

International Existing Building Code - Simplified
Presented March 15, 2011

International Existing Building Code
Simplified

Presented by
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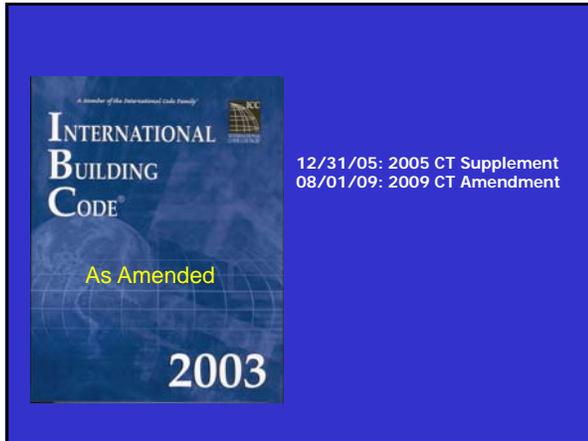
Learning Objective

Provide an understanding of the requirements governing repair, alterations, and changes of occupancy under the IEBC

Agenda

- Existing buildings
- Repairs
- Level 1, 2, & 3 alterations
- Change of Occupancy
- Historic buildings

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Application

Applies 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.

Application

Exceptions:

1. IRC.
2. Existing buildings undergoing repair, movement, alterations or additions and change of occupancy shall be permitted to comply with the *2003 IEBC*.

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Application

Exception 2: *continued*

The choice to comply with *CSBC* or *IEBC* 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.

Definitions

Alteration. Any construction or renovation to an existing structure other than repair or addition.

Repair. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

Definitions

Existing structure. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.

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Existing Buildings

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.

Existing Buildings

No proposed work

- Chapter 34 – Maintenance
- Section 115 – Unsafe structures/equipment
- Section 116 – Emergency measures
- Section 117 – Vacant buildings
- Connecticut Fire Safety Code

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.

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Maintenance - *continued*

The owner or the owner's designated agent shall be responsible for the maintenance of buildings and structures.

...the building official shall have the authority to inspect.

...this chapter shall not provide the basis for removal of fire protection and safety systems and devices in existing structures.

Unsafe Structures

Unsafe, insanitary or deficient because of inadequate 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

A vacant structure that is not secured against entry shall be deemed unsafe.

Vacant Buildings

Buildings, structures and/or premises

- Temporarily unoccupied
- Abandoned premises
- Safeguarding - security
- Fire protection
- Fire separation
- Combustibles – Hazardous materials

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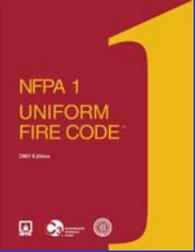
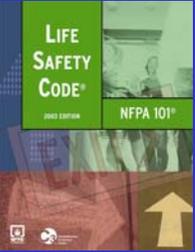
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Connecticut Fire Safety Code

Existing buildings

- **Part I – Administrative**
- **Part II – General**
- **Part III – New Construction, Renovations, or Change of Use**
- **Part IV – Existing Buildings/Occupancies**
- **Part V – Maintenance & Operations**

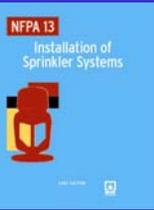
CT Fire Safety Code



Part IV **Part V**

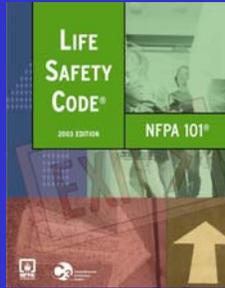
12/31/05: 2005 CT Supplement
08/01/09: 2009 CT Amendment

Part II - General



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**Part IV – Existing Buildings/
Occupancies**



As Amended

- .1 General
- .2 Means of Egress
- .3 Protection
- .4 Special Provisions
- .5 Building Services
- .6 Reserved
- ~~.7 Operating Features~~

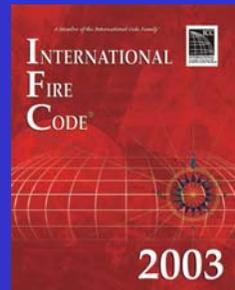
Part V – Maintenance & Operations



As Amended

- General Fire Safety
- Building Services
- Fire Protection Systems
- Means of Egress
- Occupancy Fire Safety
- Commercial Cooking Equipment

