

**CONST-181**

# **Building Code Interpretation:**

## **Non-Structural**

# **Class 9: Chapter 10, Sections 1001 through 1005, 1008, 1009, 1013 and 1015**

Source: 2021 IBC

# Chapter Overview

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Exit Access

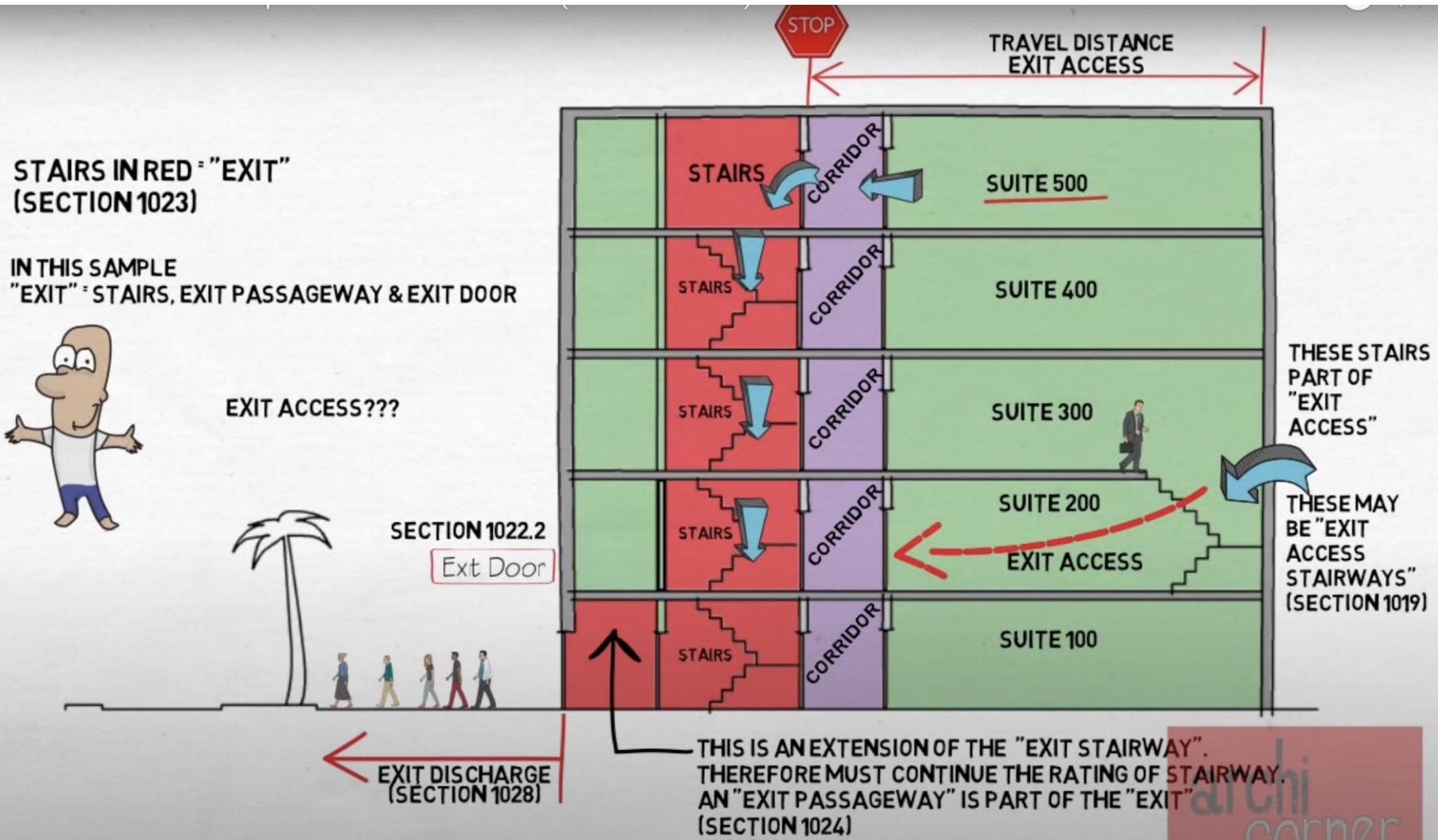
Exit

Exit Discharge

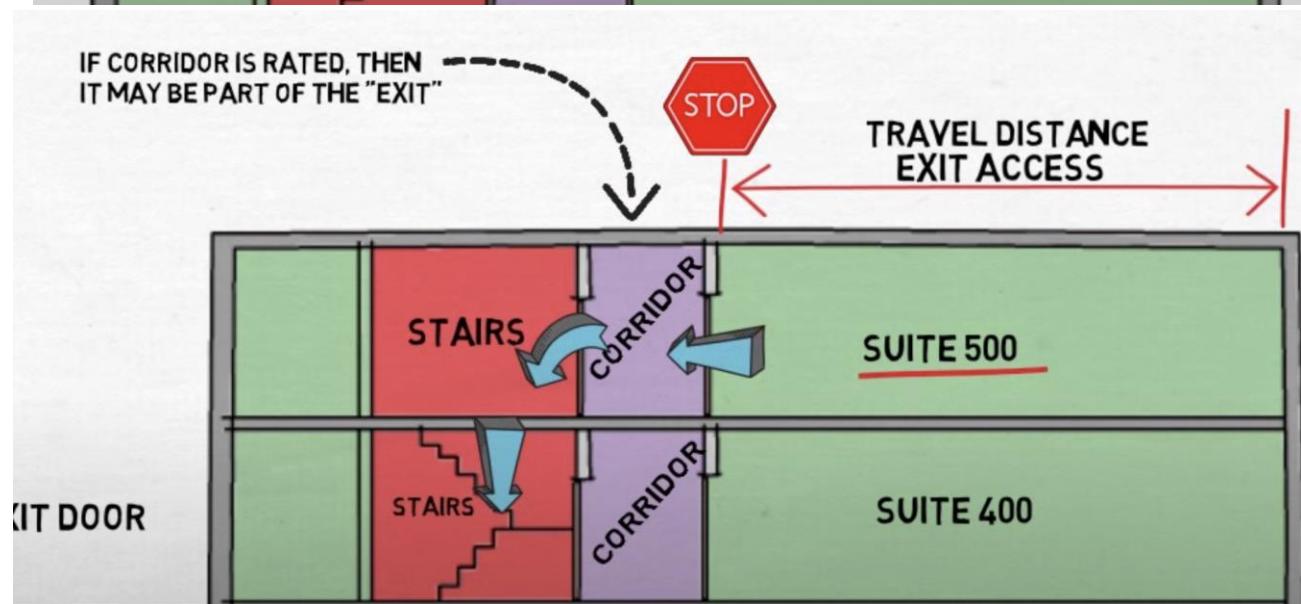
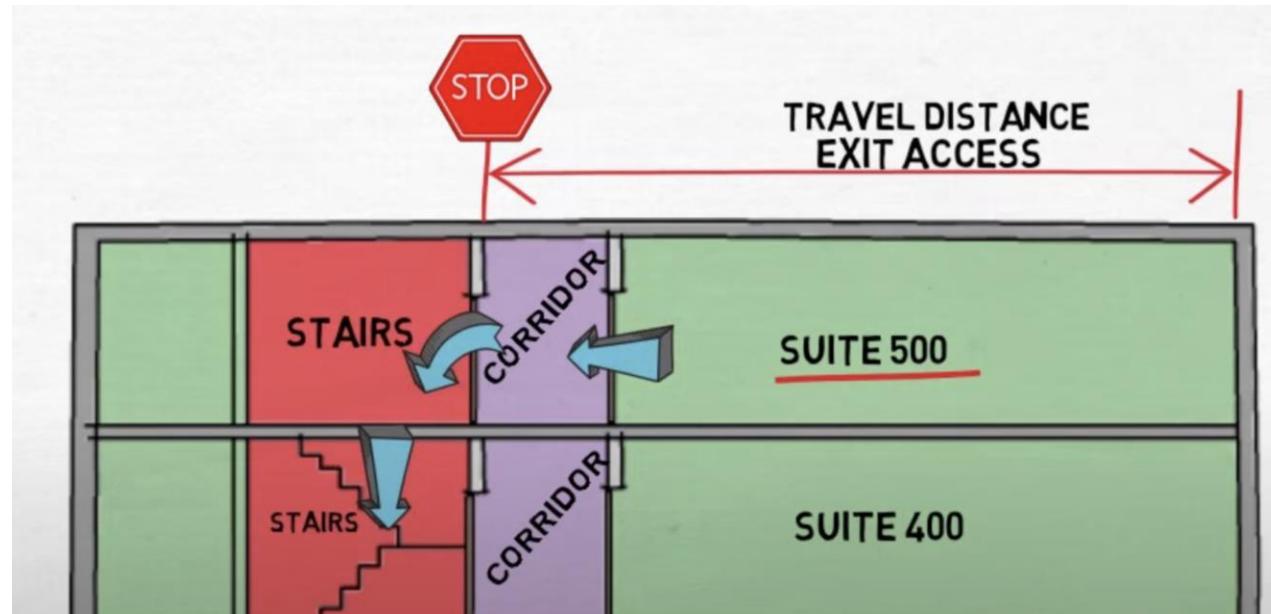
Special Attention

Source: 2021 IBC

# What is egress

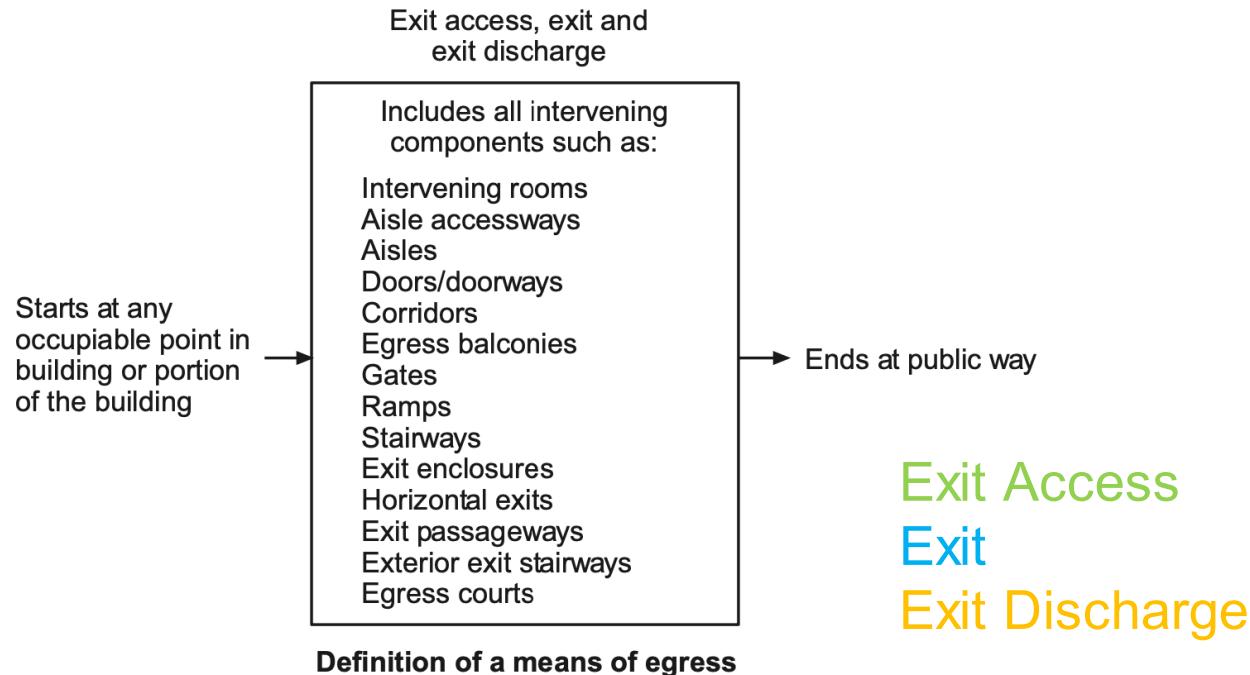


# What is exit access vs exit



# 1001.1 General

Ch 10 Review:- <https://www.youtube.com/watch?v=QX3UWV-kOK4>

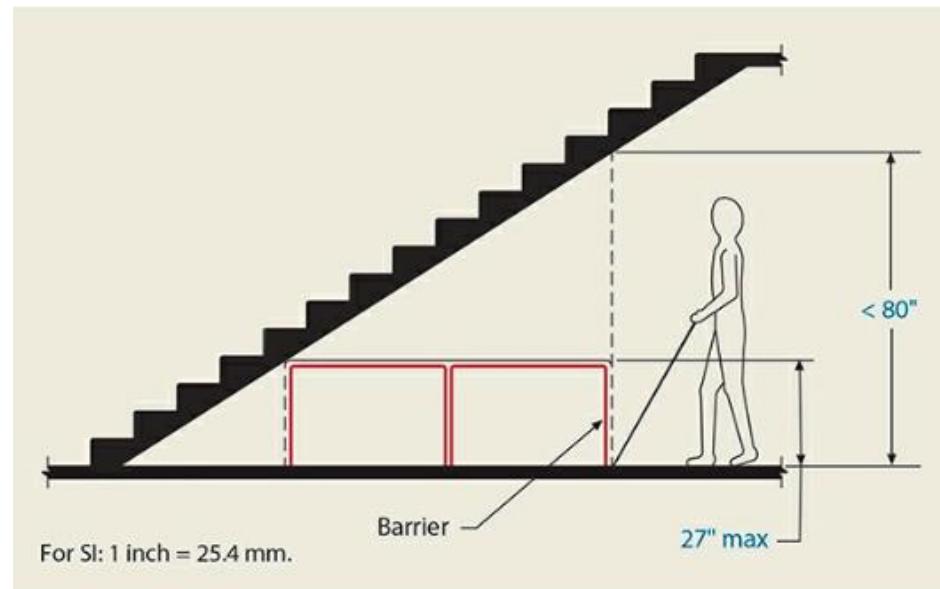
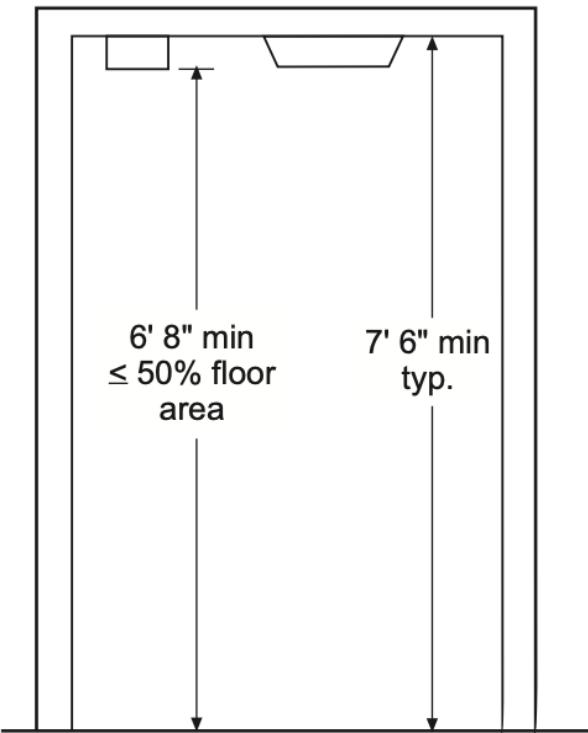


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Building components along the path of egress travel might include aisle accessways, aisles, doors or doorways, intervening rooms, gates, corridors, ramps, exit access stairways, interior exit stairways, exit passageways, horizontal exits, exterior balconies, exterior exit stairways and egress courts.

# 1003.2, Ceiling Height

[Minimum Stairway Ceiling Height - Building Codes And Accident Prevention - YouTube](#)



## 03-2 Reduced vertical clearance.

Corridor, aisle, passageway or any walking surface along egress of path travel

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

The minimum ceiling heights established for environmental concerns are addressed in Section 1208.2. Habitable spaces, such as bedrooms and living rooms in residential occupancies, occupiable spaces and corridors must be at least 7 feet 6 inches in height. In other areas, reduced headroom is permitted.

Source: 2021 IBC

## 1003.2, Ceiling Height

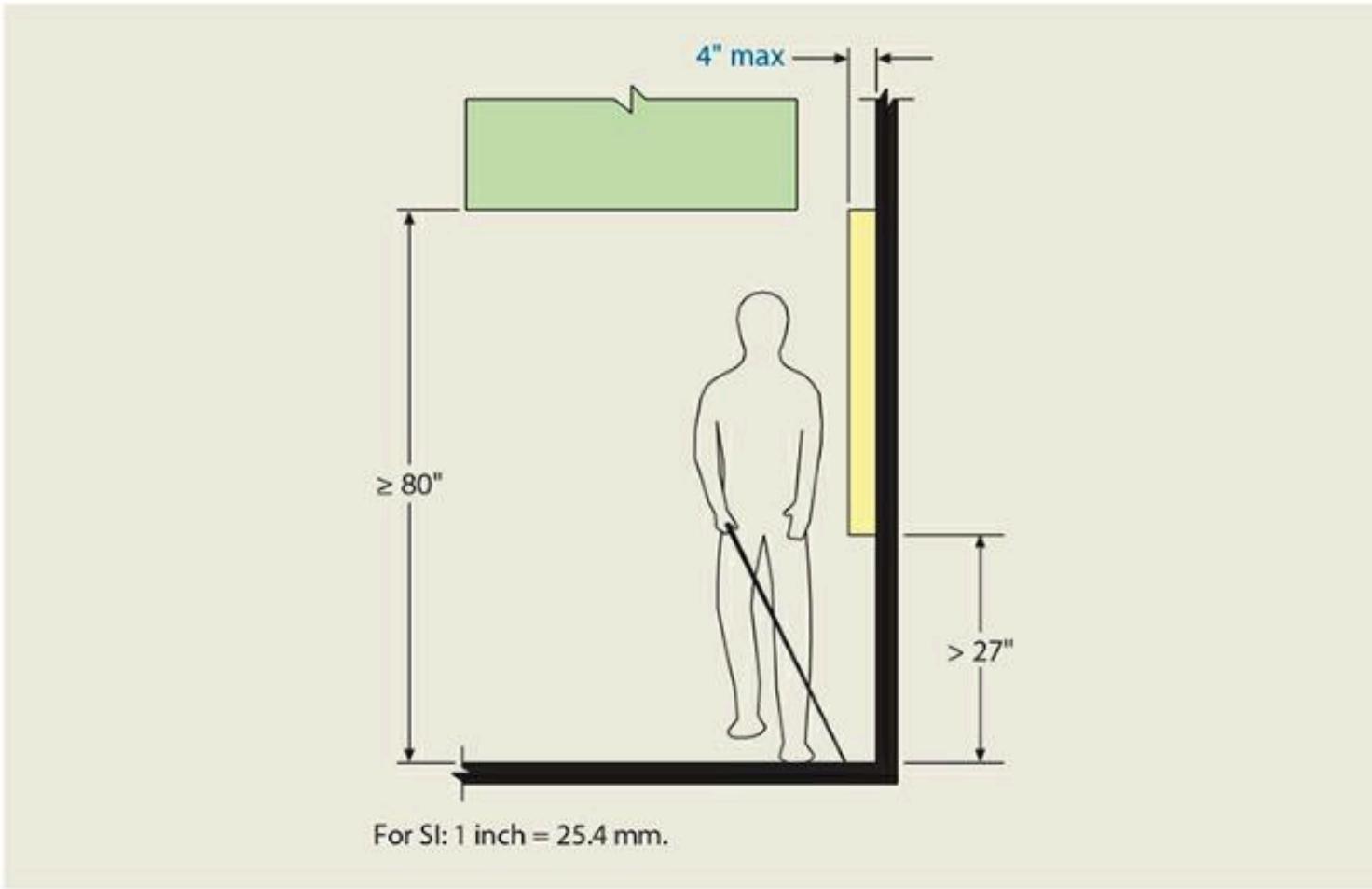


Figure 1003-4 **Limits of protruding objects.**

Source: 2021 IBC

# 1004.1, 1004.5 Design Occupant Load

[AC 022 - Egress: How to calculate occupant loads \(Part 2 of 2\) - Gross vs. Net. Sq. Ft. - YouTube](#)

TABLE 1004.5

**MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

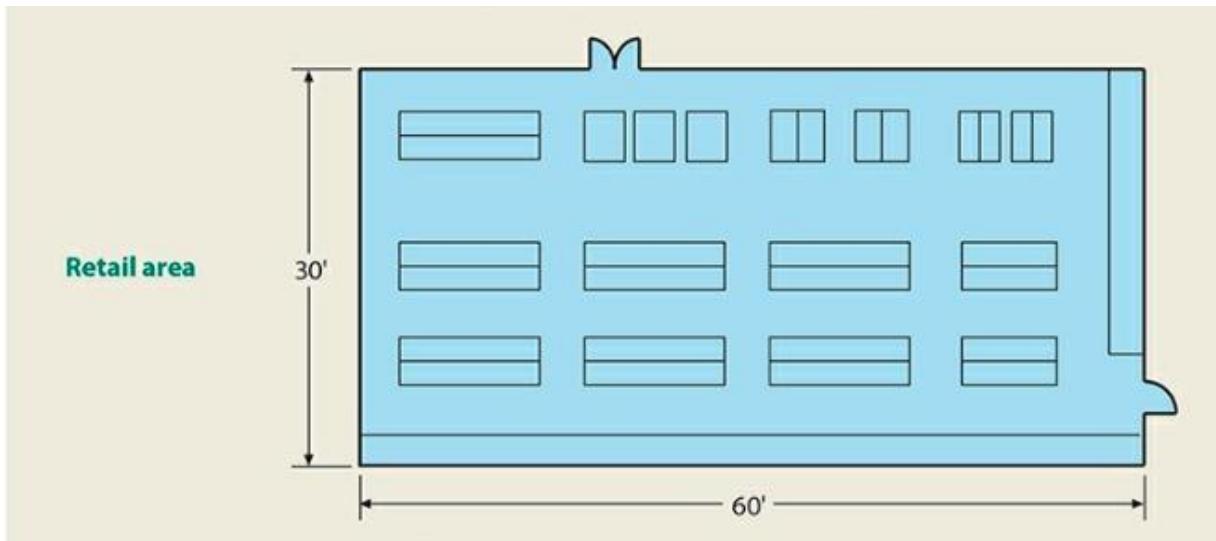
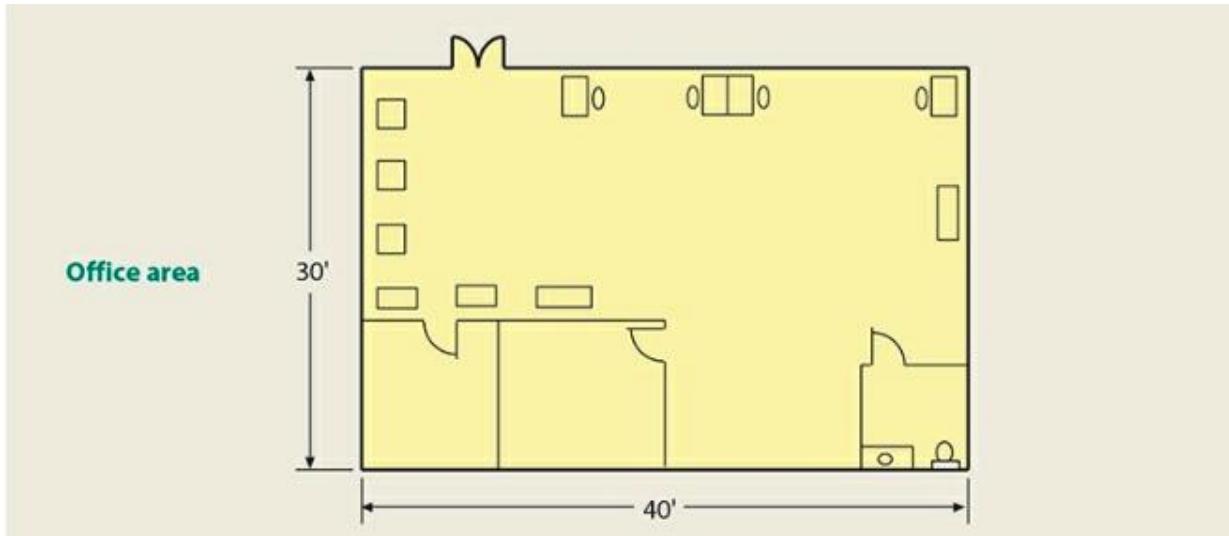
FUNCTION OF SPACE	OCCUPANT LOAD FACTOR <sup>a</sup>
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	

Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m<sup>2</sup>.

a. Floor area in square feet per occupant.

# 1004.1, 1004.5 Design Occupant Load



Source: 2021 IBC

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a. Floor area in square feet per occupant.

# 1004.1, 1004.5 Design Occupant Load

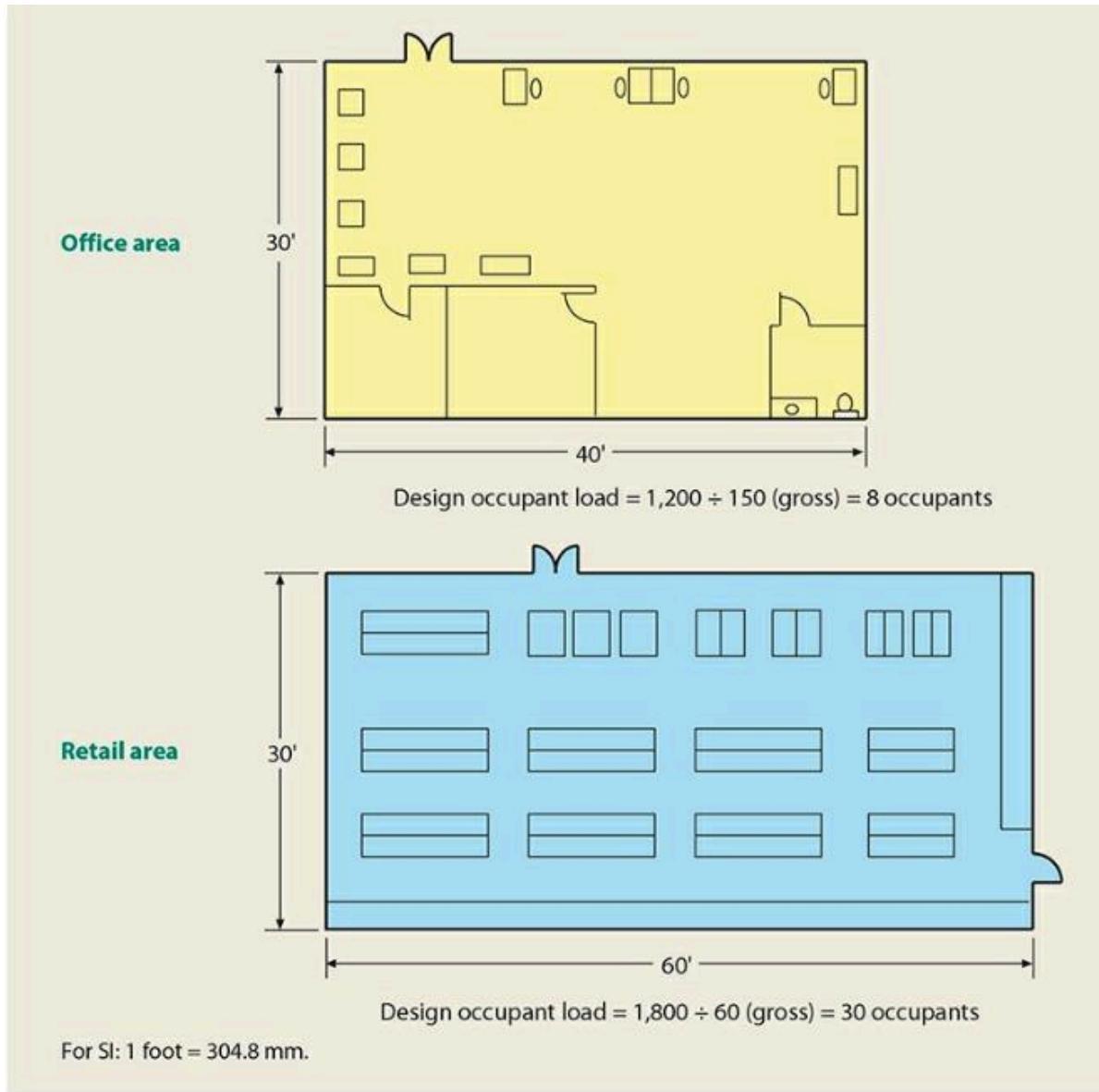


Figure 1004-5 Design occupant load examples.

