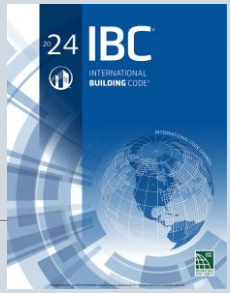
2024 IBC Significant Changes

SHUMS CODA ASSOCIATES



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Instructor: Bill Clayton, CBO

Designer/Builder for 10 years

Over 33 years of Code Administration and enforcement experience

Instructor, Consultant, Inspector, Plans Examiner

ICC/IBC General Committee 2015 cycle

ICC/IEBC Committee 2009 & 2012 cycle

Instructor with CCC & Shums Coda 10+ years

3rd party contracted Instructor for ICC 7+ years

C0-Author of 2024 ICC resource book "Fire Stopping, Joint Systems, and Dampers" due to publish in December?

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What will we talk about?

Only two hours available…so going thru things quickly and trying to hit the ones that will affect you the most as design professionals.

Non material specific

Non structural,

Critical items

How to apply changes---as time allows.

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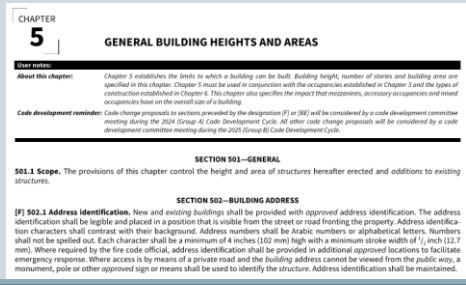
New Format



CHAPTER 5

GENERAL BUILDING HEIGHTS AND AREAS

User notes:

About this chapter: *Chapter 5 establishes the limits to which a building can be built. Building height, number of stories and building area are specified in this chapter. Chapter 5 must be used in conjunction with the occupancies established in Chapter 3 and the types of construction established in Chapter 6. This chapter also specifies the impact that mezzanines, accessory occupancies and mixed occupancies have on the overall size of a building.*

Code development reminder: *Code change proposals to sections preceded by the designation [F] or [BE] will be considered by a code development committee meeting during the 2024 (Group A) Code Development Cycle. All other code change proposals will be considered by a code development committee meeting during the 2025 (Group B) Code Development Cycle.*

SECTION 501—GENERAL

501.1 Scope. The provisions of this chapter control the height and area of *structures* hereafter erected and *additions* to existing *structures*.

SECTION 502—BUILDING ADDRESS

[F] 502.1 Address identification. New and *existing buildings* shall be provided with *approved* address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of $^1/_2$ inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional *approved* locations to facilitate emergency response. Where access is by means of a private road and the *building* address cannot be viewed from the *public way*, a monument, pole or other *approved* sign or means shall be used to identify the *structure*. Address identification shall be maintained.

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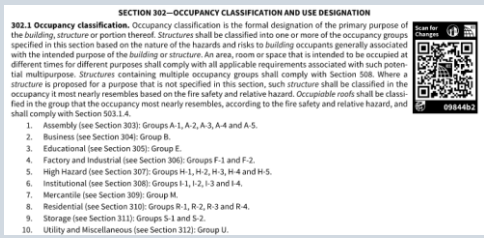
Revisions



SECTION 302—OCCUPANCY CLASSIFICATION AND USE DESIGNATION

302.1 Occupancy classification. Occupancy classification is the formal designation of the primary purpose of the *building*, *structure* or portion thereof. *Structures* shall be classified into one or more of the occupancy groups specified in this section based on the nature of the hazards and risks to *building* occupants generally associated with the intended purpose of the *building* or *structure*. An area, room or space that is intended to be occupied at different times for different purposes shall comply with all applicable requirements associated with such potential multipurpose. *Structures* containing multiple occupancy groups shall comply with Section 508. Where a *structure* is proposed for a purpose that is not specified in this section, such *structure* shall be classified in the occupancy it most nearly resembles based on the fire safety and relative hazard. *Occupiable roofs* shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.

Scan for Changes

09844b2

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

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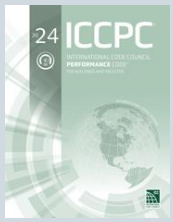
104.2.3 - Alternative materials, design and methods of construction and equipment

The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved.