**Part III – New Construction,
Renovations, Change of Use**

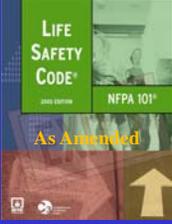


As Amended

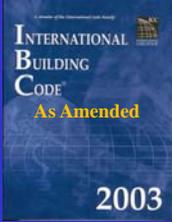
- New buildings
- Repairs, alterations, & additions
- Change of occupancy
- MEP & fire protection

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CFSC – Abatement Work



and



Work to correct cited violations
29-292-10e(4)

Fire Protection
MEP
Structural
105.1.3

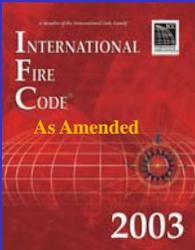
Excess Provisions

++
_____ **New Requirement**

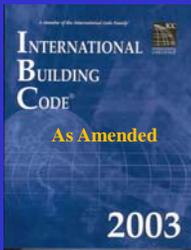
+
_____ **Existing Requirement**

↑

Alterations in Existing Buildings
(non CFSC abatement)



and



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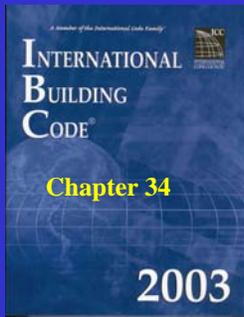
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Existing Buildings

Additions or alterations to any building or structure shall conform with the requirements of the code for new construction.

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.

Alternative Compliance



OR

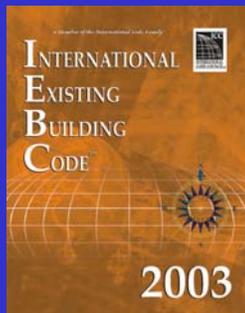


TABLE 3410.7 SUMMARY SHEET — BUILDING CODE			
Existing occupancy _____	Proposed occupancy _____		
Year building was constructed _____	Number of stories _____	Height in feet _____	
Type of construction _____	Area per floor _____		
Percentage of open perimeter _____ %	Percentage of height reduction _____ %		
Completely suppressed: Yes _____ No _____	Corridor wall rating _____		
Compartmentation: Yes _____ No _____	Required door closers: Yes _____ No _____		
Fire-resistance rating of vertical opening enclosures _____			
Type of HVAC system _____, serving number of floors _____			
Automatic fire detection: Yes _____ No _____	type and location _____		
Fire alarm system: Yes _____ No _____	type _____		
Smoke control: Yes _____ No _____	type _____		
Adequate exit routes: Yes _____ No _____	Dead ends: Yes _____ No _____		
Maximum exit access travel distance _____	Elevator controls: Yes _____ No _____		
Means of egress emergency lighting: Yes _____ No _____	Mixed occupancies: Yes _____ No _____		

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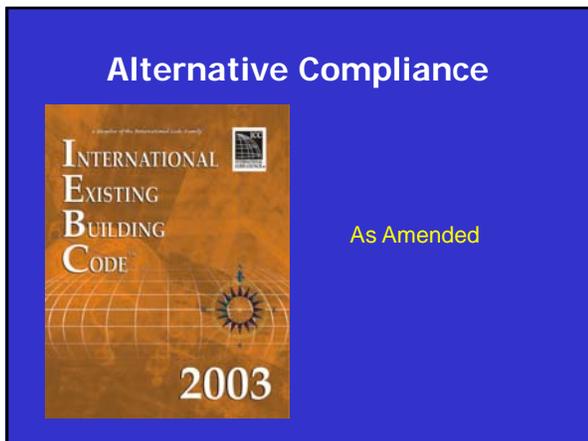
SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
3410.6.1 Building Height			
3410.6.2 Building Area			
3410.6.3 Compartmentation			
3410.6.4 Tenant and Dwelling Unit Separations			
3410.6.5 Corridor Walls			
3410.6.6 Vertical Openings			
3410.6.7 HVAC Systems			
3410.6.8 Automatic Fire Detection			
3410.6.9 Fire Alarm System			
3410.6.10 Smoke Control	****		
3410.6.11 Means of Egress	****		
3410.6.12 Dead ends	****		
3410.6.13 Maximum Exit Access Travel Distance	****		
3410.6.14 Elevator Control			
3410.6.15 Means of Egress Emergency Lighting	****		
3410.6.16 Mixed Occupancies		****	
3410.6.17 Automatic Sprinklers		+ 2 =	
3410.6.18 Incidental Use			
Building score — total value			

*** No applicable value to be inserted.

**TABLE 3410.9
EVALUATION FORMULAS^a**

FORMULA	T.3409.7	T.3409.8	SCORE	PASS	FAIL
FS-MFS ≥ 0	(FS) -	(MFS) =			
ME-MME ≥ 0	(ME) -	(MME) =			
GS-MGS ≥ 0	(GS) -	(MGS) =			

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



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Contents

- Administration
- Definitions
- Classification of Work
- Repairs
- Alterations – Level 1, 2, and 3
- Change of Occupancy
- Additions
- Historic Buildings
- Relocated or Moved Buildings
- Compliance Alternatives
- Construction Safeguards

Work Areas

That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents.