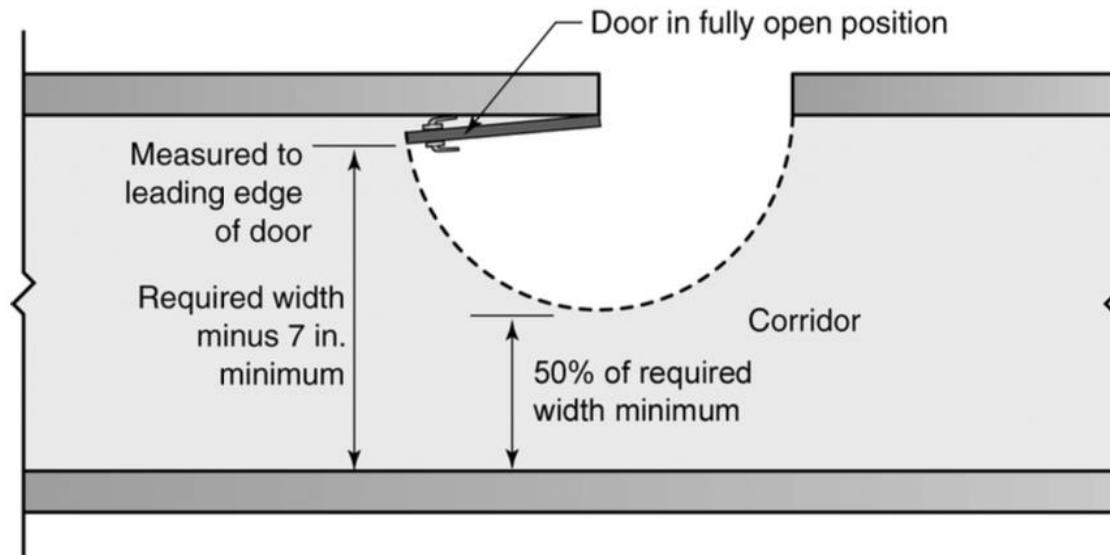
Source: 2021 IBC

## 1005.2, 1005.3 Width and Capacity

- The minimum width, in inches, of any means of egress components shall not be less than that specified for such component, elsewhere in the IBC. The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.3 inches (7.6 mm) per occupant. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inches (5.1 mm) per occupant. See the exceptions that reduce the capacity factors to 0.2 inches and 0.15 inches, respectively, for buildings equipped throughout with an automatic sprinkler system and an emergency voice/alarm communication system.
- In a given means of egress system, different components will afford different capacities. The most restrictive component will establish the capacity of the overall system. Doorways, aisles, stairways and corridors also have minimum established widths that must be provided.

# 1005.2, 1005.3 Width and Capacity

[AC 011 - Egress: How to Calculate Egress Widths. - YouTube](#)



**Measurement of minimum required egress width**

**Section 1005.7.1**

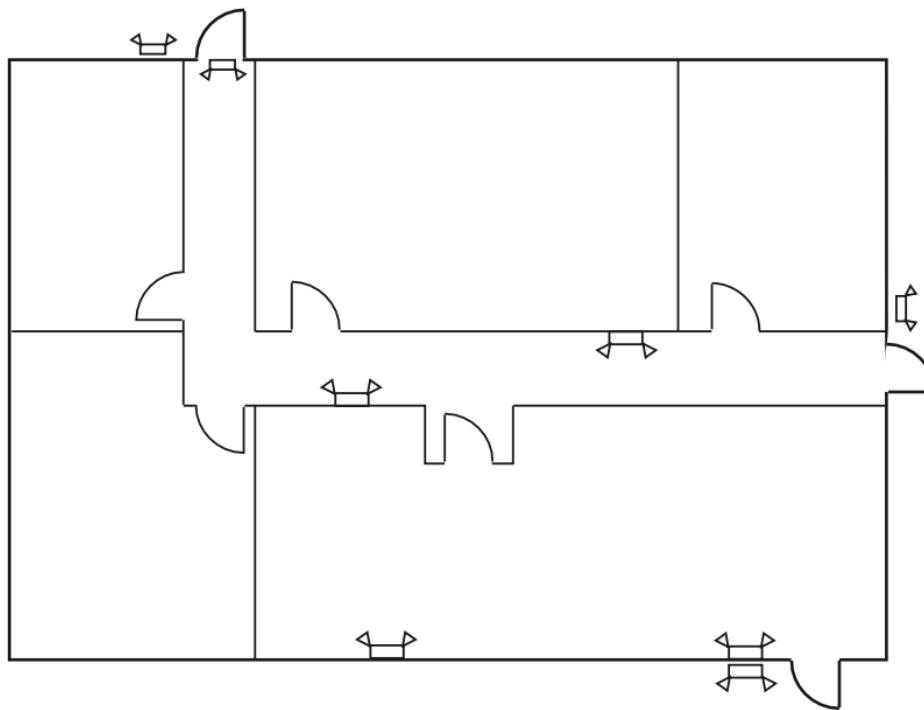
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Width, in terms of a means of egress system or component, is the clear, unobstructed usable width afforded along the exit path by the individual components. Unless the code provides for a permitted projection, the minimum required clear width may not be reduced throughout the travel path.

## 1008.2, 1008.3 Emergency Power

- The means of egress serving a room or space shall be illuminated at all times that the room or space is occupied. See the exceptions for (1) Group U occupancies; (2) aisle accessways in Group A; (3) dwelling and sleeping units in Groups R-1, R-2 and R-3; and (4) sleeping units of Group I. The power supply for means of egress illumination shall normally be provided by the premises electrical supply. In the event of power supply failure in rooms and spaces that require two or more means of egress, an emergency **electrical system shall automatically illuminate all of the following areas: (1) aisles, (2) corridors and (3) exit access stairways and ramps.** Additional requirements for emergency power for illumination is required for buildings that require at least two means of egress and for special spaces such as fire pump rooms and large public restrooms.
- Often identified as emergency lighting, a completely separate source of power from the premise's wiring system is required when the life-safety risk in a building becomes sufficiently great. This threshold is recognized as the point at which the occupant load of the room, area or building is high enough so that two means of egress are required.

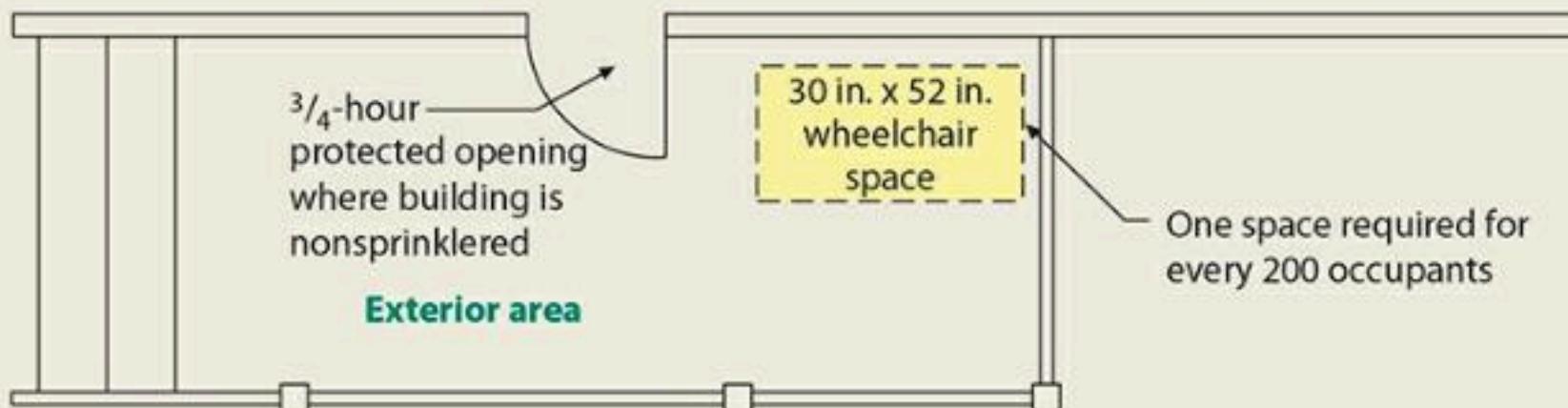
## 1008.2, 1008.3 Emergency Power



For the building occupant to be able to negotiate safely the means of egress system, the entire system must be illuminated any time the building is occupied. The illumination must provide an intensity of at least one foot-candle at the floor level. Stairway walking surfaces must be provided with at least 10 footcandles of illumination when the stairway is in use.

## 1009.1, 1009.2 General

In a nonsprinklered building, wall protected per Section 705, but at least a 1-hour wall a minimum of 10 ft horizontally beyond landing; and to a minimum height of 10 ft above floor level, or to the roof line, whichever is lower

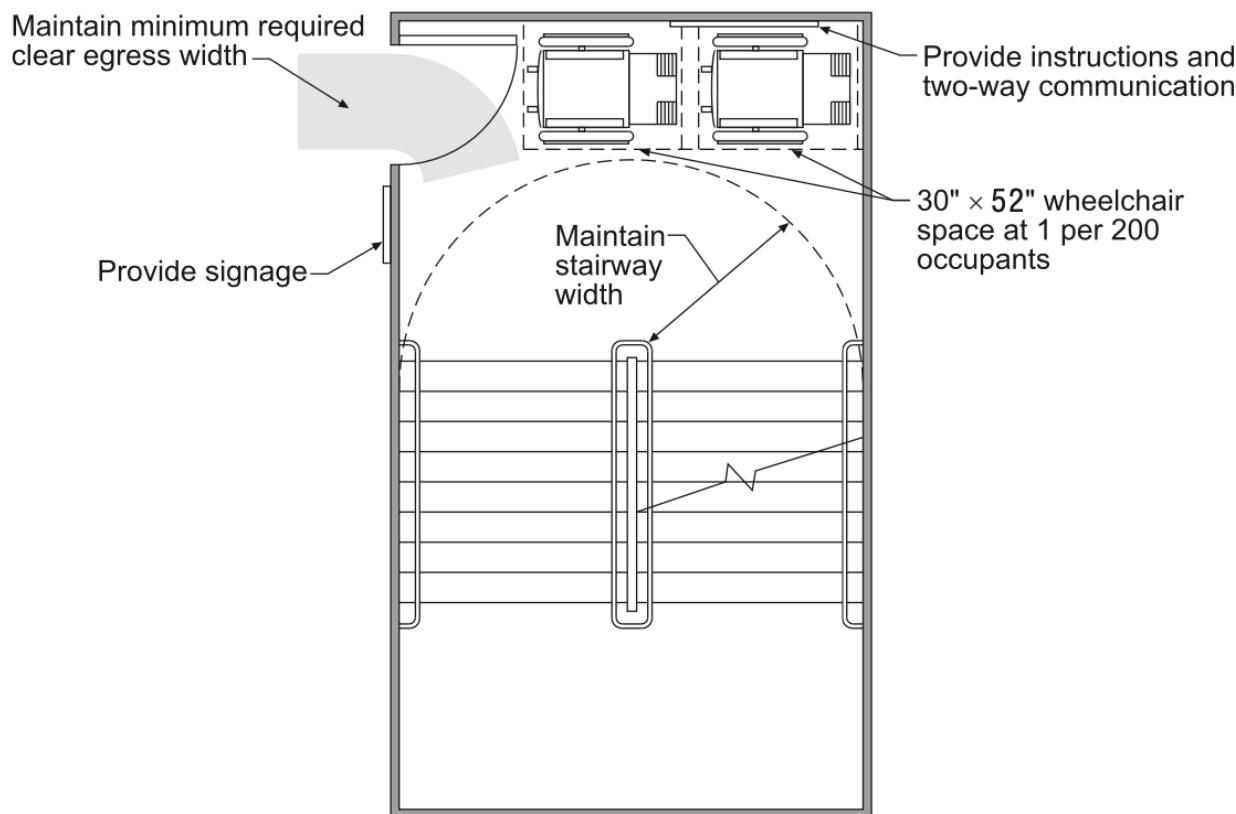


For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

**Figure 1009-2 Exterior area for assisted rescue.**

Exterior stairways and nonaccessible exit discharge areas may be served by exterior areas for assisted rescue. These specific exterior refuge areas must be adequately separated from the interior of the building by fire-resistance-rated construction and fire-protected openings.

# 1009.6 Areas of Refuge



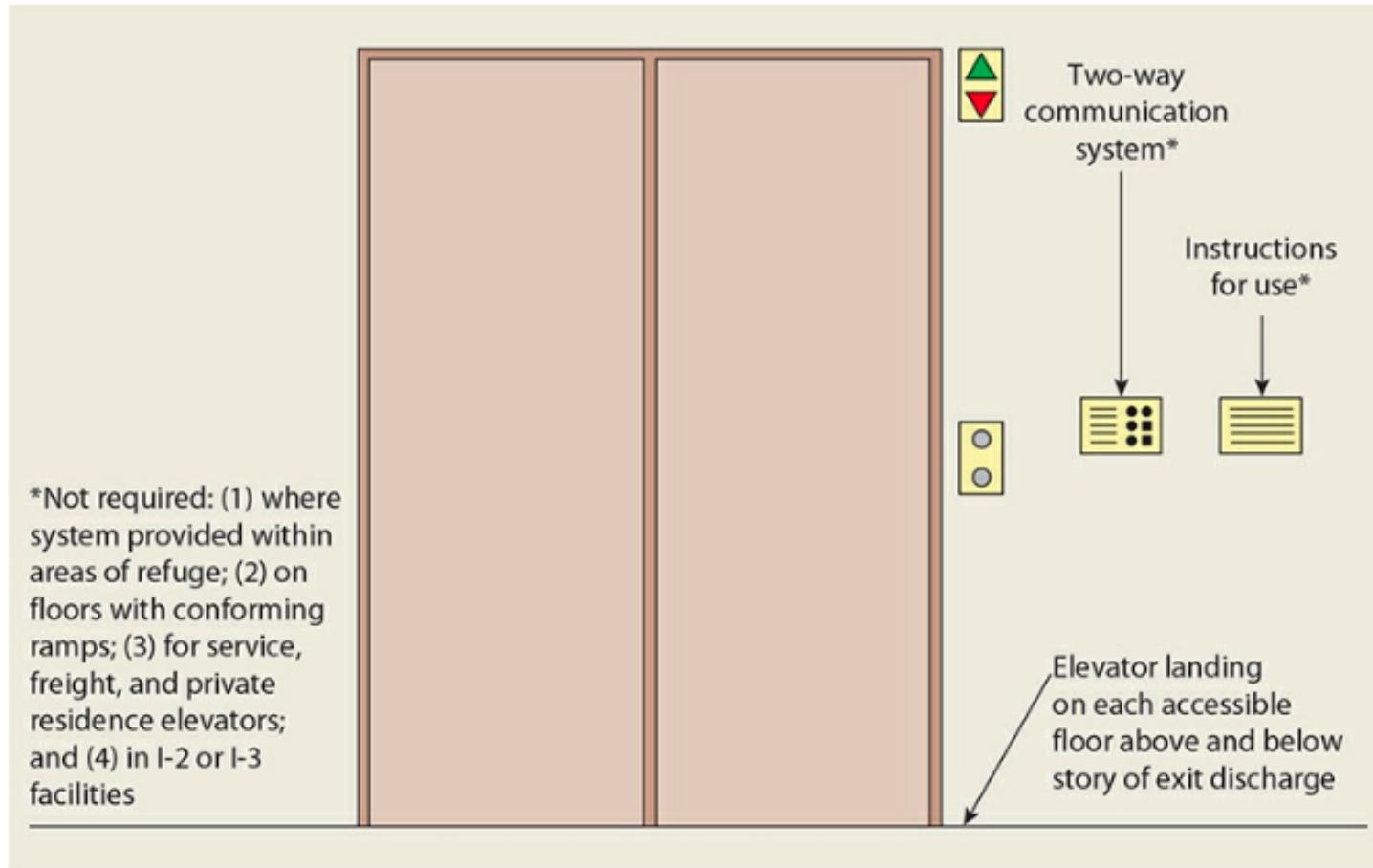
**Required areas of refuge**

For SI: 1 inch = 25.4 mm.

Although three or more means of egress from an accessible space may be required, only two of the exitways must be accessible. However, where an area of refuge is used as part of the egress system, the maximum travel distance set forth in Section 1017.2 must be maintained.

Source: 2021 IBC

## 1009.8 Where Required: Two Way Communication



**Figure 1009-3 Two-way communication system at elevator landing.**

The provisions of Section 1009.6.5 require that all areas of refuge be provided with a two-way communication system. The specific requirements for the system are the same as those for the two-way communication systems mandated at elevator landings as set forth in Section 1009.8.

# 1010.6 Floor Elevations (Details in CH 11)

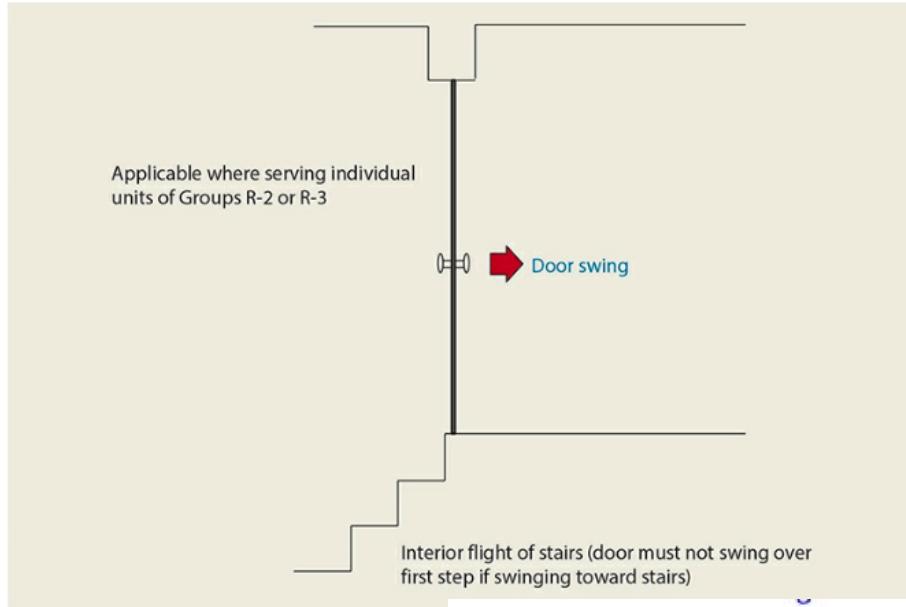


Figure 1010-6 Floor level at doors.

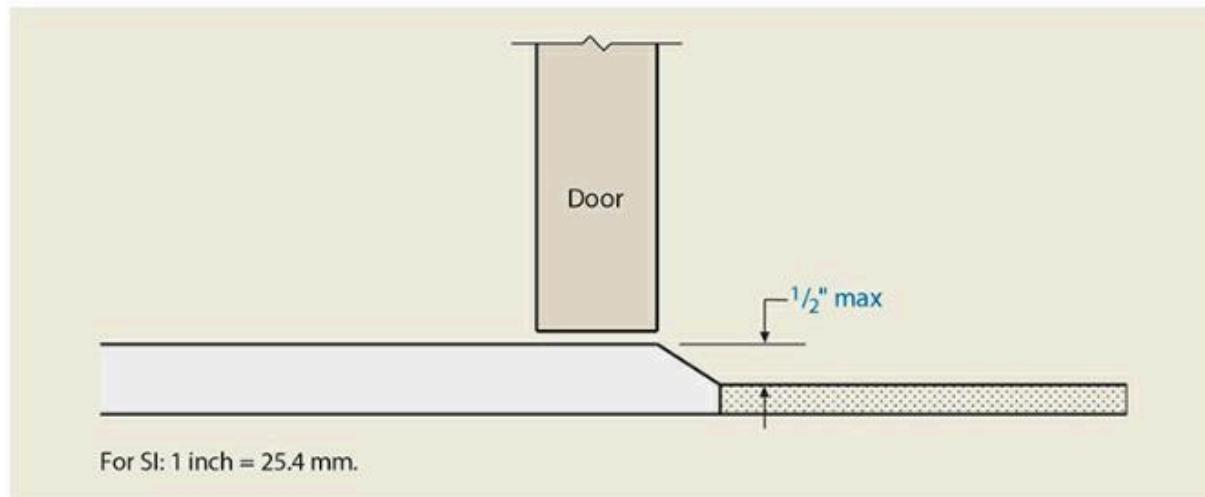
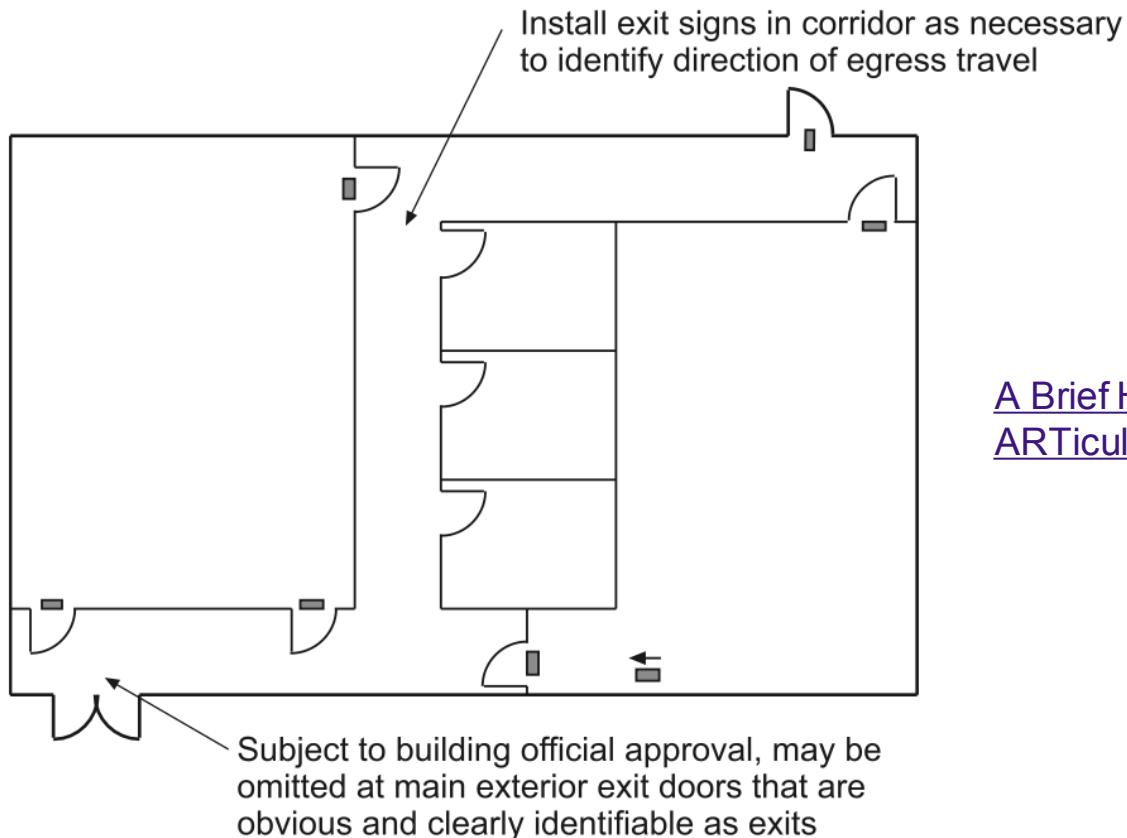


Figure 1010-5 Floor elevation.

Source: 2021 IBC

# 1013.1 Where Required: Exit Signs



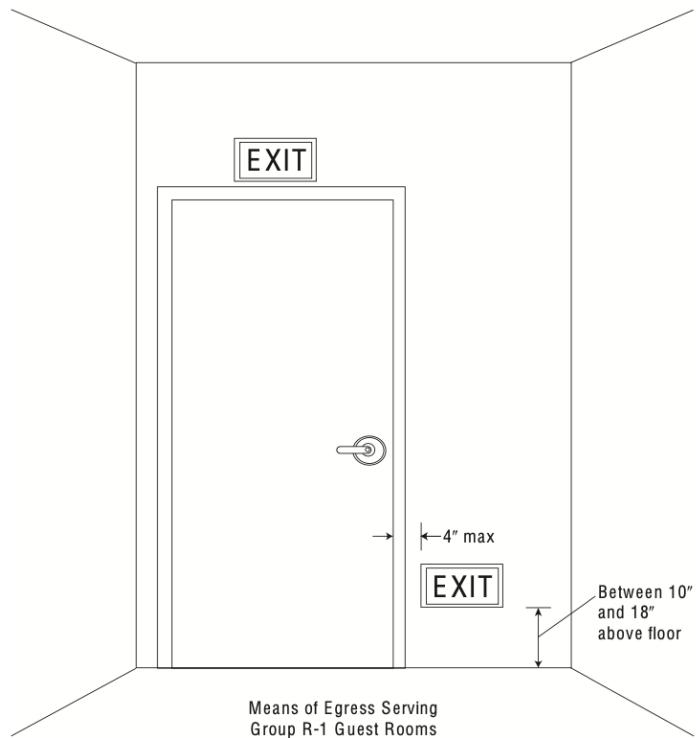
[A Brief History of the Exit Sign | ARTiculations - YouTube](#)

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Additional exit signs may be necessary in lengthy exit access corridors and exit passageways to reinforce the direction of egress travel. It is possible that individuals subjected to extended travel would question the availability of an exit and attempt to locate an alternative egress path.

## 1013.2 Low-level Signs in Group R-1

[Exit Sign: Comment Responses |](#)  
[ARTiculations - YouTube](#)



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Low-level exit signs must be either electrically powered, self-luminous or photoluminescent exit signs that are listed and labeled in accordance with UL 924 and installed in accordance with the manufacturer's instructions. Consistent with the requirements for all other exit signs, low-level signs shall be illuminated at all times.

Source: 2021 IBC

## 1013.3, 1013.6.3 Illumination and Power Source

- Exit signs shall be internally or externally illuminated. See the exception for tactile signs. Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of **not less than 90 minutes** in case of primary power loss, the sign illumination means shall be connected to an emergency system provided from storage batteries, unit equipment or an on-site generator.
- To ensure visibility under all conditions, required exit signs must always be illuminated. For those signs that are internally illuminated, which make up the vast majority of exit signs, compliance with UL 924 is mandated. Such exit signs, which includes electrically-powered, self-luminous and photo luminescent signs, must be listed and labeled. In addition, they must be installed in accordance with the manufacturer's installation instructions.

## 1013.3, 1013.6.3 Illumination and Power Source



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Externally-illuminated exit signs are regulated through prescriptive requirements addressing the sign's graphics, illumination and power source. The word "EXIT" must be at least 6 inches in height, and at least 5 foot-candles of external illumination must be provided.