- New exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the International Code Council Performance Code.
- This exception shall not apply to alternative structural materials or to alternative structural designs.



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104.2.3.2
Application and disposition

Where required, a request to use an alternative material, design or method of construction shall be submitted in writing to the building official for approval.

Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

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104.2.3.3
Compliance with code intent

An alternative material, design or method of construction shall comply with the intent of the provisions of this code.

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104.2.3.4
Equivalency criteria

An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

- 1.Quality.
- 2.Strength.
- 3.Effectiveness.
- 4.Durability.
- 5.Safety, other than fire safety.
- 6.Fire safety.

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104.2.3.5.1 Fire Tests

Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration.

Tests shall be performed by a party acceptable to the building official.

Typically, a building official will want to know what test standard will be used for equivalency to the prescriptive standard

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104.2.3.6 Reports


NGC TESTING SERVICES Fire Testing Laboratory

TEST REPORT

Concrete Reinforcing Steel Institute

Standard Test Method for Fire Tests of Building Construction and Materials ASTM E119 – 16a

Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall comply with Sections 104.2.3.6.1 and 104.2.3.6.2.

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202 Definitions

HIGH-RISE BUILDING.

A building with an occupied floor **or occupied roof** located more than 75 feet above the lowest level of fire department vehicle access.

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202 Definitions

LIMITED VERBAL OR PHYSICAL ASSISTANCE

Describes persons who, because of age, physical limitations, cognitive limitations, treatment or chemical dependency, may not independently recognize, respond or evacuate without limited verbal or physical assistance during an emergency situation.

Limited verbal assistance includes prompting, giving and repeating instructions. Limited physical assistance includes assistance with transfers to walking aids or mobility devices and assistance with egress.

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Definitions 202

OCCUPIABLE (Occupied) ROOF

An exterior space on a roof that is designed for human occupancy, other than maintenance or repair, and is equipped with a means of egress system meeting the requirements of this code.

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Occupancy group changes: 304.1 Business Group B

Lithium-ion or lithium metal battery testing, research and development

Does not include manufacturing or storage. That is F-1 or S-1 as applicable

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306.2 - Moderate-hazard factory industrial, Group F-1

Beverages: over 20-percent alcohol content

Energy storage systems (ESS) and equipment containing lithium-ion or lithium metal batteries

Lithium-ion batteries

Vehicles powered by lithium-ion or lithium metal batteries

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306.3 - Low-hazard factory industrial, Group F-2

Beverages: up to and including 20-percent alcohol content

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307.1.1 Occupancy Exemptions

Storage, use and handling of hazardous materials in accordance with Table 307.1.(1) shall not be counted as contributing to Maximum Allowable Quantities and shall not cause classification of an occupancy to be Group H.

Such storage, use and handling shall comply with applicable provisions of the International Fire Code.

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TABLE 307.1.1 HAZARDOUS MATERIALS EXEMPTIONS[1]

