RICHMOND
INTERNATIONAL CODE COUNCIL 2018

Welcome to the

2018 Annual Conference Educational Sessions

Session: 2018 IEBC Essentials Key Concepts

Sponsored by ORACLE

2018 IEBC Essentials – Part 2

Based on the International Existing Building Code® (IEBC®)

Objectives

Upon completion, participants will be better able to:

- Recognize the classifications of work associated with existing buildings.
- Identify fire protection systems that need to be upgraded.
- Recognize vertical openings that need partial or complete enclosure.
- Identify thresholds that trigger additional requirements for the existing building.

Part 2

Compliance Methods

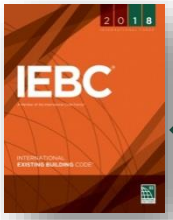
Work Area Method

- Repairs
- Alteration Level 1
- Alteration Level 2
- Alteration Level 3
- Change of Occupancy
- Additions
- Relocated or Moved Buildings

Work Area Method

General, Cont.,

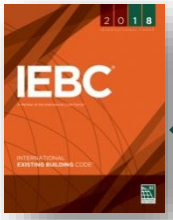
- ”Work Area” is a legal term and, as such, is defined in the Chapter 2 Definitions of the IEBC.
  - “That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code. ”



Work Area Method

General, Cont.,

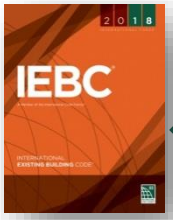
- A key word in the definition is “reconfigured”.
- Either a space, component or system is being reconfigured in order to apply the work area method.
- Any lack of clarity in defining the Work Area can have significant impacts on the level of overall compliance with new construction requirements of the IBC.



Work Area Method

General, Cont.,

- Accessibility requirements have now been removed from the various Work Area Level chapters and relocated to Section 305 of Chapter 3, “Provisions for All Compliance Methods”.
- The relocation makes it clear that Accessibility requirements universally apply to each of the methods of building rehabilitation.



Repairs

- Previous editions of the IEBC included Repairs as a part of the Work Area Compliance Method.
- In the 2018 edition of the IEBC, Repairs are now an independent chapter, Chapter 4, attached to none of the compliance methods.
- Chapter 4 defines when “Repairs” can be made with like materials and methods or must comply with the IBC/IRC.

Repairs

General

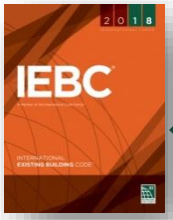
- Section 401.2 - A guiding principle when making repairs is the work cannot make the building less compliant than it was before the repair was made.

Repairs

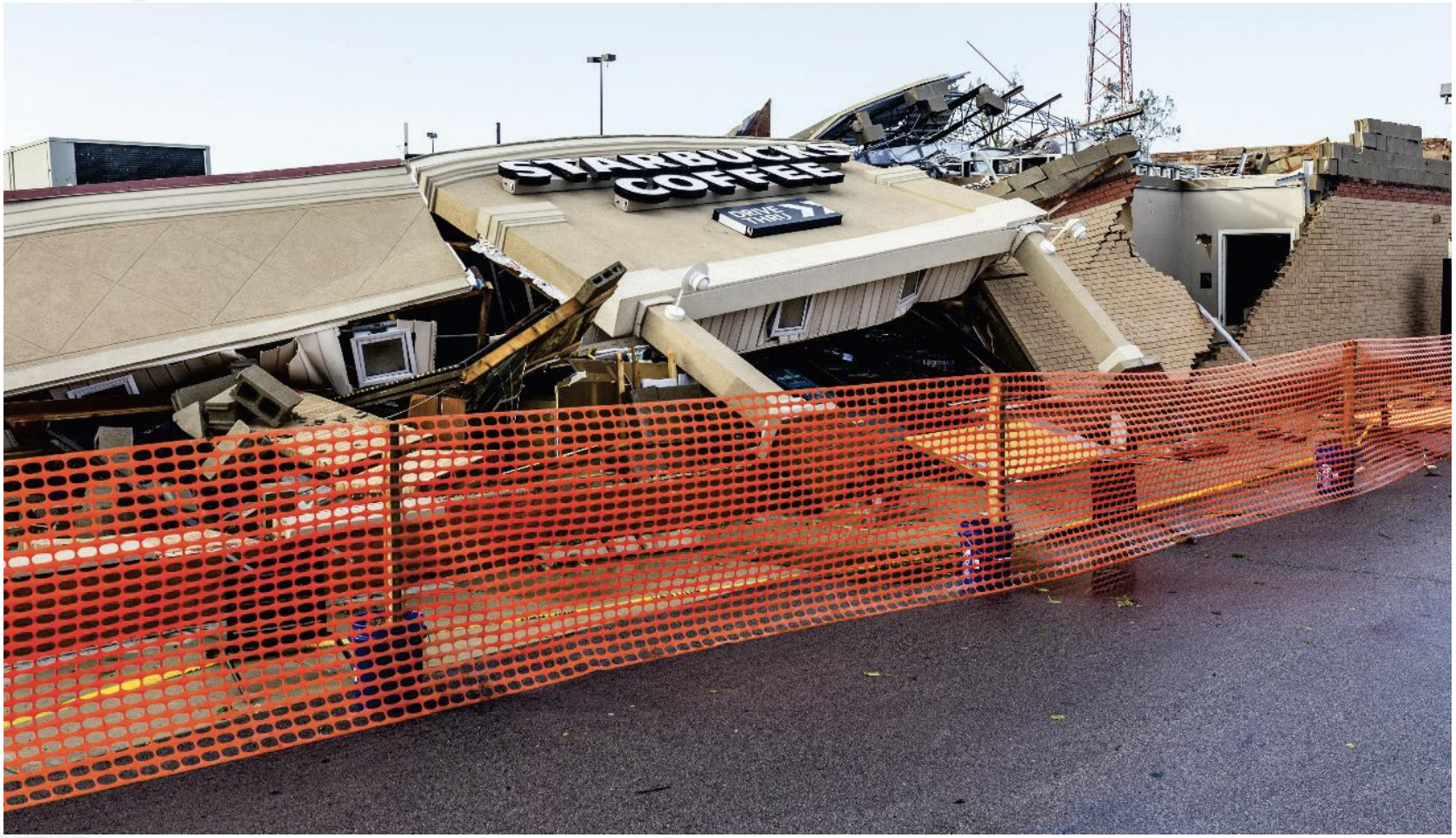
- **Section 402.1 –** Replacement glazing must comply with Section 2406 of the IBC