# 1014 Guard and Hand Rail

[When Do You Install A Guardrail or Handrail When Building Stairs? - Builders Education And Safety - YouTube](#)

[Code Compliance for Handrails and Guardrails - YouTube](#)

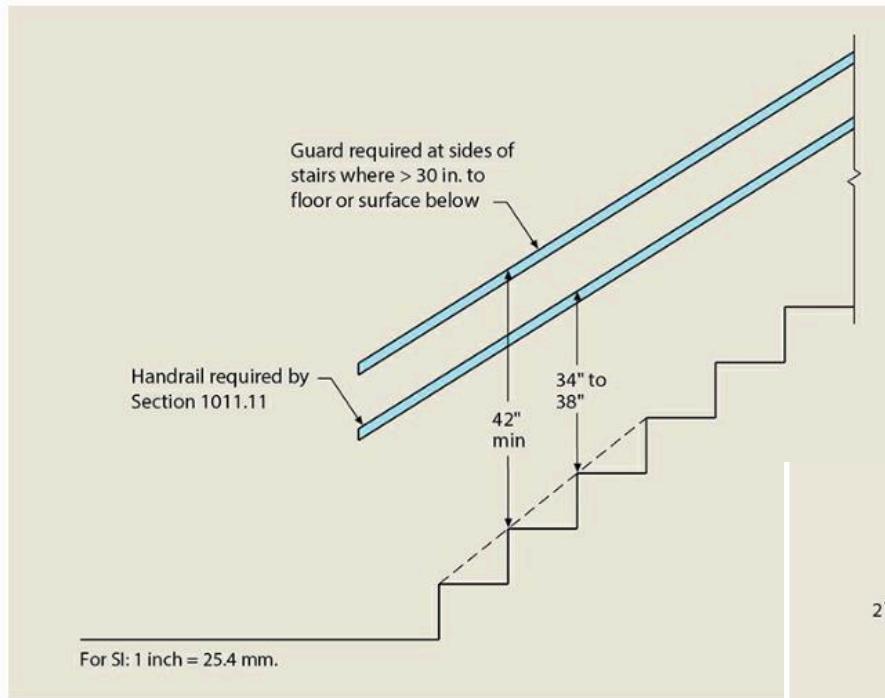


Figure 1014-1 Guard and handrail.

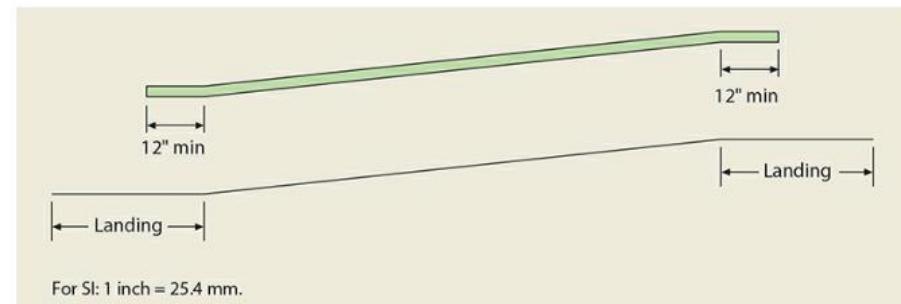


Figure 1014-6 Ramp handrail extensions.

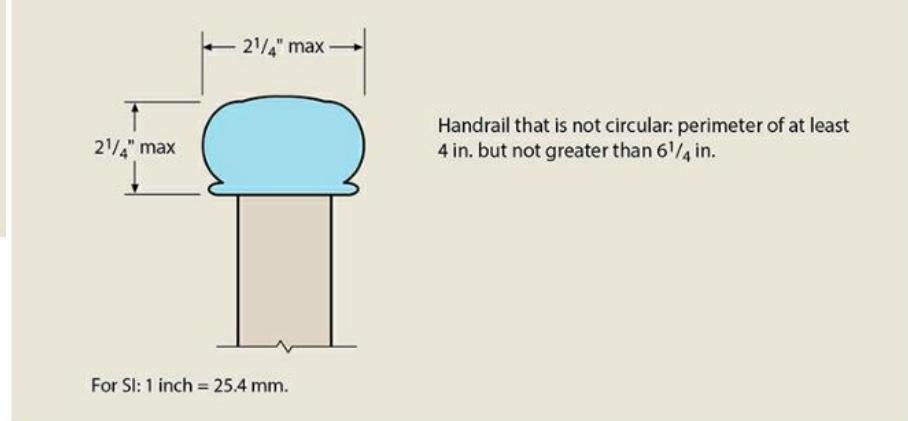


Figure 1014-2 Noncircular handrail.

# 1028 Exit Discharge

Exits are intended to discharge directly to the exterior of the building. Three exceptions permit the exit path to include a portion of the building beyond the exit component. An exception to the requirements for the continuity of interior exit stairways (and ramps) is permitted where a maximum of 50 percent of the exits pass through areas on the level of exit discharge. The path of travel to the exterior must be unobstructed and easily recognized. Sprinkler protection is required for the egress path between the termination of the interior exit stairway to the building's exterior, as is fire-resistance-rated construction isolating any areas below the discharge level.

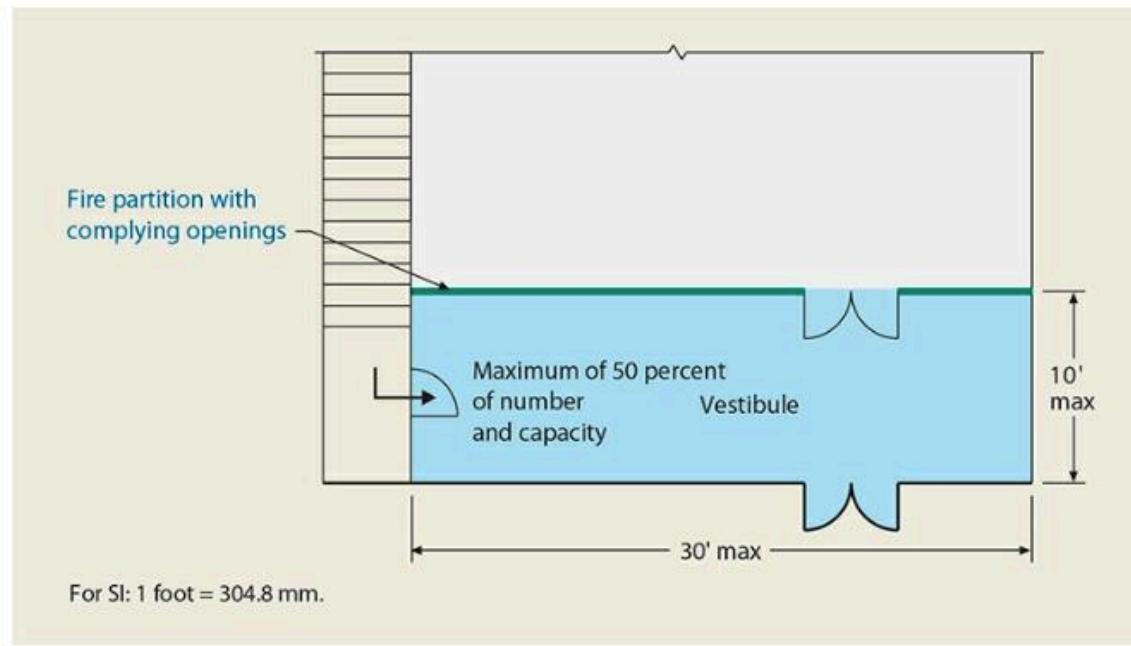


Figure 1028-2 Exit discharge through vestibule.

# **Class 10: Chapter 10, Sections 1010 through 1012 and 1014**

Source: 2021 IBC

# 1001 Objective

- To obtain an understanding of the general system design requirements of a means of egress system, including the determination of occupant load, the required width and capacity of egress components, means of egress identification and illumination, accessible means of egress and the provisions regulating guards.

# Chapter Overview

## CHAPTER 10 MEANS OF EGRESS .....10-1

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AC 027 - IBC requirements: What is the required distance between exit doors? - YouTube

Exit Access

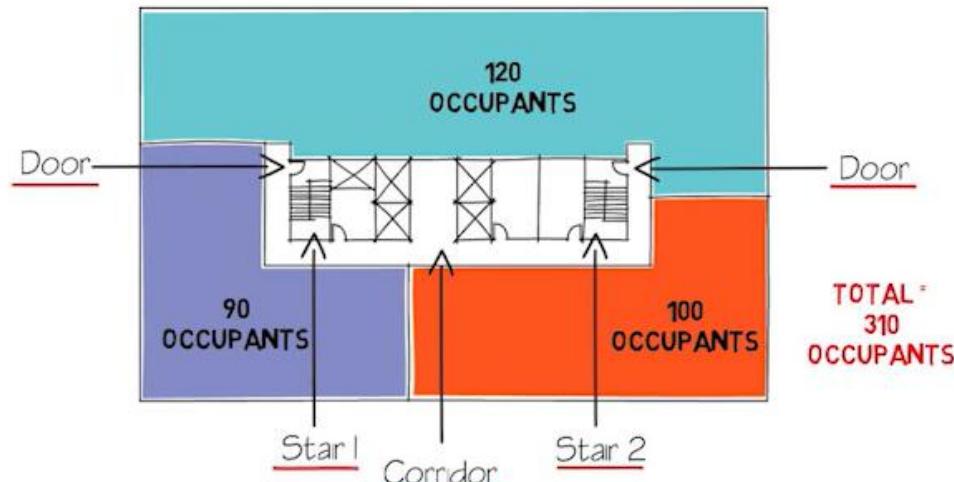
Exit

Exit Discharge

Special Attention

Source: 2021 IBC

# 1010 Objective



## WIDTH REQUIREMENTS

STAIRS	MIN. WIDTH REQUIREMENTS IBC 1011.2 44 INCHES	WIDTH BASED ON OCC. LOAD IBC 1005.3.1 0.3 INCHES PER OCCUPANT 310 OCC. X 0.3 INCHES = 93 INCHES MIN. 93 INCHES / 2 STAIRS = 46.5 INCHES MIN. PER STAIR
DOORS	IBC 1010.1.1 32 INCHES CLEAR WIDTH.	IBC 1005.3.2 "OTHER COMPONENTS" 0.2 INCHES PER OCCUPANT 310 OCC. X 0.2 INCHES = 62 INCHES MIN. 62 INCHES / 2 STAIRS = 31 INCHES MIN. PER DOOR
CORRIDORS	IBC 1020.1.2 44 INCHES CLEAR WIDTH.	IBC 1005.3.2 "OTHER COMPONENTS" 0.2 INCHES PER OCCUPANT 310 OCC. X 0.2 INCHES = 62 INCHES MIN.

# 1010 Objective

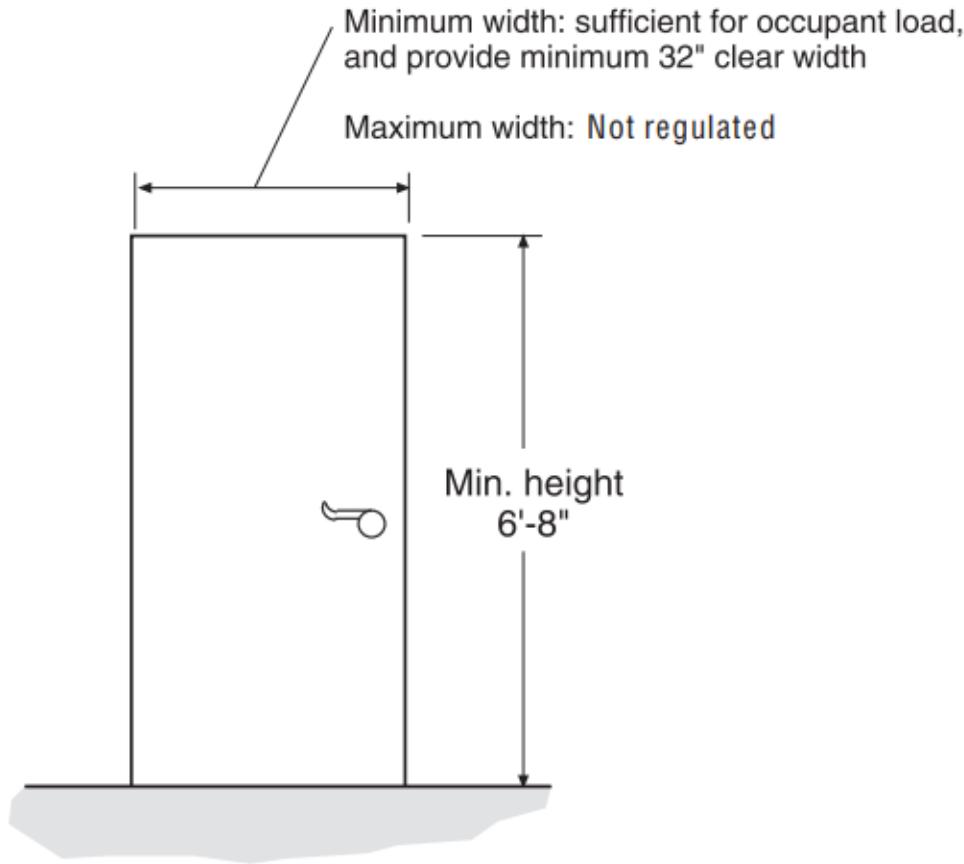
- To obtain an understanding of the general system design requirements of a means of egress system, including the determination of occupant load, the required width and capacity of egress components, means of egress identification and illumination, accessible means of egress and the provisions regulating guards.

[AC 030 - Occupant Load vs Occupancy Groups - YouTube](#)

[AC 029 - Number of Exits, Travel Distance & Common Path of Travel - YouTube](#)

[Calculating Occupant Loads and Egress Width - YouTube](#)

## 1010.1 Additional Doors and Identification



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

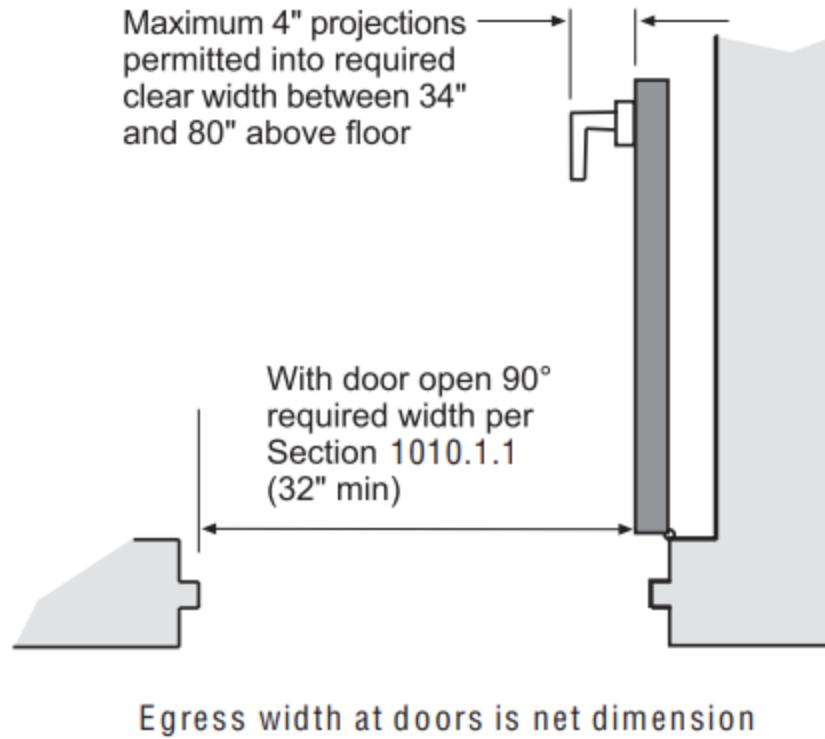
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In accordance with Section 1022.2, any building or structure used for human occupancy must have at least one exterior door opening that complies with the minimum width (32 inches) and height (80 inches) requirements of Section 1010.1.1.

## 1010.1.1 Sizes of Doors

- The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear opening width of 32 inches (813 mm). The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum clear opening height of doors shall not be less than 80 inches (2032 mm). See the exceptions for clear opening width.
- A clear width of 32 inches is required only to a height of 34 inches above the floor or ground. Beyond this point, projections up to 4 inches into the required width are permitted. Although a single doorway is expected to be used for the egress of one individual at a time, it must also be of adequate width for wheelchair users.

## 1010.1.1 Sizes of Doors



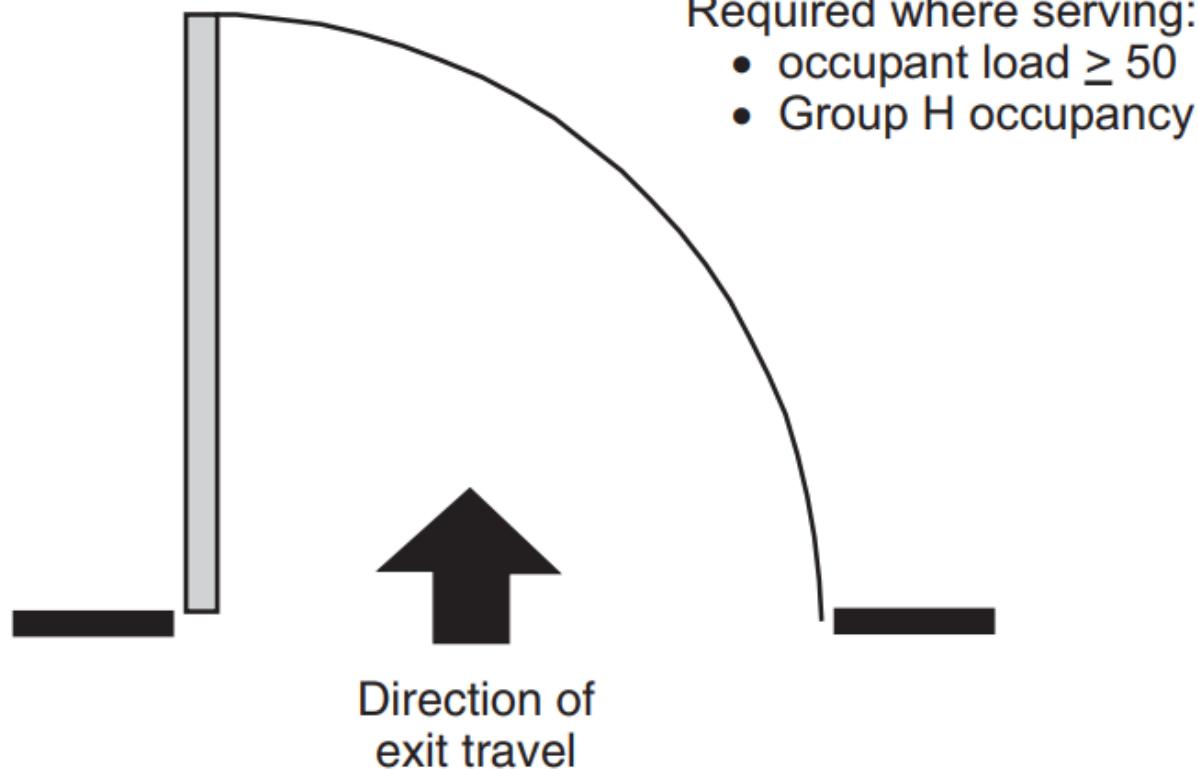
For SI: 1 inch = 25.4 mm, 1 degree = 0.01745 rad.

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The maximum width of a door leaf is not regulated by the code. It is expected that a reasonable door opening effort is addressed in Section 1010.1.3 through the regulation of force levels necessary to unlatch and open a door.

## 1010.1.2 Sizes of Doors

[Which Doors Can Swing or Open Over A Stairway? - Building Code Information - YouTube](#)

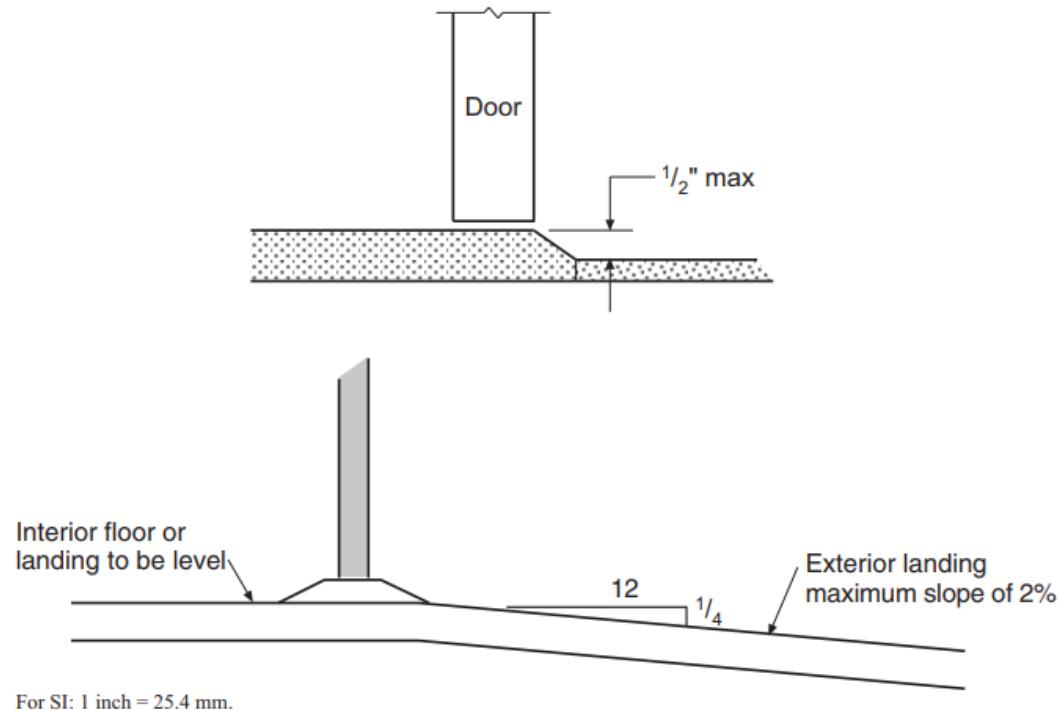


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The maximum force needed to unlatch doors in the means of egress is regulated for two conditions: where door hardware operates by push or pull, and where door hardware operates by rotation. The force required to open the door is regulated based on the specific door type.

## 1010.1.4 Floor Elevation

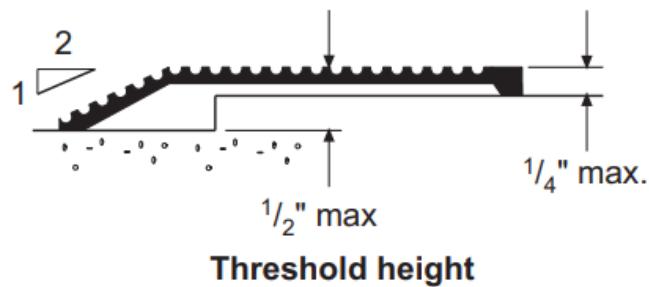
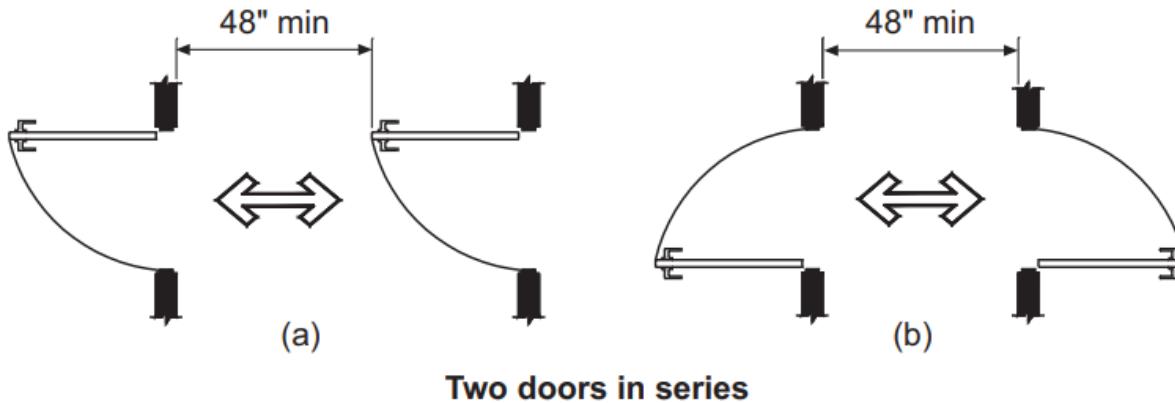
[Forensic Architecture Elevation Changes in International Building Code. - YouTube](#)



For interior situations, landings should be level. In exterior applications, landings may have a slope not to exceed  $\frac{1}{4}$  unit vertical in 12 units horizontal (1:48). This maximum slope of 2 percent provides a relatively flat surface while maintaining adequate drainage.

Source: 2021 IBC

## 1010.1.7 Door Arrangement

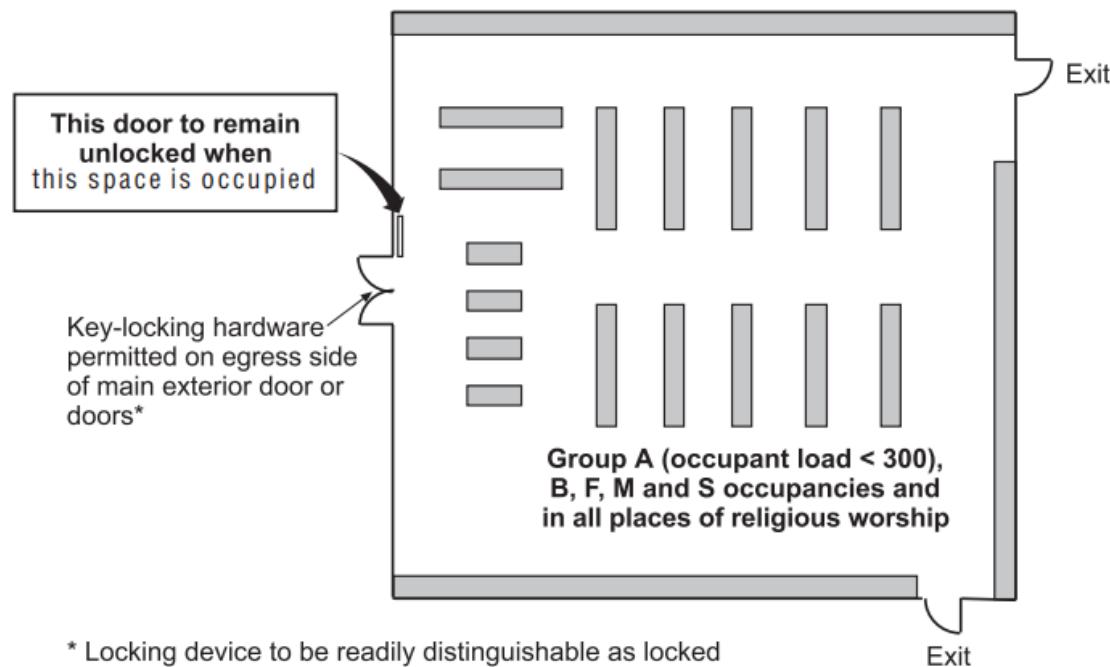


For SI: 1 inch = 25.4 mm.

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It is also important that a threshold at a door does not overly restrict safe and efficient passage through the doorway. Where a bevel of 1:2 or less is provided, the maximum threshold height is  $\frac{1}{2}$  inch. Otherwise, an abrupt change in elevation is limited to  $\frac{1}{4}$  inch.

# 1010.2 Operations



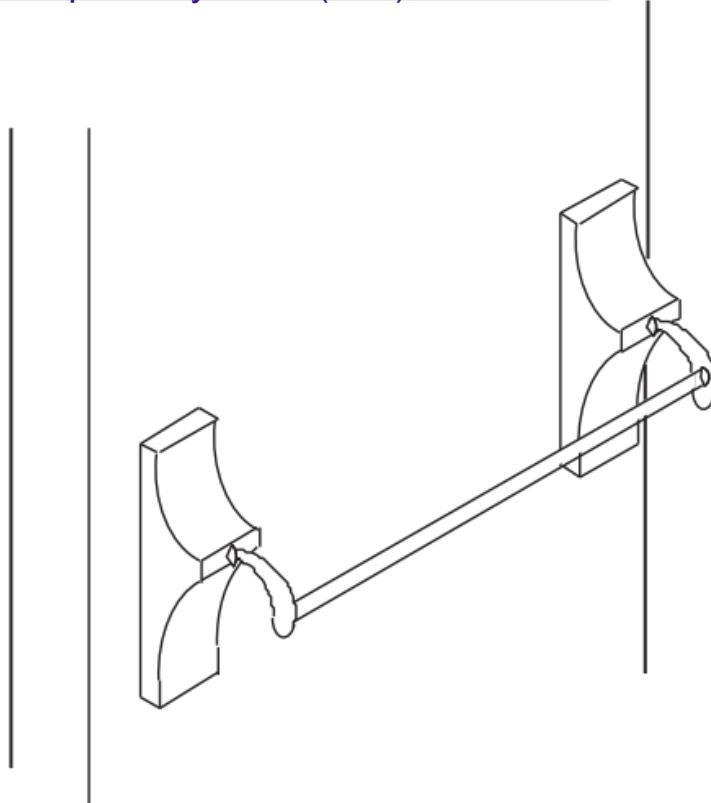
## Section 1010.2.4, Exc. 3

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A major exception to the lock/latch provisions applies to Groups B, F, M and S occupancies, as well as to places of religious worship and smaller assembly uses. Key-operated locking devices from the egress side of doors are permitted under limited conditions, based on compensating safeguards.