MATERIAL CLASSIFICATION	OCCUPANCY CLARIFICATION	EXEMPTION
Combustible fiber	Baled cotton	Densely packed baled cotton shall not be classified as combustible fiber, provided that the bales comply with the packing requirements of ISO 8115.
Corrosive	Building materials	The quantity of commonly used building materials that are classified as corrosive materials is not limited.
	Personal and household products	The quantity of personal and household products that are classified as corrosive materials is not limited in retail displays, provided that the products are in original packaging.
	Retail and wholesale sales occupancies	The quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids, with the remainder of the solutions not being flammable, is not limited. To qualify for this allowance, such materials shall be packaged in individual containers not exceeding 1.3 gallons.
Explosives	Groups B, F, H and S	Storage of special industrial explosive devices is not limited.
	Groups M and R-2	Storage of black powder, smokeless propellant and small arms primers is not limited.
Flammable and combustible liquids and gases	Aerosols	Buildings and structures occupied for the storage of aerosol products, aerosol cooking spray products, or plastic aerosol Z products shall be classified as Group S-1.
	Alcoholic beverages	The quantity of alcoholic beverages in liquor stores and distributors without bulk storage is not limited. The quantity of alcoholic beverages in distilling or brewing of beverages is not limited. The storage quantity of beer, distilled spirits and wines in barrels and casks is not limited. The quantity of alcoholic beverages in retail and wholesale sales occupancies is not limited. To qualify for this allowance, beverages shall be packaged in individual containers not exceeding 1.3 gallons.
	Cleaning establishments with combustible liquid solvents	The quantity of combustible liquid solvents used in closed systems and having a flash point at or above 140°F is not limited. To qualify for this allowance, equipment shall be listed by an approved testing agency and the occupancy shall be separated from all other areas of the building by 1-hour fire barriers constructed in accordance with Section 707 or 1-hour horizontal assemblies constructed in accordance with Section 711, or both.
	Closed piping systems	The quantity of combustible liquid solvents having a flash point at or above 200°F is not limited.
	Fuel	The quantity of flammable and combustible liquids and gases utilized for the operation of machinery or equipment is not limited. The quantity of liquid or gaseous fuel in fuel tanks on vehicles or motorized equipment is not limited. The quantity of gaseous fuels in piping systems and fired appliances regulated by the International Fuel Gas Code is not limited. The quantity of liquid fuels in piping systems and fired appliances regulated by the International Mechanical Code is not limited.
	Flammable finishing operations using flammable and combustible liquids	Buildings and structures occupied for the application of flammable finishes shall comply with Section 417.
	Fuel oil	The quantity of fuel oil storage complying with Section 603.4.2 of the International Fire Code is not limited.
	Hand sanitizer	The quantity of alcohol-based hand rub (ABHR) classified as Class I or II liquids in dispensers installed in accordance with Sections 5705.5 and 5704.3.7 of the International Fire Code is not limited. The location of the ABHR dispensers shall be provided in the construction documents.
	Retail and wholesale sales occupancies with flammable and combustible liquids	The quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids, with the remainder of the solutions not being flammable, is not limited. To qualify for this allowance, such materials shall be packaged in individual containers not exceeding 1.3 gallons.
Highly toxic and toxic materials	Retail and wholesale sales occupancies	The quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids, with the remainder of the solutions not being flammable, is not limited. To qualify for this allowance, such materials shall be packaged in individual containers not exceeding 1.3 gallons.
Any	Agricultural materials	The quantity of agricultural materials stored or utilized for agricultural purposes on the premises is not limited.
	Energy storage	The quantity of hazardous materials in stationary storage battery systems is not limited. The quantity of hazardous materials in stationary fuel cell power systems is not limited. The quantity of hazardous materials in capacitor energy storage systems is not limited.
	Refrigeration Systems	The quantity of refrigerants in refrigeration systems is not limited.

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310.2
Residential Group R-1

Residential Group R-1 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily transient in nature, including:

- Lodging houses with more than five guestrooms

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310.3
Residential Group R-2

Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Congregate living facilities (non-transient) with more than 16 occupants

- Emergency services living quarters

Hotels (non-transient) with more than five guest rooms

Motels (non-transient) with more than five guest rooms

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310.4
Residential Group R-3

Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Congregate living facilities (non-transient) **with 16 or fewer** occupants
- Emergency services living quarters

Hotels (non-transient) with five or fewer guest rooms

Motels (non-transient) with five or fewer guest rooms

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311.2
Moderate-hazard storage, Group S-1

Storage Group S-1 occupancies are buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

Aerosol products, Levels 2 and 3, aerosol cooking spray, plastic aerosol 3 (PA3)

Beverages over 20-percent alcohol content

Lithium-ion or lithium metal batteries

Vehicle repair garages for vehicles powered by lithium-ion or lithium metal batteries

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311.3
Low-hazard storage, Group S-2

Storage Group S-2 occupancies include, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions; or in paper wrappings.

Beverages up to and including 20-percent alcohol by volume (ABV)

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503.1.4.1
Enclosures over occupiable roof areas

Elements or structures enclosing the **occupiable** roof areas shall not extend more than 48 inches above the surface of the occupiable roof.

- New Exception:
- 2. Elements or structures enclosing the occupiable roof areas where the roof deck is located more than 75 feet above the lowest level of fire department vehicle access.

