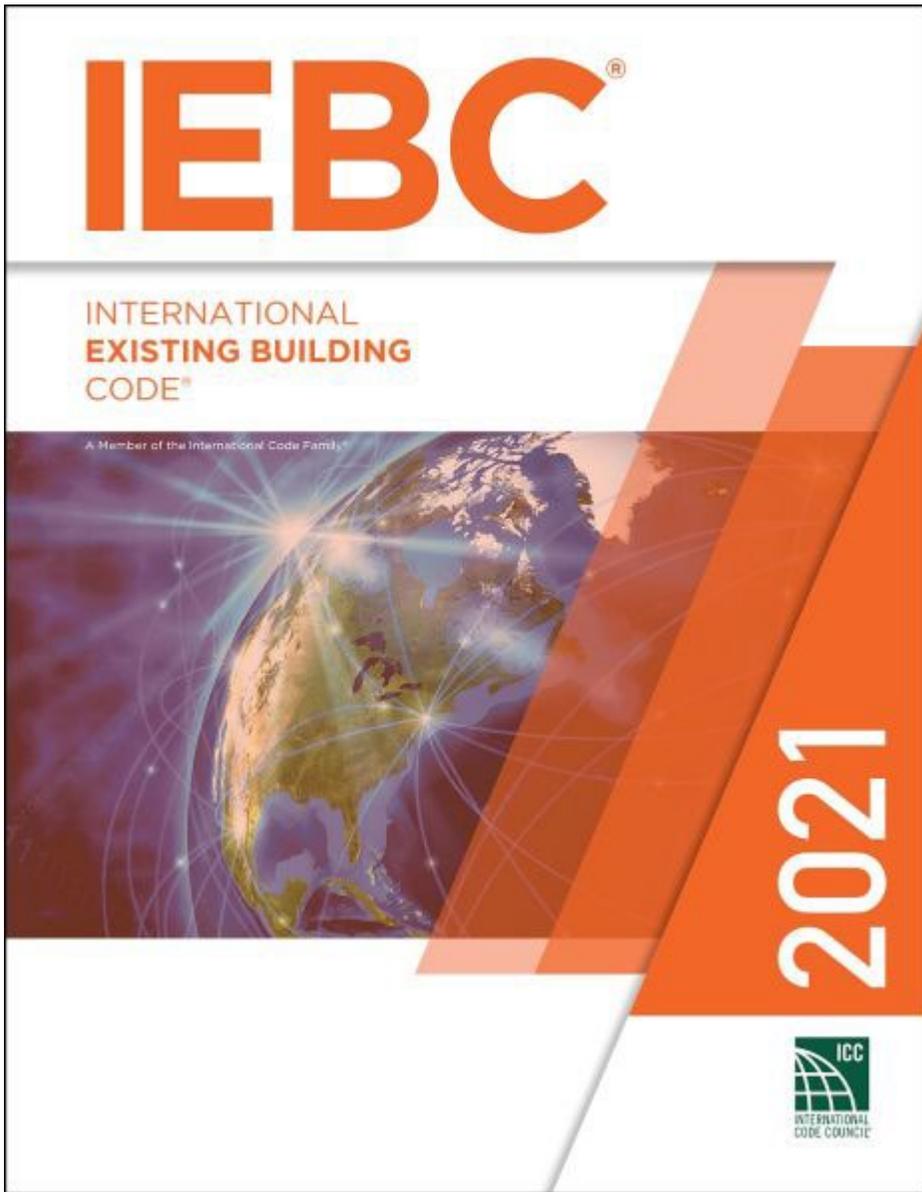




HOUSTON CONSTRUCTION CODE MODERNIZATION

APPLICATION AND USE OF THE 2021
INTERNATIONAL BUILDING CODE (IEBC)





2021 INTERNATIONAL EXISTING BUILDING CODE

Describes the intent of the code and proper application and use when remodeling or altering existing buildings

2021 IEBC – EFFECTIVE USE

Code Section

101.2
and
101.3

- **Scope:** Provides requirements for repairs and alternative approaches for alterations, change of occupancy, additions and relocations of existing buildings.
- **Intent:** Provides flexibility to permit use of alternative approaches to achieve compliance with minimum requirements to safeguard the public health, safety and welfare. Allows options for controlled departure from full compliance with the International Codes dealing with new construction, while maintaining basic levels for fire safety, structural and life safety features of the rehabilitated building.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plans in height, shall comply with this code or the *International Residential Code (IRC)*.

KEY DEFINITION

- **Existing Building:** A building erected prior to the date of the appropriate code, or one for which legal building permit has been issued.
- **Addition:** An extension or increase in the floor area, number of stories or height of a building or structures.
- **Alteration:** Any construction or renovation to an existing building other than a repair or addition. Also, a change to an existing building, or an electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit. Alterations are classified as Level 1, Level 2 and Level 3 in this code.
 - **Level 1:** Includes replacement or covering of existing materials, elements, equipment or fixture using new materials for the same purpose.
 - **Level 2:** Altering existing building spaces or structural system involving space reconfiguration that could be up to and including 50 percent of the area of the building. In contrast, Level 1 do not involve space reconfiguration. Depending on the nature of alteration work, its location within the building and whether it encompasses one or more tenants, improvements and upgrades could be required for the open floor penetrations, sprinkler system or the installation of additional means of egress such as stairs or fire escapes.
 - **Level 3:** Alterations that cover 50 percent of the aggregate area of building. In contrast, Level 1 alterations do not involve space reconfiguration and Level 2 alterations involve extensive space reconfiguration that does not exceed 50 percent of the building area. Depending on the nature of alteration work, its location within the building and whether it encompasses one or more tenants, improvements and upgrades could be required for the open floor penetrations, sprinkler system or the installation of additional means of egress such as stairs or fire escapes.