## 1010.2.9 Panic and Fire Exit Hardware

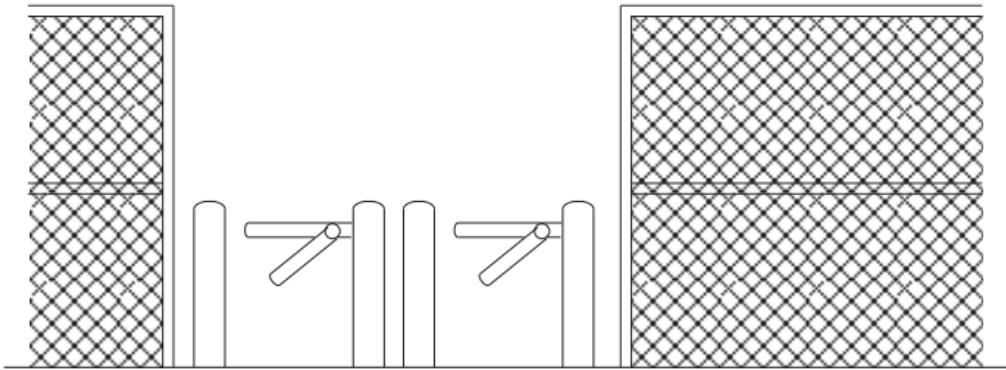
[AC 017 - Egress: Where is Panic Hardware or Fire Exit Hardware Required by Code \(IBC\)? - YouTube](#)



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To ensure that contact with the door actuates the releasing device, the code requires that the actuating portion extend for at least one half of the door width. Where balanced or pivoted doors are used, the device width is again limited to one-half of the door width for leverage purposes.

## 1010.5 Turnstiles



Each turnstile credited for up to 50-person capacity for egress where each turnstile:

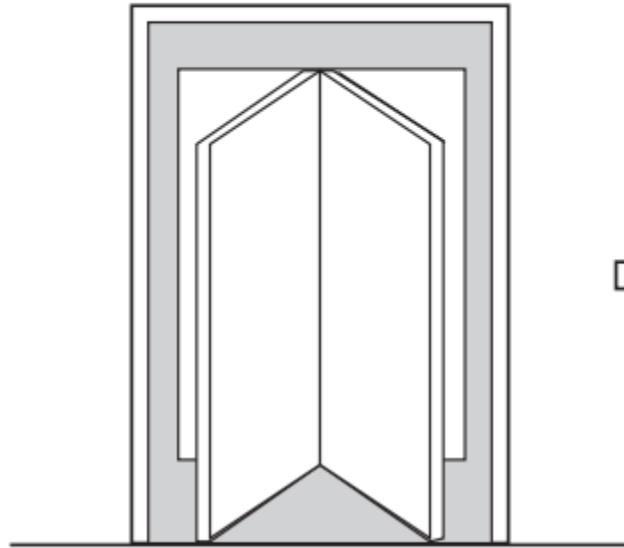
- Will turn freely in direction of egress when power is lost, and upon manual release by employee in area
- Only given credit for 50% of required egress capacity (egress other than by turnstiles required)
- Limited to 39 inches in height
- Has minimum of  $16\frac{1}{2}$  inches clear width at and below height of 39 inches
- Has minimum of 22 inches clear width at height above 39 inches

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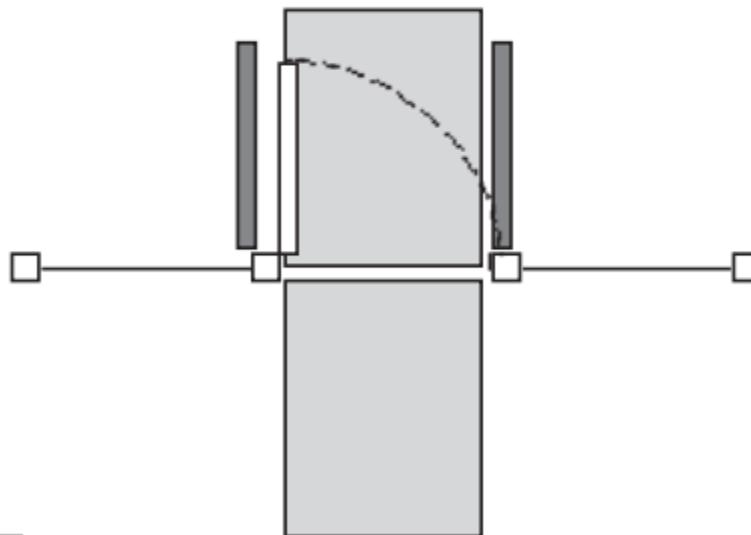
Where the turnstile has a height exceeding 39 inches, the restriction to egress is much like that of a revolving door, and the provisions in Section 1010.3.1 apply to this higher type of turnstile. Compliance as a security access turnstile is also permitted.

## 1010.3 Special Doors

Revolving door



Power-operated door



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The various types of special doors are permitted to be used for egress purposes when regulated by occupancy, occupant load, operation, opening force, power supply or other factors that contribute to the effectiveness and reliability of the egress door.

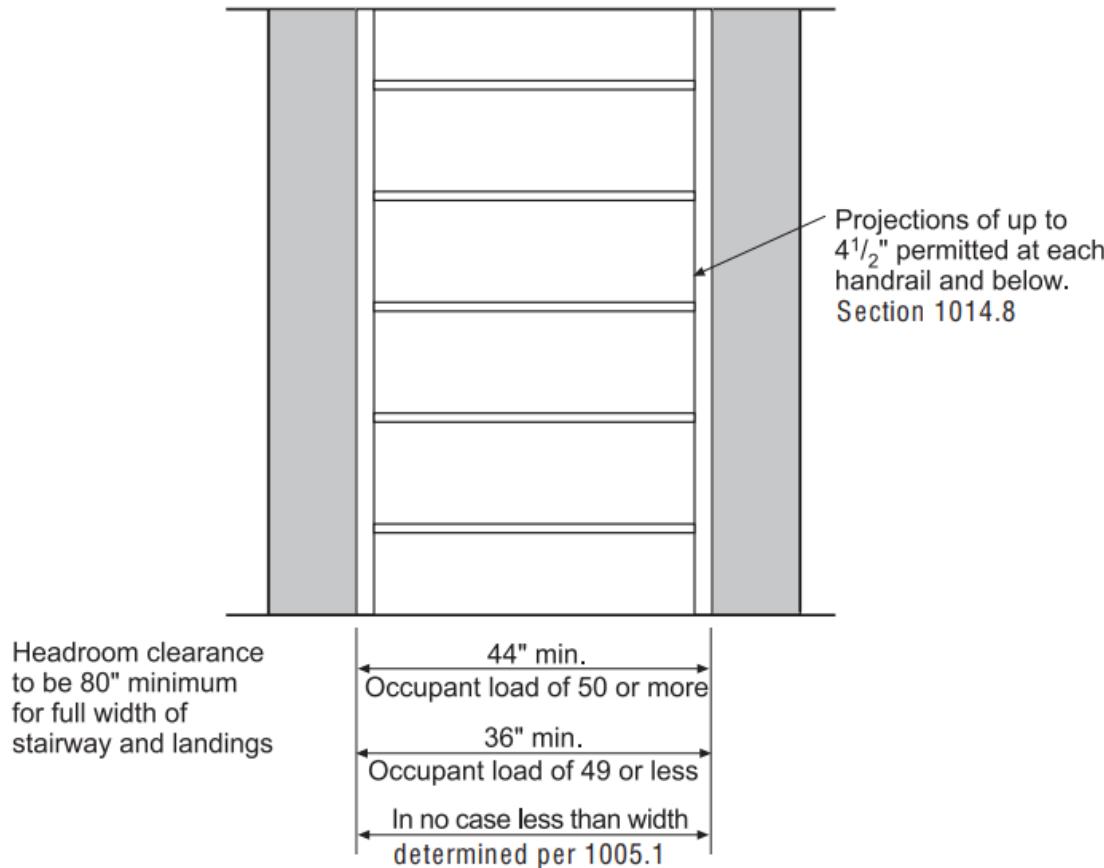
# 1011.1 General Provision Stairways



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The provisions of Section 1011 regulating the design and construction of stairways are applicable to all stairways, including those that may be considered only "convenience" stairs and not considered a portion of any required means of egress.

# 1011.2, 1014.8 Stairways Width



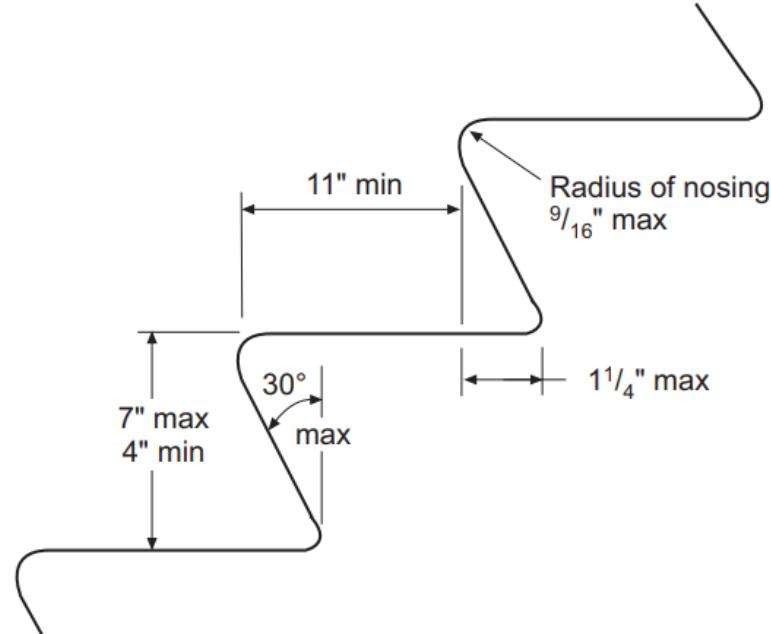
For SI: 1 inch = 25.4 mm.

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Stringers, trim and similar decorative features may project a limited amount into the required stairway width unless located above the handrail. Between the rail and the required headroom height of 80 inches, no projection into the required width is permitted.

Source: 2021 IBC

## 1011.5 Stair Treads and Risers



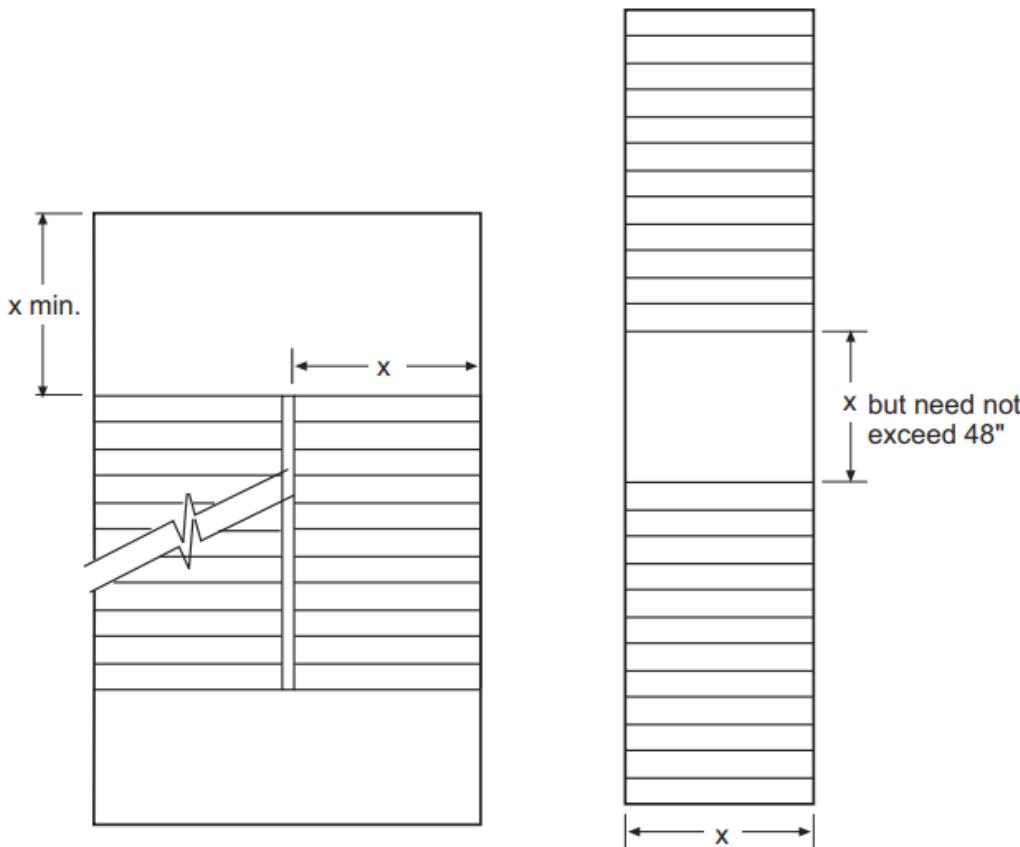
Treads and risers to be of uniform size and shape  
( $\frac{3}{8}$ " tolerance permitted between least and greatest within flight)

For SI: 1 inch = 25.4 mm, 1 degree = 0.01745 rad.

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Curved stairways, winders, spiral stairways, aisle stairs and alternating tread devices are unique configurations requiring special consideration. The use of these stairways is limited to varying degrees based on occupancy, occupant load, design and use as a required means of egress.

# 1011.6 Stairway Landing



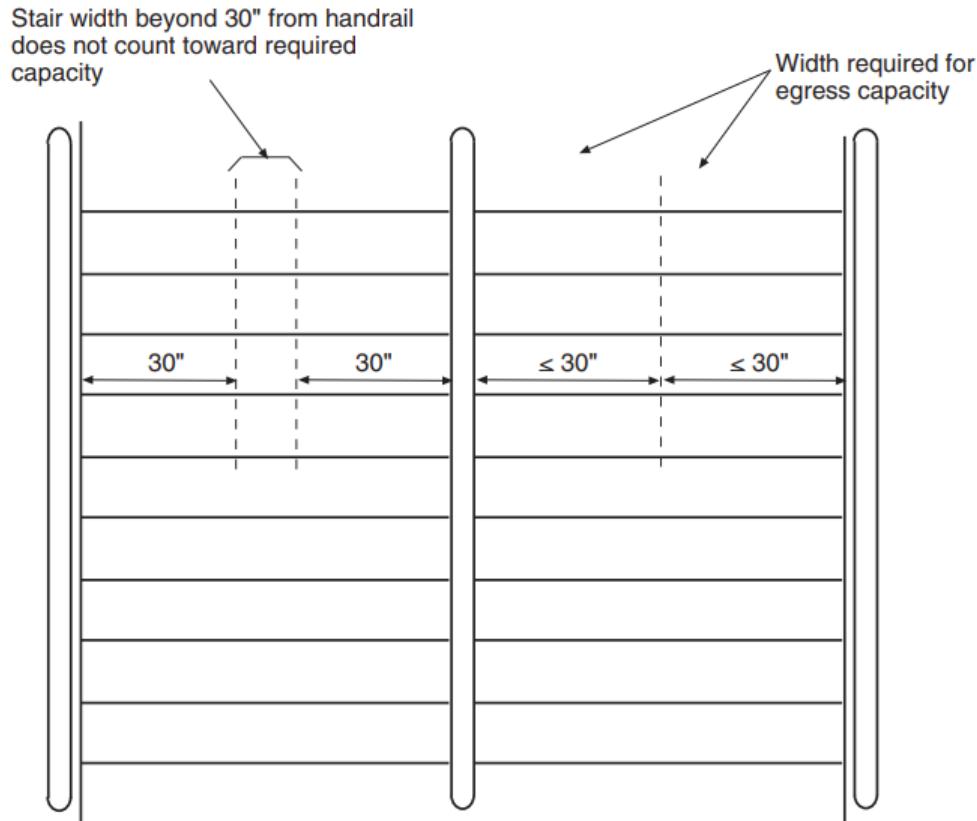
For SI: 1 inch = 25.4 mm.

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Because of the difficulty many individuals encounter while negotiating stairs, the code requires a maximum vertical rise between landings of 12 feet. When placed at limited intervals, landings can be used as a resting place for the stair user and can also make stair travel less intimidating.

Source: 2021 IBC

# 1011.11, 1014.9 Handrail Locations

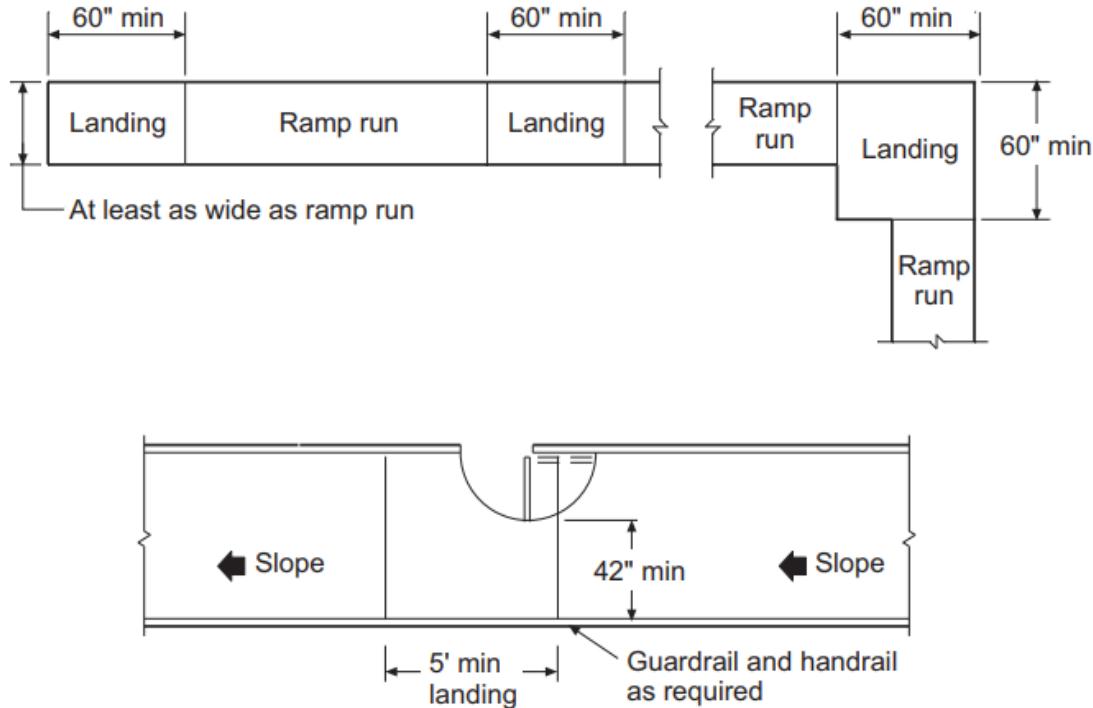


For SI: 1 inch = 25.4 mm.

Various exceptions permit the use of a single handrail, and in some cases no rail, within a dwelling unit. In addition, and applicable to all occupancies, handrails are not required for decks, patios and walkways at any single elevation change where complying landings are provided on each side.

Source: 2021 IBC

# 1012 Slope, Rise, Width and Handrails

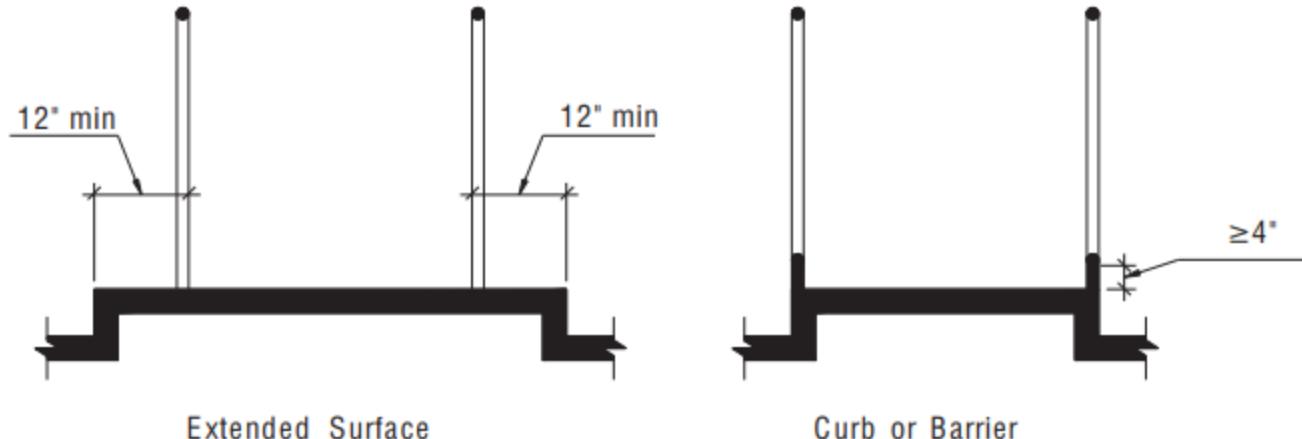


For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

To provide adequate clearance at ramp landings, doors cannot reduce the clear landing width to less than 42 inches. A landing must be at least 60 inches in length and at least as wide as the widest ramp run adjoining the landing.

Source: 2021 IBC

## 1012.19 Edge Protection



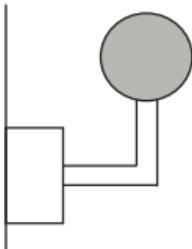
For SI: 1 inch = 25.4 mm

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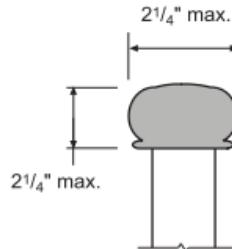
Edge protection is different than that type of protection provided by a guard. The presence of a complying guard does not necessarily provide adequate edge protection, and the presence of adequate edge protection does not typically satisfy the requirements for a guard.

# 1014.2, 1014.3 Handrail Dimensions

[Geeking Out on Building Codes | Handrails - YouTube](#)

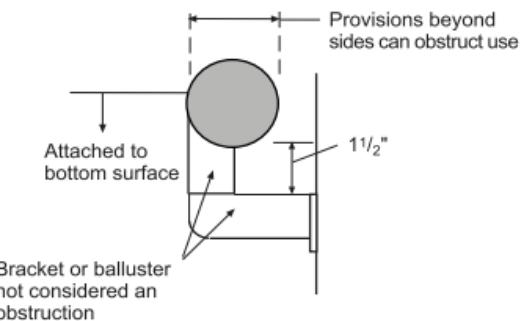


HANDRAIL with circular cross section:  
 $1\frac{1}{4}$ " min., 2" max. diameter or provide  
equivalent graspability

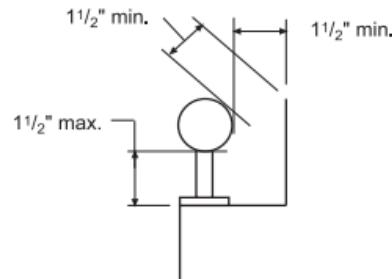


HANDRAIL that is not circular:  
perimeter of at least 4" but not greater  
than  $6\frac{1}{4}$ "

## TYPE I HANDRAILS



Section 1014.4



Section 1014.7

For SI: 1 inch = 25.4 mm.

A major goal of handrail design and location is to make it easily graspable; hence, it is mandatory that the rail be placed at least  $1\frac{1}{2}$  inches from any abutting elements, such as a wall. However, the projection of the rail into the required width is limited to no more than  $4\frac{1}{2}$  inches.

Source: 2021 IBC

# **Class 11: Chapter 10, Sections 1006, 1007 and through 1016 and 1021**

Source: 2021 IBC

# Objective

- To obtain an understanding of the system design requirements for the exit access, including number of exits, separation of egress doorways and maximum travel distances, as well as the requirements for the exit access components, including aisles, corridors and egress balconies.

## 1006.2.1 Occupant Load and Common Path

[https://www.youtube.com/watch?v=\\_WhcoLsLnyk](https://www.youtube.com/watch?v=_WhcoLsLnyk)

- Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1.
- A common path of egress travel is defined as that portion of the exit access travel distance measured from the most remote point within a story to that point where the occupants have separate access to two exits or exit access doorways. The concept of limiting the common path of egress travel addresses the concern that multiple egress options must be available to occupants where the expected egress travel distance becomes excessive. Although the overall travel distance in a building may be of considerable length, such travel is greatly limited where only one egress path is available. An additional limitation due to occupant load is also applied to single exit availability.

## 1006.2.1 Occupant Load and Common Path

TABLE 1006.2.1  
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load	OL ≤ 30	
A°, E, M	49	75	75	75 <sup>a</sup>
B	49	100	75	100 <sup>a</sup>
F	49	75	75	100 <sup>a</sup>
H-1, H-2, H-3	3	NP	NP	25 <sup>b</sup>
H-4, H-5	10	NP	NP	75 <sup>b</sup>
I-1, I-2 <sup>d</sup> , I-4	10	NP	NP	75 <sup>a</sup>
I-3	10	NP	NP	100 <sup>a</sup>
R-1	10	NP	NP	75 <sup>a</sup>
R-2	20	NP	NP	125 <sup>a</sup>
R-3 <sup>e</sup>	20	NP	NP	125 <sup>a, g</sup>
R-4 <sup>e</sup>	20	NP	NP	125 <sup>a, g</sup>
S <sup>f</sup>	29	100	75	100 <sup>a</sup>
U	49	100	75	75 <sup>a</sup>

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

- a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.
- b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.
- c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.
- d. For the travel distance limitations in Group I-2, see Section 407.4.
- e. The *common path of egress travel distance* shall only apply in a Group R-3 occupancy located in a mixed occupancy building.
- f. The length of *common path of egress travel distance* in a Group S-2 *open parking garage* shall be not more than 100 feet.
- g. For the travel distance limitations in Groups R-3 and R-4 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.3, see Section 1006.2.2.6.

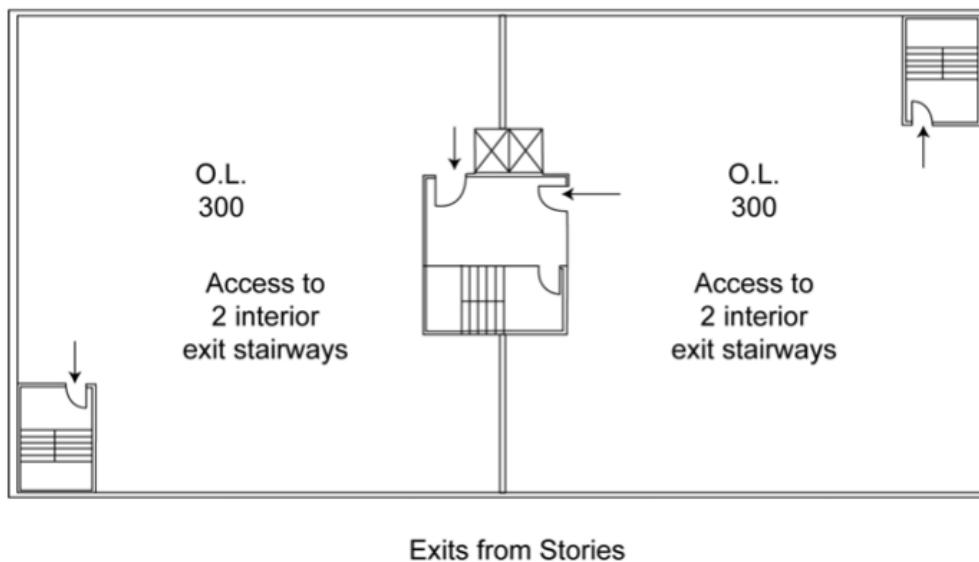
Two basic criteria establish the point at which it is necessary to provide at least two paths of egress travel from a portion of a building. Both the maximum occupant load and the maximum common path must not be exceeded in spaces having only one exit or exit access doorway.