Work area excludes other portions of the building where incidental work must be performed and where work was not initially intended.

Repair

Patching or restoration of materials, elements, equipment, or fixtures for the purpose of maintaining such materials, elements, equipment, or fixtures in good or sound condition.

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Level 1 Alteration

Removal, replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose

Level 2 Alteration

Reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

Level 3 Alteration

Applies where the work area exceeds 50 percent of the aggregate area of the building.

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	Level 1	Level 2	Level 3
01	General	General	General
02	Special Use & Occupancy	Special Use & Occupancy	Special Use & Occupancy
03	Building Elements & Materials	Building Elements & Materials	Building Elements & Materials
04	Fire Protection	Fire Protection	Fire Protection
05	Means of Egress	Means of Egress	Means of Egress
06	Accessibility	Accessibility	Accessibility
07	Structural	Structural	Structural
08		Electrical	
09		Mechanical	
10		Plumbing	

	Level 1	Level 2	Level 3
01	General	General	General
02	Special Use & Occupancy	Special Use & Occupancy	Special Use & Occupancy
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09		Mechanical	
10		Plumbing	

Level 1 Alteration

Flood Hazard Areas

- Substantial improvements – *1612 CSBC*
 - *Costs ≥ 50% pre-construction market value, or*
 - *Structure substantially damaged*

Special Use & Occupancy – *new*

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Level 1 Alteration

Building Elements & Materials

- Interior finish & carpeting – *new*
- Materials & methods – *new*
- CT Gas & Piping Code

Fire Protection – *maintain existing levels*

Level 1 Alteration

Means of Egress – *CFSC Part IV*

Accessibility

- A building, facility or element that is altered shall comply with applicable provisions of:
 - Sections 506.1.1 through 506.1.12,
 - Chapter 11 CSBC
 - ICC A117.1

Level 1 Alteration

Accessibility - *continued*

- *Unless*
 - Technically infeasible,
 - Not on a required accessible route
 - Accessible means of egress not required
 - Type B units not required in existing

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Level 1 Alteration

Structural

- Replacement of equipment supported by the building, or re-roofing permit required
 - Unless additional dead loads $\leq 5\%$,
- Evaluation of the roof diaphragm for wind resistance capabilities required if $> 50\%$ of roofing material removed.

Dependency of Levels

01	General	General	General
02	Special Use & Occupancy	Special Use & Occupancy	Special Use & Occupancy
03	Building Elements & Materials	Building Elements & Materials	Building Elements & Materials
04	Fire Protection	Fire Protection	Fire Protection
05	Means of Egress	Means of Egress	Means of Egress
06	Accessibility	Accessibility	Accessibility
07	Structural	Structural	Structural
08		Electrical	
09		Mechanical	
10		Plumbing	

Level 2 Alteration

Comply with Level 2 and 1 Alterations

New construction, elements, components, systems & spaces – CSBC

Except:

- New windows from light & ventilation
- New electrical equipment per 608
- New dead-end corridors per 605.6
- New ceiling heights ≥ 7 -feet

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Level 2 Alteration

Special Use & Occupancy – *Level 1*

Building Elements & Materials

- Vertical openings in Level 2 work areas – *14 variations*
- All vertical openings & egress stairs in work areas > 50% of a floor are governed

Level 2 Alteration

Building Elements & Materials

- Smoke barriers in I-2
- Interior finish in exits & corridors – *new*
- Guards (If not provided or requiring replacement) – *new*

Level 2 Alteration

Fire Protection

- Apply throughout the work area w/ Level 2 Alteration in high-rise if work includes exit or corridor shared by > 1 tenant or OL > 30
- Apply throughout floor if above work > 50% floor area
- But only if there is sufficient water from existing standpipe or sprinkler riser

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Level 2 Alteration

Fire Protection

- Apply throughout the work area w/ Level 2 Alteration in Groups A, E, F-1, H, I, M, R-1, R-2, R-4 & S if work includes exit or corridor shared by > 1 tenant or OL > 30, if
 - CBSC requires in new
 - Work area > 50% of floor area
 - Sufficient municipal water supply w/o fire pump