KEY DEFINITION

- **Change of Occupancy:** Change in the use of a building within the same occupancy classification as well as a change of occupancy classification. Any of the following shall be considered as a change of occupancy requiring greater degree of safety, accessibility, structural strength, fire protection, life safety feature, means of egress, ventilation or sanitation:
 - Change of occupancy classification of building or structure defined in Section 301 of *International Building Code (IBC)*.
 - Change in the purpose of, or change in the level of activity within a building or structure
 - Change of use.
- **Change of Use:** A change in the use of a building or portion of a building, within the same group classification, for which there is a change in application of the code requirements.
- **Historic Building:** The building which has been essentially accredited as being historic significance by the state, or local authority after careful review of the historical value of the building.
- **Relocatable Building:** A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.

KEY DEFINITION

- **Repairs:** Reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.
- **Substantial Structural Damage:** A condition where any of the following apply:
 - The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its predamage condition.
 - The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.
 - The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamage condition, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the International Building Code for new buildings of similar structure, purpose and location
- **Work Area:** The 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 code.

ALTERATION, CHANGE OF OCCUPANCY AND ADDITION

Code Section

301

- This code provides three(3) main options for a designer in dealing with renovations of existing buildings which are laid out in Section 301 (these options shall not be applied in combination with each other).
 - **Method 1:** Work for alteration, change of occupancy or addition of all existing buildings shall be done in accordance with “*Prescriptive Compliance Method*” given in Chapter 5.
 - **Method 2:** Work for alteration, change of occupancy or addition of all existing building shall be done in accordance with “*Work Area Compliance Method*” given in Chapter 6 through 12.
 - **Method 3:** Work for alteration, change of occupancy or addition of all existing building shall be done in accordance with “*Performance Compliance Method*” given in Chapter 14.
- Under limited circumstances, subject to the approval of the building official, a building alteration can be made to comply with the laws under which the building was originally built as long as:
 - Accessibility requirements are met.
 - “No” substantial structural damage has been occurred. Alteration that constitute substantial improvement in flood hazard areas, shall comply with Sections 503.2, 701.3 or 1301.3.3 of this code.
 - Structural shall meet provisions of Sectons 304, Chapter 5 or Sections 706. 805 and 906. New structural members added as part of the alteration shall comply with the *International Building Code*.
- Flood hazard provisions shall be addressed where there is a substantial improvements.

REPAIR, RELOCATION AND HISTORICAL

Code Section

401, 1201
and
1401

- All repairs shall comply with requirements given in Chapter 4.
- All historical buildings undergoing repair shall comply with requirements in Chapter 12.
- All relocated buildings shall comply with requirements in Chapter 14.

Code Section

302

Number of Requirements which apply to all methods (Prescriptive, Work area or Performance) :

- **General Provisions (Section 302)**

- **Dangerous Conditions:** The code official shall have the authority to require elimination of conditions deemed dangerous.
- **Additional Codes:** Any alterations, repairs, additions, change of occupancy and relocation shall comply with the respective sections of IEBC, IBC, IFC, UMC, UPC, IRC, ISPSC, NEC, and IECC, adopted and amended by the City of Houston, Texas. Where provisions of the other codes conflicts with provisions of this code, the provisions of this code shall take procedure.

In **Group I-2** occupancies, Ambulatory Health Care Facilities, Outpatient Clinics and Hyperbaric Facilities, shall also comply with NFPA 99-Health Care Facilities requirements.

- **Existing Materials:** The materials compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless they were determined to be unsafe by the building official.
- **New and Replacement Materials:** Materials permitted by applicable codes shall be used in new construction. Like materials shall be permitted for repairs and alterations, provided that unsafe conditions are not created. New structural members and connections shall be in compliance with IBC.

Code Section

303, 304,
305 and
306

Number of Requirements which apply to all methods (Prescriptive, Work area or Performance) :

- **Storm Shelters (Section 303):** Such structures shall be constructed in accordance with this code and ICC 500. In group E occupancies with exception of day care facilities, accessories to religious worship, and additions to shelter design in ICC 500, additions in storm shelters shall comply with ICC 500 if: (1) Wind Speed for tornados is 250 mph, (2) Occupant load in addition is 50 or more.
- **Structural Design Loads (Section 304)**
 - Seismic evaluation and design (IBC Chapter 16, Table 12.2-1 of ASCE, and ASCE 41). Shall comply with Section 304.3 of IEBC amended by the City of Houston.
- **In-Situ Loads (Section 305):** Where used shall be tested in accordance with IBC Section 1708.
- **Accessibility (Section 306):** It applies to maintenance and repair, change of occupancy, additions and alterations, including items identified in historic buildings. Additions shall be in compliance with ICC A117.1 (as applicable). Alterations and Change of occupancy, shall comply with Chapter 11 of IBC, ICC A117.1 and Sections 306.7.1 through 306.7.16 of this code. Where it is technically infeasible, the alterations shall provide provide access the maximum extent technically feasible.

Code Section

307, 308
and 309

Number of Requirements which apply to all methods (Prescriptive, Work area or Performance) :

- **Smoke Alarms (Section 307):** In Groups **R** and **I-1** occupancy; alterations, additions, changes of occupancy or relocations, shall be provided with smoke alarms in accordance with IFC or IRC Section R134.

Exception: Level 1 Alterations

- **CO Detection (Section 308):** In Groups **I-1**, **I-2** and **R** occupancy, and **classrooms** in Group **E** occupancy; alterations, additions, changes of occupancy or relocations, shall be provided with carbon monoxide detection in accordance with IFC and IRC Section R315.

Exception:

- (1) Level 1 Alterations,
- (2) Mechanical and Plumbing work other than fuel-burning appliance,
- (3) Exterior work; roofing, siding, windows or doors, additions of porches and decks.