## 1006.3.2 Based on Occupant Load

TABLE 1006.3.3  
MINIMUM NUMBER OF EXITS OR  
ACCESS TO EXITS PER STORY

OCCUPANT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1-500	2
501-1,000	3
More than 1,000	4

Total O.L. = 600  
3 exits required from story



Although the use of exit access stairways is permitted to connect stories within a building, the path of egress travel to an exit is limited in a manner such that it cannot pass through more than one adjacent story. There are seven conditions under which such exit access travel to an exit through multiple stories is permitted.

Source: 2021 IBC

## 1006.3.4 Single Exits

**TABLE 1006.3.4(1)**  
**STORIES 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	R-2 <sup>a, b</sup>	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 R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.4(2).

**TABLE 1006.3.4(2)**  
**STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES**

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B <sup>b</sup> , E, F <sup>b</sup> , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2 <sup>a, c</sup>	10	75
	S <sup>b, d</sup>	29	75
Second story above grade plane	B, F, M, S <sup>d</sup>	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 shall have a maximum exit access travel distance of 100 feet.

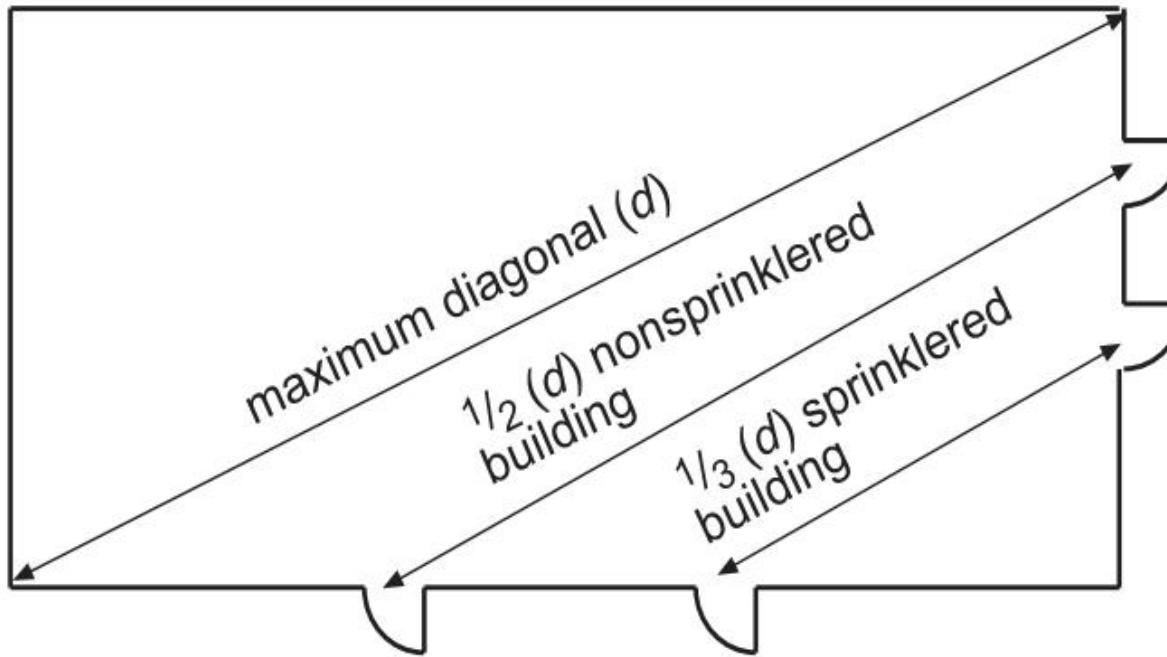
c. This table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

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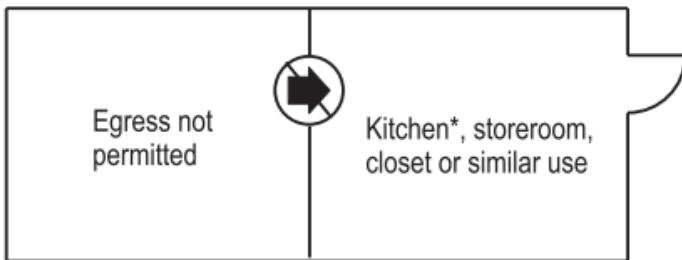
Table 1006.3.4(1) is only applicable to Group R-2 occupancies containing dwelling units and allows a single exit from the basement, as well as the first, second and third stories under limited conditions. Table 1006.3.4(2) applies to all other occupancy groups and does not permit a single exit from the third story where serving such occupancies.

## 1007.1.1 Doorway Arrangement

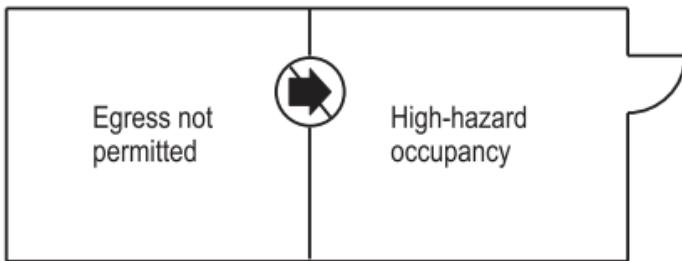


Where more than two exit access doorways are required, they should be situated at reasonable distances from one another so that if one doorway becomes blocked, the others will be available. The use of common sense should dictate the proper separation based on the design and use of the space or room.

## 1016.2, Item 2 Egress through Intervening Spaces



**\* Exception**  
Kitchen within same dwelling unit or guestroom

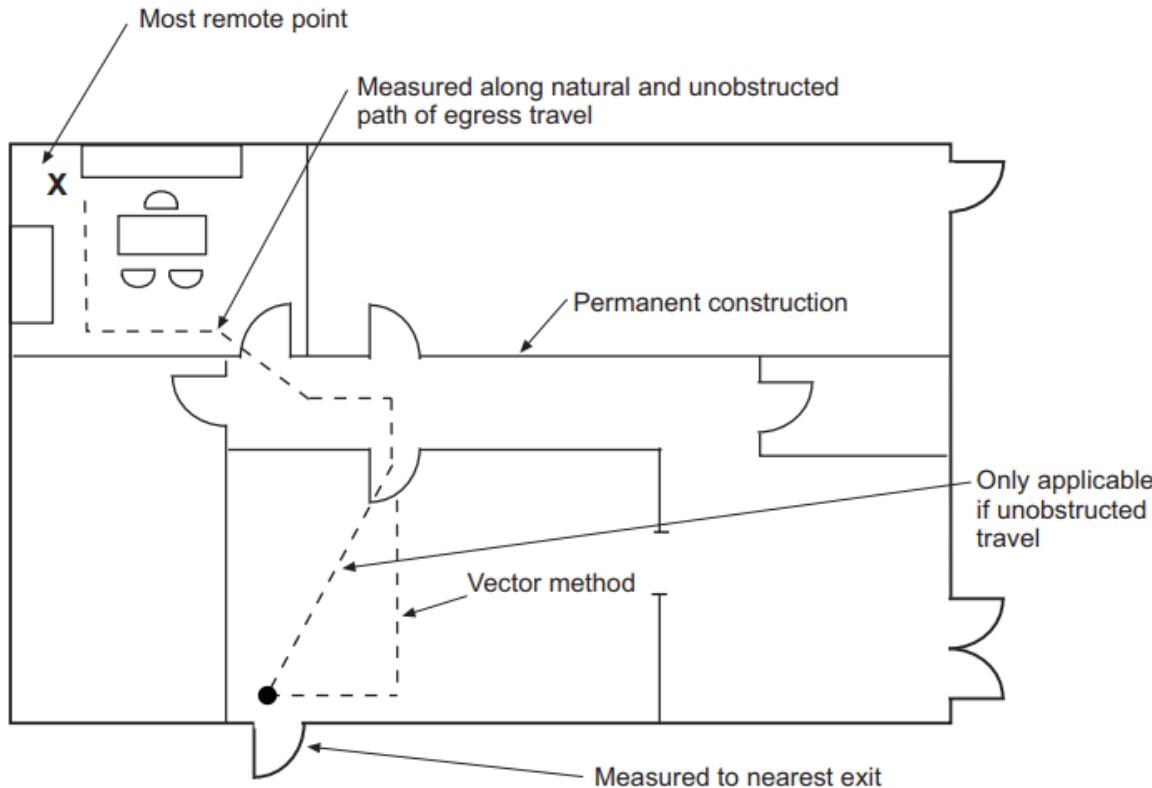


**Exception**  
When space to be entered is the same occupancy group

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Similar to an accessible route of travel, egress is limited in that it cannot pass through kitchens, store rooms, closets or spaces used for similar purposes. These types of spaces have a high probability of blocked access and egress, due to obstructions created by the use of the space. A dedicated path created by partial or full-height walls is permitted where exiting through a stockroom serving a Group M occupancy.

## 1017.2, 1017.3 Travel Distance Limitations



In most sprinklered buildings, the code permits a moderate increase in the permitted travel distance over that permitted in nonsprinklered buildings. An increase of 50 feet is typical of most occupancies; however, a travel distance increase of 100 feet is permitted for Group B occupancies protected by a sprinkler system.

# 1017.2, 1017.3 Travel Distance Limitations

TABLE 1017.2  
EXIT ACCESS TRAVEL DISTANCE<sup>a</sup>

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200 <sup>e</sup>	250 <sup>b</sup>
I-1	Not Permitted	250 <sup>b</sup>
B	200	300 <sup>c</sup>
F-2, S-2, U	300	400 <sup>c</sup>
H-1	Not Permitted	75 <sup>d</sup>
H-2	Not Permitted	100 <sup>d</sup>
H-3	Not Permitted	150 <sup>d</sup>
H-4	Not Permitted	175 <sup>d</sup>
H-5	Not Permitted	200 <sup>c</sup>
I-2, I-3	Not Permitted	200 <sup>c</sup>
I-4	150	200 <sup>c</sup>

For SI: 1 foot = 304.8 mm.

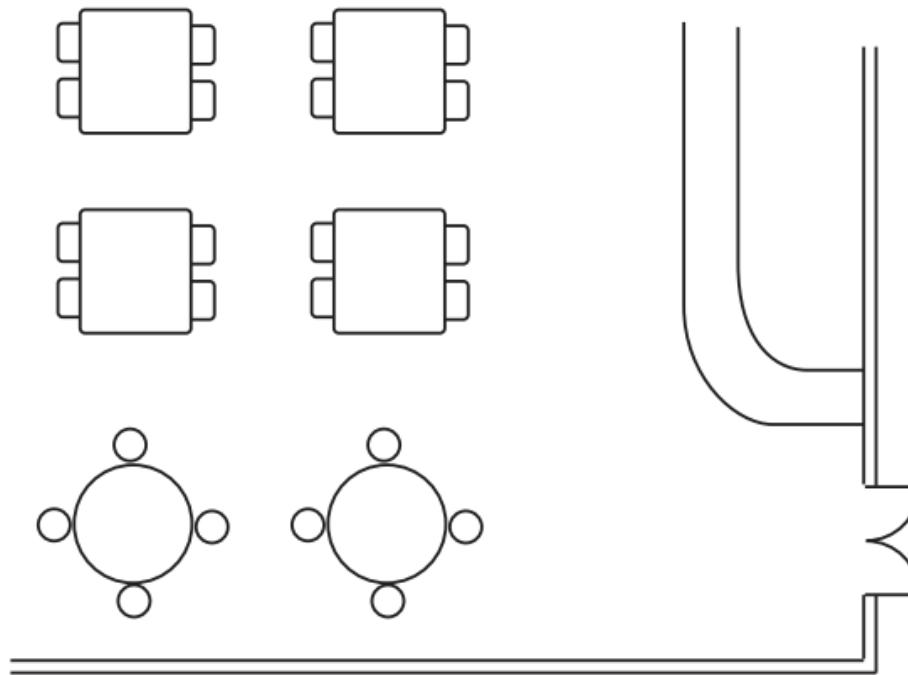
a. See the following sections for modifications to *exit access* travel distance requirements:

- Section 402.8: For the distance limitation in malls.
- Section 407.4: For the distance limitation in Group I-2.
- Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
- Section 411.2: For the distance limitation in special amusement areas.
- Section 412.6: For the distance limitations in aircraft manufacturing facilities.
- Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
- Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
- Section 1006.3.4: For buildings with one exit.
- Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
- Section 1030.7: For increased limitation in assembly seating.
- Section 3103.4: For temporary structures.
- Section 3104.9: For pedestrian walkways.
- b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- d. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.
- e. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

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As an example, where an exit access stairway is provided as a sole means of egress from a mezzanine, the travel distance would be measured from the most remote point on the mezzanine, down the stairway and continue until reaching the entrance to the nearest exit.

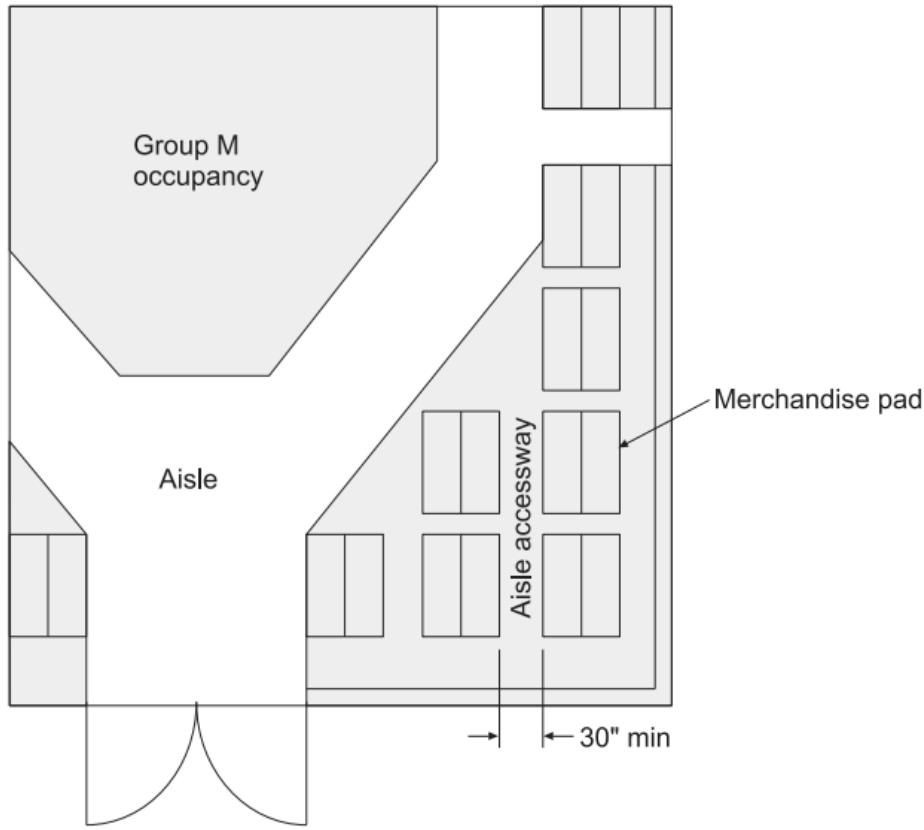
## 1018.1 Aisles



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At least 28 inches of egress width are required for nonpublic aisles not required to be accessible, provided they serve less than 50 persons.

## 1018.4 Aisles Accessway in Group M



For SI: 1 inch = 25.4 mm

Within a merchandise pad, the common path of travel is limited to 75 feet in length. Where the occupant load of the area served by the common path exceeds 50 persons, the common path cannot exceed 30 feet in length from any point in the merchandise pad.

Source: 2021 IBC

# 1020.1 Corridor Construction

[Corridor Inspection - YouTube](#)

- Corridors shall be fire-resistance rated in accordance with Table 1020.2. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions. See the five exceptions where a rating is not required.
- A fire-resistance-rated corridor is intended to protect occupants of the corridor during egress travel from an incident in an enclosed space bordering the corridor. The construction of the corridor provides a minimum level of protection from fire and smoke through the use of fire-resistance-rated walls and ceilings, as well as fire-protected openings. Smoke infiltration is limited also by smoke- and draft-control door assemblies and smoke dampers. Occupancy group, occupant load and presence of a fire sprinkler system are the major factors in determining whether or not a corridor must have a fire-resistance rating.

# 1020.1 Corridor Construction

**TABLE 1020.2  
CORRIDOR FIRE-RESISTANCE RATING**

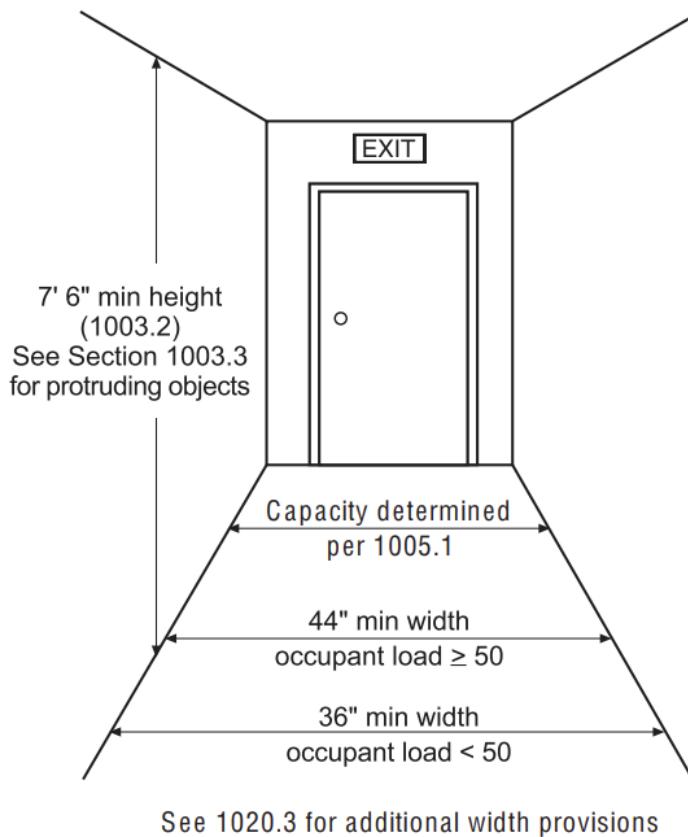
OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system
H-1, H-2, H-3	All	Not Permitted	1 <sup>c</sup>
H-4, H-5	Greater than 30	Not Permitted	1 <sup>c</sup>
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	0.5 <sup>c</sup> /1 <sup>d</sup>
I-2 <sup>a</sup>	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1 <sup>b, c</sup>
I-4	All	1	0

- a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.
- b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.
- d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

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Exceptions eliminate the need for a fire-resistance-rated corridor in certain Group E occupancies, in sleeping units or dwelling units of residential occupancies, in open parking garages and in Group B occupancies that are permitted a single means of egress by Section 1006.2.

# 1020.3 Corridors: Width and Capacity

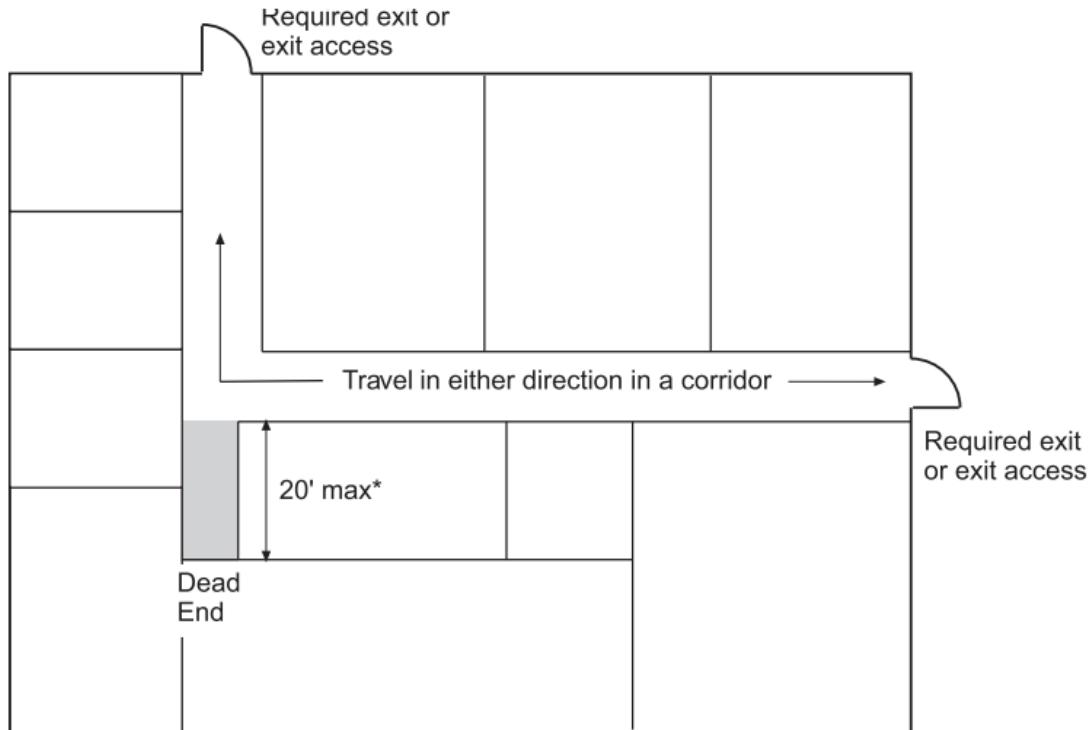


For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

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Certain occupancies require additional corridor widths based on their specialized uses. Corridors serving 100 or more occupants in Group E educational occupancies must be at least 72 inches in width, and healthcare occupancies require increased widths for bed movement.

## 1020.3 Corridors: Means of Egress



\* 50 ft max in sprinklered Group B, E, F, I-1, M, R-1, R-2, R-4, 5 and U occupancies

\* Up to 2.5 times the least corridor width

\* 50 ft max in I-3 Conditions 2, 3 or 4

\* 30 ft max in Group I-2, Condition 2 corridors that do not serve patient rooms or treatment spaces

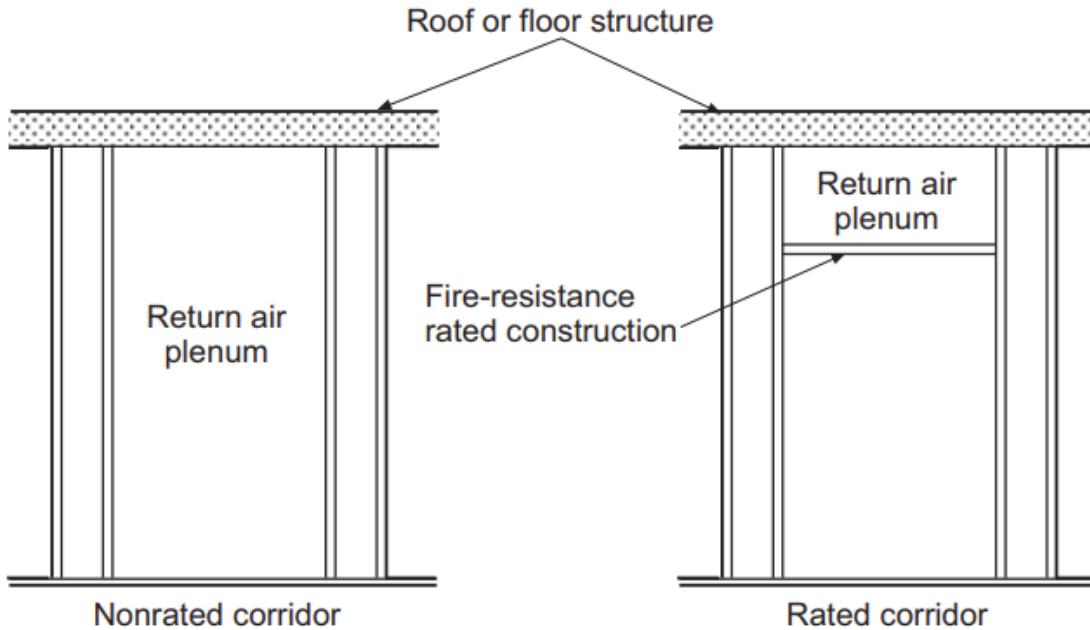
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

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Once a building occupant enters a corridor during emergency egress conditions, there is an expectation that a direct and obvious exit path is available. Dead-end configurations should be minimal, if not eliminated, to expedite the exiting process.

# 1020.6, 1020.6.1 Air Movement in Corridors: Means of Egress

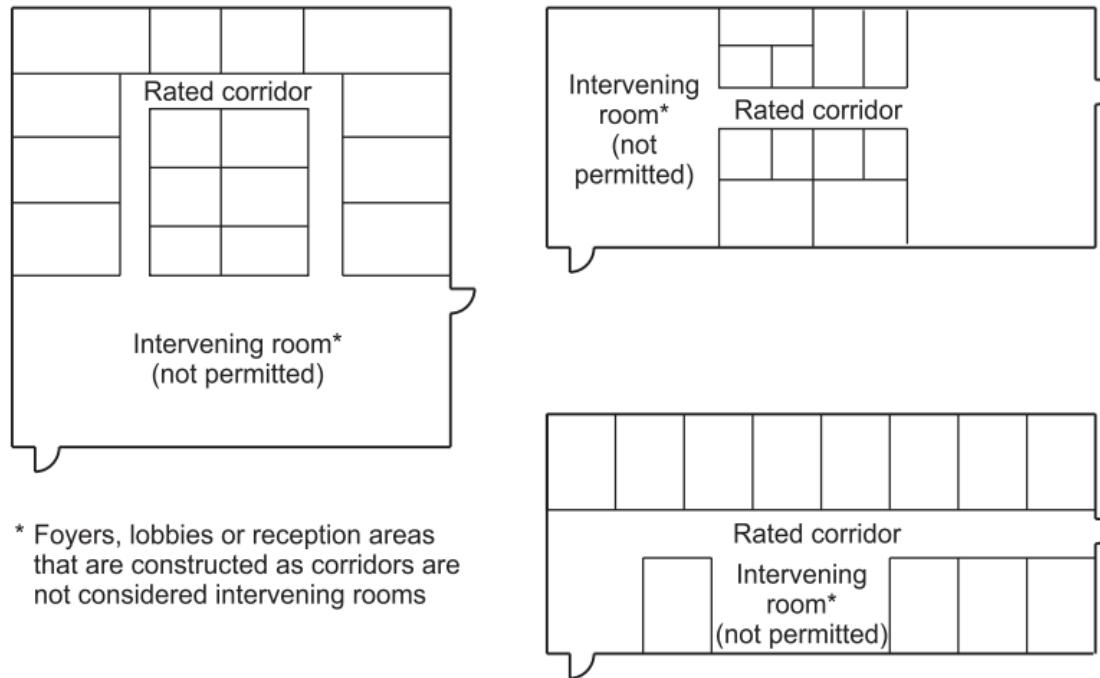
[AC 014 - The Best IBC Chapter 10 Overview Ever! \(In 10 minutes\) - YouTube](#)



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Where a corridor is directly supplied with outdoor air, make-up air for exhaust systems in rooms that open directly into a corridor may be taken from the corridor. The rate at which outdoor air is supplied to the corridor must exceed the rate of makeup air taken from the corridor.