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506.3.3.1
Section 507 buildings

Where a building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot public way or yard requirement, the area factor increase based on frontage shall be determined in accordance with Table 506.3.3.1.

The frontage increase shall be based on the smallest public way or open space that is 30 feet or greater, and the percentage of building perimeter having a minimum 30 feet public way or open space.

TABLE 506.3.3.1—SECTION 507 BUILDINGS[a]

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)					
	30 to less than 35	35 to less than 40	40 to less than 45	45 to less than 50	50 to less than 55	55 or greater
0 to less than 25	0	0	0	0	0	0
25 to less than 50	0.29	0.33	0.38	0.42	0.46	0.50
50 to less than 75	0.58	0.67	0.75	0.83	0.92	1.00
75 to 100	0.88	1.00	1.13	1.25	1.38	1.50

For SI: 1 foot = 304.8 mm.
a. Interpolation is permitted.

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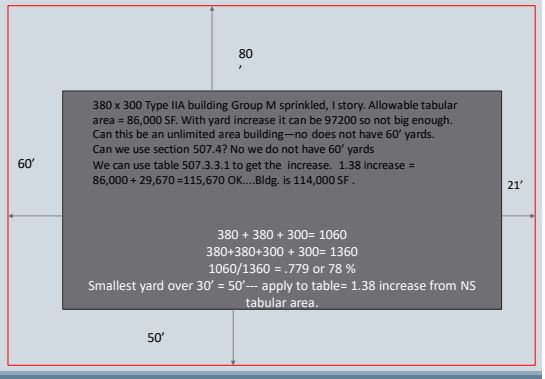

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508.5
Live/work units

Live/work units shall comply with one of the following:

1. For a live/work unit located in a building constructed in accordance with this code, both the residential and nonresidential portions of the live/work unit shall comply with Sections 508.5 through 508.5.11.

2. For a live/work unit located in a building constructed in accordance with the International Residential Code, the nonresidential portion of the live/work unit shall comply with Sections 508.5.1 through 508.5.11.

- and the residential portion of the live/work unit shall be constructed in accordance with the International Residential Code

- And IBC Section 508.5.7.

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508.5.7
Fire protection

Live/work units in buildings constructed in accordance with this code shall be provided with all of the following:

- 1. An automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- 2. Smoke alarms in accordance with Section 907.2.11.
- 3. Where required by Section 907.2.9.2, a manual fire alarm system.

Live/work units in buildings constructed in accordance with the International Residential Code shall be provided with an automatic sprinkler system and smoke alarms.

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[F] TABLE 509.1—INCIDENTAL USES—continued

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour and provide automatic sprinkler system
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour and provide automatic sprinkler system
In Group I-2, physical plant maintenance shops	1 hour and provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 8.67 cubic feet or greater	1 hour and provide automatic sprinkler system
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 50 square feet	1 hour and provide automatic sprinkler system
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.

For SI: 1 square foot = 0.0929 m², 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m³.

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603.1 Allowable materials

Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

28. Vapor retarders as required by Section 1404.3.

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704.2 - Protection of the primary structural frame

Members of the primary structural frame that are required to have protection to achieve a fire-resistance rating shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required fire-resistance rating.

Where a column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

Exceptions:

1. Individual encasement protection on all sides shall be permitted on all exposed sides provided that the extent of protection is in accordance with the required fire-resistance rating, as determined in Section 703. (Beams and other Primary str frame)

2. Primary structural members other than columns that do not support more than two floors or one floor and roof, or a load-bearing wall or a nonload-bearing wall more than two stories high, are permitted to be protected by the membrane of a fire-resistance-rated wall or horizontal assembly where the membrane provides the required fire-resistance rating. (Beams)

3. Columns that meet the limitations of Section 704.3.1. (Light frame construction Boundary elements)

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704.3 - Protection of secondary structural members

Secondary structural members that are required to have protection to achieve a fire-resistance rating shall be protected by individual encasement protection, or by the membrane of a fire-resistance-rated wall or horizontal assembly where the membrane provides the required fire-resistance rating.