- **Exterior Wall Covering and Envelops (Section 309):** Alterations, repairs, additions, relocations and changes of occupancy shall comply with the requirements of new construction in accordance with IBC Chapters 14 and 26, if the exterior wall envelope on any side of the building:

- (1) Involves two or more consecutive stories,
- (2) Comprises more than 15 percent of total wall area.

REPAIRS

Code Section

Chapter 4

- Repair shall not make the building less complying than it was before the repair was undertaken.
- It defines conditions which repairs may be made using materials and methods like those the original construction or the extent of which repairs must comply with the requirements for new buildings.
- Repair of the building includes:
 - **Building Elements and Materials-** Replacement glazing shall comply with IBC and IRC requirements.
 - **Fire Protection-** Level of fire protection shall be maintained.
 - **Means of Egress-** Level of protection shall be maintained.
 - **Structural-** Structural repairs shall comply with Section 405 and 401.2.
 - **Electrical-** Replacement of receptacles, nongrounding-type receptacles and plug fuses shall comply with respective sections in NEC (NFPA 70). In Group I-2, ambulatory care facilities and outpatient clinics, the electrical upgrade shall also comply with NFPA 99 requirements.
 - **Mechanical** –Mechanical draft system is permitted with conditions in accordance with Section 407.
 - **Plumbing-** Low flow toilets required and compliance with IPC for materials and supplies.

PRESCRIPTIVE METHOD

Code Section

Chapter 5

- It applies to alteration, addition, and change of occupancy including historic building.
- It shall not result in less compliance with the provisions of International Building Code (IBC) than the existing building or structure prior to the change.
- If automatic fire sprinkler system has been added throughout the existing building, the fire-resistance rating of building elements and materials shall be permitted to comply with current code requirements.
- In Group **I-2** occupancy, ambulatory care and outpatient clinics, the altered or added portion shall comply with NFPA 99 requirements.
- Additions shall comply with Section 502. It includes requirements for disproportionate earthquake damage, flood hazard areas, existing structural elements carrying gravity and lateral loads and Group **E** occupancy classroom acoustics. An existing building together with its additions shall comply with the height and area provisions of Chapter 5 of Building Code.
- Alterations shall comply with Section 503. It includes requirements for flood hazard areas, existing structural elements carrying gravity and lateral loads, bracing of unreinforced masonry parapets on reroofing, bracing of unreinforced masonry parapets and partitions in major alterations, anchorage of reinforced concrete and unreinforced masonry walls, refuge areas, Group **I-2** smoke compartments, locking arrangements in Group **E**, **B** and **I-4**, two-way communication systems and Group **E** occupancy classroom acoustics.

PRESCRIPTIVE METHOD

Code Section

Chapter 5

- Fire Escapes shall comply with Section 504. It includes requirements for construction, dimensions and opening protective. It is only permitted:
 - **New Buildings**- Shall not constitute any part of the required means of egress
 - **Existing**- Shall continue to be accepted as a components in the means of egress.
 - **New**- Shall only be permitted where exterior stairways cannot be utilized because of limitation posed by the lot lines limiting the stairway size, sidewalks or roads at the grade level. Ladders and access by windows shall not be incorporated.
 - **Limitation**- Shall not constitute more than 50 percent of the required number of exits, nor required capacity.
 - **Fire Escape Stairs** - shall be maintained per LSB 2.
- Windows and Emergency Escape Openings shall comply with Section 505 in Group **R-2** or **R-3** containing dwelling units, and one- and two-family dwellings and townhouses regulated by residential code. It includes requirements for control devices, window utilized for emergency escape and rescue openings, bars, grilles, covers or screens installed on emergency escape and rescue openings.
- Change of Occupancy shall comply with Section 506. It includes requirements for stairways, emergency escape and rescue openings, structural and classroom acoustics in Group **E** occupancy.
- Historic Buildings shall comply with Section 507. It includes requirements for flood hazard areas and structural. Floor hazard areas shall comply with Chapter 19 of the City Code.

CLASSIFICATION OF WORK

(WORK AREA METHOD)

Code Section

Chapter 6

- It applies to alteration, addition, and change occupancy including the historic and moved structures.
- The work area shall be identified in the construction documents.
- Work performed shall be classified in accordance with this chapter which includes:
 - Alteration- Level 1
 - Alteration- Level 2
 - Alteration- Level 3
 - Change of Occupancy
 - Addition
 - Historic Building

ALTERATIONS- LEVEL 1

Code Section

Chapter 7

- Involves **only** removal and replacement of building components with new components and **does not** involve **space reconfiguration**.
- Includes replacement or covering existing materials, elements, equipment or fixtures using materials for the same purpose.
- In flood hazard areas, alterations that constitute **substantial improvement** shall comply with IBC Section 1612 or IRC Section R322.
- Alteration- Level 1 includes:
 - **Building Elements and Materials-** Newly installed interior finishes shall comply with Chapter 8 of Building Code. New interior floor finishes shall comply with Section 804 of Building Code. Newly installed interior trim shall comply with Section 806 of Building Code.

Newly installed interior walls shall comply with IBC Chapter 8. In Group **R-2** or **R-3** containing dwelling units and one- and two-family dwelling and townhouse by IRC; window replacement shall comply with Section 702.4 of this code,

Window for emergency escape and rescue openings shall comply with Section 702.5. Materials and methods shall comply with Section 702.7.

Bars, grills, covers and screens or similar devices are permitted to be placed over emergency escape and rescue openings in accordance with Section 702.6.
 - **Fire Protection-** The level of fire protection shall be maintained.

