limited to one story below grade.

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PART D  
**International Existing Building Code**

- (Special Use and Occupancy) **602.1 General.**
- Alteration of buildings classified as special use and occupancy as described in the IBC shall comply with the requirements of Section 601.1 and the scoping provisions of Chapter 1 where applicable.
- (Building Elements and Materials) **603.1 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.

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PART D  
**International Existing Building Code**

- (Building Elements and Materials) **603.2 Vertical openings.**
- Existing vertical openings shall comply with the provisions of Sections 603.2.1, 603.2.2, and 603.2.3.
- **603.2.1 Existing vertical openings.**
- All 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.

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**PART D**  
**International Existing Building Code**

- Exceptions:
- 1. Where vertical opening enclosure is not required by the IBC 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 3.1. All of the following conditions are met:
    - 3.1.1. The communicating area has a low hazard occupancy or has a moderate hazard occupancy that is protected throughout by an automatic sprinkler system.
    - 3.1.2. The lowest or next to the lowest level is a street floor.
    - 3.1.3. The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.
    - 3.1.4. Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.
    - 3.1.5. Each floor level, considered separately, has at least 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.
- [Exceptions 4-10 not shown]

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**PART D**  
**International Existing 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 603.2.1, 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 604.4.
- [Exceptions 12 - 14 not shown]

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**PART D**  
**International Existing Building Code**

- (Building Elements and Materials) 603.2.2 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 603.2 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.
- (Building Materials and Elements) 603.2.3 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 IBC or the International Fire Code.

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PART D  
**International Existing Building Code**

- (Building Materials and Elements) **603.4 Interior finish.**
- The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the IBC.
- **Exception:** Existing interior finish materials that do not comply with the interior finish requirements of the IBC shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.
- **603.4.1 Supplemental interior finish requirements.**
- Where the work area on any floor exceeds 50 percent of the floor area, Section 603.4 shall also 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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PART D  
**International Existing Building Code**

- (Building Materials and Elements) **603.5 Guards.**
  - The requirements of Sections 603.5.1 and 603.5.2 shall apply in all work areas.
- **603.5.1 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.
- **603.5.2 Design.**
  - Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the IBC.

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PART D  
**International Existing Building Code**

- (Fire Protection) **604.1 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.
- (Fire Protection) **604.2 Automatic sprinkler systems.**
  - Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 604.2.1 through 604.2.5. Installation requirements shall be in accordance with the IBC.

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PART D  
**International Existing Building Code**

- **604.3 Standpipes.**
- Where the aggregate work area exceeds 50 percent of any single floor area and any work area is located more than 30 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the IBC.

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PART D  
**International Existing Building Code**

- Exceptions:
- 1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.
- 2. The interconnection of multiple standpipe risers shall not be required.

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PART D  
**International Existing Building Code**

- **604.4 Fire alarm and detection.**
- An approved fire alarm system shall be installed in accordance with Sections 604.4.1 through 604.4.3. Where automatic sprinkler protection is provided in accordance with Section 604.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.
- An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.

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PART D  
**International Existing Building Code**

- (Means of Egress) 605.1 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.
- (Means of Egress) 605.2 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 Part IV of the 2005 Connecticut Statefire Safety Code.
  2. For buildings constructed under a permit applied for on or after September 1, 1971, means of egress conforming to the requirements of the State Building Code under which the building was constructed shall be considered compliant means of egress providing that no unsafe conditions exist within the means of egress.

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PART D  
**International Existing Building Code**

- (Means of Egress) 605.3 Number of exits.
  - The number of exits shall be in accordance with Sections 605.3.1 through 605.3.3.
- 605.3.1 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 IBC. In addition, the exits shall comply with Sections 605.3.1.1 and 605.3.1.2.