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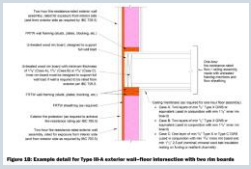
705.6 Continuity

The fire-resistance rating of exterior walls shall extend from the top of the foundation or floor/ceiling assembly below to one of the following:

1. The underside of the floor sheathing, roof sheathing, deck or slab above.

2. The underside of a floor/ceiling or roof/ceiling assembly having a fire-resistance rating equal to or greater than the exterior wall and the fire separation distance is greater than 10 feet.

Parapets shall be provided as required by Section 705.12.



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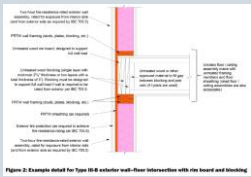
705.7.1 - Floor assemblies in Type III construction

In Type III construction where a floor assembly supports gravity loads from an exterior wall, the fire-resistance rating of the portion of the floor assembly that supports the exterior wall shall be not less than the fire-resistance rating required for the exterior wall in Table 601.

The fire-resistance rating provided by the portion of the floor assembly supporting and within the plane of the exterior wall shall be permitted to include the contribution of the ceiling membrane when considering exposure to fire from the inside.

Where a floor assembly supports gravity loads from an exterior wall, the building elements of the floor construction within the plane of the exterior wall, including but not limited to rim joists, rim boards and blocking, shall be in accordance with the requirements for interior building elements of Type III construction.



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707.6 Openings

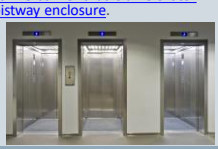
Openings in a fire barrier shall be protected in accordance with Section 716.

Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet.

Openings in enclosures for shafts, interior exit stairways and ramps and exit passageways shall also comply with Sections 713.7 , 1023.4 and 1024.5, respectively.

New Exceptions:

6. Openings providing entrance to an elevator car shall not be limited to 156 square feet or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a fire barrier that is an elevator hoistway enclosure.



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707.6 Openings

7. Openings shall not be limited to an aggregate width of 25 percent of the length of the wall where opening serves a shaft enclosure in accordance with Section 713.

8. Openings shall not be limited to an aggregate width of 25 percent of the length of the wall where opening serves a chute access room in accordance with Section 713.13.3 or a chute discharge room in accordance with Section 713.13.4.

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708.4.1 - Fire partition walls enclosing elevator lobbies

Fire partition walls used to enclose elevator lobbies in accordance with Section 3006.3 shall form an enclosure that terminates at a fire barrier or fire partition having a fire-resistance rating of not less than 1 hour, or an outside wall.

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710.4 Continuity

Smoke partitions shall extend from the top of the foundation or floor below to the underside of the floor or roof sheathing, deck or slab above or to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke.

- Exception: In Group I-2, a lay-in ceiling system shall be considered capable of limiting the transfer of smoke where the ceiling tiles weigh not less than 1 pound per square foot and where the HVAC system is fully ducted in accordance with Section 603 of the International Mechanical Code.

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710.4.1 - Smoke partition walls enclosing elevator lobbies

Smoke partition walls used to enclose elevator lobbies in accordance with Section 3006.3 shall form an enclosure that terminates at a fire barrier having a fire-resistance rating of not less than 1 hour, another smoke partition or an outside wall.

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714.3 Sleeves

Where sleeves are used, they shall be securely fastened to the assembly penetrated and installed in accordance with the sleeve manufacturer's installation instructions.

Where listed systems are used, the sleeve shall be installed in accordance with the listing criteria for the system.

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714.5.1 Horizontal assemblies Through penetrations

Through penetrations of horizontal assemblies shall comply with Section 714.5.1.1 or 714.5.1.2.

- New Exception:
- 4. Penetrations of concrete floors or ramps within parking garages or structures constructed in accordance with Sections 406.5 and 406.6 where the areas above and below the penetrations are parking areas.

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714.5.1.2 - Through-penetration firestop system

Through penetrations shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water.

The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

New Exception:

4.Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6-inch nominal diameter do not require a T rating. These penetrating items shall not be limited to the penetration of a single concrete floor, provided that the area of the opening through each floor does not exceed 144 square inches.