ALTERATIONS- LEVEL 1

Code Section

Chapter 7

Alteration- Level 1 includes (continued):

- **Means of Egress-** The level of protection shall be maintained. In Group **I-2, Condition 1** occupancy, when the corridor is at least 96 in. width the projection to the corridor width is permitted in accordance with IBC Section 407.4.3. In Group **E, B** (educational) and **I-4** occupancy, the locking arrangement shall comply with IBC Section 1010.2.8.
- **Reroofing-** Includes recovering and replacement of roof covering down to the roof deck. Shall comply with Chapter 15.
- **Structural-** Includes replacement of equipment supported by building or reroofing which requires permit.
- **Electrical -** In Group **I-2**, ambulatory care facilities and Outpatient Clinics, altered portion, shall comply with NFPA 99.
- **Energy Conservation** – Only altered portion shall conform to IECC or IRC as they are related to new construction.

ALTERATIONS- LEVEL 2

Code Section

Chapter 8

- Includes addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and the “Work Area” is equal to or less than 50 percent of building area.
 - **Exception:** Movement and addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches in height.
- Requirements of “Work Area” is not applicable if the alteration is limited to one or more of the following:
 - Mechanical, electrical, fire protection systems.
 - Abatement of hazardous materials.
 - Windows, hardware, operating controls, electrical outlets and signs.
 - Primary purpose is to increase the accessibility of a facility.
- Not all Level 2 alterations have a “Work Area” such as replacement or reconfiguration of mechanical system or additional equipment.
- It shall comply with Chapter 7, Level 1 alterations, as well as Chapter 8 requirements.
- New construction elements, components, systems and spaces shall comply with IBC, and Section 801.4 of this code.

ALTERATIONS- LEVEL 2

Code Section

Chapter 8

- It includes the requirements for:
 - **Existing Vertical Openings** – Existing Interior vertical openings connecting two or more floor shall be enclosed with a minimum of 1-hour fire resistance rating assemblies, other than exceptions outlined in 802.2. Where the work area on any floor exceeds 50 percent of that floor area, the vertical openings other than stairways and stairways serving the means of egress shall comply with requirements in Sections 802.2.2 and 802.2.3 respectively.
 - **Smoke Compartments** – It shall comply with the requirements in Section 802.3 and IBC 407.2 for Group I-2 where the work area on a story used for sleeping rooms more than 30 care recipients.
 - **Interior Finish** – Interior finish and trim of walls and ceilings in exits and corridors shall comply with the requirements of IBC, otherwise permitted to be treated with an approved fire-retardant coating in accordance with Section 802.4. When the work area on any floor exceeds 50 percent of the floor area, the interior finish and trim in exits and corridors shall comply with requirements of Section 802.4.
 - **Guards** – The replacement guards for every portion of a floor that is more than 30 in. (such as balcony or a loading dock) above the floor or grade below, and it is not provided with guards, or the existing guards are judged to be in danger of collapsing shall be in accordance with Section 802.5.1 of this code and IBC.
 - **Fire-Resistance Ratings** – If the building is sprinklered throughout, fire-resistance rating of building elements and materials shall be permitted to meet the current building code subject to review and approval of the building official. It shall comply with Section 802.6 of this code.

ALTERATIONS- LEVEL 2

Code Section

Chapter 8

- It includes the requirements for (continued):
 - **Corridor Ratings** – Where an automatic fire sprinkler system is installed throughout the story, the corridor fire-resistance rating shall be permitted to be reduced in accordance with IBC. Fire sprinkler system shall provide coverage for the stairway landings serving the floor and intermediate landings immediately below.
 - **Automatic Sprinkler Systems** – The requirements for high-rise buildings, windowless stories and different occupancy groups are outlined in Sections 803.2.1 through 803.2.4. The fire sprinkler system shall be supervised in accordance with Section 803.2.6. In the buildings and spaces listed in IBC Table 903.2.11.6 where exits and corridors are shared by more than one tenant, or exits and corridors serving more than 30 persons, automatic fire sprinkler system shall be provided in accordance with Section 803.2.5. The automatic sprinkler system shall be provided under the following conditions: 1. In accordance with Building Code, 2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system available to the floor without installation of a new fire pump.
 - **Standpipes** – It shall be provided and comply with requirements in Section 803.3 and IBC where exits and corridors shared by more than one tenant and is located more than 50 ft. above or below the lowest level of fire department access.
 - **Fire Alarm and Detection** – It shall be provided and comply with Section 803.4 for different occupancy groups requirements. Where automatic sprinkler system is provided and is connected to the building fire alarm system, heat automatic detection shall not be required. Where the work area on any floor exceeds 50 percent of that floor area, it shall comply with 803.4.2.

ALTERATIONS- LEVEL 2

Code Section

Chapter 8

- It includes the requirements for (continued):
 - **Means of Egress** – It shall comply with Section 804. It includes the requirements for number of exits, egress doorways, openings in corridor walls, dead-end corridors, means-of-egress lighting, exit signs, handrails, refuge areas, and guards. In Group **I-2**, the corridors and ramps used for movement of care recipients in beds shall not be less than 48 in. Dead-end Corridors shall comply with Section 804.7 of IEBC amended by the City of Houston. Stair Construction shall comply with Section 804.13 of IEBC amended by the City of Houston.
 - **Structural** – It shall comply with requirements in Section 805. It includes the requirements for existing structural elements carrying gravity and resisting lateral loads, and voluntary lateral force-resisting system alterations.
 - **Electrical** – It shall comply with Section 806. It includes the requirements for new installations, existing installations, health care facilities (Group **I-2**), residential occupancies (Group **R-2**, **R-3** and **R-4**)
 - **Mechanical** – It shall comply with requirements in Section 807. It includes the requirements for reconfigured or converted spaces, altered existing systems and local exhaust systems.
 - **Plumbing** – It includes the requirements for Group **I-2** occupancy for any added portion of any existing medical gas system. It also shall comply with NFPA 99 requirements.
 - **Energy Conservation** – It shall comply with requirements in Section 809. It shall not require to make the entire building or structure to comply with IECC or IRC other than the work area.