Repairs

- **Structural –** structural damage to a building can occur to buildings for a number of reasons, i.e., wind, earthquake, fire, flooding, falling trees, cars running into the building, etc.
- **Section 405.2.1 –** Repairs to buildings with less than substantial structural damage can restore structural elements to pre-damaged condition
- **Section 405.2.1.1 –** damage due to snow loading must be repaired in accordance with Section 1608 of the IBC

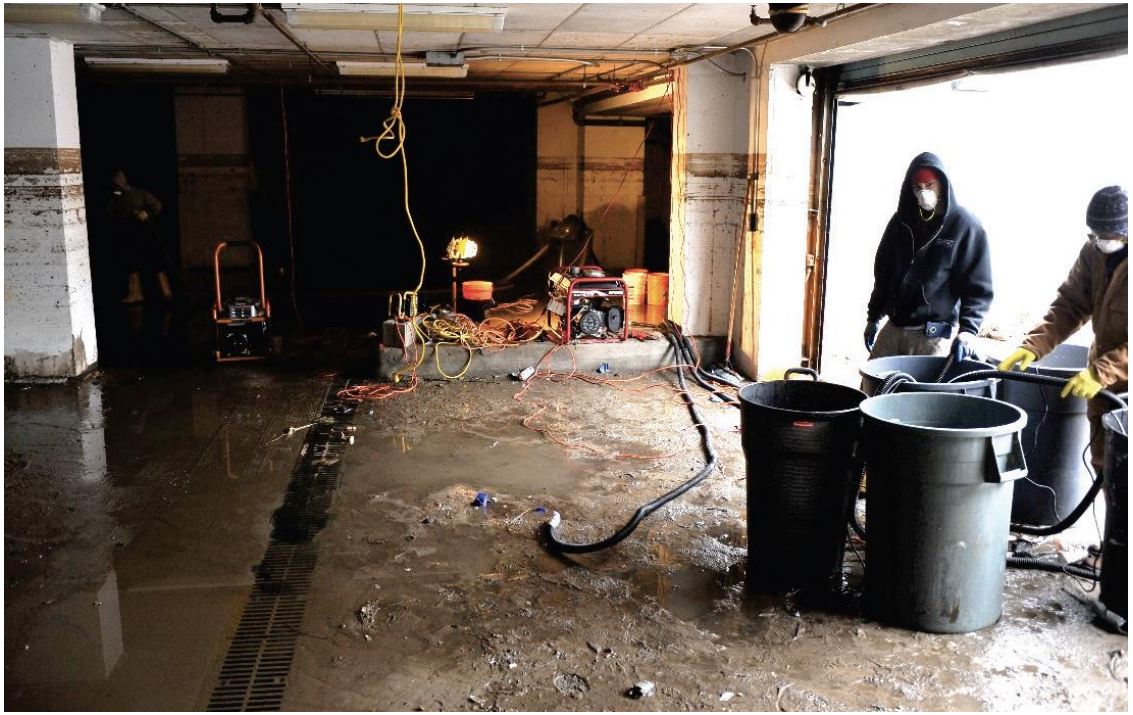


Repairs



Repairs

- **Flood Hazard Areas**
  - As defined by chapter 2

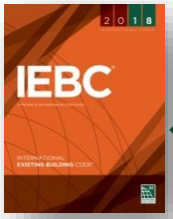


- Buildings that have sustained substantial structural damage must be brought into compliance with flood loads of the IBC Section 1612.

Repairs

Section 408 – Plumbing

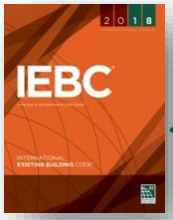
- Materials and supplies prohibited by IPC cannot be used
- Replacement water closets must have a maximum water consumption of 1.6 gallons per flushing cycle
  - Except for blow-out design water closets having a maximum water consumption of 3.5 gallons per flushing cycle



Alterations – Level 1

- Work areas that involve removal and replacement or the covering of existing materials, elements, equipment or fixtures using new materials, elements, equipment or fixtures that serve the same purpose.

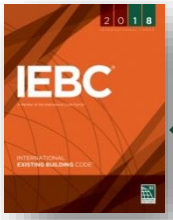
- Requirements for Level 1 Alterations are found in Chapter 7



Alterations – Level 1

General Requirements for Level 1 Alterations

- The Guiding Principle – Work cannot make building less compliant – Section 701.2
- Differs from other levels of Alterations - only involves replacement of components
- Does not include reconfiguration of rooms or spaces
- No area limitations
- Alterations, typically, must comply with new construction requirements of IBC/IRC



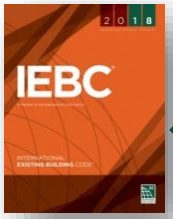
Alterations – Level 1

Section 702 - Building Elements and Materials

- Newly installed interior finish materials and trim must comply with Chapter 8 of IBC.
- Materials must comply with ASTM E84 or UL 723
- Three Categories
  - Class A: Flame spread index –25; Smoke Developed index of 0-450
  - Class B: Flame spread index 26-75; smoke developed index of 0-450
  - Class C: Flame spread index 76-200; smoke developed index of 0-450

Alterations – Level 1

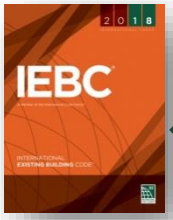
- **Foam Plastics, textiles, vinyl, HDPE, polypropylene require additional testing or have additional requirements:**
  - Some foam plastics cannot be used as an interior finish except as met additional testing of NFPA 286, FM 4880, UL 1040, tested on a foam plastic assembly
  - Some textiles can only be used where sprinkler systems are installed



Alterations Level - 1

Floor Finishes

- Evaluated using a radiant panel in accordance with NFPA 253
- Traditional floor coverings are exempt from testing requirements
- If building has NFPA 13 or 13R sprinkler system, floor finishes with a reduced rating are approved.