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PART D  
**International Existing Building Code**

- (Means of Egress) **605.3 Number of exits.**
- The number of exits shall be in accordance with Sections 605.3.1 through 605.3.3.
- **605.3.1 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 IBC. In addition, the exits shall comply with Sections 605.3.1.1 and 605.3.1.2.

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PART D  
International Existing Building Code

- **605.3.1.1 Single-exit buildings.**
- Only one exit is required from buildings and spaces of the following occupancies:
- 1. In Group A, B, E, F, M, U, and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).
- 2. Group B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,000 square feet per floor (279 m<sup>2</sup>), when the exit access travel distance does not exceed 75 feet (22 860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.
- 3. Open parking structures where vehicles are mechanically parked.
- 4. In buildings containing Group B, S2, or M occupancies, the required building features in Table 605.3.1(1) shall be provided based upon the highest story occupied by the specific use group.

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PART D  
International Existing Building Code

- 5. In buildings containing Group R2 apartment or boarding houses or R3 occupancies, the required building features in Table 605.3.1.1 (2) shall be provided based upon the highest story occupied by the specific use group.
- 6. In Group R-2, H-4, H-5, and I occupancies and in rooming houses and childcare centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm).
- 7. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 4 square feet (0.37 m<sup>2</sup>) in area, a minimum dimension of 18 inches (457 mm) in height with bottom of opening no higher than 4 feet 6 inches (1372 mm) in a basement.
- 8. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from basements or stories below grade

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PART D  
International Existing Building Code

- **605.3.1.2 Fire escapes required.**
  - When more than one exit is required, an existing or newly constructed fire escape complying with Section 605.3.1.2.1 shall be accepted as providing one of the required means of egress.
- **605.3.1.2.1 Fire escape access and details.**
  - Fire escapes shall comply with all of the following requirements:
- **605.3.1.2.2 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.
- **605.3.1.2.3 Dimensions.**
  - Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm). Landings at the foot of stairs shall not be 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.

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PART D  
**International Existing Building Code**

- **605.3.2 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 at least 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.

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PART D  
**International Existing Building Code**

- (Amd) **605.3.3 Main Entrance – Group A.** In Group A occupancies renovated or altered to increase capacity that have a single main entrance, such main entrance shall also be the main exit. The main entrance/exit shall be of sufficient width to accommodate not less than two-thirds of the occupant load, but such width shall not be less than the total required width of all means of egress leading to the exit. The remaining exits shall be capable of providing at least one-half of the total required exit capacity.
- Exception: In assembly occupancies where there is no well-defined main entrance and main exit or where multiple main entrances and main exits are provided, exits shall be permitted to be distributed around the perimeter of the building or space containing the assembly occupancy, provided that the total width of egress is not less than 100 per cent of the required width.

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PART D  
**International Existing Building Code**

- (Means of Egress) **605.4 Egress doorways.**
  - Egress doorways in any work area shall comply with Sections 605.4.1 through 605.4.5.
- **605.4.1 Two egress doorways required.**
  - Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 605.4.1.1 and 605.4.1.2.
- **605.4.1.1 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 a minimum of two egress doorways.
  - Exceptions: [Not relevant to this case study]

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**PART D**  
**International Existing Building Code**

- 605.4.2 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.
- 605.4.2.1 Supplemental requirements for door swing.
  - Where the work area exceeds 50 percent of the floor area, door swing shall comply with Section 605.4.2 throughout the floor.
  - Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.
- 605.4.3 Door closing.
  - In any work area, all doors opening onto an exit passageway at grade or an exit stair shall be self-closing or automatically closing by listed closing devices.
  - Exceptions:
    1. Where exit enclosure is not required by the IBC.
    2. Means of egress within or serving only a tenant space that is entirely outside the work area.
- 605.4.3.1 Supplemental requirements for door closing.
  - Where the work area exceeds 50 percent of the floor area, doors shall comply with Section 605.4.3 throughout the exit stair from the work area to the level of exit discharge.