ALTERATIONS- LEVEL 3

Code Section

Chapter 9

- It applies when the work area exceeds 50 percent of the building area.
- It shall comply with Chapter 7 (Level 1), Chapter 8 (Level 2) alteration respectively, as well as Chapter 9.
- It includes the requirements for:
 - **High-Rise Buildings** – It requires to comply with requirements in Section 902.1 for any building having occupied floors more than 75 ft. above the lowest level of fire department vehicle access.
 - **Boiler and Furnace Equipment Rooms** – It shall comply with requirements in Section 902.2. The boiler and furnace equipment rooms adjacent to or within Group **I-1**, **I-2**, **I-4**, **R-1** and **R-4** shall be enclosed by 1-hour fire-resistance-rated construction unless otherwise for followings; steam boiler with operating pressure less than 15 psig, hot water boilers operating at pressure less than 170 psig, furnace and boiler with heating input less than 400,000 btu or if the furnace room is protected by an automatic sprinkler system.
 - **Existing Shafts and Vertical Openings** – It shall comply with Section 903.1. Existing stairways as part of the means of egress shall be enclosed from the highest work area floor to and including the level of exit discharge and all floors below in accordance with Section 802.2.1 of this code.

ALTERATIONS- LEVEL 3

Code Section

Chapter 9

- It includes the requirements for (continued):
 - **Fire Partitions in Group R-3** – It shall comply with Section 903.2.1. In Group **R-3** or any multiple single-family dwelling (townhouse), the wall separating the dwelling units from foundation to the underside of the roof sheathing shall be provided with fire separation in accordance with this section.
 - **Interior Finish** – It shall comply Section 903.3. The interior finish in the exits in the work area between the highest floor of work area to the floor of exit discharge shall comply with Section 802.4 of this code.
 - **Enhanced Classroom Acoustics in Group E** – It shall comply with Section 903.4 for all classrooms with a volume of 200,000 cu. ft. or less.
 - **Automatic Sprinkler Systems** – It shall comply with requirements in Section 904. It includes the requirements for high-rise buildings, rubbish and linen chutes, Group **F-1**, **M** and **S-1** containing upholstered furniture or mattresses, different occupancy groups, and windowless stories. In the buildings and areas listed in IBC Table 903.2.11.6, the work area shall be provided with an automatic fire sprinkler system in accordance with 904.1.7. The automatic sprinkler system shall be provided under the following conditions: 1. In accordance with Building Code, 2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system.

ALTERATIONS- LEVEL 3

Code Section

Chapter 9

- It includes the requirements for (continued):
 - **Fire Alarm and Detection Systems** – It shall comply with the requirements in Section 907 of IBC for new construction. It includes the requirements for manual fire alarm system and automatic detection in Sections 904.2.1 and 904.2.2 respectively.
 - **Means of Egress** – It shall comply with the requirements in Section 804. Means-of-egress lighting shall comply with Section 905.2. Exit signs shall comply with Section 905.3. Two-way communications systems shall comply with Section 905.4.
 - **Structural** – It shall comply with requirements in Section 906. It includes the requirements for existing structural elements resisting lateral loads, seismic design, anchorage for concrete and masonry buildings, anchorage for unreinforced masonry units, bracing for unreinforced masonry parapets, anchorage, and anchorage of unreinforced masonry partitions.
 - **Energy Conservation** – It shall comply with requirements in Section 907. It shall not require to make the entire building or structure to comply with IECC or IRC other than the work area.

CHANGE OF OCCUPANCY

Code Section

Chapter 10

- Includes change of occupancy, change of occupancy classification and change in the use within the same occupancy classification.
- Occupancy classifications and special occupancy requirements defined in Chapter 3 and 4 of IBC.
- Change of Use shall comply with Chapter 6 and Sections 1002 through 1010.
- Change of Occupancy Classification Group shall comply with Section 1002 through 1011. Where portion of occupancy classification or group has changed, Section 1011 shall be applied.
- Change to Special Use or Occupancy shall comply with IBC Chapter 4.
- Change of Occupancy to Incidental Use shall comply with IBC Section 509.
- Change of Occupancy in Health Care in Group I-1 or I-2 shall comply with IBC.

Exception: Group I-2, **Condition 2** to Group I-2, **Condition 1**

Group I-2 to **Ambulatory Health Care**

Group I-2 to **Group I-2**

Group I-1, **Condition 2** to Group I-1, **Condition 1**

CHANGE OF OCCUPANCY

Code Section

Chapter 10

- Change of Occupancy to Storage in Group I-2 occupancy when the room is protected by an automatic sprinkler system and room is less than 250 sq. ft., it shall be separated from the remainder of the building in accordance with Section 509.4.2 of IBC.

Change of Occupancy Includes:

- **Building Elements and Materials** – It shall comply with requirements in Section 1011.
- **Fire Protection** – It shall comply with requirements in Section 1011.2 and when there is a different threshold fire protection system requirements in accordance with IBC Chapter 9.
- **Means of Egress** – It shall comply with the requirements in Section 1011.5.
- **Structural** – It includes the requirements for structural elements carrying the live loads in compliance with IBC Section 1607, wind and snow loads to comply with Sections 1608 and 1609 of IBC when the change of occupancy results in a higher risk category, and seismic loads to comply with IBC Section 1613 when the change of occupancy results in a higher risk category or change is from Group **S** or **U** to any occupancy other than Group **S** and **U**.
- **Mechanical** – When the new occupancy is subject to different kitchen exhaust requirements or increased mechanical ventilation, the new occupancy shall comply with the respective requirements of IMC.