Alterations – Level 1

- **Floor finishes are categorized into three levels of radiant flux:**
  - Class I: Critical radiant flux of 0.45 watts/cm2 or greater – required in most Group “I” Occupancies unless suppressed.
  - Class II: Critical radiant flux of 0.22 watts/cm2 or greater - required in all other occupancies except for F, R-3, R-4 and U
  - DOC FF-1 “pill test” (CPSC 16 CFR Part 1630)

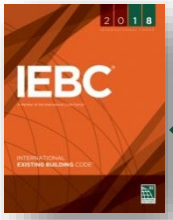


TABLE 803.11
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

GROUP	SPRINKLERED[l]			NONSPRINKLERED		
	Interior exit stairways, interior exit ramps and exit passageways[a, b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]	Interior exit stairways, interior exit ramps and exit passageways[a, b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]
A-1 & A-2	B	B	C	A	A[d]	B[e]
A-3[f], A-4, A-5	B	B	C	A	A[d]	C
B, E, M, R-1	B	C	C	A	B	C
R-4	B	C	C	A	B	B
F	C	C	C	B	C	C
H	B	B	C[g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B[h, i]	A	A	B
I-3	A	A[j]	C	A	A	B
I-4	B	B	B[h, i]	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929m^2.

a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.13.1.

b. In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.

c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

g. Class B material is required where the building exceeds two stories.

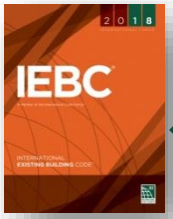
h. Class C interior finish materials shall be permitted in administrative spaces.

i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.

k. Finish materials as provided for in other sections of this code.

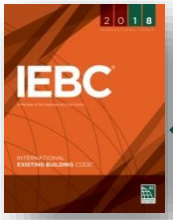
l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.



Alterations – Level 1

Replacement Windows

- **Section 702.4 -** Must include opening control devices complying with ASTM F2090 where all of the following apply:
  - Window is operable, and
  - Replacement includes replacement of the sash and frame, and
  - In R-2 and R-3 occupancies, top of the sill of the window opening is <36” above the finished floor; in 1 & 2 family, sill is <24” above finished floor
  - Window will allow a 4” sphere to pass to pass through when window is in largest opened position
  - Height of top of the sill of the window opening above exterior grade immediately outside of window is >72"



Alterations – Level 1

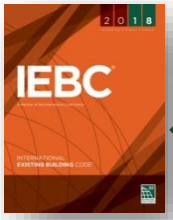
Section 702.6 - Materials and Methods

- All new work must comply with the applicable "I" Codes related to material standards, installation details , connections, penetrations, joints and continuity
- IEBC limits level of compliance with IFGC to:
  - Chapter 3, General Requirements except 303.7 & 306
  - Chapter 4, Gas Piping, except 401.8 and 402.3
  - Chapter 5, Chimneys and Vents
  - Chapter 6 Specific Appliances

Alterations - Level 1

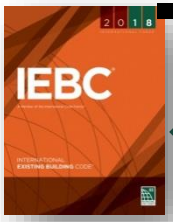
Reroofing – Section 705

- Recovering or replacement of existing roof coverings must comply with Chapter 15 of the IBC
  - Minimum slope requirements are not required to meet the 2% slope requirement provided they have positive roof drainage
  - Existing secondary drainage and scuppers acceptable if they have been properly maintained; if replaced they must comply with Section 1502 of IBC
  - Structural roof components must be capable of supporting replacement covering system and material and equipment loads during installation



Alterations – Level 1

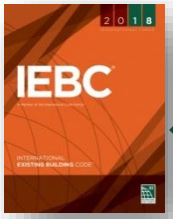
- **Roof Replacement –** typically includes removal of all existing layers of coverings, exposing roof deck, except for existing ice barrier. Such ice barrier must be covered with a new ice barrier membrane
- New Roof Covering over an existing roof covering is permitted where any of the following conditions are present:
  - New covering is installed per the manufacturer's instructions, or
  - Complete and separate roofing systems designed to transmit loads directly to building's structural system, or
  - Metal panels, metal shingles, concrete and clay tile installed over existing wood shakes, or
  - Roof protective coatings



Alterations – Level 1

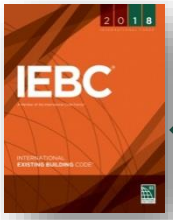
Energy Conservation

- IEBC does not require entire building to comply with IECC when level 1 alterations are being conducted.
- The work associated with level 1 alterations must comply with IECC if applicable such as replacing windows or replacement of light fixtures.



Alterations – Level 2

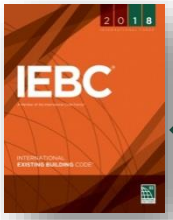
- This level alteration are work areas that involve reconfiguration of rooms or areas
- The aggregate area of work areas of level 2 alterations must be < 50% of the overall building area.
- Requirements for Alteration level 2 are found in Chapter 8 of the IEBC



Alterations – Level 2

General

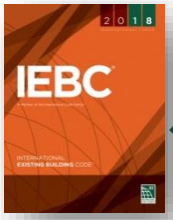
- **Section 801.2 –** Requirements of level 1 alterations are to be complied with when conducting level 2 alterations (incremental approach)
- **Section 801.1, ex.** Reconfiguration work that is solely for accessibility compliance only need comply with level 1 alterations



Alterations - Level 2

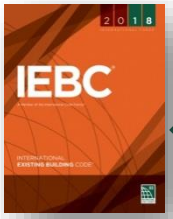
General, Cont.

- **Section 801.3 -** The Guiding Principal for Level 2 Alterations is that new work will comply with the IBC, except:
  - Where windows are added-not required to meet light and ventilation
  - Newly installed electrical equipment shall comply with Section 807
  - Length of dead-end-corridors only required to meet Section 805.7
  - Ceiling height of newly created habitable areas and corridors can be 7’
  - Newly installed escalators in below-grade transportation stations can have a clear width of 32”
  - New Structural members and connections shall be permitted to comply with Section 302



Alterations – Level 2

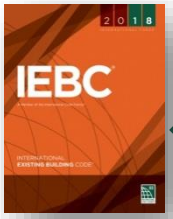
- **Section 802 - Building - Elements and Materials**
- **Section 802.2.1 - Vertical Openings**
- All existing vertical openings connecting two or more floors must be enclosed with approved assemblies of one-hour fire-resistance-rated construction and approved protected openings.
- Includes 14 exceptions:
  - When not required by IBC
  - Most exceptions for installation of fire protections systems; height and area limitations, etc.
  - One and two family dwelling and open parking garages and ramps