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715.2.1 Listed system installation

Listed fire-resistant joint systems, perimeter fire containment systems and continuity head-of-wall systems shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria in or on the joint or void for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases.

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715.2.2 Approved materials installation

Approved materials protecting voids shall be securely installed in accordance with the manufacturer's installation instructions in or on the void for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases.

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715.4 - Exterior curtain wall/fire-resistance-rated floor intersections.

New Exceptions:

An approved perimeter fire containment system shall not be required for voids in the following locations:

1. Floors within a single dwelling unit.

2. Floors and ramps within parking garages or structures constructed in accordance with Sections 406.5 and 406.6.

3. Mezzanine floors.

Same in Section 715.5 for non-fire-rated floor assemblies.

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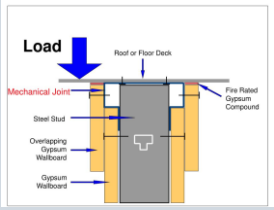
715.6 - Fire barrier/nonfire-resistance-rated roof assembly intersections



Voids created at the intersection of a fire barrier and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be filled by an approved material or system to retard the passage of fire and hot gases, or shall be protected by an approved continuity head-of-wall system tested in accordance with ASTM E2837 to provide an F rating/T rating for a time period not less than the required fire-resistance rating of the fire barrier in which it is installed.

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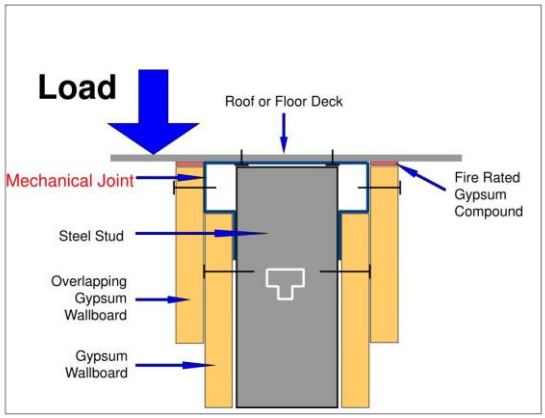

48

What is an F, T or L rating? 202

F-Rating:

The time period that the through-penetration firestop system, perimeter fire containment system or continuity head-of-wall system limits the spread of fire through the penetration or void.

L-Rating:

The air leakage rating of a through penetration firestop system or a fire-resistant joint system when tested in accordance with UL 1479 or UL 2079, respectively.

T-Rating:

The time period that the penetration firestop system, including the penetrating item or continuity head-of-wall system, limits the maximum temperature rise to 325°F (181°C) above its initial temperature through the penetration or void on the nonfire side .

 49

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718.2.1 Fireblocking materials

Fireblocking shall consist of the following materials:

10. One thickness of 19/32-inch fire-retardant-treated (FRT) wood structural panel complying with Section 2303.2.

Fire-retardant-treated wood is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a listed flame spread index of 25 or less. The ASTM E84 or UL 723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.

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903.2.2.2 - Laboratories involving testing, research and development

An automatic sprinkler system shall be installed throughout the fire areas utilized for the research and development or testing of lithium-ion or lithium metal batteries.

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903.2.4 Group F-1

An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

- 4. A Group F-1 occupancy is used to manufacture lithium-ion or lithium metal batteries.
- 5. A Group F-1 occupancy is used to manufacture vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

 52

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903.2.7.3 - Lithium-ion or lithium metal battery storage

An automatic sprinkler system shall be provided in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal batteries by Section 320 of the International Fire Code or Chapter 32 of the International Fire Code.

Many new requirements in the IBC and IFC related to Lithium-Ion batteries

 53

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903.3.1.2 NFPA 13R sprinkler systems

Automatic sprinkler systems in Group R occupancies shall be permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all the following conditions:

- 1. Four stories or fewer above grade plane.
- 2. For other than Group R-2 occupancies, the floor level of the highest story is 30 feet or less above the lowest level of fire department vehicle access.

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903.3.1.2 NFPA 13R sprinkler systems

For Group R-2 occupancies, the roof assembly is less than 45 feet above the lowest level of fire department vehicle access.