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**PART D**  
**International Existing Building Code**

- (Means of Egress) 605.5 Openings in corridor walls.
  - Openings in corridor walls in any work area shall comply with Sections 605.5.1 through 605.5.4.
  - Exception: Openings in corridors where such corridors are not required to be rated in accordance with the IBC.
- 605.5.1 Corridor doors.
  - Corridor doors in the work area shall not be constructed of hollow core wood and shall not contain louvers. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be at least 1 3/8 -inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels, other than approved wired glass or other approved glazing material in metal frames. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be equipped with approved door closers. All replacement doors shall be 1 3/4 -inch (45 mm) solid bonded wood core or approved equivalent, unless the existing frame will accommodate only a 1 3/8 -inch (35 mm) door.
  - Exceptions:
    1. Corridor doors within a dwelling unit or sleeping unit.
    2. Existing doors meeting the requirements of HUD Guideline on Fire Ratings of Archaic Materials and Assemblies (IEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
    3. Existing doors in buildings protected throughout with an approved automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting, and shall not contain louvers.
    4. In group homes with a maximum of 15 occupants and that are protected with an approved automatic detection system, closing devices may be omitted.
    5. Door assemblies having a fire-protection rating of at least 20 minutes.

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**PART D**  
**International Existing Building Code**

- 605.5.2 Transoms.
  - In all buildings of Group I-1, R-1, and R-2 occupancy, all transoms in corridor walls in work areas shall either be glazed with 1/4 -inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire-protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.
- 605.5.3 Other corridor openings.
  - In any work area, any other sash, grill, or opening in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.
- 605.5.3.1 Supplemental requirements for other corridor opening.
  - Where the work area exceeds 50 percent of the floor area, Section 605.5.3 shall be applicable to all corridor windows, grills, sashes, and other openings on the floor.
- Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.
- 605.5.4 Supplemental requirements for corridor openings.
  - Where the work area on any floor exceeds 50 percent of the floor area, the requirements of Sections 605.5.1 through 605.5.3 shall apply throughout the floor.

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PART D  
International Existing Building Code

- 605.6 Dead-end corridors.
  - Dead-end corridors in any work area shall not exceed 35 feet (10 670 mm).
  - Exceptions:
    1. Where dead-end corridors of greater length are permitted by the IBC.
    2. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15 240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the IBC.
    3. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21 356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the IBC.
    4. In other than Group A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15 240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the IBC.

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PART D  
International Existing Building Code

- 605.7 Means-of-egress lighting.
  - Means-of-egress lighting shall be in accordance with this section, as applicable.
- 605.7.1 Artificial lighting required.
  - Means of egress in all work areas shall be provided with artificial lighting in accordance with the requirements of the IBC.
- 605.7.2 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 605.7.1.
  - **Exception:** Means of egress within or serving only a tenant space that is entirely outside the work area.

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PART D  
International Existing Building Code

- 605.8 Exit signs.
  - Exit signs shall be in accordance with this section, as applicable.
- 605.8.1 Work areas.
  - Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the IBC.
- 605.8.2 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 605.8.1.
  - **Exception:** Means of egress within a tenant space that is entirely outside the work area.

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**PART D**  
**International Existing Building Code**

- 605.9 Handrails.
  - The requirements of Sections 605.9.1 and 605.9.2 shall apply to handrails from the work area floor to the level of exit discharge.
- 605.9.1 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 at least 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 run of steps on at least one side. All exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.
- 605.9.2 Design.
  - Handrails required in accordance with Section 605.9.1 shall be designed and installed in accordance with the provisions of the IBC

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**PART D**  
**International Existing Building Code**

- 605.10 Guards.
  - The requirements of Sections 605.10.1 and 605.10.2 shall apply to guards from the work area floor to the level of exit discharge but shall be confined to the egress path of any work area.
- 605.10.1 Minimum requirement.
  - Every open portion of a stair, 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.
- 605.10.2 Design.
  - Guards required in accordance with Section 605.10.1 shall be designed and installed in accordance with the IBC.