CHANGE OF OCCUPANCY

Change of Occupancy Includes (continued):

Code Section

Chapter 10

- **Electrical** – The electrical wiring and equipment in the proposed occupancy shall comply with NEC requirements when the occupancy is changed to any of the special occupancies; hazardous location, commercial garages, repair or storage, aircraft hangars, gasoline dispensing and service stations, bulk storage plants, spray application, dipping and coating processes, Group I-2 occupancy-health care facilities (it also shall comply with NFPA 99), places of assembly, theaters, audience areas of motion picture and television studios, and similar locations, motion picture and television studios and similar locations, motion picture projectors, and agricultural buildings.
- **Plumbing** – When the new occupancy is subject to increased or different plumbing fixtures requirements or to increase water supply requirements, the new occupancy shall comply with the respective requirements in IPC. If the occupant load of the story increased by 20 percent, number of plumbing fixtures of the story shall comply with IPC requirements. In the new proposed food-handling occupancies, the sanitary waste lines above the food or drinking preparation or storage shall comply with IPC. If the new occupancy produce grease or oil-laden waste, it shall be provided with interceptor in accordance with IPC. The chemical waster shall comply with 1009.4. In Group I-2, the plumbing system and medical gas system shall comply with applicable requirements in IPC.
- **Light and Ventilation** – It shall comply with IBC for the new occupancy

CHANGE OF OCCUPANCY CLASSIFICATION

Code Section

1011

- This section applies when change of occupancy requires a is different fire protection system threshold in accordance with IBC Chapter 9.
- It includes the requirements for:
 - **Fire Sprinkler System** - When an automatic fire sprinkler system based on the new occupancy is required, the system shall be installed in the area of change of occupancy and areas not separated horizontally and vertically from the change of occupancy by one of the following; nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier, fire wall.

Exception:

One- or two-family dwelling, townhouse constructed in accordance with IRC, and townhouse separated from adjoining units in accordance with IRC Section R302.2.

- **Fire Alarm and Detection System** - It shall be provided throughout the change of occupancy. Existing alarm notification appliances shall be automatically activated throughout the building. When the existing building is not equipped with fire alarm system, the new notification appliances shall be installed in accordance with IBC Section 907.

CHANGE OF OCCUPANCY CLASSIFICATION

Code Section

1011

- It includes the requirements for (continued):
 - **Interior Finish** - It shall comply with the requirements for new occupancy in accordance with IBC. Includes requirements for classroom acoustics in Group E, with volume of 20,000 cu. ft. or less.
 - **Means of Egress** - The hazard category/level shall be classified based on the occupancy classification in Table 1011.5. The means of egress for a change to a **higher-hazard category** shall comply with Section 1011.5.1 and IBC Chapter 10. The means of egress for change of use to an **equal or lower hazard category** shall comply with Section 1011.5.2 and IBC Chapter 10. Egress capacity shall meet or exceed the occupant load as per IBC for the new occupancy. The handrails for the existing stairway and guards in the area of change of occupancy shall comply with Sections 804.10 and 804.12 of IBC respectively. Existing emergency escapes and rescue openings shall comply with Section 1011.5.6.
 - **Heights and Areas** - The hazard category/level shall be classified based on the occupancy classification in Table 1011.6. The required height and area for a change to a **higher-hazard category** shall comply with Section 1011.6.1 and IBC Chapter 5. The means of egress for change of use to an **equal or lower hazard category** shall comply with Section 1011.6.2 and IBC Chapter 5. Fire barriers in a higher-hazard category shall comply with IBC requirements.

CHANGE OF OCCUPANCY CLASSIFICATION

Code Section

1011

- It includes the requirements for (continued):
 - **Exterior Wall Fire-Resistance Rating** - The hazard category/level shall be classified based on the occupancy classification in Table 1011.7. The required height and area for a change to a **higher-hazard category** shall comply with Section 1011.7.1 and IBC. The means of egress for change of use to an **equal or lower hazard category** shall comply with Section 1011.7.2 and IBC. The exterior walls opening shall be protected in accordance with IBC. The sum of such openings shall not exceed 50 percent of total area of the wall in each story.
 - **Enclosure of Vertical Shafts** – Vertical shafts shall comply with requirements for atriums in IBC. When change of occupancy has resulted in a **higher-hazard category** in accordance with Table 1011.5, the interior stairways shall comply with Section 1011.8.2, and other vertical shafts including but not limited to elevator hoistways, and service and utility shafts shall comply with Section 1011.8.3. The openings into the shafts enclosures shall be in compliance with Section 1011.8.4.

Code Section

Chapter 11

ADDITIONS

- It shall not create or extend any nonconformity in the existing building in regard to accessibility, structural strength, fire safety, means of egress or capacity of mechanical, plumbing or electrical systems.
- Addition shall comply with the requirements for the new construction without requiring the existing building or structure to comply with new codes except for requirements set forth in Chapter 11.

Addition includes the requirements for:

- **Heights and Areas-** It includes the requirements to comply the height and area limitations in accordance with Chapter 5, and fire protection systems in accordance with Chapter 9 of IBC.
- **Structural-** It includes the requirements for additional gravity loads, lateral force resisting systems and flood hazard areas.
- **Energy Conservation-** It shall comply with the requirements in IECC or IRC.

HISTORICAL BUILDINGS

Code Section

Chapter 12

- Subject building must be essentially accredited as being historic significance by the state or local authority.
- It shall comply with provisions of this chapter related to repair, alteration, relocation and change of occupancy.
- A report prepared by a registered design professional and in compliance with Chapter 1 of this code shall be prepared for the building official, if the alteration and change of occupancy in a historical building intended to meet the requirements of this chapter and deemed to be necessary by the building official.
- Group **R-3** which is used for Group **A**, **B**, or **M** purposes; such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 sq. ft., and all life safety conditions are in compliance with Section 1201.2, building official is authorized to determine the occupancy is Group B.
- The flood hazard area requirements shall meet the requirements in Section 1201.4.
- It includes the requirements for:
 - **Repairs** - Hazardous materials such as asbestos and lead-based paint shall not be used. Replacement glazing in hazardous locations shall be in compliance with requirements in IBC Chapter 24.