## 1020.7 Corridors Continuity



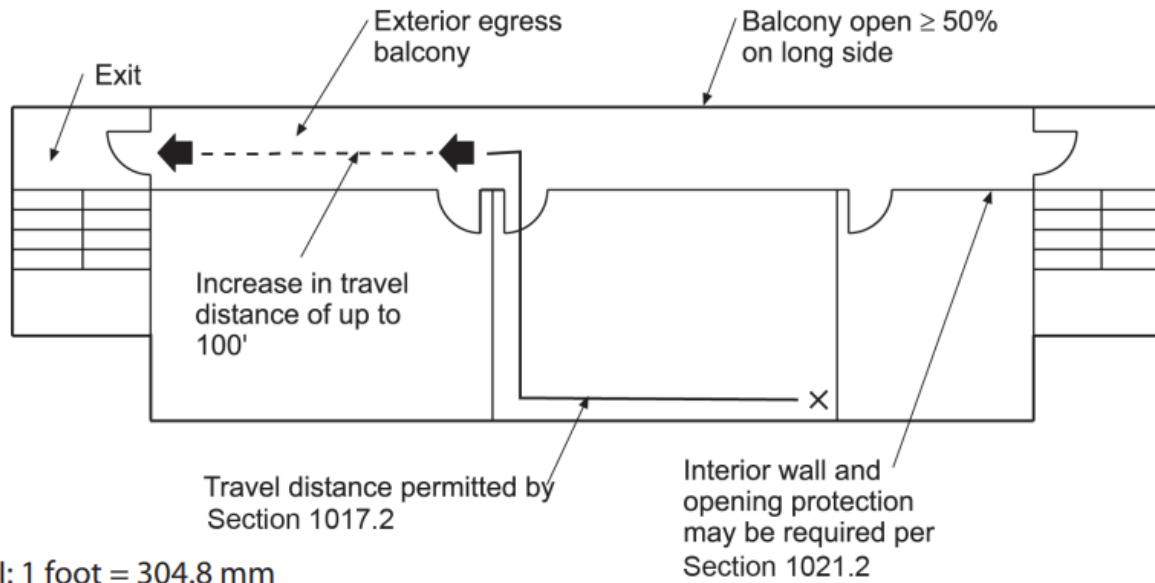
Where the path of travel occurs in a corridor not required to be fire-resistance-rated, such travel may then proceed through other intervening spaces, provided all other requirements of the code are met, such as those for common path of egress travel and travel distance.

**Topic:** Egress Balconies

**Reference:** IBC 1021

**Category:** Means of Egress

**Subject:** Exit Access



For an exit access element to be considered an egress balcony, it must be sufficiently open to the exterior to minimize the potential for smoke and toxic gases to accumulate. The code considers openings for at least 50 percent of the long side to be adequately open.

Source: 2021 IBC

# **2021 IBC Sections 1022 through 1031**

## **Means of Egress IV**

**OBJECTIVE:** To obtain an understanding of the provisions governing the exit and exit discharge portions of the means of egress, the special requirements applicable to egress from assembly occupancies, and the details for emergency escape and rescue openings.

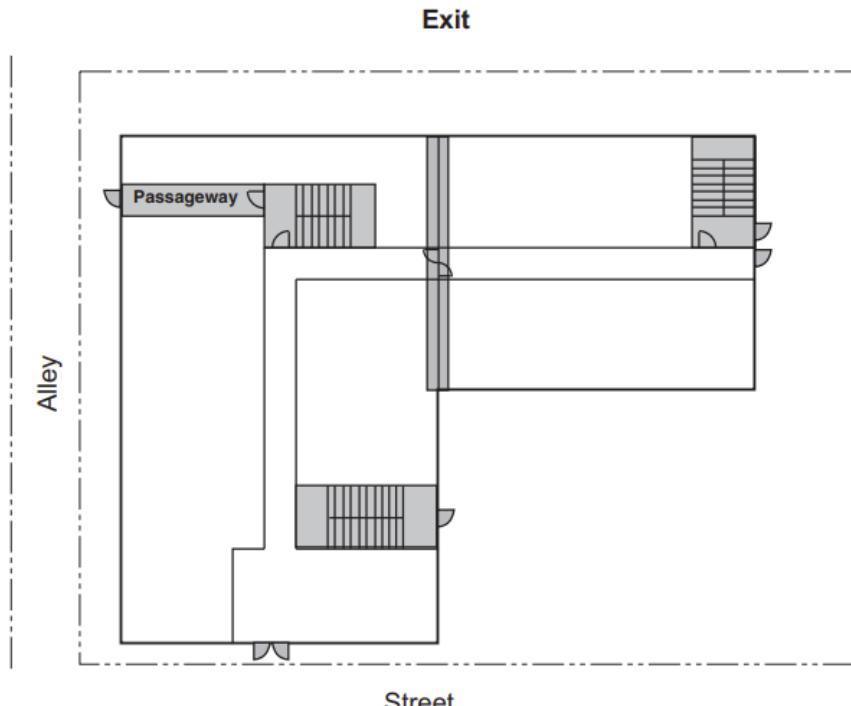
**Topic:** Definition

**Reference:** IBC 1022, 202

**Category:** Means of Egress

**Subject:** Exits

[What is an exit? - YouTube](#)



Because an exit must be maintained for egress, it cannot be used for any purpose that interferes with egress. In addition, once a mandated level of protection is provided for occupants reaching an exit, that level cannot be diminished prior to their reaching the exit discharge.

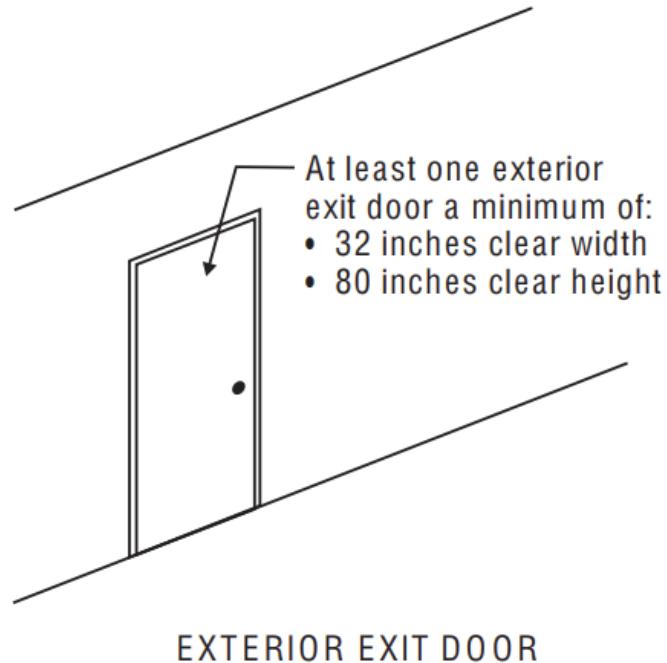
Source: 2021 IBC

**Topic:** General Provisions

**Reference:** IBC 1022.1, 1022.2

**Category:** Means of Egress

**Subject:** Exits

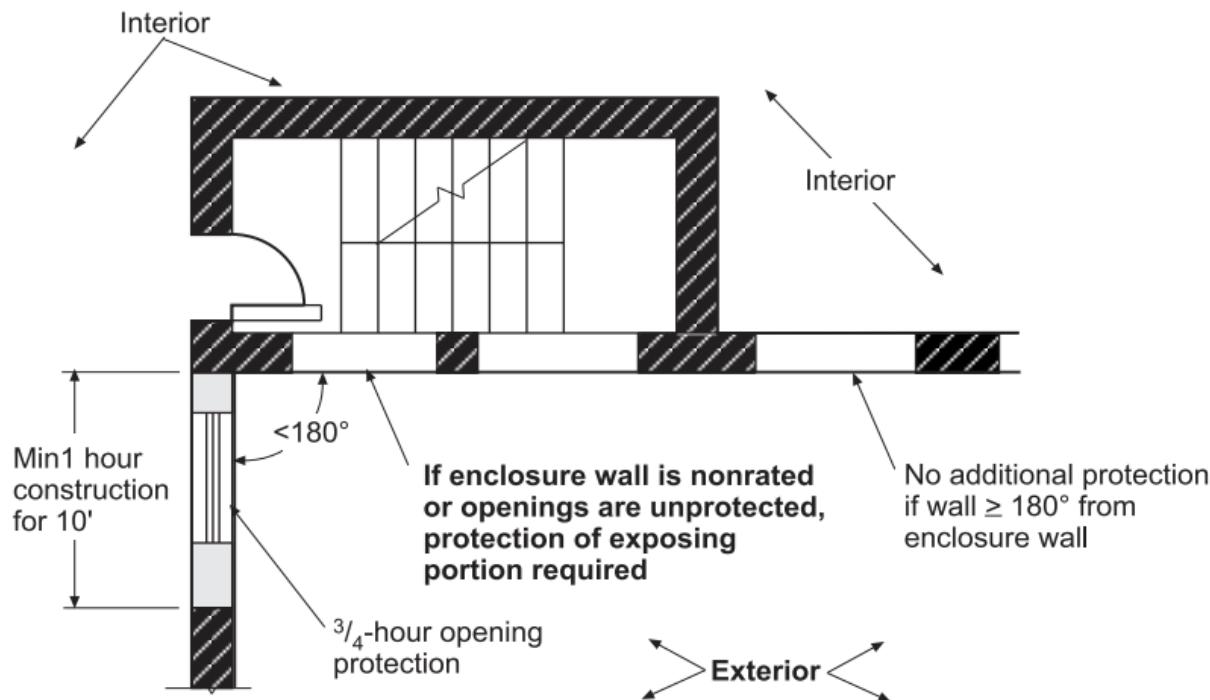


All buildings, regardless of size, that are intended for human occupancy must have a minimum of one exit door that meets the minimum width and height requirements of Section 1010.1.1. The intent of this provision is to override any exceptions for minimum door width and height that may apply in other locations throughout the building.



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Interior exit stairways and ramps must always be enclosed with fire-resistance-rated construction. Allowances for unenclosed stairways within the means of egress are established in Section 1019 under the provisions for exit access stairways.

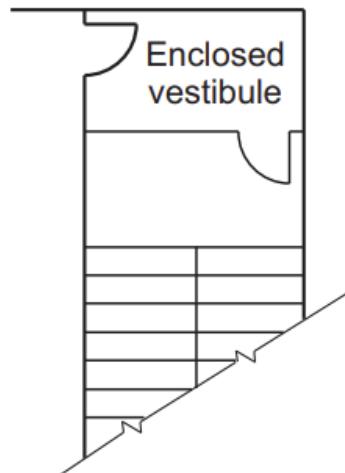


For SI: 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

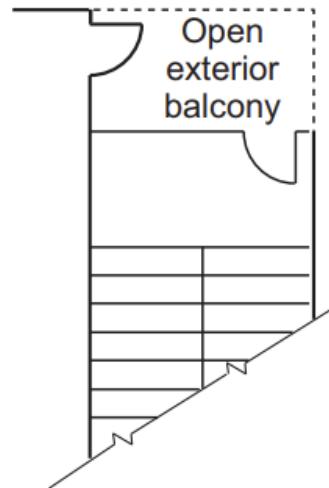
An alternative to the protection of exterior walls adjacent to an interior exit stairway or ramp is the protection of the exterior wall of the enclosure itself. Should a fire breach an adjacent exterior wall, its penetration of the stairway or ramp enclosure would be halted for an acceptable time period.

[How Mechanical Smoke Ventilation Systems Work - YouTube](#)

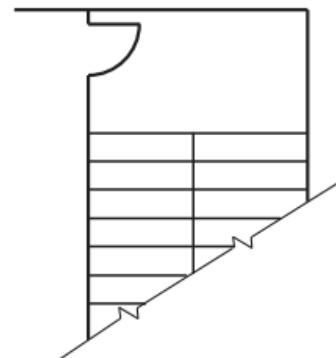
**Smokeproof enclosures**



Mechanical ventilation alternative

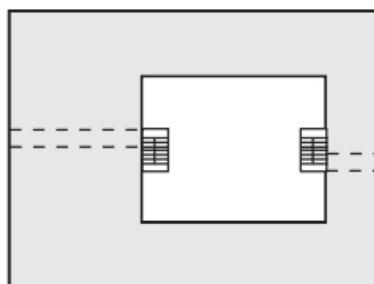
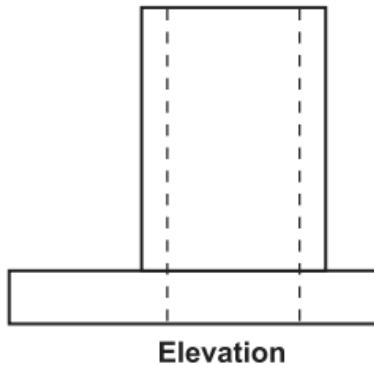


Natural ventilation alternative



Stair pressurization alternative

If a smokeproof enclosure does not exit directly to a yard, court or public way, then an exit passageway must be provided to extend protected travel to the exterior. The exit passageway may have no other openings unless it is protected in the same manner as the vertical enclosure.



Enclosure construction:

- Four or more stories—2-hour fire resistance
- Less than four stories—1-hour fire resistance

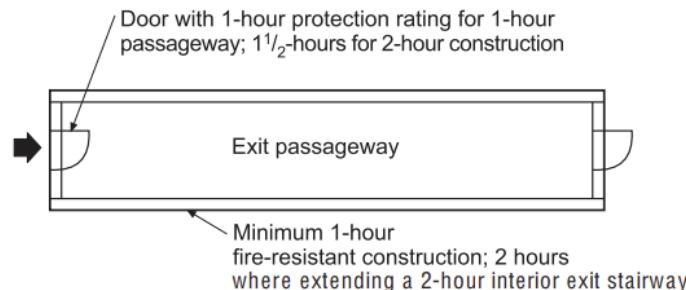
Openings and penetrations:

- Permitted exterior openings (705)
- Egress from normally occupied spaces
- Egress from enclosure
- Fire protection systems
- Ductwork for independent pressurization
- Limited electrical conduit
- Security systems
- Two-way communication systems
- Structural elements supporting stairway or enclosure

Doors: (716)

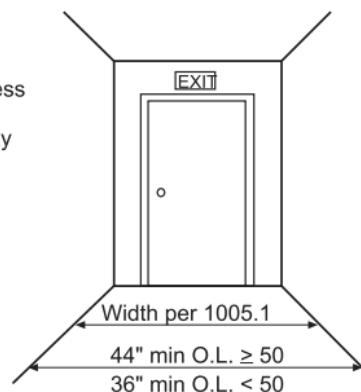
- Self-closing or automatic closing
- 1-hour rating in 1-hour construction
- 1½-hour rating in 2-hour construction
- Temperature rise limit of 450°F above ambient

Several methods are set forth in the code to provide for ventilation of an exit enclosure. In general, penetrations for ductwork must enter directly from the building's exterior or from an interior space separated from the remainder of the building by a shaft enclosure.



- Openings limited to those necessary for egress
- Elevators shall not open into exit passageway
- Penetrations not permitted except for those serving the exit passageway

For SI: 1 inch = 25.4 mm.

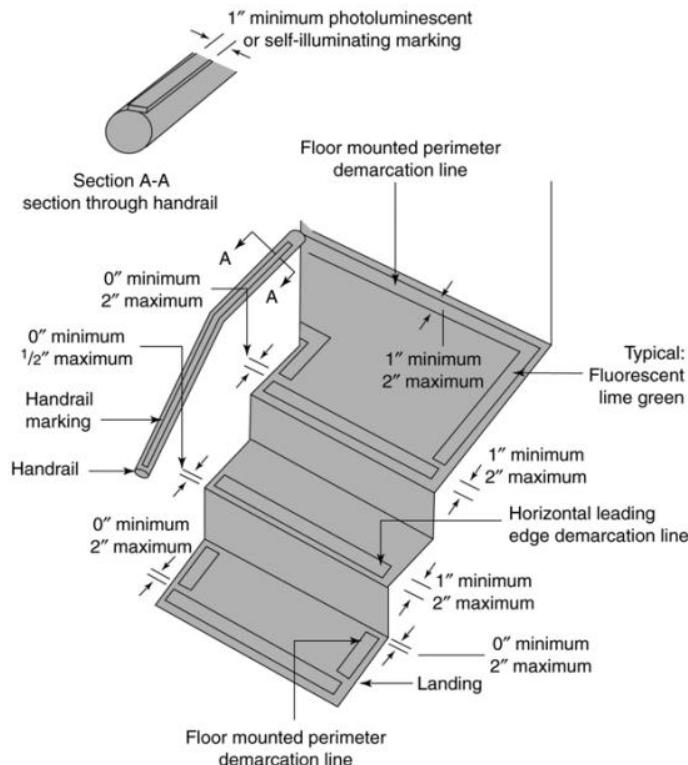


[AC 049 - Corridors Vs. Exit Passageways \(with corrected audio\) - YouTube](#)

Once in an exit passageway, the building occupant is considered to be in a relatively safe location; thus, travel distances within the exit passageway are unregulated. Simply put, an exit passageway is a horizontal exit enclosure, with conditions and limitations similar to those required for an interior exit stairway.

**Topic:** General Provisions  
**Reference:** IBC 1025.1

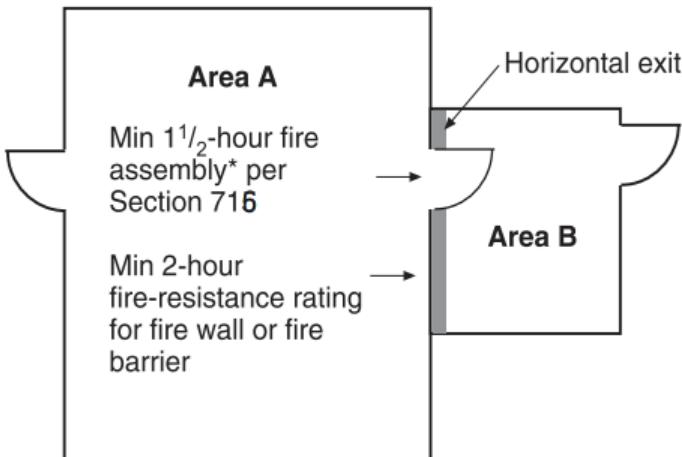
**Category:** Means of Egress  
**Subject:** Luminous Egress Path Markings



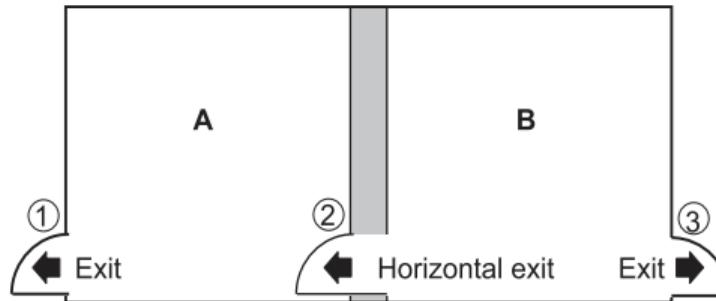
**Note:** The width of demarcation lines at horizontal leading edges of stairs, perimeter demarcation line and handrails may be less than 1" width when listed in accordance UL 1944.

Analogous to rechargeable batteries, many photoluminescent and self-illuminating egress path markings require exposure to light to perform properly. Thus, such markings must be exposed to a minimum of 1 foot-candle of light energy at the walking surface for at least 60 minutes prior to the building being occupied.

[Ecoglo Photoluminescent Safety Products - YouTube](#)



\* must be self-closing or automatic closing upon activation of a smoke detector



**NOTE:** Exit for "A" adequate to meet the provisions of Chapter 10 but need not include added capacity imposed by occupants entering through horizontal exit from "B."

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Horizontal exits must extend vertically through all levels of the building, unless minimum 2-hour floor assemblies with no unprotected openings are provided. The horizontal exit walls are to extend continuously from exterior wall to exterior wall in order to completely divide the floor.

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**Topic:** Open Side

**Reference:** IBC 1027.3

**Category:** Means of Egress

**Subject:** Exterior Exit Ramps and Stairways

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**Code Text:** *Exterior exit stairways and ramps serving as an element of a required means of egress shall be open on not less than one side. An open side shall have not less than 35 square feet ( $3.3\text{ m}^2$ ) of aggregate open area adjacent to each floor level and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.*

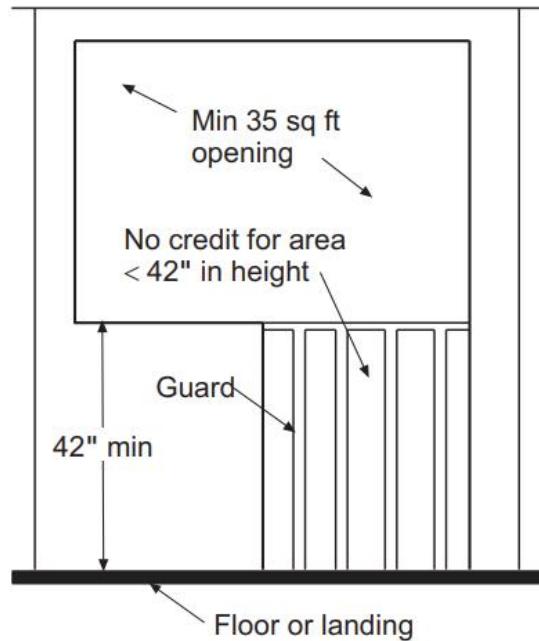
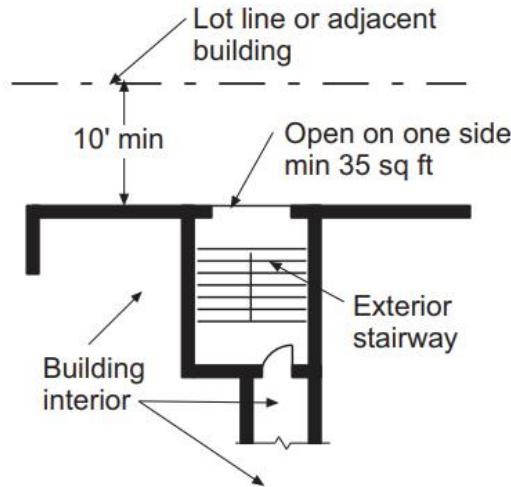
**Discussion and Commentary:** For a stairway or ramp to be considered exterior, it must be open enough to the outside so that smoke and toxic gases will not tend to corrupt the exit route. An exterior exit ramp or exterior exit stairway is considered an exit component and is permitted as an egress element in all occupancies except Group I-2. Where permitted as an element of a required means of egress, an exterior exit stairway is limited to buildings with a maximum of 6 stories and no more than 75 feet in height above the lowest level of fire department vehicle access.

**Topic:** Open Side

**Reference:** IBC 1027.3

**Category:** Means of Egress

**Subject:** Exterior Exit Ramps and Stairways



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 square foot = 0.093 m<sup>2</sup>.

Consistent with the requirements for other exit components, an exterior exit ramp or stairway must be separated from the remainder of the building by fire-resistance-rated construction and protected openings. The IBC provides four exceptions where separation is not warranted.

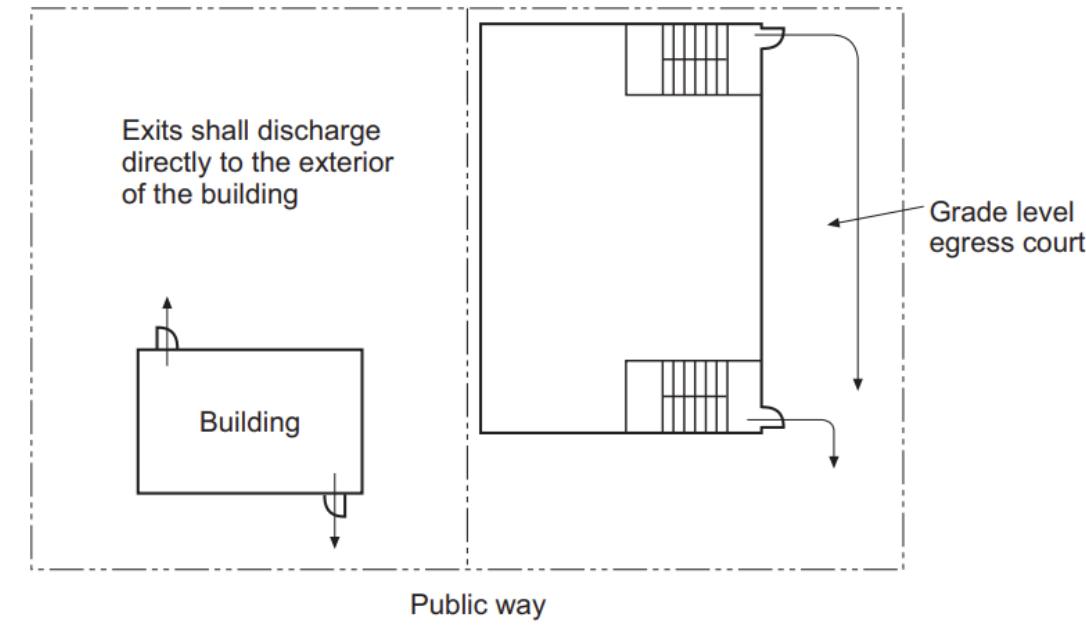
Source: 2021 IBC

**Topic:** Definition and Scope

**Reference:** IBC 1028.2, 1028.4, 202

**Category:** Means of Egress

**Subject:** Exit Discharge



Number of exits maintained until arrival at grade or public way

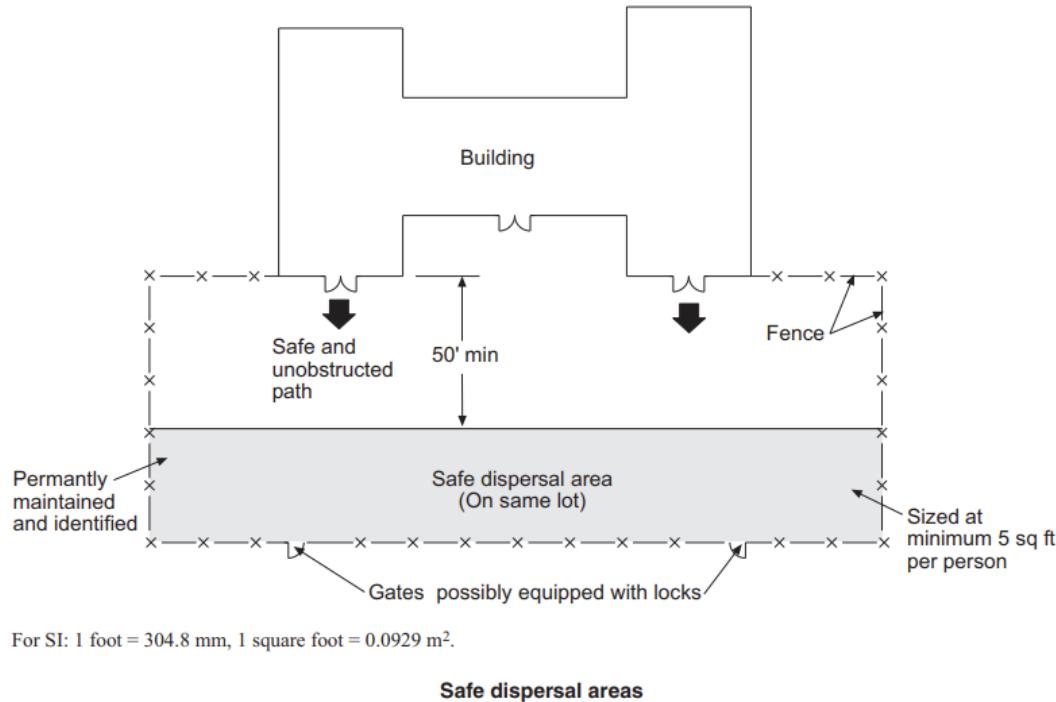
When specific conditions are met, up to 50 percent of the number and capacity of interior exit stairways may exit through a vestibule or an area on the discharge level, provided all the stated conditions have been met.