The height of the roof assembly shall be determined by measuring the distance from the lowest required fire vehicle access road surface adjacent to the building to the eave of the highest pitched roof, the intersection of the highest roof to the exterior wall, or the top of the highest parapet, whichever yields the greatest distance.

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Section 915 Carbon Monoxide Detectors

Multiple changes affecting when and where required including Group R and Group E occupancies and private garages of Group U occupancy

Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.

Interconnection is required.

 56

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Table 1004.5 Occupant Load Factors

Information technology equipment facilities

- 300 gross SF/Occupant

Definitions:

- Information technology equipment facilities (ITEF):
- Data centers and computer rooms used primarily to house information technology equipment.
- Information technology equipment (ITE):
- Computers, data storage, servers and network communication equipment.

 57

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Table 1006.3.4(1) - Stories and occupiable roofs with one exit or access to one exit for R-2 occupancies

TABLE 1006.3.4(1)—STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second story above grade plane	R-2[a,b,c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.
NA = Not Applicable.
a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.
b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2).
c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 1006.3.4(2).

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Table 1006.3.4(2) - Stories and occupiable roofs with one exit or access to one exit for other occupancies

TABLE 1006.3.4(2)—STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane and occupiable roofs over the first story above grade plane	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a,c]	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.
NA = Not Applicable.
a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1031.
b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an occupiable roof of such buildings shall have a maximum exit access travel distance of 100 feet.
c. This table is used for Group R-2 occupancies consisting of sleeping units. For Group R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).
d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

 59

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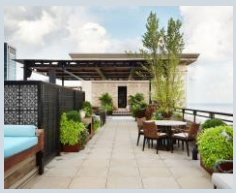
1009.2.1 Elevators required

In buildings where a required accessible floor is four or more stories above or below a level of exit discharge or where an accessible occupiable roof is above a story that is three or more stories above the level of exit discharge, not less than one required accessible means of egress shall include an elevator complying with Section 1009.4.



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1013.2
Low-level exit signs in Group R-1

Where exit signs are required in Group R-1 occupancies by Section 1013.1, additional low-level exit signs shall be provided in all areas serving guest rooms in Group R-1 occupancies and shall comply with Section 1013.5.

- New Exception: Low-level exit signs are not required in Group R-1 occupancies when the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

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1019 Exit access stairways

Changes to protection and opening requirement exceptions in 1019 related to occupiable roofs

 62

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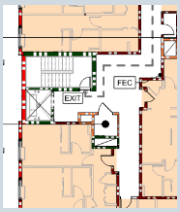
1023.7 - Interior exit stairway and ramp exterior walls



Exterior walls of the interior exit stairway or ramp shall comply with the requirements of Section 705 for exterior walls.

Where nonrated walls or unprotected openings enclose the exterior of the stairway or ramps and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees, building construction within 10 feet of the exterior walls of the interior exit stairway or ramp shall comply with Sections 1023.7.1 and 1023.7.2.

 63

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1024.6 Exit passageway Penetrations

Penetrations into or through an exit passageway are prohibited except for the following:

- 7. Structural elements, such as beams or joists, supporting a floor or roof at the top of the exit passageway.

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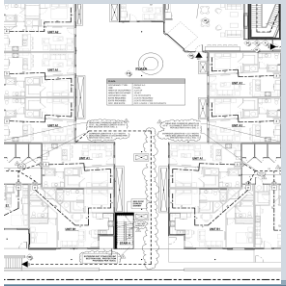
1029.3 Construction and openings



Where an egress court serving a building or portion thereof is less than 10 feet in width, the egress court walls shall have not less than 1-hour fire-resistance-rated construction for a distance of 10 feet above the floor of the egress court.

Openings within such walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour.

- New Exception:
- 3. Egress courts, located at grade, that provide direct and unobstructed access to a public way through two or more independent paths. The minimum width provided along each path shall be based on the required width or the required capacity, whichever is greater, and shall be maintained along each path.

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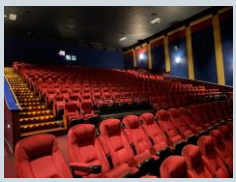
1030.8 Common path of egress travel

The common path of egress travel for a room or space used for assembly purposes having fixed seating shall not exceed 30 feet from any seat to a point where an occupant has a choice of two paths of egress travel to two exits.