HISTORICAL BUILDINGS

It includes the requirements for (continued):

Code Section

Chapter 12

- **Fire Safety** – It includes alterations, change of occupancy and moved buildings. If the building does not meet the construction requirements in this chapter for occupancy and use, it shall be provided with automatic fire-extinguishing system. The automatic fire-extinguishing system shall not substitute for, or act as alternative to required number of exits. It contains requirements for means of egress, transoms, interior finishes, stairway enclosure, 1-hour fire resistance assemblies, glazing in fire-resistance systems, stairway railings, guards, exit signs and automatic fire-extinguishing systems.
- **Change of Occupancy** – It shall comply with provisions of Chapter 10, except as permitted in this chapter. It includes the requirements for building area, location on property, occupancy separation, roof covering, means of egress, door swing, transoms, interior finishes, 1-hour fire-resistant assemblies, stairway and guards, exit signs, exit stair live load and natural light,
- **Structural** – It shall comply with requirements in Chapter 4 or 5. Repair of the substantial damage is not required to comply with Section 405.2.3 and 405.2.4. Substantial structural damage shall comply with Section 405.2.1. Dangerous condition shall be remedied by the determination of building official and shall not be required beyond the remedied area.
- **Relocated Building** – The foundation shall comply with IBC requirements. The building shall be sited, so the exterior wall and opening requirements comply with IBC or the compliance alternatives of this code.

PERFORMANCE COMPLIANCE METHOD

*** **NOTE:** THIS CHAPTER HAS NOT BEEN ADOPTED/AMENDED BY THE CITY OF HOUSTON AND REMAINS AS SET FORTH IN THE 2021 IEBC THE AT TIME OF PREPARATION THIS DOCUMENT

Code Section

Chapter 13

- It shall apply to alteration, addition, and change of occupancy including the historic buildings.
- It is intended to increase the current degree of public safety, health and general welfare without requiring full compliance with Chapter 6 through 12, except compliance with prescriptive or work area method is specifically required in this chapter.
- Existing occupancies Groups **A**, **B**, **E**, **F**, **I-2**, **M**, **R** and **S** that continue to be, or are proposed to be, shall comply with Sections 1301.2.1 through 1301.2.6. These provisions shall not apply to occupancy Group **H**, **I-1**, **I-3** or **I-4**. This provisions shall only apply in Group **U**, where it is going through a change of occupancy or partial change in occupancy that is separated in accordance with Section 1301.2.2.
- The building owner shall cause existing building to be investigated and evaluated in accordance with Section 1301.4 through 1301.9 for:
 - **Structural Analysis** - Includes determinations of structural systems adequacy for the proposed alteration or change of occupancy (Section 1301.4).
 - **Fire Safety**- Includes structural fire resistance, automatic fire detection, fire alarm, automatic sprinkler system and fire suppression features (Section 1301.5.1)

PERFORMANCE COMPLIANCE METHOD

Code Section

Chapter 13

- **Means of Egress** - Includes configuration, characteristics and support features of means of egress (Section 1301.5.2)
- **General Safety** - Includes the fire safety parameters and the means of egress parameters (Section 1301.5.3).
- **Evaluation process** is outlined in Section 1301.6 for Groups **A, B, E, F, M, R, S, U**, and each and every individual compartment in Group **I-2**. The result of evaluation shall be tabulated in accordance with Table 1301.7. In a building with mixed occupancies where separation between occupancies do not qualify for any category in Section 1301.6.16, the score for each occupancy shall be determined and the lowest score for each section shall be applied to the entire building or each compartment in Group **I-2** occupancies.

The evaluation process includes:

- Building Height and Number of Stories (Section 1301.6.1)
- Building Area (Section 1301.6.2)
- Compartmentation (Section 1301.6.3)
- Tenant and Dwelling Unit Separation (Section 1301.6.4)
- Corridor Walls (Section 1301.6.5)
- Vertical Openings (Section 1301.6.6)
- HVAC Systems (Section 1301.6.7)

PERFORMANCE COMPLIANCE METHOD

Code Section

Chapter 13

- The evaluation process includes (continued):
 - Automatic Fire Detection (Section 1301.6.8)
 - Fire Alarm Systems (Section 1301.6.9)
 - Smoke Control (Section 1301.6.10)
 - Means of Egress Capacity and Number (Section 1301.6.11)
 - Dead Ends (Section 1301.6.12)
 - Maximum Exit Access Travel Distance to an Exit (Section 1301.6.13)
 - Elevator Controls (Section 1301.6.14)
 - Means of Egress Emergency Lighting (Section 1301.6.15)
 - Mixed Occupancies (Section 1301.6.16)
 - Automatic Sprinklers (Section 1301.6.17)
 - Standpipes (Section 1301.6.18)
 - Incidental Uses (Section 1301.6.19)
 - Smoke Compartmentation (Section 1301.6.20)
 - Care Recipient Ability, Concentration, Smoke Compartment Location and Ratio to Attendant (Section 1301.6.21)

PERFORMANCE COMPLIANCE METHOD

Code Section

Chapter 13

- **Building Score** - Upon completion of evaluation process, the data shall be tabulated in accordance with Table 1301.7 Summary Sheet- Building Code.
- **Safety Score** - Required mandatory scores to be used in evaluation process is listed in Table 1301.8- Mandatory Safety Scores based on the occupancy group.
- Evaluation of Building Safety – Evaluation formulas for evaluation of building safety is listed in Table 1301.9- Evaluation Formulas. The mandatory safety scores shall be subtracted from the building score for each category.
- For the final score for any category equals zero or more, the building is in compliance.
- For any category with the final score of less than zero, the building is not in compliance with the requirements in this section of code.

