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2018 International  
Existing Building Code  
(IEBC)

Self-Certification  
Program

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# IEBC Background



## Intent of This Code

- Safeguard health and safety
- Protect property and public welfare



## Many Existing Buildings

- Do not comply with current codes for new construction
- But can maintain existing levels of compliance



## 2018 Code Cycle

- ICC deleted IBC Chapter 34 EXISTING STRUCTURES
- Thence requiring the use of IEBC



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# 2018 IEBC Chapter 1 Amended

## Chapter 1 Administration – What did Phoenix keep?

- Section 101.1 – Title
- Section 101.2 – Scope
- Section 101.3 – Intent
  
- Section 101.4 through the end of chapter 1 amended out, instead...



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Amended International Building Code  
Chapter 1 Provisions Apply.



# Core Definitions

- The IEBC has far fewer definitions than the IBC. However...
- The definitions that do exist matter much more. We will go over many core definitions.
- The wording of the definitions is very important.
- Reading them one time may cause errors of application. Read them a few times.



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# Core Definitions

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

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

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

A change of occupancy is also an alteration.



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# Core Definitions Continued

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

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

A restaurant (A-2) change to a nightclub (A-2) is a change of occupancy even though the occupancy classification did not change.



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# Chapter 3 Compliance Methods



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Prescriptive  
Chapter 5



Work Area  
Chapters 6 - 12



Performance  
Chapter 13

# Chapter 3

## Compliance Methods

Determine occupancy classification in the IBC.

This chapter outlines three options. Designers must choose one of them for alterations or additions:

Prescriptive compliance method

- Chapter 5

Work area compliance method

- Chapters 6 through 12
- Depends on the definition of work area

~~Thing you won't choose.~~

- Chapter 13 - Performance compliance method



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# Chapter 3

## General Provisions and Accessibility

This chapter also contains all the accessibility provisions that apply to all methods of compliance.

- 305.6: Any facility that is altered shall comply with the IBC for accessibility unless technically infeasible. Except...
  - Accessible means of egress
  - Accessible routes (see 305.7)
- 305.7: Where you alter the route to the area of primary function, or the primary function area itself you need to spend 20 percent of project cost on upgrading that route
  - includes toilet rooms and drinking fountains.



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# Core Definitions

**PRIMARY FUNCTION.** A major activity for which the facility is intended...

Examples: Customer services lobby of a bank, the dining area of a cafeteria, and offices.

Examples that are not: Mechanical rooms, supply storage rooms, employee lounges, and janitorial closets.

**TECHNICALLY INFEASIBLE.** ...existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame... site constraints prohibit modification or addition of elements, spaces or features...

Look at IBC definition of Primary Structural Frame for guidance



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# Chapter 4 Repairs

## 401.1 Scope

Repairs shall comply with the requirements of this chapter. Repairs to historic buildings need only comply with Chapter 12.

- Structural repairs need only restore to pre-damaged condition, unless substantial structural damage



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# Core Definition

***SUBSTANTIAL STRUCTURAL DAMAGE.*** A condition where any of the following apply:

1. The vertical elements of the lateral-force-resisting system... ..reduced by more than 33 percent from its pre-damaged condition.
2. The capacity of any vertical component carrying gravity load... ..a tributary area more than 30 percent of the total area... ..reduced more than 20 percent from its pre-damaged condition...
3. Snow load stuff. Doesn't apply in Phoenix.



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# Chapter 5

## Prescriptive Compliance Method

- This chapter duplicates the provisions that were in the 2012 IBC Chapter 34 Sections 3401 through 3409.
  - Structural gravity load 5 percent rule
  - Structural lateral demand to capacity ratio 10 percent rule
  - Emergency and escape rescue openings - own section.
- Alterations shall comply with the IBC – Section 503.1.
  - Exceptions for existing stairs. Similar to technically infeasible.
  - Specific sections for group I and R alarms, ambulatory care facilities, and fire escapes.



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# Work Area Chapter 6 Classification of Work

Used in conjunction with Chapters 6 through 13. Depends on work area

- Provides classifications for various levels of work
  - Alterations level 1, Level 2, and Level 3
  - Change of Occupancy
  - Additions
  - Historic Buildings
- Refers the reader to associated chapters in this code for various requirements and work related to those tasks



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# Core Definitions

**WORK AREA.** That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.

You need to show this work area on your drawings if you use this method of compliance.