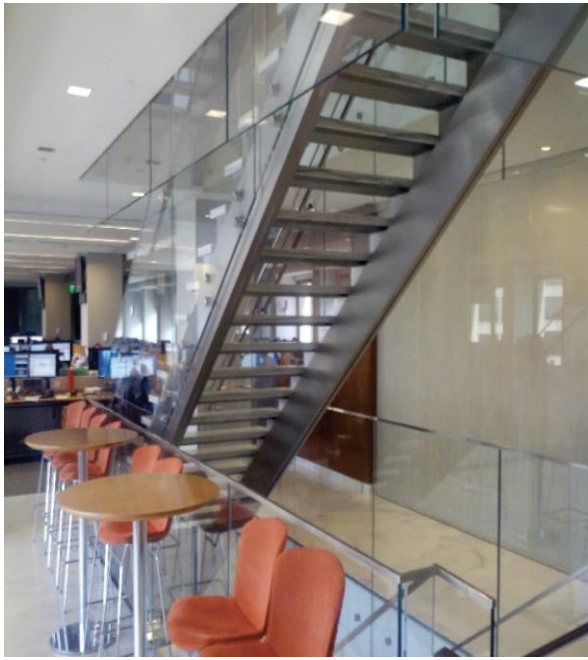
Alterations – Level 2

Section 802.2.2 - Supplemental Shaft and Floor Opening Enclosure Requirements

- Work area on any building story exceeds 50 percent of that gross floor area,
- Enclosure requirements of IEBC Section 803.2 apply to all vertical openings throughout the entire floor
- Apply only to portion of vertical openings on the floor where work area is located
- Does not apply to Stairways or vertical openings in tenant spaces entirely outside the work area.

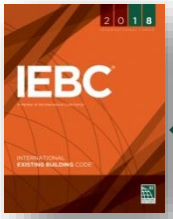


Alterations – Level 2



Section 802.2.3 - Supplemental Stairway Enclosure Requirements

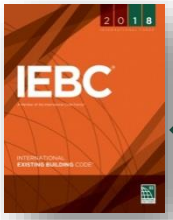
- When the work area on any building story exceeds 50 percent of that gross floor area, stairways serving mean of egress for the work area must:
  - Be enclosed with smoke tight construction.
  - Must be enclosed on highest work area story and all stories below.
  - Openings must be smoke protected assemblies but not fire protection rated.
  - Such Protectives must be self closing upon activation of fire alarm system.



Alterations – Level 2

Section 802.4.1 - Supplemental Interior Finish Requirements

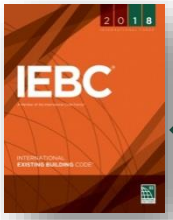
- Aggregate of work areas on any building story >50\% of the gross floor area of that story.
- Interior finish requirements of Section 803.4 apply to all exits and corridors, throughout the entire story containing the work area.
  - Except for interior finish within occupied tenant spaces on that story that are entirely outside of the work areas.



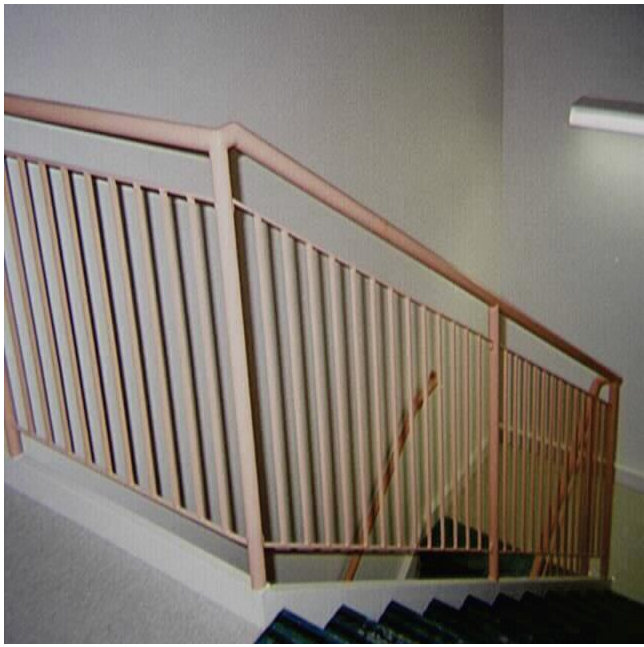
Alterations – Level 2

Section 802.5 – Guards

- Requirements for guards are found in Section 802.5 & 805.11 (means of egress)
- **Section 802.5.1 –** Guards shall be provided where portions of a Level 2 Alterations work area:
  - Are more than 30 inches above the floor or exterior grade, and
  - Do not have a guard, or
  - The existing guards are considered to be in danger of failure

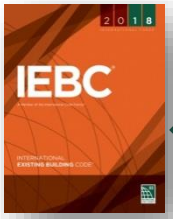


Alterations – Level 2



Guards, Cont.

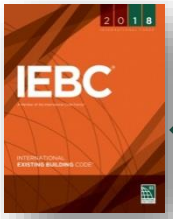
- **Section 802.5.2 –** Guards must comply with the prescriptive requirements of the IBC for new guards, including height, baluster spacing and impact resistance
- **Section 805.11 – Guards –** requirements of 802.5 are extended to all means of egress paths leading from all work areas to, and including the level of exit discharge



Alterations – Level 2

Section 802.6 - Fire Resistance Ratings

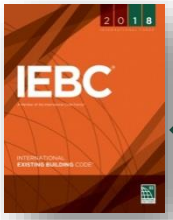
- Where a complete automatic, supervised sprinkler system installed in accordance with NFPA 13 or NFPA 13R, as applicable, has been added;
  - Where approved by the code official.
  - Required fire-resistance ratings of the existing structural elements of the building are deemed to meet the requirements of the current building code.
  - Construction documents shall be submitted to indicate which building elements and materials that the applicant wants the code official to evaluate for compliance with the fire resistance requirements of the IBC.



Alterations – Level 2

Section 803.1.1 - Corridor Rating

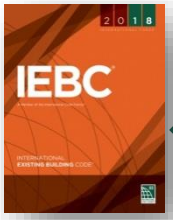
- Rating of the corridor can be reduced in accordance with IBC if an automatic fire sprinkler system is installed throughout the floor.
- Sprinkler coverage throughout the story must also extend coverage to the stairway landings at the floor and intermediate landing immediately below.