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**PART D**  
**International Existing Building Code**

- (Accessibility) 606.1 General.
  - A building, facility, or element that is altered shall comply with Section 506.
- (Accessibility) 606.2 Stairs and escalators in existing buildings.
  - In alterations where an escalator or stair is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5 of the IBC.
- (Accessibility) 606.3 Dwelling units and sleeping units.
  - Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling units or sleeping units are being added, the requirements of Section 1107 of the IBC for accessible units or Type A units and Chapter 9 of the IBC for accessible alarms apply only to the quantity of spaces being added.

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PART D  
**International Existing Building Code**

- (Structural) 607.1 General.
  - Where alteration work includes installation of additional equipment that is structurally supported by the building or reconfiguration of space such that portions of the building become subjected to higher gravity loads as required by Tables 1607.1 and 1607.6 of the IBC, the provisions of this section shall apply.
- (Structural) 607.2 Reduction of strength.
  - Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.
  - Exception: Such reduction shall be allowed as long as the strength and the stability of the building are not reduced to below the IBC levels.
- (Structural) 607.3 New structural members.
  - New structural members in alterations, including connections and anchorage, shall comply with the IBC.

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PART D  
**International Existing Building Code**

- (Structural) 607.4 Existing structural members.
  - Existing structural components supporting additional equipment or subjected to additional loads based on IBC Tables 1607.1 and 1607.6 as a result of a reconfiguration of spaces shall comply with Sections 607.4.1 through 607.4.3.
- 607.4.1 Gravity loads.
  - Existing structural elements supporting any additional gravity loads as a result of additional equipment or space reconfiguration shall comply with the IBC.
  - Exceptions:
    1. Structural elements whose stress is not increased by more than 5 percent.
    2. Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the IBC or the provisions of the International Residential Code.

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PART D  
**International Existing Building Code**

- 607.4.2 Lateral loads.
  - Buildings in which Level 2 alterations increase the seismic base shear by more than 5 percent shall comply with the structural requirements specified in Section 707.
- 607.4.3 Snow drift loads.
  - Any structural element of an existing building subjected to additional loads from the effects of snow drift as a result of additional equipment shall comply with the IBC.
  - Exceptions:
    1. Structural elements whose stress is not increased by more than 5 percent.
    2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the IBC or the provisions of the International Residential Code.

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PART D  
**International Existing Building Code**

- (Electrical) 608.1 New installations.
  - All newly installed electrical equipment and wiring relating to work done in any work area shall comply with the materials and methods requirements of Chapter 5.
  - Exception: Electrical equipment and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of the ICC Electrical Code.
- (Electrical) 608.2 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 5.

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PART D  
**International Existing Building Code**

- (Electrical) **608.3 Residential occupancies.**
- In Group R-2, R-3, and R-4 occupancies and buildings regulated by the International Residential Code, the requirements of Sections 608.3.1 through 608.3.7 shall be applicable only to work areas located within a dwelling unit.
- **608.3.1 Enclosed areas.**
- All enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas, and bathrooms shall have a minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall-type lighting outlet.
- **608.3.2 Kitchens.**
- Kitchen areas shall have a minimum of two duplex receptacle outlets.
- **608.3.3 Laundry areas.**
- Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.

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PART D  
**International Existing Building Code**

- **608.3.4 Ground fault circuit interruption.**
- Newly installed receptacle outlets shall be provided with ground fault circuit interruption as required by the ICC Electrical Code.
- **608.3.5 Minimum lighting outlets.**
- At least 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.**
- **608.3.6 Utility rooms and basements.**
- At least one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.
- **608.3.7 Clearance for equipment.**
- Clearance for electrical service equipment shall be provided in accordance with the ICC Electrical Code.