**Topic:** Access to a Public Way

**Reference:** IBC 1028.5

**Category:** Means of Egress

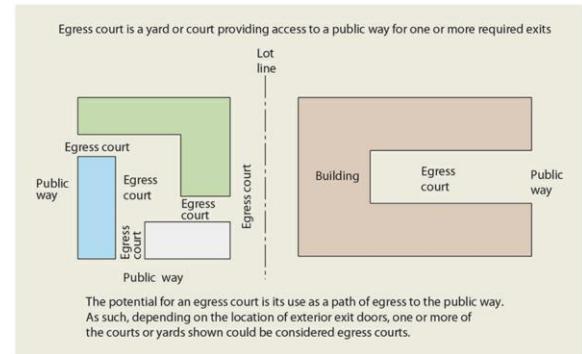
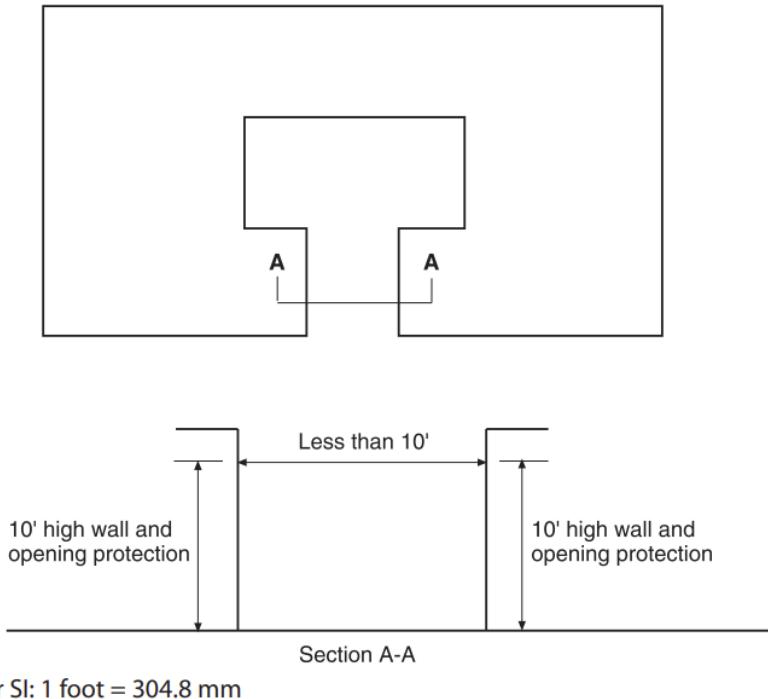
**Subject:** Exit Discharge



Occasionally it is impractical, and at times impossible, to provide a fully complying means of egress the entire distance to the public way. A safe dispersal area can be utilized where such conditions exist, such as on large industrial or educational campus sites.

**Topic:** Egress Courts  
**Reference:** IBC 1029.3

**Category:** Means of Egress  
**Subject:** Exit Discharge



The minimum required width of an egress court is addressed in a manner similar to that of aisles, corridors and stairways. The width must accommodate the calculated capacity, based on occupant load served; however, in no case may it be less than a specified width of 44" (36" in Group R-3).

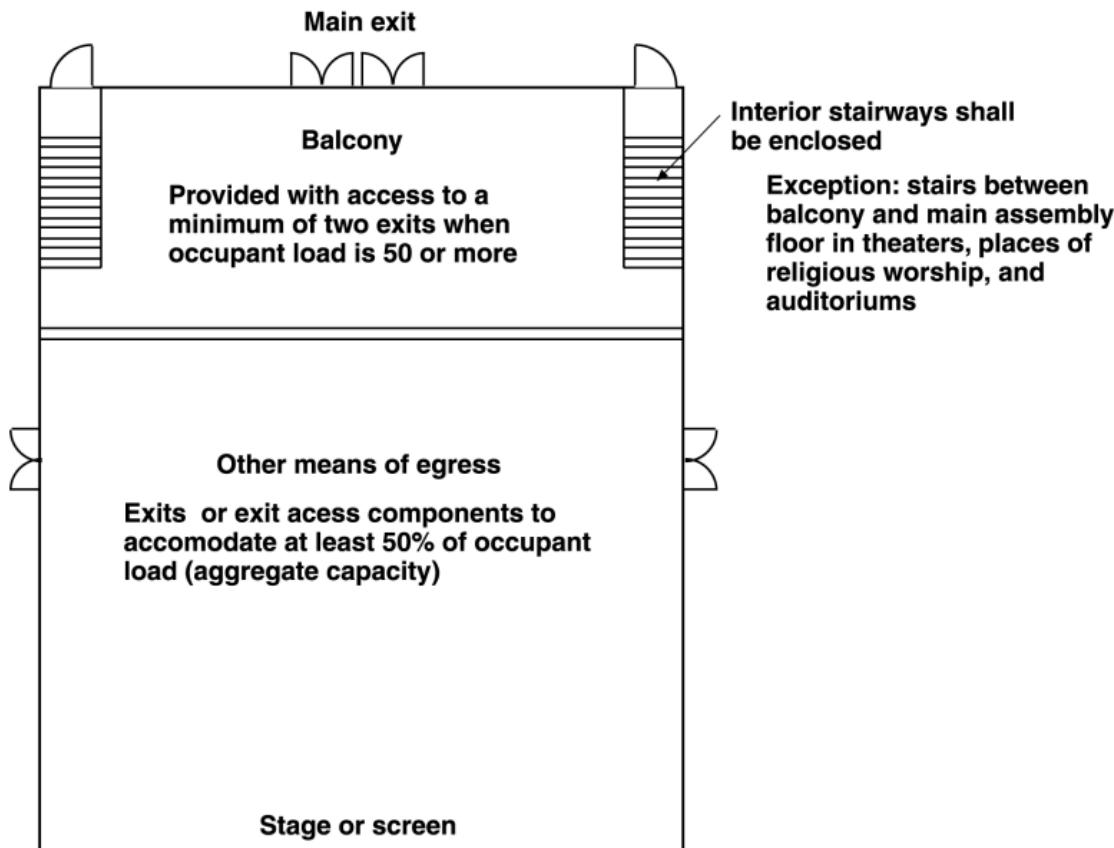
Source: 2021 IBC

**Topic: Assembly Main Exit**

**Reference: IBC 1030.2**

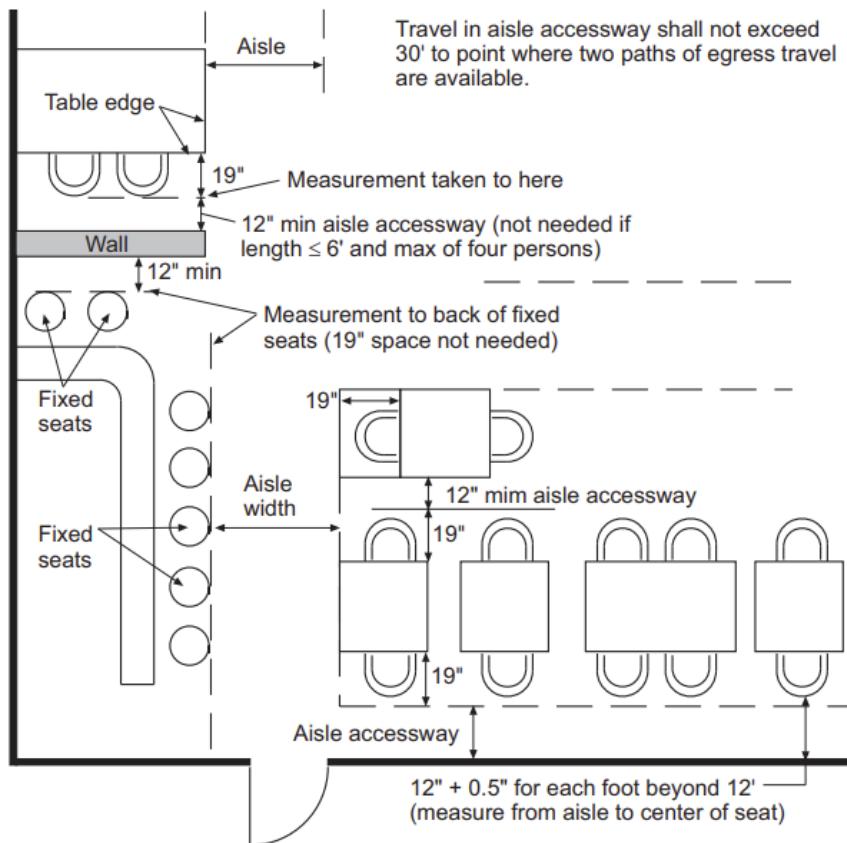
**Category: Means of Egress**  
**Subject: Assembly Seating**

**Main exit to accommodate at least 50% of occupant load  
(not less than total required capacity of all egress components leading to exit)**



To better define and maintain the egress path through a lobby or foyer to the main entrance/exit in a Group A-1 occupancy, the code mandates that the waiting area not encroach upon the required clear egress width.

Source: 2021 IBC

**Topic:** Seating at Tables**Reference:** IBC 1030.13.1.1, 1030.13.1.2**Category:** Means of Egress  
**Subject:** Exit Access

For SI: 1 inch = 25.4 mm.

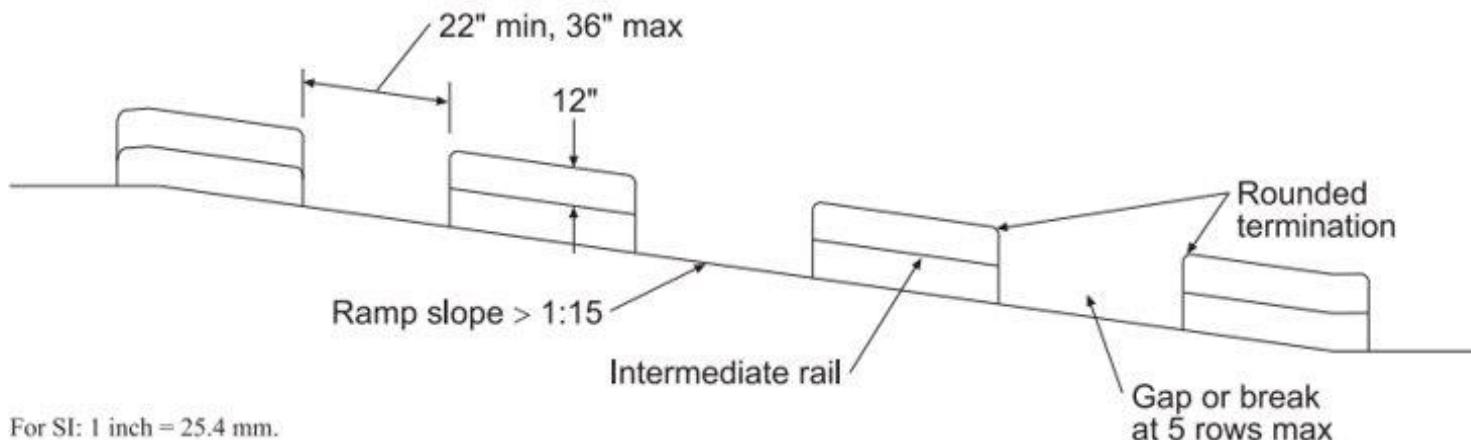
The method of determining the clear width differs based on the type of seating that is provided. For fixed seats, the measurement is made from the back of the seats. Otherwise, the clear width is measured to a line 19 inches from the edge of the table or counter.

**Topic:** Handrails

**Reference:** IBC 1030.16

**Category:** Means of Egress

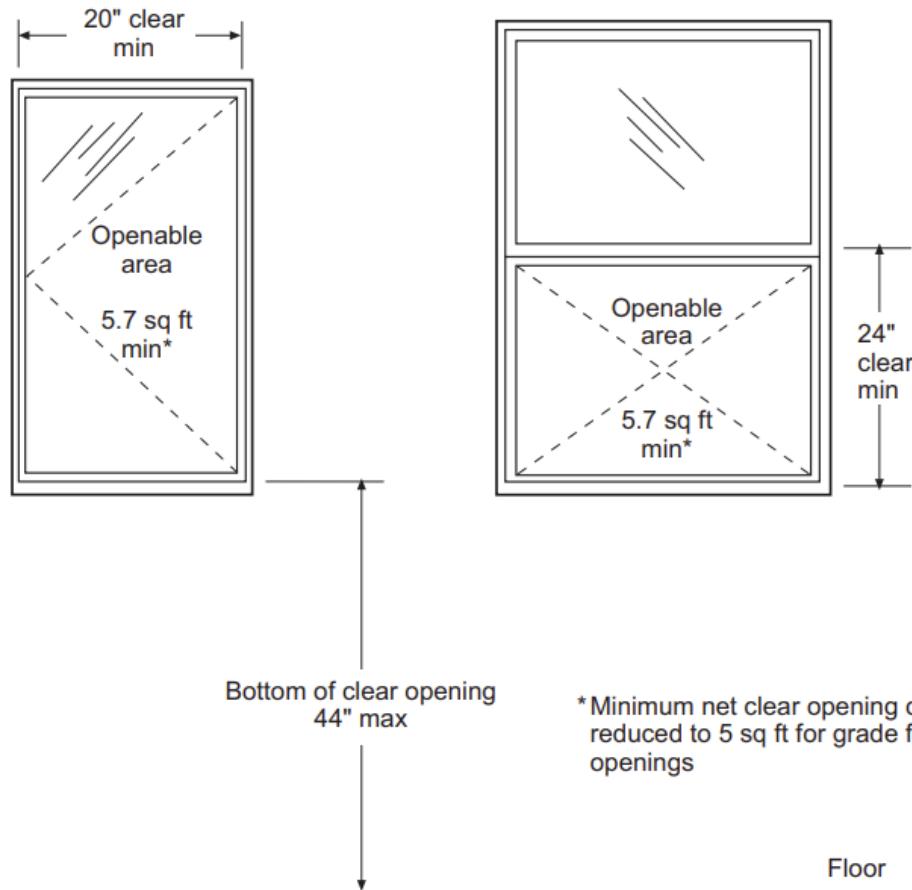
**Subject:** Assembly Seating



Where discontinuous handrails are provided, an intermediate handrail located 12 inches below the main handrail is required to prevent users from ducking under the handrail and hindering flow. It also provides a handrail for toddlers who may be using the aisle.

**Topic:** Required Openings  
**Reference:** IBC 1031

**Category:** Means of Egress  
**Subject:** Emergency Escape and Rescue



For SI: 1 square foot = 0.093 m<sup>2</sup>, 1 inch = 25.4 mm.

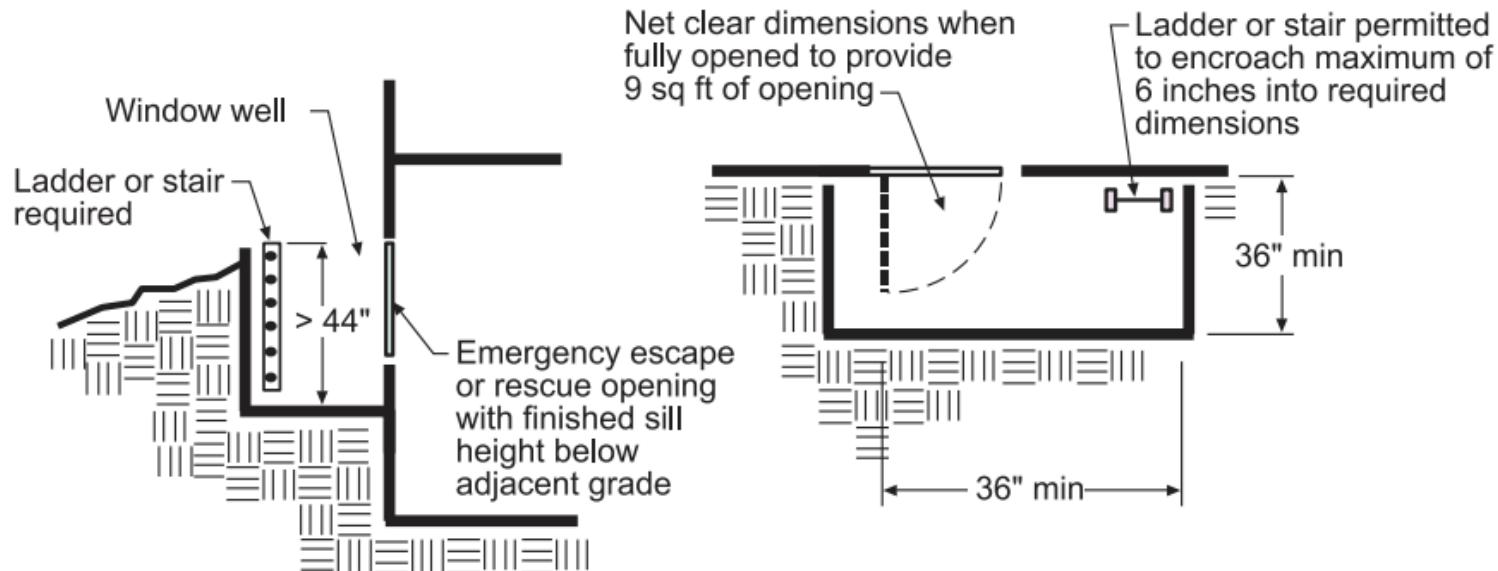
[Egress Windows For Fire Safety | What Are They? Where Are They Needed? - YouTube](#)

When operable windows are used for egress or rescue purposes, the intent is that they be double-hung, horizontal sliding or casement styles operated by a simple operation. Special types other than those listed must be evaluated for compliance with the operational constraint limitations.

Source: 2021 IBC

**Topic:** Window Wells  
**Reference:** IBC 1031.4

**Category:** Means of Egress  
**Subject:** Emergency Escape and Rescue



For SI: 1 inch = 25.4 mm, 1 square foot = 0.093 m<sup>2</sup>.

Window well ladders must have a minimum clear rung width of 12 inches with the rungs spaced at maximum 18-inch intervals vertically. The ladder or steps cannot encroach into the required dimensions of the window well more than 6 inches.

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**Topic:** Definition and Classifications

**Reference:** IBC 802.1, 202

**Category:** Interior Finishes

**Subject:** Wall and Ceiling Finishes

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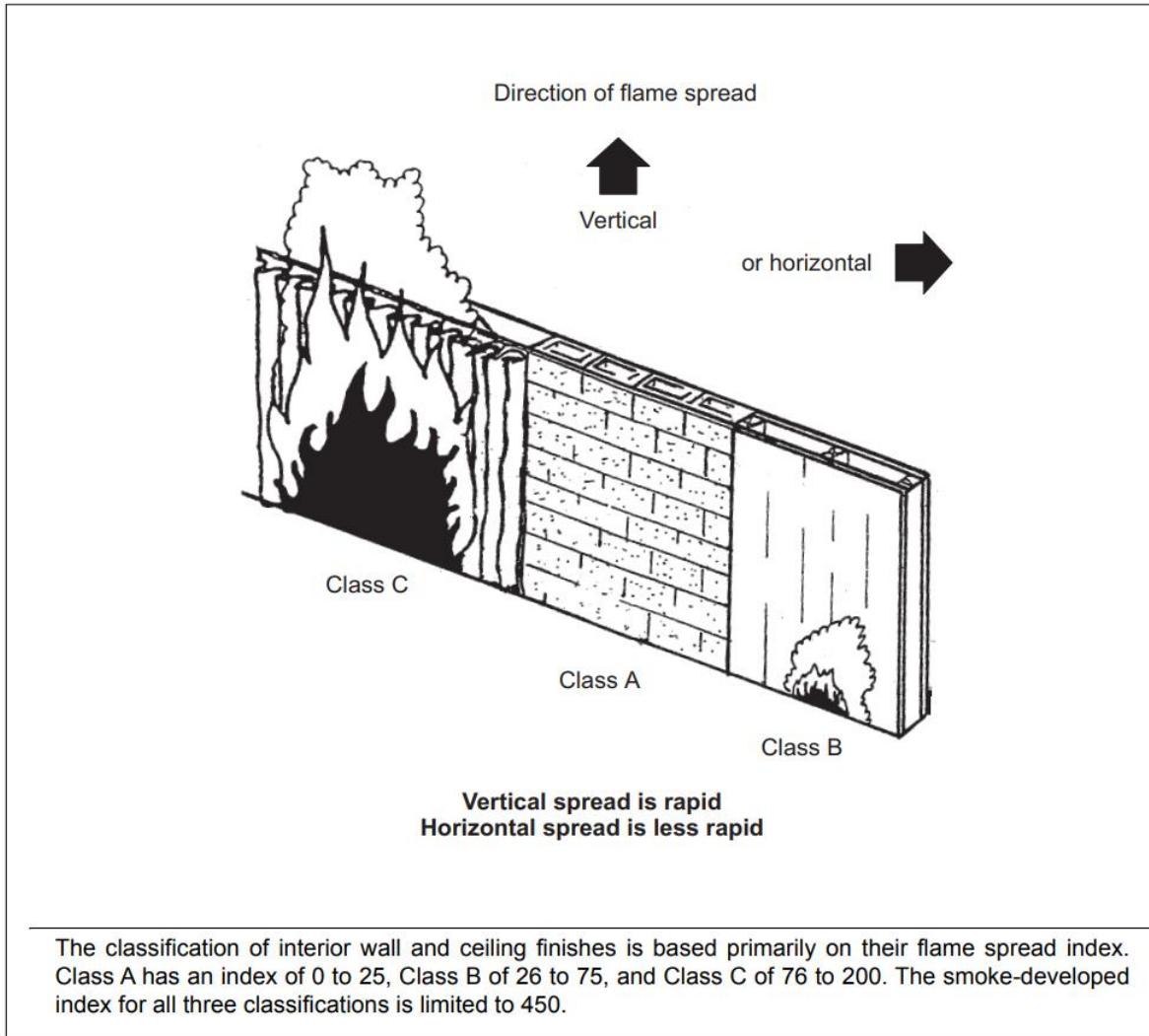
**Code Text:** *The provisions of Section 803 shall limit the allowable fire performance and smoke development of interior wall and ceiling finish materials based upon occupancy classification. Interior wall and ceiling finish includes the exposed interior surfaces of buildings including, but not limited to: fixed or movable walls and partitions; toilet room privacy partitions; columns; ceilings; and interior wainscotting, paneling, or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural fire resistance or similar purposes, but not including trim.*

**Discussion and Commentary:** It is the intent of the IBC to govern those materials applied to walls or ceilings that could contribute to the spread of flame or the development of smoke. Floor finishes are regulated in a different manner as set forth in Section 804.

[IBC Chapter 8: Interior Finishes - 2022 NSBAIDRD Seminar Session 4 - YouTube](#)

**Topic:** Definition and Classifications  
**Reference:** IBC 802.1, 202

**Category:** Interior Finishes  
**Subject:** Wall and Ceiling Finishes



# **Class 12: Chapters 8, 12, 25 and 30—Interior Finishes, Interior Environment, Gypsum Board and Elevators**

Source: 2021 IBC

# Objective

- To gain an understanding of the limitations on interior wall and ceiling finishes; the installation requirements for gypsum board, lath and plaster; the important issues concerning the interior environment, including light, ventilation and sound transmission, and the provisions for elevators and their hoistways.

**Topic:** Flame-Spread Classification  
**Reference:** IBC 803.13

**Category:** Interior Finishes  
**Subject:** Finish Requirements by Occupancy

TABLE 803.13  
 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY<sup>k</sup>

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

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m<sup>2</sup>.

- a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.15.1.
- b. In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.
- c. Requirements for rooms and enclosed spaces shall be based on spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered to be enclosing spaces and the rooms or spaces on both sides shall be considered to be one room or space. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.
- d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall be not less than Class B materials.
- e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.
- f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.
- g. Class B material is required where the building exceeds two stories.
- h. Class C interior finish materials shall be permitted in administrative spaces.
- i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.
- j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.
- k. Finish materials as provided for in other sections of this code.
- l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
- m. Corridors in ambulatory care facilities shall be provided with Class A or B materials.

Ceiling Tiles & Panels | Rockfon

Textile materials, where applied to walls or ceilings, must meet additional criteria prior to approval. Finishes that have napped, tufted, looped, nonwoven, woven or similar surface characteristics present a unique hazard on account of their contribution to extremely rapid fire spread.

Source: 2021 IBC

**Topic:** Floor Finish Requirements  
**Reference:** IBC 804.4.2

**Category:** Interior Finishes  
**Subject:** Interior Floor Finish

**Types of classifications:** (in terms of heat flux, Sec. 804.2)

- Class I: Minimum 0.45 watts/cm<sup>2</sup> per NFPA 253 or ASTM E648
- Class II: Minimum 0.22 watts/cm<sup>2</sup> per NFPA 253 or ASTM E648
- DOC FF-1: Minimum 0.04 watts/cm<sup>2</sup>

**Required classifications:** (Sec. 804.4)

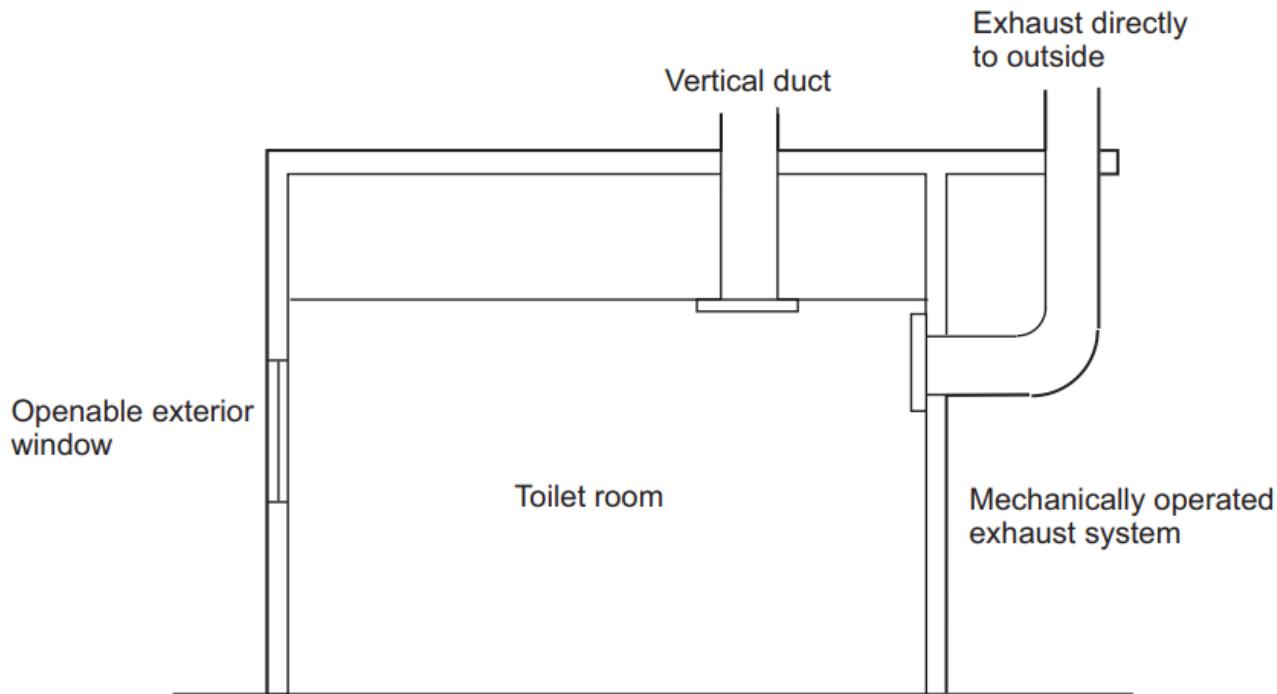
	Nonsprinklered <sup>a</sup>		Sprinklered (NFPA 13 only)	
	Exit/Corr. <sup>b</sup>	Other Areas	Exit/Corr. <sup>b</sup>	Other Areas
Groups I-1, I-2 and I-3	Class I	DOC FF-1 <sup>c</sup>	Class II	DOC FF-1 <sup>c</sup>
Groups F, R-3, R-4 and U	DOC FF-1 <sup>c</sup>	DOC FF-1 <sup>c</sup>	DOC FF-1 <sup>c</sup>	DOC FF-1 <sup>c</sup>
Other Groups	Class II	DOC FF-1 <sup>c</sup>	DOC FF-1 <sup>c</sup>	DOC FF-1 <sup>c</sup>

**Note:** <sup>a</sup>Section 903.2 requires sprinklers in various occupancies

<sup>b</sup>Includes enclosures for stairways and ramps, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions.

<sup>c</sup>Compliance with ASTM D2859 also permitted

DOC FF-1, often referred to as the Methenamine Pill Test, essentially evaluates the floor covering when subjected to a cigarette-type ignition by using a small methenamine tablet. All carpeting sold in the United States is required by federal law to pass this test procedure.



Ventilation regulated by *International Mechanical Code*

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The *International Mechanical Code* regulates ventilation of bathrooms, toilet rooms, shower rooms and similar spaces containing bathtubs, showers and spas. The *International Fire Code*, in addition to the IMC, addresses ventilation and exhaust systems where flammable and combustible hazards are present.