Alterations – Level 2

Section 803.2.1 - Automatic Sprinkler Systems in High-Rise Buildings

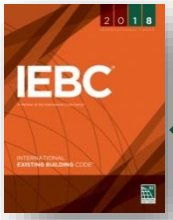
- Automatic Sprinkler System shall be added where work areas:
  - Have exits or corridors shared by more than tenant
  - Having exits or corridors serving an occupant load of more than 30
  - Are located on a building story that has an adequate water supply from an existing standpipe or sprinkler riser serving that story
- **Section 803.2.1.1 - Supplemental Requirements**
  - Work Area >50% of aggregate area of floor
  - Sprinkler protection must be provided throughout the entire story
  - Occupied Tenant Spaces outside work area are exempt



Alterations – Level 2

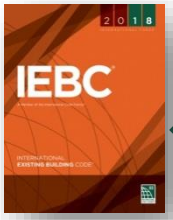
Section 803.2.2 – Groups A, B, E, F-1, H, I, R-1, R-2, R-4 and S occupancies – Automatic Fire Sprinkler System required for Alterations level 2, where the work area:

- Includes Work areas involving exits and corridors shared by multiple tenants and having an occupant load of >30
- Work area is required to have automatic sprinkler protection where required by the IBC for new construction, and
- The work area or aggregate of the work areas exceeds 50 percent of the gross floor area of that specific story



Alterations – Level 2

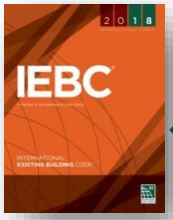
- **Exception to Section 803.2.2**
  - The building does not have adequate water supply available without the installation of a fire pump
  - If an automatic fire suppression system cannot be installed, the work area must be provided with a complete automatic smoke detection system
  - The automatic smoke detection system must be installed throughout all occupiable spaces except for sleeping units or individual dwelling units



Alterations – Level 2

Section 803.4 - Fire Alarm and Detection

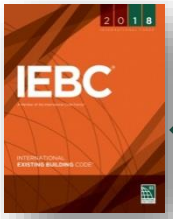
- Fire alarm systems are driven by type of occupancy
- Requirements of alterations level 2 are limited to work areas but may extend beyond the work areas
- General – Smoke detectors must be used unless prohibited by their listing – boiler rooms
- Must be installed in accordance with NFPA 72



Alterations – Level 2

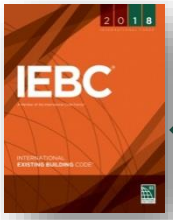
Section 803.4.1 – Occupancy Requirements

- Existing previously approved fire alarm systems are allowed to remain.
- That portion of an existing fire alarm system within the Level 2 Alterations work areas must comply with current requirements of the IBC and NFPA 72.
- Existing alarm-notification devices shall be automatically activated throughout the building
- When the existing building is not provided with a fire alarm system, but the requirements of IEBC Section 803.4.1 require occupant notification within the work area, alarm notification devices shall be provided.



Alterations – Level 2

- Section 803.4.2 - Supplemental Fire Alarm System Requirements
- When a fire alarm system is required, and
- The aggregate of Level 2 Alterations work areas on a floor exceed 50 percent of the gross area of that specific floor, then
- The fire alarm system must be provided throughout that entire story
    - Except for occupied tenant spaces located entirely outside of the work area.

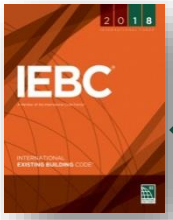


Alterations – Level 2

- Carbon monoxide detection requirements are new to the 2018 IEBC
- Must be installed in Level 2 Alterations work areas in institutional health care and residential facilities where required by the IFC for existing Group I-1, I-2 and R occupancies.

Alterations – Level 2

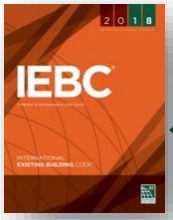
- Section 805 - Means of Egress
- Means of egress are driven by the type of occupancy.
- These requirements are limited to Level 2 Alterations work areas that include exits or corridors shared by more than one tenant
- Section 805.2 General
  - IEBC allows provisions of NFPA 101 Life Safety Code as an alternative
  - Where permitted by the local code official, means of egress complying with the requirements of the building code under which the building was constructed is permitted



Alterations – Level 2

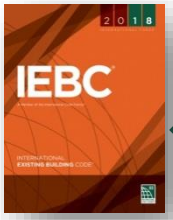
- Section 805.5.3 – Other Corridor Openings
- In any work area, any other sash, grille, or opening in a corridor shall be sealed with materials consistent with the corridor construction

- Supplemental requirements with exception



Alterations – Level 2

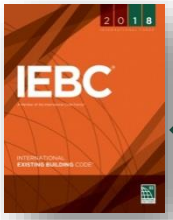
- Section 805.6 – Dead end corridors – in level 2 Alterations work areas:
- Cannot exceed 35 feet unless permitted by IBC
- In other than H occupancies and Assembly occupancies
  - An existing dead-end corridor can be a maximum of 50 ft if building is equipped with throughout with an automatic fire alarm system installed n accordance with the IBC
  - An existing dead corridor can be a maximum of 75 ft (21.36 m) if the building is equipped throughout with an automatic sprinkler system installed in accordance with the IBC.



Alterations – Level 2

- Section 805.7 – Means of Egress lighting - Level 2 Alterations work areas must have means of egress lighting in accordance with the IBC for new construction
- Supplemental Requirements with exception

- Section 805.8 – Exit Signs - Level 2 Alterations work areas must have exit signs in accordance with the IBC for new construction
- Supplemental Requirements with exception

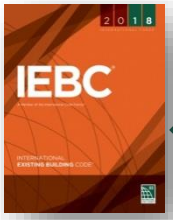


Alterations – Level 2

- Section 805.9 – Handrails
- Where existing stairways do not have a handrail or the existing handrails are considered to be in danger of failure, not less than one handrail complying with the prescriptive requirements of the IBC for new handrails must be provided.