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PART D  
**International Existing Building Code**

- (Mechanical) 609.1 Reconfigured or converted spaces.
  - All reconfigured spaces intended for occupancy and all 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 609.2.
- (Mechanical) 609.2 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 m<sup>3</sup>/s) per person of outdoor air and not less than 15 cfm (0.0071 m<sup>3</sup>/s) of ventilation air per person; or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.

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PART D  
**International Existing Building Code**

- (Mechanical) **609.3 Local exhaust.**
- All newly introduced devices, equipment, or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust.
- (Plumbing) **610.1 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 Code based on the increased occupant load.

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PART D  
**International Existing Building Code**

- Chapter 5 - Alterations -Level 1
- 501.1 Scope.
  - Level 1 alterations as described in Section 303 shall comply with the requirements of this chapter. Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 10.
- 501.2 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 IBC.
- 501.3 Flood hazard areas.
  - In flood hazard areas, alterations that constitute substantial improvement shall require that the building comply with Section 1612 of the IBC.

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PART D  
**International Existing Building Code**

- (Building Elements and Materials) 503.1 Interior finishes.
  - All newly installed interior finishes shall comply with the flame spread requirements of the IBC.
- (Building Elements and Materials) 503.2 Carpeting.
  - New carpeting used as an interior floor finish material shall comply with the radiant flux requirements of the IBC.
- (Building Elements and Materials) 503.3 Materials and methods.
  - All new work shall comply with materials and methods requirements in the NFPA 70, IBC, IMC, and IPC, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

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PART D  
**International Existing Building Code**

- (Fire Protection ) 504.1 General.
  - Alterations shall be done in a manner that maintains the level of fire protection provided.
- (Means of Egress) 505.1 General.
  - Means of egress for buildings undergoing alteration shall comply with the requirements of Section 501.1 and the scoping provisions of Chapter 1 where applicable.
- (Add) (Means of Egress) 505.2 Minimum standards. In addition to the requirements of this code, means of egress in existing buildings shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

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PART D  
**International Existing Building Code**

- (Accessibility) 506.1 General.
  - A building, facility, or element that is altered shall comply with the applicable provisions in Sections 506.1.1 through 506.1.12, Chapter 11 of the IBC, and ICC A117.1 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 506.2.
    2. Accessible means of egress required by Chapter 10 of the IBC are not required to be provided in existing buildings and facilities.
    3. Type B dwelling or sleeping units required by Section 1107 of the IBC are not required to be provided in existing buildings and facilities.

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PART D  
**International Existing Building Code**

- 506.1.1 Entrances.
  - Where an alteration includes alterations to an entrance, and the building or facility has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 506.2. Signs complying with Section 1110 of the IBC shall be provided.
- 506.1.2 Elevators.
  - Altered elements of existing elevators shall comply with ASME A17.1, A17.1a, A17.1s 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.
- 506.1.3 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.
- 506.1.4 Ramps.
  - Where steeper slopes than allowed by Section 1010.2 of the IBC are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 506.1.4.

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PART D  
**International Existing Building Code**

- 506.1.5 Dining areas.
  - An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.
- 506.1.6 Performance areas.
  - Where it is technically infeasible to alter performance areas to be on an accessible route, at least one of each type of performance area shall be made accessible.
- 506.1.7 Jury boxes and witness stands.
  - In alterations, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.
- 506.1.8 Dwelling or sleeping units.
  - Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the IBC for accessible or Type A units and Chapter 9 of the IBC for accessible alarms apply only to the quantity of the spaces being altered.

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PART D  
**International Existing Building Code**

- 506.1.9 Toilet rooms.
  - Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.
- 506.1.10 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.
- 506.1.11 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.
- 506.1.12 Extent of application.
  - An alteration of an existing element, space, or area of a building or facility shall not impose a requirement for greater accessibility than that which would be required for new construction. Alterations shall not reduce or have the effect of reducing accessibility of a building, portion of a building, or facility.