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# Work Area

## Three Levels of Alterations



### Level 1 – Section 602 & Chapter 7

- Replace/remove equipment/fixtures
- Replace or cover wall/roof coverings
- Reroof permits



### Level 2 – Section 603 & Chapters 7-8

- Reconfigure space/systems
- Add/eliminate doors or windows
- Add equipment



### Level 3 - Section 604 & Chapters 7-8- 9

- Based on defined work area
- Applies where work area exceeds 50% of aggregate building area



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# Work Area Chapter 7 Alterations – Level 1



- Level 1 *alterations* include interior finishes and trim
- Special mention of emergency escape and rescue openings
- Mostly requires compliance with the IBC for the new finishes, trim, and reroofing.
- Does not involve space reconfiguration
  - Structural gravity load 5 percent rule



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# Work Area Chapter 8 Alterations – Level 2



- Involves space reconfiguration that does not exceed 50% of the building area.
- Requires compliance with level 1 provisions.
  - Structural lateral demand to capacity ratio 10 percent rule
- All new construction elements, components, systems, and spaces shall comply with IBC requirements, with 6 exceptions...
- Requires existing openings between stories to be closed and rated, with 14 detailed exceptions...
- Intricate and detailed means of egress requirements for alternatives to full IBC compliance



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## Work Area Chapter 9 Alterations – Level 3

- Involves alterations that cover 50% or more of the aggregate area of the building.
- Additional building features are triggered beyond the actual work area and other parts of the building where no alterations are planned.
- Basic principle is that Level 3 alterations will have the building comply with the IBC, but with specific alternative options.
- Must comply with alteration level 2 provisions.



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# Work Area Chapter 10 Change of Occupancy

- The requirements of Chapter 10 are in addition to the requirements of Chapters 7, 8, and 9 (incremental approach)
- Sections 1002 – 1010
  - Change of use by reconfiguring a space within the same occupancy classification where there is a change in application of the requirements of this code.
  - Requires compliance with IBC chapter 4 when specific categories are created. Examples are atriums, stages, hazardous materials, I-2, and ambulatory care.
- Section 1011
  - Change of occupancy classification.



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# Work Area Chapter 11 Additions



- Additions are required to comply with current codes for new construction except as modified by this chapter
  - Structural gravity load 5 percent rule
  - Structural lateral demand to capacity ratio 10 percent rule with some extra details
- The existing building can remain without any alteration provided the addition does not impact the existing building



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# Work Area Chapter 12 Historic Buildings

- 6 of the 13 IEBC amendments are in Chapter 12
- Other considerations for a historical building include the structural condition of the building (i.e., is the building structurally sound), its proposed use, its impact on life safety and how the intent of the code, if not the letter, will be achieved



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# Chapter 13

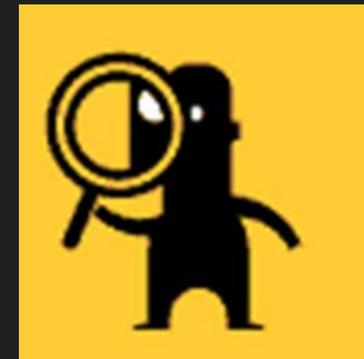
## Performance Compliance Method

- Chapter 13 emphasizes 19 important safety parameters to be evaluated in determining the level of safety for an existing building.
- Requires a structural analysis.



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# Performance Compliance 19 Safety Parameters



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- Building Height
- Building Area
- Compartmentation
- Tenant and Dwelling Separations
- Corridor Walls
- Vertical Openings
- HVAC Systems
- Automatic Fire Detection
- Fire Alarm System
- Smoke Control
- Means of Egress
- Dead ends
- Max Exit Travel Distance
- Elevator Control
- Means of Egress Emergency Lighting
- Mixed Occupancies
- Automatic Sprinklers
- Standpipes
- Incidental Use

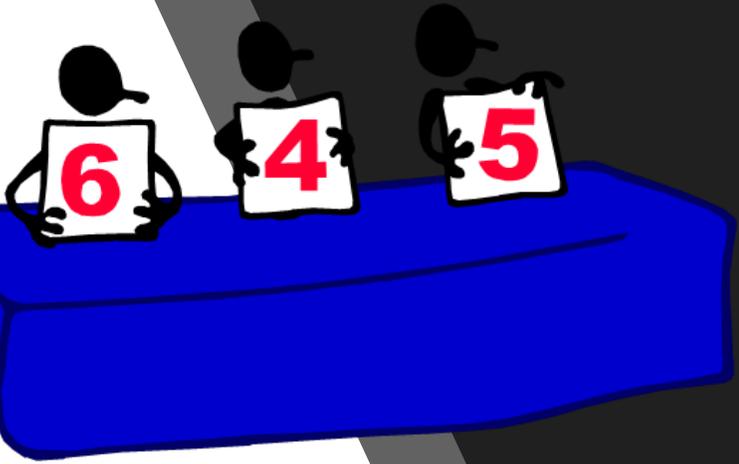
# Performance Compliance Method Table 1301.7 Summary Sheet

- The 19 safety parameters are evaluated and entered in the Summary Sheet
- Three categories are totaled:
  - Fire Safety
  - Means of Egress
  - General Safety
- The resulting building score-total values in each category are then entered into Table 1301.9 along with the associated value for each category from Table 1301.8. These scores determine compliance or noncompliance.



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# Chapter 14

## Relocated or Moved Buildings

- Any structure that is moved to a different lot or a new location on the same lot falls within the scope of Chapter 14



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Questions?

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