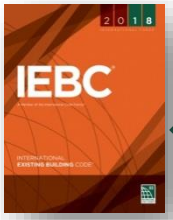
Alterations – Level 2

- Section 806 – Structural
- Existing Structural Elements Resisting Lateral Loads - The Building Structure must meet Section 1609 and 1612 of the IBC when level 2 Alteration work areas causes:
  - An increase in design lateral loads, or
  - The alteration creates prohibited structural irregularity as defined in ASCE 7, or
  - Where the alteration decreases the existing capacity of any lateral load-carrying structural element,
  - Reduced seismic loads are allowed using the evaluation of the demand-capacity ratios



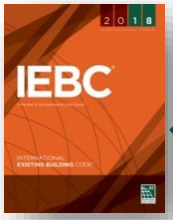
Alterations – Level 2

- Section [BS] 806.4 – Voluntary Lateral Force-Resisting System Alterations
- Voluntary structural work intended to improve existing lateral force-resisting system, is not required to meet the IBC provided:
- The capacity of existing structural systems is not reduced, and
- Any new structural elements, whether connecting to existing or new structural elements, must comply with the IBC for new construction, and
- New or relocated non-structural elements, whether connecting to existing or new structural elements, must comply with the IBC for new construction, and
- The alterations cannot create a structural irregularity as defined by ASCE 7 or make any existing structural irregularity more severe



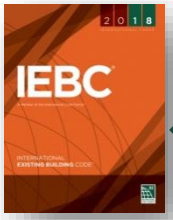
Alterations – Level 2

- Section 809 – Plumbing
- When the occupant load of a building story is increased by more than 20 percent as a result of Level 2 Alterations work, plumbing fixtures for that story only must be provided as required by the International Plumbing Code (IPC) based on the increased occupant load.



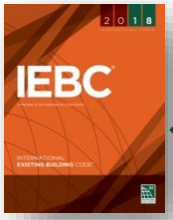
Alterations – Level 2

- Section 810 – Energy Conservation
- Level 2 Alterations to existing buildings do not require the entire building to comply with the energy requirements of the International Energy Conservation Code (IECC) or IRC.
- The work associated with the Level 2 Alteration project must comply with the IECC for new construction



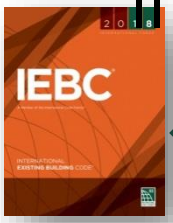
Alterations – Level 3

- General
- Alterations level 3 – Work areas that are >50% of the overall building area
- Requirements are found in Chapter 9
- Additional Building Features are triggered beyond the actual work areas and other parts of the building where no alterations are planned
- Guiding principle is that level 3 Alterations will comply with the IBC but remainder of the building can remain as it



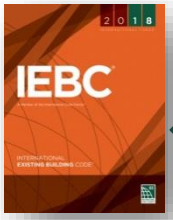
Alterations – Level 3

- Section 902 - Special Use and Occupancy
- Section 902.1 – High Rise Buildings – Recirculating air or exhaust systems with a capacity of >15,000 CFM shall be equipped with smoke or heat detection devices in accordance with the IMC
- Section 902.1.2 – Elevators for public use serving work areas – with a travel distance in excess of 25', above or below main floor or the level for emergency response and access-shall be provided with emergency operations in accordance with ASME A17.3.
- New Elevators shall be provided with Phase I and Phase II operations



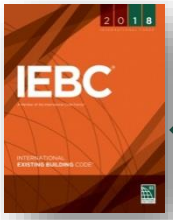
Alterations – Level 3

- Section 904 - Fire Protection
- Section 904.1 - Automatic Sprinkler Systems are required in Alterations Level 3 as required for Level 2. In addition, Automatic Sprinkler Systems shall be provided:
  - In High Rise buildings when the building has sufficient water supply for the design and installation of the system, to the site. Section 904.1.1
  - In Rubbish and Linen Chutes located within the work area if required for rubbish and linen chutes by the IBC. Section 904.1.2
  - In work areas in occupancy groups where upholstered furniture and mattresses are manufactured, stored or displayed for display or sale



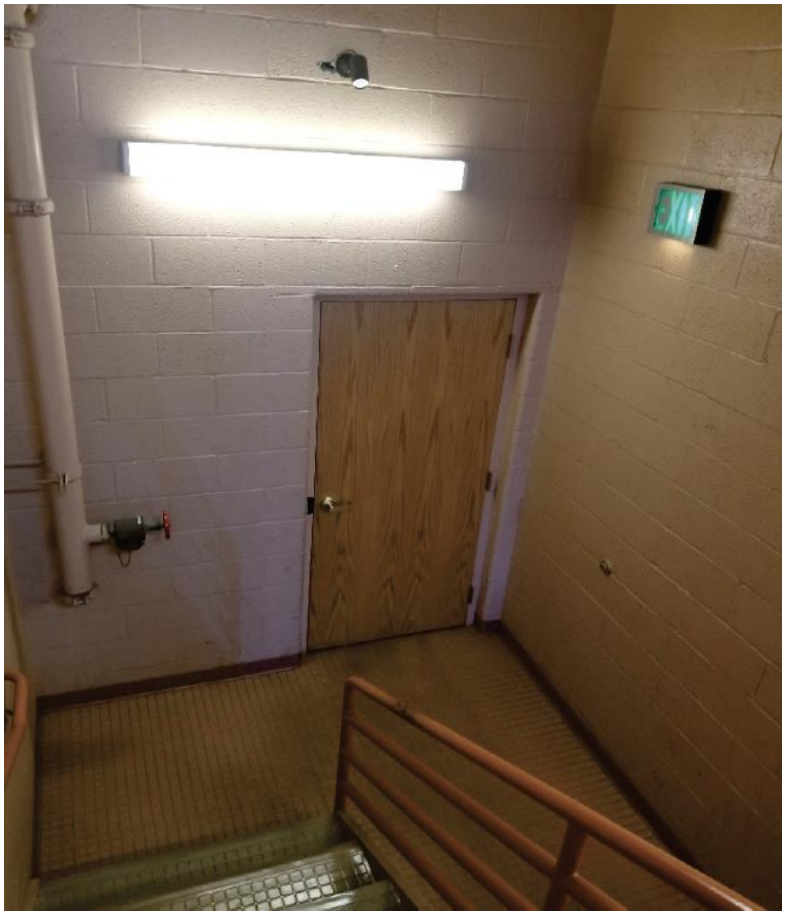
Alterations – Level 3

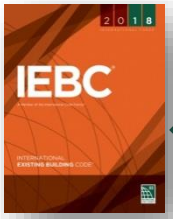
- Section 904.2 – Fire Alarm and Detection
  - Fire alarm and detection systems must be provided in compliance with IBC 907 (Fire Alarm and Detection Systems) as required for new construction.
  - Section 904.2.1 – Manual Fire Alarm Systems – Where required by the IBC for a specific occupancy, must be provided throughout the work areas.
  - The fire alarm system is not required to be extended into existing occupied tenant spaces on those floors that are located entirely outside of the work areas



Alterations – Level 3

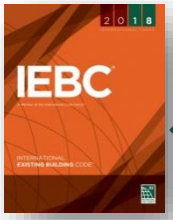
- Section 905.2 & 905.3 – Means of Egress Lighting & Exit Signs
  - Is required from the highest work area floor to the floor of exit discharge within the the exit enclosure in accordance with IBC.