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PART D  
**International Existing Building Code**

- (Accessibility) 506.2 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 or drinking fountains serving the area of primary function. For the purposes of complying with this section, an area of primary function shall be defined by applicable provisions of 49 CFR Part 37.43 (c) or 28 CFR Part 36.403.
  - 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 an existing building, facility, or element.

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PART D  
**International Existing Building Code**

- (Structural) 507.1 General.
  - Where alteration work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the structural provisions of this section shall apply.

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PART D  
**International Existing Building Code**

- (Structural) 507.2 Design criteria.
  - Existing structural components supporting alteration work shall comply with this section.
- 507.2.1 Replacement of roofing or equipment.
  - Where replacement of roofing or equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the vertical load requirements of the IBC.
  - Exceptions:
    1. Structural elements whose stress is not increased by more than 5 percent.
    2. Buildings constructed in accordance with the International Residential Code or the conventional construction methods of the IBC and where the additional dead load from the equipment is not increased by more than 5 percent.

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PART D  
**International Existing Building Code**

- (Structural) 507.3 Roof diaphragm.
  - Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building where the roof diaphragm is a part of the main windforce-resisting system the integrity of the roof diaphragm shall be evaluated and if found deficient because of insufficient or deteriorated connections, such connections shall be provided or replaced.

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PART D  
**International Existing Building Code**

Chapter 4 - Repairs

- 401.1 Scope.
  - Repairs as described in Section 302 shall comply with the requirements of this chapter. Repairs to historic buildings shall comply with this chapter, except as modified in Chapter 10.
- 401.2 Permitted materials.
  - Except as otherwise required herein, work shall be done using materials permitted by the applicable code for new construction or using like materials such that no hazard to life, health or property is created.
- 401.3 Conformance.
  - The work shall not make the building less conforming to the building, plumbing, mechanical, electrical or fire codes of the jurisdiction, or to alternative materials, design and methods of construction, or any previously approved plans, modifications, alternative methods, or compliance alternatives, than it was before the repair was undertaken.

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PART D  
**International Existing Building Code**

- **401.4 Flood hazard areas.**
- In flood hazard areas, repairs that constitute substantial improvement shall require that the building comply with Section 1612 of the IBC.
- **.402.1 General.**
- Repair of buildings classified as special use or occupancy as described in the IBC shall comply with the requirements of this chapter.

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PART D  
**International Existing Building Code**

- (Building Elements and Materials) 403.1 Hazardous materials.
  - Hazardous materials that are no longer permitted, such as asbestos and lead-based paint, shall not be used.
- (Building Elements and Materials) 403.2 Glazing in hazardous locations.
  - Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the IBC or International Residential Code as applicable.
  - Exception: Glass block walls, louvered windows, and jalousies repaired with like materials.

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PART D  
**International Existing Building Code**

- (Fire Protection) 404.1 General.
  - Repairs shall be done in a manner that maintains the level of fire protection provided.
- (Means of Egress) 405.1 General.
  - Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.
- (Accessibility) 406.1 General.
  - Repairs shall be done in a manner that maintains the level of accessibility provided.

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PART D  
**International Existing Building Code**

- (Structural) 407.1 General.
  - Repairs of structural elements shall comply with this section.
- 407.1.1 Seismic evaluation and design.
  - Seismic evaluation and design of an existing building and its components shall be based on the assumed forces related to the response of the structure to earthquake motions.
- 407.1.2 Wind design.
  - Wind design of existing buildings shall be based on the procedures specified in the IBC or International Residential Code as applicable.

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PART D  
**International Existing Building Code**

- (Structural) 407.2 Reduction of strength.
  - Repairs shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.
  - Exception: Such reduction shall be allowed provided the capacity is not reduced to below the IBC levels.