 66

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Many changes in chapter 11.

Parking

EV charging stations

Door operators

Type A unit bathrooms

Accessible and type B units in R-3

Adult changing stations

Laundry equipment

Seating and standing at dining counters

Signage

 67

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1105.1.1 - Power-operated doors at public entrances

In facilities with the occupancies and building occupant loads greater than indicated in Table 1105.1.1, each public entrance required to be accessible shall have a minimum of one door be a power-operated door or a low-energy power-operated door. Where the accessible public entrance includes doors in series, such as a vestibule, a minimum of one set of two doors in series shall meet the requirements of this section.

New Exceptions:

1. For the purpose of determining power-operated door requirements, a tenant space with its own exterior public entrance shall be considered a separate facility and building.

2. The requirements of this section are not applicable to mixed-use facilities where the total building occupant load for the occupancies listed in Table 1105.1.1 is calculated as the sum of the ratios of the actual occupant load of each occupancy divided by the building occupant load threshold of each occupancy and the sum of the ratios is less than 1.

Example M occupancy 200/500 = 0.4 B occ

A-2 200 /300 =.66

.66 + .4 = 1.06 so operator is required.

TABLE 1105.1.1—PUBLIC ENTRANCE WITH POWER-OPERATED DOOR

OCCUPANCY	BUILDING OCCUPANT LOAD GREATER THAN
A-1, A-2, A-3, A-4	300
B, M, R-1	500

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1106.7.1 Parking located beneath a building

Where parking is provided beneath a building, accessible parking spaces shall be provided beneath the building.

And remember the ICC A117.1sec 502.6 requires a 98" clear headroom from the entry to the parking facility to the van accessible space and back out again.

 69

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Changes in Chapter 14

Water resistive barriers

Vapor retarders

Fenestration flashing

Insulated Metal Panels

Soffits and facsias

 70

70

Changes in chapter 15 roof assemblies

Type of construction

Lightning protection

Raised deck systems

 71

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2211 Industrial boltless steel shelving

The design, testing and utilization of industrial boltless steel shelving shall be in accordance with MHI ANSI/MH 28.2.

Where required by ASCE 7, the seismic design of industrial boltless steel shelving shall be in accordance with Chapter 15 of ASCE 7.

 72

72

2212
Industrial steel work platforms

The design, testing and utilization of industrial steel work platforms shall be in accordance with MHI ANSI/MH 28.3.

Where required by ASCE 7, the seismic design of industrial steel work platforms shall be in accordance with Chapter 15 of ASCE 7.

 73

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2301.2
Wood dimensions

For the purposes of this chapter, where dimensions of lumber are specified, they shall be deemed to be nominal dimensions unless specifically designated as actual dimensions (see Section 2304.2).

Where dimensions of cross-laminated timber thickness are specified, they shall be deemed to be actual dimensions.

 74

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2902.1.2 - Fixtures in single-user toilet facilities and bathing rooms

The plumbing fixtures located in single-user toilet facilities and single-user rooms, including family or assisted-use toilet facilities and bathing rooms, shall contribute toward the total number of required plumbing fixtures for a building or tenant space.

The number of fixtures in single-user toilet facilities, single-user bathing rooms and family or assisted-use toilet facilities shall be deducted proportionately from the required gender ratios of Table 2902.1.

Single-user toilet facilities and bathing rooms, and family or assisted-use toilet facilities and bathing rooms shall be identified as being available for use by all persons regardless of their sex.

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3006.3
Elevator hoistway door protection

Where Section 3006.2 requires protection of the elevator hoistway doors, the protection shall be provided by one of the following:

- A smoke-protective curtain assembly for hoistways shall be provided at each elevator hoistway door opening in accordance with Section 3002.6.
- Such curtain assemblies shall comply with the smoke and draft control requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.
- Such curtain assemblies shall be equipped with a control unit listed to UL 864.
- Such curtain assemblies shall comply with Section 2.11.6.3 of ASME A17.1/CSA B44. Installation and maintenance shall be in accordance with NFPA 105.

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