Alterations – Level 3

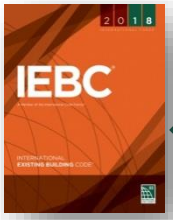
- Structural - Section 906.2 – Existing Structural Elements resisting lateral loads
  - When Substantial Structural Alterations are being made, the lateral load-resisting system of the altered building must be evaluated and shown to comply with IBC Sections 1609 (Wind Loads) and 1613 (Earthquake Loads). Reduced seismic forces are allowed to be used as part of the design. Except:
    - Residential buildings where <5 dwelling or sleeping units are altered using the light-frame construction methods of the IBC or complying with the provisions of the IRC.
    - If the intended alteration only involves the lowest story of a building, only the lateral load-resisting components of this story and below need to comply. The remaining upper portion of the building can remain as is.



Alterations – Level 3

Section 907 – Energy Conservation

- Level 3 Alterations to existing buildings do not require the entire building to comply with the energy requirements of the International Energy Conservation Code (IECC).
- The work associated with the Level 3 Alteration project must comply with the IECC for new construction.



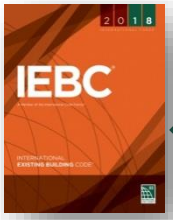
Change of Occupancy

- Chapter 10 – Change of Occupancy - General
- The requirements of Chapter 10 are typically in addition to the requirements of Chapters 7, 8, and 9 (Incremental Approach)
- Section 1001.2.1 - Change of Use is typically repurposing a space within the same occupancy group or classification – Must Comply with Sections 1002 - 1010
- Section 1001.2.2 - Change of Occupancy Classification or Group is usually easier to comprehend. It is a change in either classification or group – Must Comply with Sections 1002 - 1011

Change of Occupancy

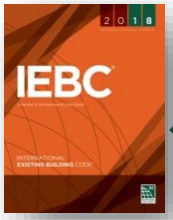
- General, Cont.
- Section 1001.2 - Change of Occupancy within a building that results in a different fire protection system requirement of Chapter 9 of the IBC – Requires Approval of the Code Official and a new Certificate of Occupancy issued once requirements are met

- Section 1001.3 - A new certificate of occupancy shall be issued once requirements associated with the new change of occupancy classification have been met.



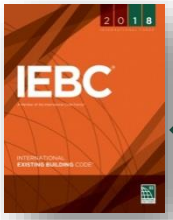
Change of Occupancy

- Section 1002 – Special Use and Occupancy –
- The IEBC requires compliance with the IBC for any building or portion of a building that changes to one of the special uses identified in Chapter 4 of the IBC which include:
- Covered or open malls Special Amusement Buildings
- Atriums Incidental Use Areas Hazardous Materials
- Motor Vehicle-related occupancies Ambulatory Care Facilities
- Motion picture projection rooms Group I-2 Occupancies
- Stages and Platforms Underground Buildings



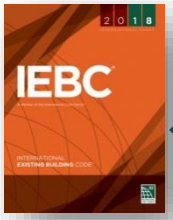
Change of Occupancy Classification

- Section 1003.1 – Building Elements and Materials – Buildings or portions thereof, undergoing a Change of Occupancy Classification must comply with Section 1011.
- Section 1004.1 - Fire Protection – Buildings or Portions thereof, undergoing a Change of Occupancy Classification, must comply with Section 1011 or
- Where there is a change of occupancy within a space where there is a different fire protection threshold of chapter 9 of the IBC, must comply with Section 1011



Change of Occupancy

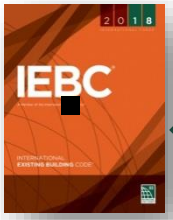
- Section 1008.1 – Mechanical - A building or a portion of a building undergoing a Change of Occupancy classification or undergoing a Change of Occupancy where there is an increased kitchen exhaust requirement or an increased mechanical ventilation requirement must comply with the respective chapters of the IMC based on the new occupancy.



Change of Occupancy Classification

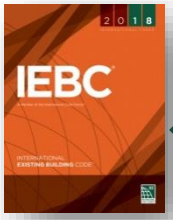
- General – Change of Occupancy Classification
- Change of Occupancy classification is a change from one IBC group or sub-group to another group or sub-group.

- Section 1011.1.1.1 - Change of occupancy classification for a portion of the existing building without separation in accordance with IBC Section 508.3, the entire building must comply with Chapter 9 of the IBC and IEBC Section 1011



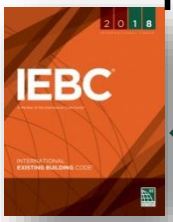
Change of Occupancy Classification

- Section 1011.1.1.2 - Where a portion of an existing building is changed to a new occupancy classification and the building follows a separated mixed-use approach as detailed in IBC Section 508.4, only the new occupancy areas must comply with the applicable occupancy requirements of Chapter 9 based on the new occupancies present in the building and with the requirements of IEBC Section 1011.
- Remainder of the building must be separated with fire barriers and/or rated horizontal assemblies per the IBC Table 508.4



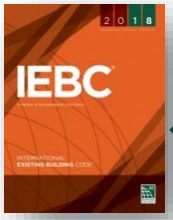
Change of Occupancy Classification

- Section 1011.2 – Fire Protection Systems – A building or portion of a building undergoing a change of occupancy classification must comply with the fire protection thresholds for the new occupancy as required by Chapter 9 of the IBC and installed throughout the new occupancy



Change of Occupancy Classification

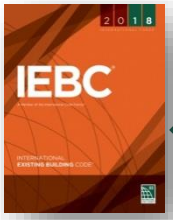
- Section 1011.2.2 – Fire Alarm and detection
- Where there is a change of occupancy classification, and there is a different threshold for the new occupancy in accordance with Chapter 9 of the IBC for fire alarm and detection systems to be added, such system shall be provided throughout the area where there is a change of occupancy.
- Any existing fire alarm appliances must be automatically activated throughout the building