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PART D  
**International Existing Building Code**

- (Structural) 407.3 Damaged buildings.
  - Damaged buildings shall be repaired in accordance with this section.
- 407.3.1 New structural frame members.
  - New structural frame members used in the repair of damaged buildings, including anchorage and connections, shall comply with the IBC.
  - Exception: For the design of new structural frame members connected to existing structural frame members, the use of reduced IBC level seismic forces as specified in Section 407.1.1.3 shall be permitted.

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PART D  
**International Existing Building Code**

- 407.3.2 Substantial structural damage.
  - Buildings that have sustained substantial structural damage shall comply with this section.
- 407.3.2.1 Engineering evaluation and analysis.
  - An engineering evaluation and analysis that establishes the structural adequacy of the damaged building shall be prepared by a registered design professional and submitted to the code official. The evaluation and analysis may assume that all damaged structural elements and systems have their original strength and stiffness. The seismic analysis shall be based on one of the procedures specified in Section 407.1.1.
- 407.3.2.1.1 Extent of repair.
  - The evaluation and analysis shall demonstrate that the building, once repaired, complies with the wind and seismic provisions of the IBC.
  - Exception: The seismic design level for the repair design shall be the higher of the Building Code in effect at the time of original construction or reduced IBC level seismic forces as specified in Section 407.1.1.3.

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PART D  
**International Existing Building Code**

- 407.3.3 Below substantial structural damage.
  - Repairs to buildings damaged to a level below the substantial structural damage level as defined in Section 202 shall be allowed to be made with the materials, methods, and strengths in existence prior to the damage unless such existing conditions are dangerous as defined in Chapter 2. New structural frame members as defined in Chapter 2 shall comply with Section 407.3.1.
- 407.3.4 Other uncovered structural elements.
  - Where in the course of conducting repairs other uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements of Section 407.3.2.1.1.
- 407.3.5 Flood hazard areas.
  - In flood hazard areas, damaged buildings that sustain substantial damage shall be brought into compliance with Section 1612 of the IBC.

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PART D  
**International Existing Building Code**

- (Electrical) 408.1 Material.
  - Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material.
  - Exceptions:
    1. Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.3(D) of NFPA 70.
    2. 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.
    3. 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© of NFPA 70.
    4. Non-“hospital grade” receptacles in patient bed locations of Group I-2 shall be replaced with “hospital grade” receptacles, as required by NFPA 99 and Article 517 of NFPA 70.
    5. 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.

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PART D  
**International Existing Building Code**

- (Mechanical) 409.1 General.
  - Existing mechanical systems undergoing repair shall comply with Section 401.1 and the scoping provisions of Chapter 1 where applicable.

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PART D  
**International Existing Building Code**

- (Plumbing) 410.1 Materials.
  - The following plumbing materials and supplies shall not be used:
    - 1. Sheet and tubular copper and brass trap and tailpiece fittings less than the minimum wall thickness of .027 inch (0.69 mm).
    - 2. Solder having more than 0.2-percent lead in the repair of potable water systems.
    - 3. Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M.

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PART D  
**International Existing Building Code**

- 4. The following types of joints shall be prohibited:
  - 4.1. Cement or concrete joints.
  - 4.2. Mastic or hot-pour bituminous joints.
  - 4.3. Joints made with fittings not approved for the specific installation.
  - 4.4. Joints between different diameter pipes made with elastomeric rolling O-rings.
  - 4.5. Solvent-cement joints between different types of plastic pipe.
  - 4.6. Saddle-type fittings.
- 5. The following types of traps are prohibited:
  - 5.1. Traps that depend on moving parts to maintain the seal.
  - 5.2. Bell traps.
  - 5.3. Crown-vented traps.
  - 5.4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an approved material that is resistant to corrosion and degradation.

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PART D  
**International Existing Building Code**

- (Plumbing) 410.2 Water closet replacement.
  - When any water closet is replaced, the replacement water closet shall comply with the International Plumbing Code. 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].

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Questions??

**Thank You for Attending!**

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