Level 2 Alteration

Fire Protection

- Mixed uses
- Windowless stories
- Standpipes
- Fire alarm & detection

Level 2 Alteration

Means of Egress

- CFSC Part IV *and*
 - Number of exits
 - Fire escapes
 - Group A – main entrance
 - Egress doors
 - Dead-end corridors
 - Egress lighting
 - Handrails & guards

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Level 2 Alteration

Accessibility

- Added stairs or escalators require an accessible route between stories
- CSBC Sections 1107 & CH 9 for alarms only apply to the Accessible or Type A units added

Level 2 Alteration

Structural

- Additional equipment supported by the building or reconfiguration that increases gravity loading
- Increased lateral loads
- Increased snow drift loads

Level 2 Alteration

Electrical

- New work – *new*
- Existing wiring in A-1, A-2, A-5, H, & I work areas – *chapter 5 methods and materials*
- Residential features

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Level 2 Alteration

Mechanical

- Reconfigured or new habitable spaces—*new*
- Min. performance for existing systems if altered, reconfigured or extended
- Exhaust required if airborne matter, odor, fumes, ...allergens, pathogenic organisms in quantities causing discomfort

Level 2 Alteration

Plumbing

- Plumbing fixtures on a story when OL increases more than 20%—*new*

Dependency of Levels

01	General	General	General
02	Special Use & Occupancy	Special Use & Occupancy	Special Use & Occupancy
03	Building Elements & Materials	Building Elements & Materials	Building Elements & Materials
04	Fire Protection	Fire Protection	Fire Protection
05	Means of Egress	Means of Egress	Means of Egress
06	Accessibility	Accessibility	Accessibility
07	Structural	Structural	Structural
08		Electrical	
09		Mechanical	
10		Plumbing	

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Level 3 Alteration

Comply with Level 3, 2 and 1 Alterations

Special Use & Occupancy

- High-rise
 - Recirculating air systems
 - Elevators
- Boiler & Furnace Equipment

Level 3 Alteration

Building Elements & Materials

- Egress stairs require enclosure to the LED
- Interior finish in exits governed to LED

Level 3 Alteration

Fire Protection

- Apply throughout the work area in HR if there is sufficient water from existing standpipe or sprinkler riser
- Within rubbish & linen chutes
- Fire alarm throughout building

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Level 3 Alteration

Means of Egress

- CFSC Part IV *and*
- Egress lighting and signs from highest work area to LED

Change of Occupancy

812.1 Comply with Chapter 7 & 802 – 812

- 802 – Chapter 4 special occupancy stuff
- 803 – Building elements & materials
- 804 – Fire protection
- 805 – Means of egress
- 806 – Accessibility
- 807 – Structural
- 808 – Electrical
- 809 – Mechanical
- 810 – Plumbing
- 811 – Light & ventilation

Change of Occupancy

Partial change w/o separation

- Entire building

Partial change w/ separation

- Portion undergoing change

Compliance with Level 3 not required per
812.3

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Change of Occupancy

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

Life Safety & Exits

Change to higher hazard (lower number)

- Egress shall meet CH 10 CSBC
- 7 minor exceptions

Change to equal or lower hazard (higher number)

- Existing egress meet 705
- unless 812.3 is met
- New egress meet CH 10 CSBC

Change of Occupancy

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

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Heights & Areas

Change to higher hazard (lower number)

- H & A shall meet CH 5 CSBC

Change to equal or lower hazard (higher number)

- H & A deemed acceptable
- Separated mixed use meet CH 3 CSBC

Change of Occupancy

TABLE 812.4.3
HAZARD CATEGORIES AND CLASSIFICATIONS:
EXPOSURE OF EXTERIOR WALLS

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

Exterior Walls

Change to higher hazard (lower number)

- Walls shall meet CH 6 & 7 CSBC
- exception for 2-hr walls if ≤ 3 stories
and B, M, F, or S & some A w/ OL < 300

Change to equal or lower hazard (higher number)

- Walls & openings deemed acceptable

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Change of Occupancy

Change to equal or lower hazard (higher number) in all three categories

- Egress capacity
- Interior finish
- More if I-1, R-1, R-2, or R-3
- More if I-2
- More if I-3
- More if R-3

Historic Buildings



Work Governed

- Evaluation report
- Special occupancy exceptions - museums
- Flood hazard areas
- Repairs
- Fire safety
- Alterations
- Change of occupancy
- Structural

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