Code Section

Chapter 14

RELOCATED OR MOVED BUILDINGS

- It requires compliance with Chapter 10, Article III and Chapter 33, Article VII of the City Code.
- Relocated or moved buildings and housing outside the scope of the Houston Residential Code shall comply with the Building Code for new construction.

Exception: Relocated or moved buildings complying with Chapter 10, Article VI, of the City Code and constructed under the Texas Department of Licensing and Regulation (TDLR) Industrialized Housing and Buildings (IHB) Program.

- It includes the requirements for:
 - **Flood Hazard Area** - It shall comply with the requirements in Chapter 19 of the City Code, the infrastructure Design Manual, Building Code Section 1612 or Residential Code Section R322 (as applicable), whichever is more restrictive.

CONSTRUCTION SAFEGUARDS

Code Section

Chapter 15

- ***** NOTE:** THIS CHAPTER HAS NOT BEEN ADOPTED/AMENDED BY THE CITY OF HOUSTON AND REMAINS AS SET FORTH IN THE 2021 IEBC THE AT TIME OF PREPARATION THIS DOCUMENT
- It includes the requirements during the construction process including the demolition and protecting adjacent public and private properties during construction. This chapter is consistent with Chapter 33 in both IBC and IFC.
- It includes provisions for:
 - Alterations, Repairs and Additions (Section 1501.3)
 - Manner of Removal (Section 1501.4)
 - Fire Safety During Construction (Section 1501.5)
 - Protection of Pedestrians (Section 1501.6)
 - Required Facilities (Section 1501.7)
- **Protection of the Adjoining Properties** shall comply with the requirements in Section 1502.
- **Temporary Use of Streets, Alleys and Public Properties** shall comply with the requirements in Section 1503.
- **Fire extinguishers** shall comply with the requirements in Section 1504.
- **Means of Egress** shall comply with the requirements in Section 1505.

CONSTRUCTION SAFEGUARDS

Code Section

Chapter 15

- **Standpipes** shall comply with the requirements in Section 1506.
- **Automatic Sprinkler System** shall comply with the requirements in Section 1507.
- **Accessibility** shall comply with the requirements in Section 1508.
- **Water Supply for Fire Protection** shall comply with the requirements in Section 1509.

APPENDIXES

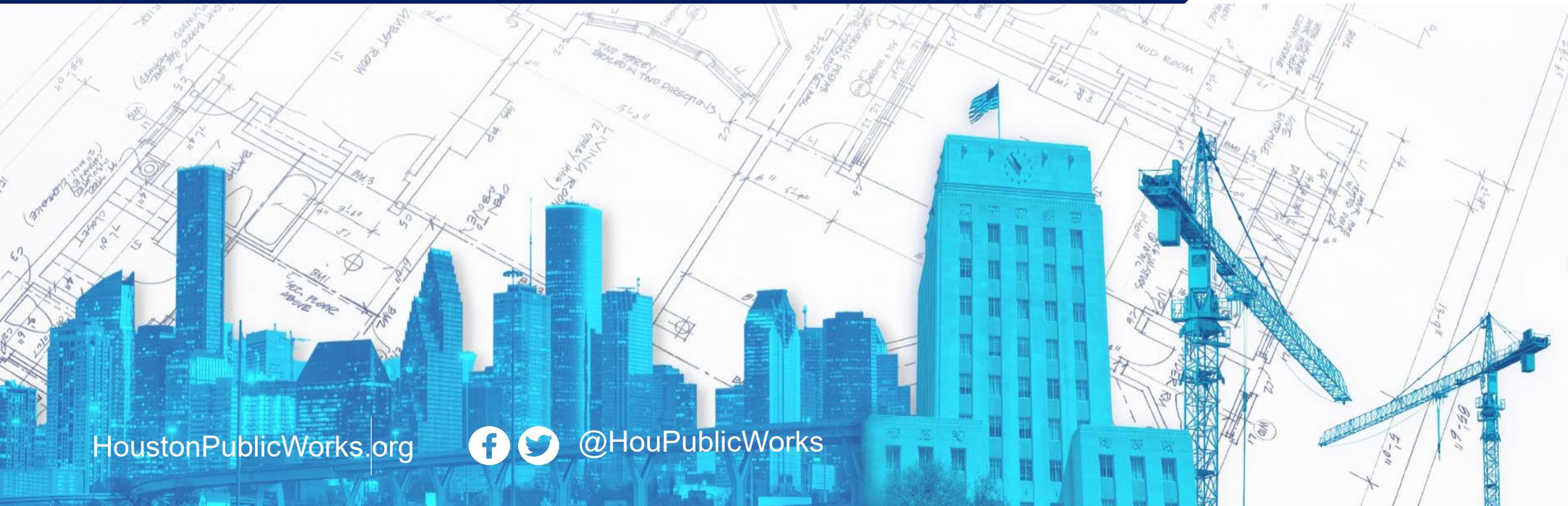
Code Section

APPENDIX A, B & C

- **Appendix A** - Guidelines for the Seismic Retrofit of Existing Buildings
- **Appendix B** - Supplementary Accessibility Requirements for Existing Buildings and Facilities
- **Appendix C** - Guidelines for the Wind Retrofit of Existing Buildings
- **Appendix D – Life-Safety Requirements for Existing Buildings (Amended by the City of Houston)** - The purpose of appendix D is to provide the Occupancy Inspections department regulations to ensure a reasonable degree of life safety to persons occupying existing buildings, and to provide requirements for alterations to such existing buildings that do not conform with the minimum requirements of this code. This appendix shall apply to and the term “existing building” shall be construed to mean any building existing within the corporate limits of the jurisdiction on January 1, 1986, and any building annexed into the corporate limits after that date.



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