Change of Occupancy Classification

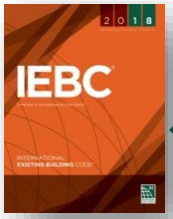
Means of Egress Hazard Categories

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 Condition 2
4	B, F-1, R-3, R-4 Condition 1, S-1
5	F-2, S-2, U



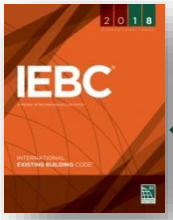
Change of Occupancy Classification

- Means of Egress – Change of Classification to a Higher Hazard
- Based on Table 1011.4 – Means of egress requirements must comply with chapter 10 of the IBC for the new occupancy, except
  - Enclosure of Stairways is permitted to comply IEBC Sect. 903.1
  - When approved by Code Official – Existing Stairways, including guards and handrails, complying with Chapter 9 of IEBC can continue
  - New stairways slope and pitch, rise and tread, when restricted by existing construction, can remain as previously constructed
  - Existing corridor walls of wood lath and plaster can remain or ½" gypsum wallboard
  - Existing Corridor openings can remain where permitted by IEBC Section 805.5
  - Existing dead-end corridors only need to meet requirements of IEBC Section 805.6
  - Existing operable windows with >4 sq. ft. of clear opening and minimum opening height and width of 22" and 20" respectively can continue as an EERO



Change of Occupancy Classification

- Section 1011.4.2 – Means of Egress for a change of use to an equal or lesser hazard – Based on Table 1011.4
  - The existing means of egress components that are proposed to remain must meet the requirements of IEBC Section 905 for the new occupancies.
  - Newly constructed or reconfigured means of egress for the new occupancy areas must comply with Chapter 10 of the IBC for new construction.
  - Exception: where the pitch and slope cannot be made code compliant with new requirements due to the existing building construction is not required to comply with the IBC. The stair riser heights and tread depths can remain as is and are not required to meet requirements for new stair construction



Change of Occupancy Classification

- Section 1011.5 - Height and Areas – Hazard categories due to height and area shall be in accordance with Table 1011.5

TABLE 1011.5

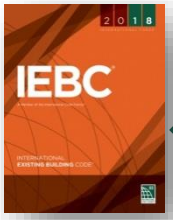
Heights and Areas Hazard Categories

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

Change of Occupancy Classification

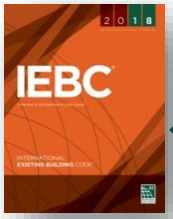
- Section 1011.5.1 - Height and Area for a change to a higher hazard category

- The building height and area requirements for the new occupancy areas must comply with Chapter 5 (General Building Heights and Areas) of the IBC for new construction



Change of Occupancy Classification

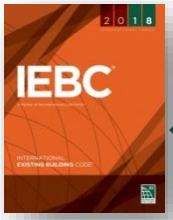
- Section 1011.5.1.1 – Fire Wall Alternative
- In occupancies other than H, F-1, and S-1, Fire Barriers and horizontal assemblies constructed in accordance with Sections 707 and 711 respectively of the IBC are permitted in lieu of a structurally independent fire walls to create building separations where all of the following are conditions are met:
  - The buildings must be completely sprinkler protected per NFPA 13 as referenced by IBC Section 903.3.1.1, and
  - Maximum areas between rated fire barriers or horizontal assemblies cannot exceed allowable area of chapter 5 of the IBC
  - The fire resistance ratings of the fire barriers and horizontal assemblies must not be less than that required for fire walls in the IBC



Change of Occupancy Classification

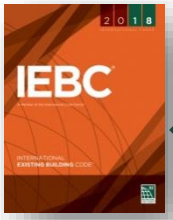
- Section 1011.5.2 - Height and Area for a Change to an Equal or Lesser Hazard

- When a Change of Occupancy classification to an equal or lesser hazard occurs based on IEBC Table 1011.5, the existing height and area of the building is considered code compliant



Change of Occupancy Classification

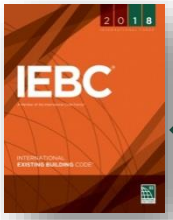
- Section 1011.5.3 – Fire Barriers
- Change of Occupancy Classification to a higher hazard based on Table 1011.5 , Fire Barriers in separated mixed occupancies must comply with the fire resistance requirements of the IBC
- When fire barriers are required to have a 1 hour fire resistance rating, existing wood lath and plaster, in good condition or existing ½ inch thick gypsum wallboard are permitted



Change of Occupancy Classification

- Section 1011.6 – Exterior wall fire-resistance ratings
- Hazard Categories in regard to fire resistance ratings of exterior walls shall be in accordance with Table 1011.6

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

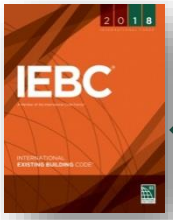


Change of Occupancy Classification

- Section 1011.6.1 – Exterior Wall Rating Change of Occupancy to a Higher-Hazard Category – based on Table 1011.6

- Exterior wall fire-resistance rating requirements for the new occupancy areas must comply with IBC.

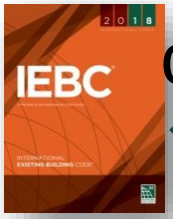
- Includes Openings in exterior walls



Additions

General

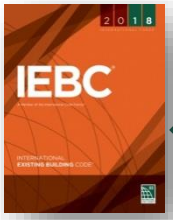
- Requirements for Additions are found in Chapter 11 of the IEBC
- Additions being constructed must comply with the IBC except as provided in the IEBC
- The Existing building can remain without any alterations provided the addition does not impact the existing building.
- The guiding principal for Additions is that an Addition project cannot create or extend any code deficiency in the existing building



Additions

- Section 1102.3 - Fire Protection Systems

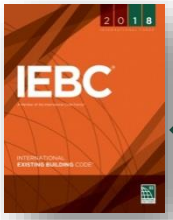
- Where existing fire areas are increased by an Addition, the resulting fire area must comply with the fire protection requirements of IBC Chapter 9 (Fire Protection Systems) as applicable



Additions

- Section 1104 – Smoke Alarms in Occupancy Groups R-1 & I

- When an Addition is made to a residential style occupancy (Group R or I-1), the existing building must be provided with smoke alarms where required by IFC Section 11



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