**1202.4.1 Ventilation openings.** Ventilation openings through foundation walls shall be provided. The openings shall be placed so as to provide cross ventilation of the under-floor space. The net area of ventilation openings shall be in accordance with Section 1202.4.1.1 or 1202.4.1.2. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall be not greater than  $\frac{1}{4}$  inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load-bearing vents.
5. Hardware cloth of 0.035-inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not greater than  $\frac{1}{8}$  inch (3.2 mm).
7. Operable louvres, where ventilation is provided in accordance with Section 1202.4.1.2.



An example of a ventilation well outside of a building

**Topic:** Attic and Under-Floor Ventilation

**Reference:** IBC 1202.2, 1202.4

**Category:** Interior Environment

**Subject:** Ventilation

- ❖ Crawl spaces that are intended to be naturally ventilated to the outdoors must comply with this section and Section 1202.4.1.1, where the crawl space has open earth floors, or with this section and Section 1202.4.1.2, where the crawl space has covered floors.

The requirement for covering the openings with perforated plates, corrosion-resistant wire mesh or other covering is to keep small animals out. Seven alternatives are given for this covering, and they all must have openings that have no dimension exceeding  $\frac{1}{4}$  inch (6.4 mm).



An example of a ventilation well as viewed from inside a commercial crawlspace

**1202.4.2 Ventilation in cold climates.** In extremely cold climates, where a ventilation opening will cause a detrimental loss of energy, ventilation openings to the interior of the structure shall be provided.

❖ Where warranted by extremely cold climates, this section provides for ventilating the crawl space to the interior conditioned space of the building, which is heated and can accept moisture from the underground space without detrimental effects on the building structure.

If this method of ventilation is proposed, make sure your mechanical engineer is aware of the potential of additional temperature and humidity loads that will be imposed on the building's HVAC system. Consider providing additional conditioning capacity to handle the underfloor space.



Ducts and grilles similar to this one can be used to connect the interior air to the underfloor space air.

**Topic:** Attic and Under-Floor Ventilation

**Reference:** IBC 1202.2, 1202.4

**Category:** Interior Environment

**Subject:** Ventilation

**1202.4.3 Mechanical ventilation.** Mechanical ventilation shall be provided to crawl spaces where the ground surface is covered with a Class I vapor retarder. Ventilation shall be in accordance with Section 1202.4.3.1 or 1202.4.3.2.

**1202.4.3.1 Continuous mechanical ventilation.** Continuously operated mechanical ventilation shall be provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl space ground surface area and the ground surface shall be covered with a Class I vapor retarder.

**1202.4.3.2 Conditioned space.** The crawl space shall be conditioned in accordance with the *International Mechanical Code* and the walls of the crawl space shall be insulated in accordance with the *International Energy Conservation Code*.

Make sure you understand the difference between mechanical ventilation and mechanical conditioning!  
Note: a vapor retarder is required when these ventilation options are proposed!



A vapor retarder keeps the moisture from being drawn into the space, helping to keep the underfloor space dry.

**Topic:** Attic and Under-Floor Ventilation  
**Reference:** IBC 1202.2, 1202.4

**Category:** Interior Environment  
**Subject:** Ventilation



Condensation on  
the underside of  
the concrete floor

**Topic:** Attic and Under-Floor Ventilation  
**Reference:** IBC 1202.2, 1202.4

**Category:** Interior Environment  
**Subject:** Ventilation



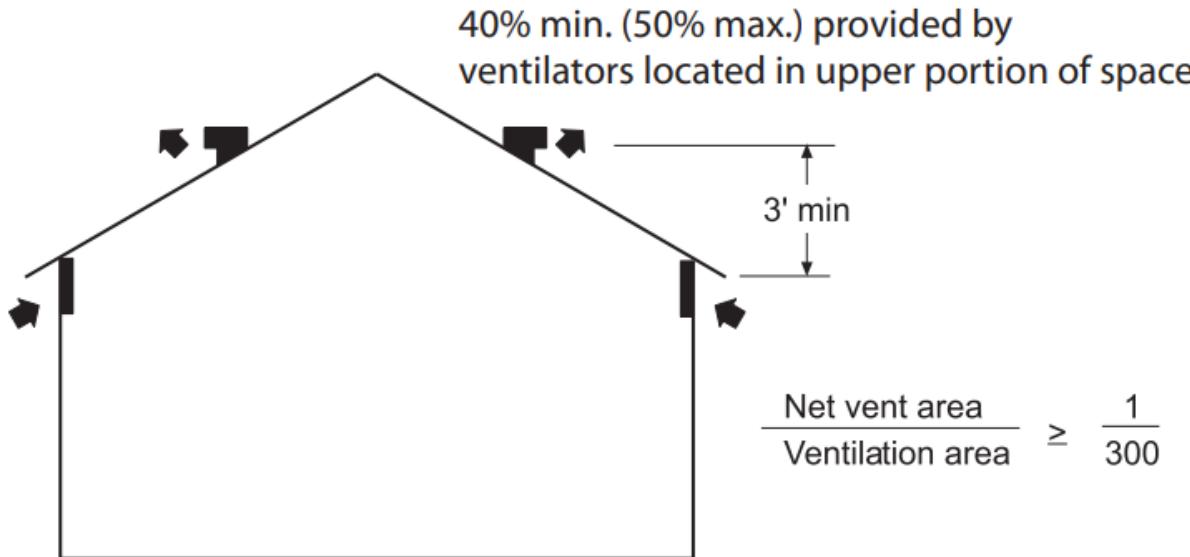
A wet underfloor space can result in damage to the floor finish above.

**Topic:** Attic and Under-Floor Ventilation  
**Reference:** IBC 1202.2, 1202.4

**Category:** Interior Environment  
**Subject:** Ventilation



Biological growth  
and rot on the  
cardboard void  
forms

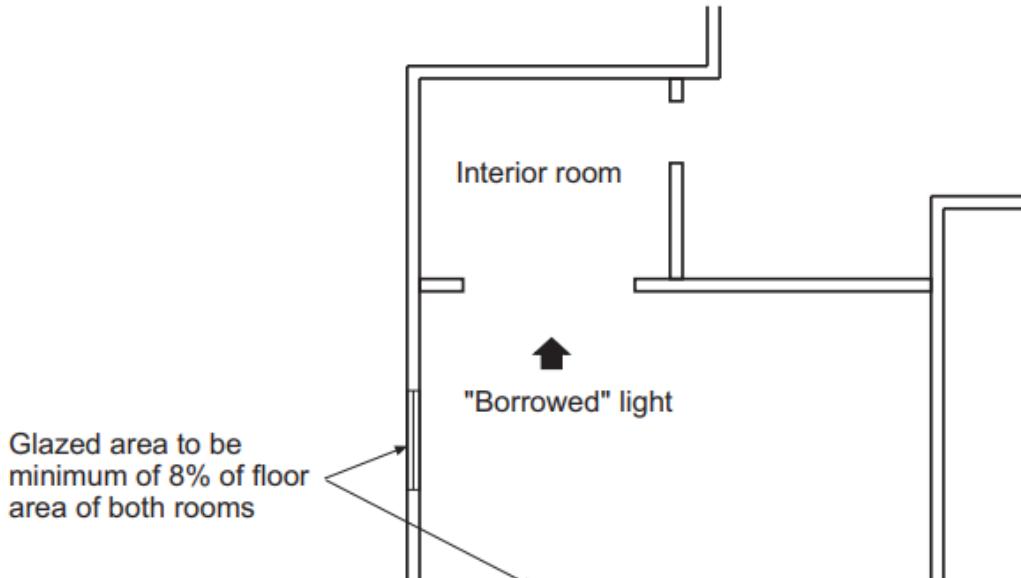


### Attic ventilation - calculations

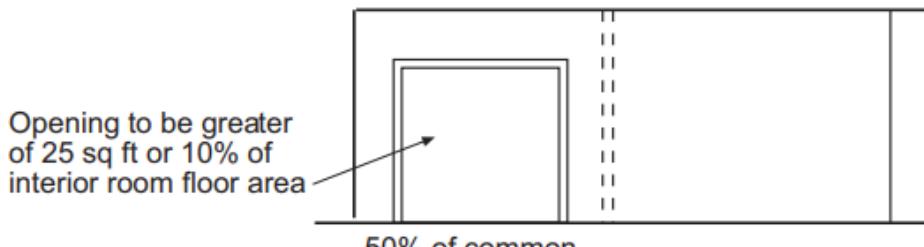
For SI: 1 foot = 304.8 mm.

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The general requirement for under-floor ventilation mandates a minimum net area of ventilation openings of  $\frac{1}{150}$  of the area of the space ventilated. In addition, all openings to the exterior must be screened to prevent the entry of birds, rodents and similar creatures.



Plan view



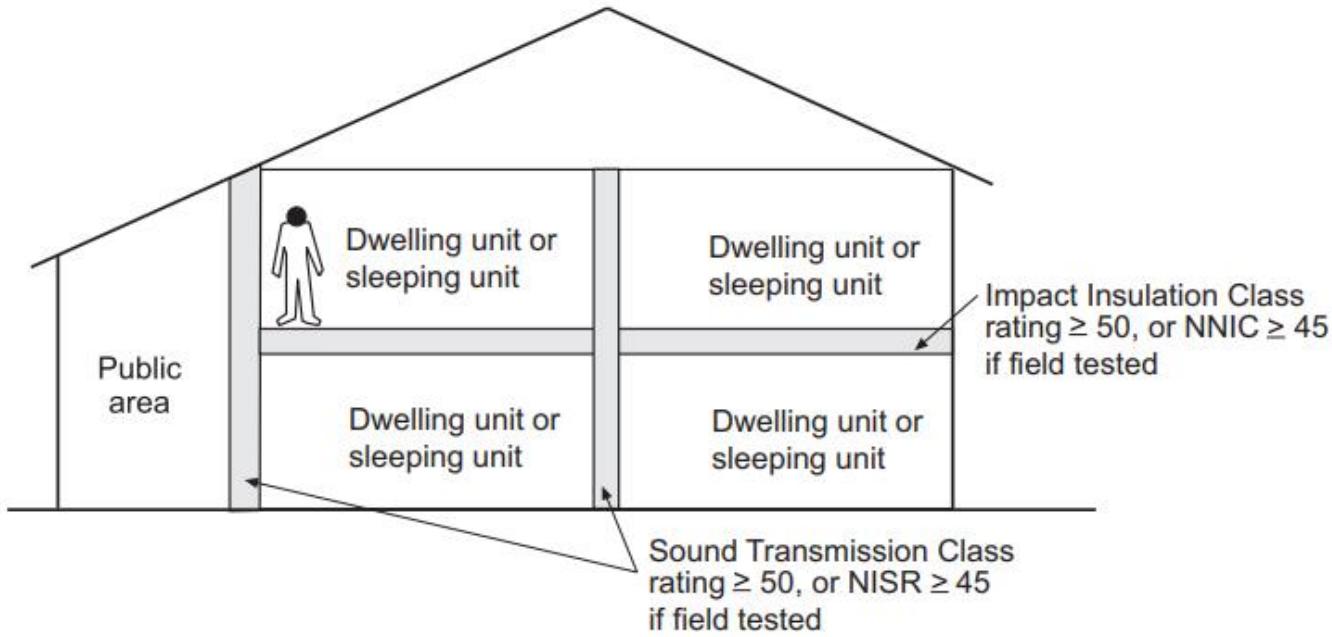
Elevation

For SI: 1 square foot = 0.093 m<sup>2</sup>.

---

Where natural light is used to satisfy the provisions of the IBC, it can be shared by two rooms. The common wall between the rooms must be adequately open, and the total floor area of both rooms shall be used to calculate the minimum glazed area.

Source: 2021 IBC



To maintain the required ratings, it is necessary to seal, line, insulate or otherwise treat penetrations through the sound transmission assemblies. The code exempts unit entrance doors from sound transmission limits, provided that they are tight fitting to the frame and sill.

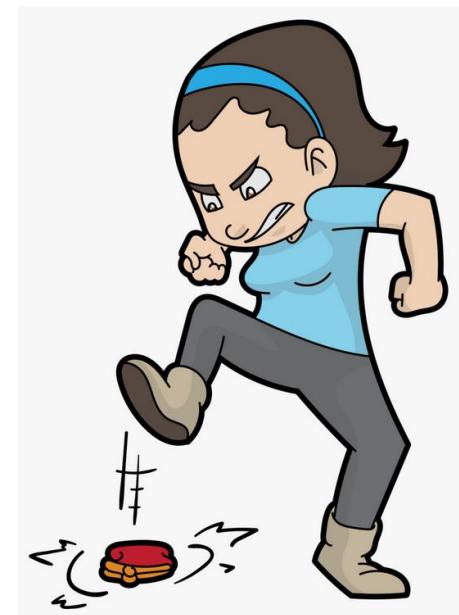
## Two Types of Sound Control Required

STC – Sound Transmission Class

-Measures Airborne Sound (Such as:  
music, talking, laughing, TV, etc.)

IIC – Impact Insulation Class

-Measures Structure-borne Sound  
(Such as: stomping your feet,  
dropping something on the floor,  
moving furniture, etc.)



# Minimum Standard vs. Acceptable or Preferred

From ICC G2-2010 - Guideline for Acoustics

**Table 2: Grades of Laboratory Acoustical Performance**

Laboratory Sound Rating	Acceptable Performance (Grade B Performance)	Preferred Performance (Grade A Performance)
Airborne Sound (STC per ASTM E 90)	55	60
Impact Sound (IIC per ASTM E 492)	55	60

Minimum: 50; Acceptable: 55; Preferred: 60

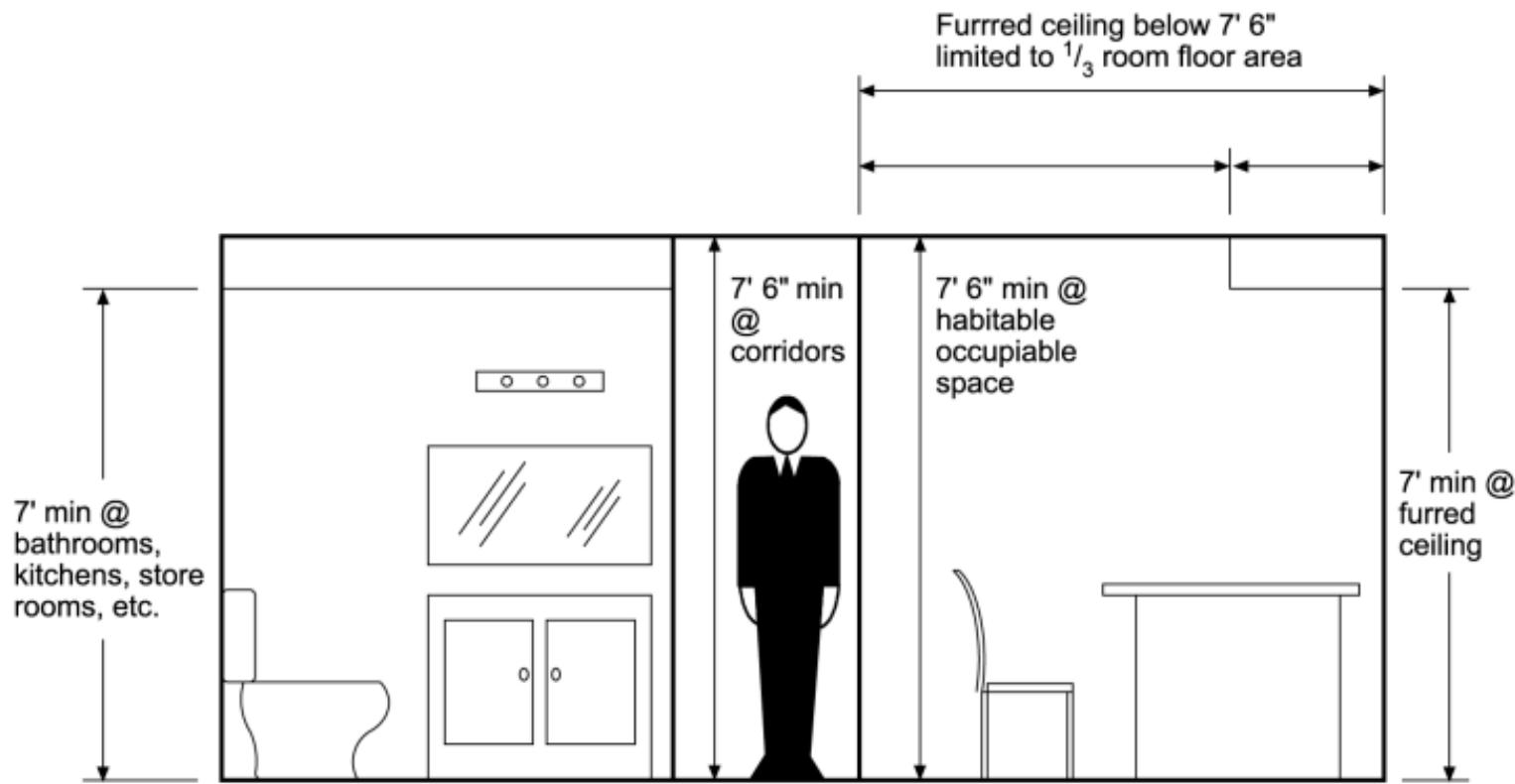
[Presentation - Testing Standards : Airborne Sound Transmission - YouTube](#)

## Example of a Tapping Machine



Tapping machine is set up on the floor above, microphones below to capture the sound transmission.

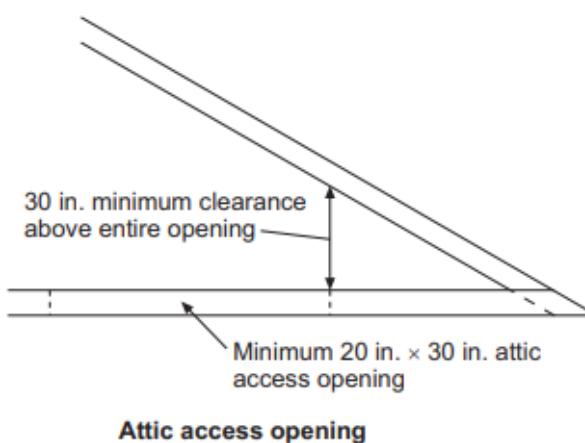
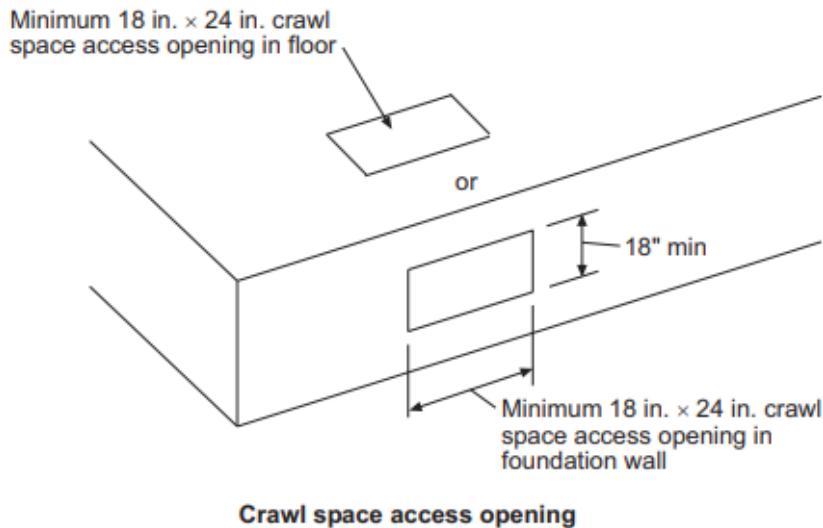
# **Class 12: Chapters 8, 12, 25 and 30—Interior Finishes, Interior Environment, Gypsum Board and Elevators**



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

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Efficiency dwelling units, often referred to as studio apartments, typically consist of a single room used as a combination living/sleeping/dining/cooking area, and a bathroom. The code regulates living room size at a minimum of 190 square feet, and also addresses the closet, bathroom and kitchen spaces.



For SI: 1 inch = 25.4 mm.

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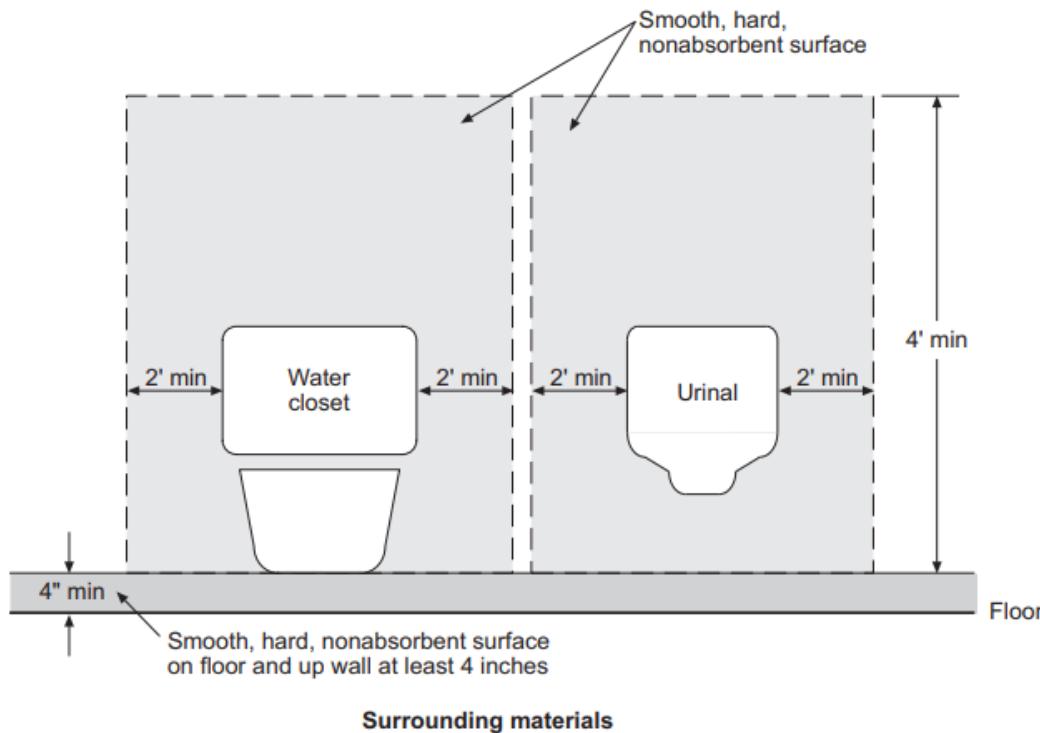
The *International Mechanical Code* regulates access to both underfloor and attic spaces for the inspection, service, repair or replacement of any mechanical equipment. In addition to the access opening, the passageway and service area sizes are also addressed.

**Topic:** Wall and Floor Finishes

**Reference:** IBC 1210

**Category:** Interior Environment

**Subject:** Surrounding Materials



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Shower stalls and compartments must be enclosed with smooth, hard, nonabsorbent surfaces to a minimum height of 72 inches above the drain inlet. This requirement is also applicable to those bathtubs that are provided with shower heads.

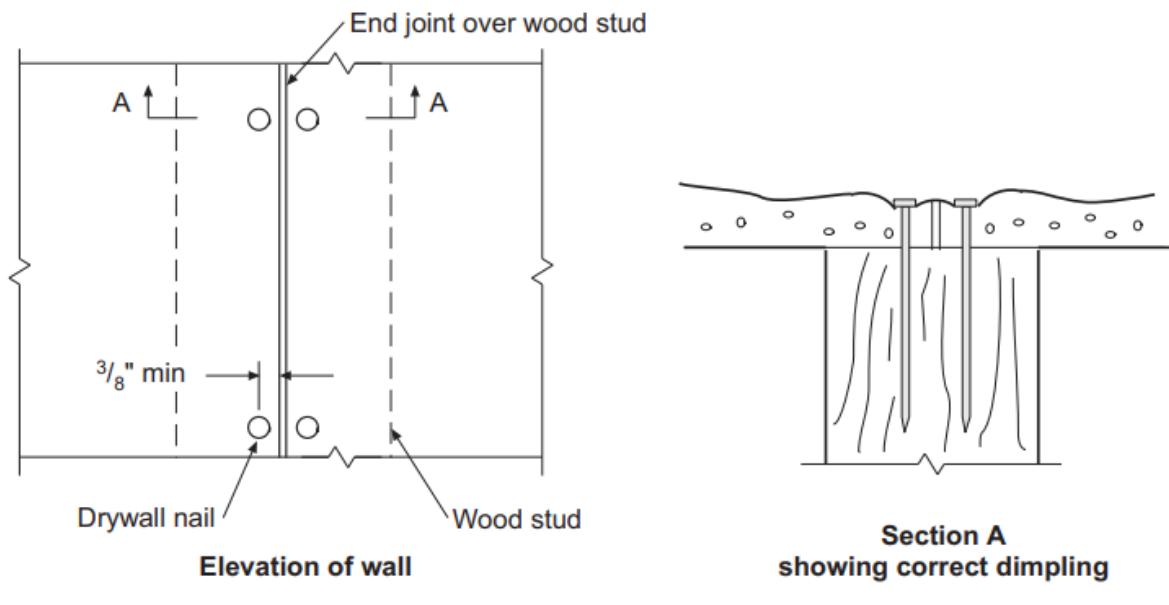
Source: 2021 IBC

**Topic:** Installation

**Reference:** IBC 2508.2, 2508.3

**Category:** Gypsum Board and Plaster

**Subject:** Gypsum Construction



**Gypsum wallboard nailing**

For SI: 1 inch = 25.4 mm.

For appearance purposes in exposed locations, edges and ends of gypsum wallboard and gypsum panel products must be in moderate contact. In concealed areas, such contact is not necessary unless fire-resistance-rated construction, shear resistance or diaphragm action is required.

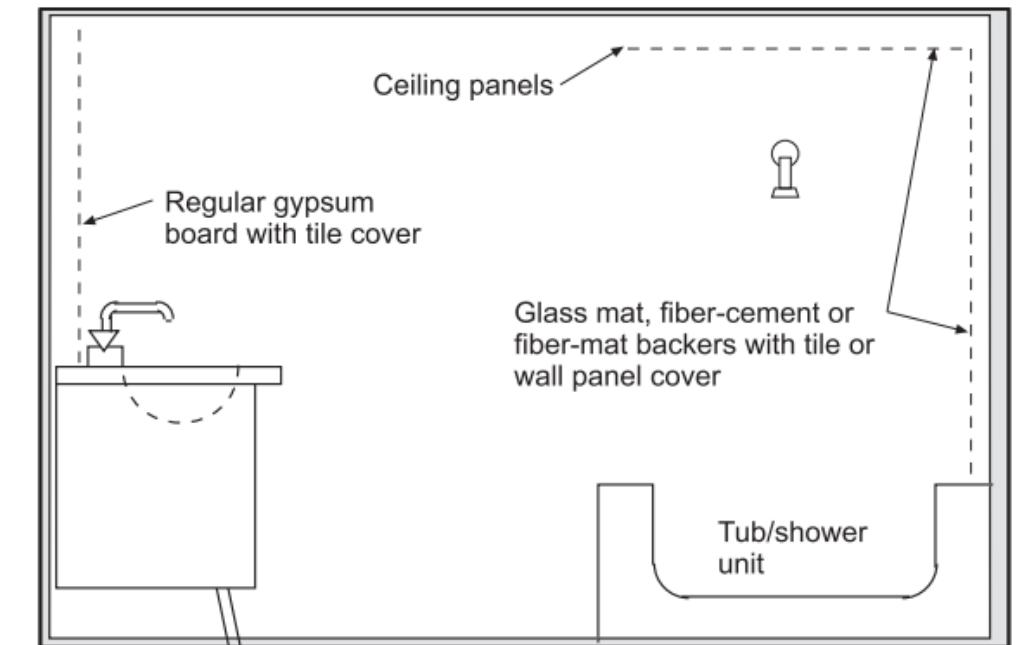
**Topic:** Base for Tile

**Category:** Gypsum Board and Plaster

**Reference:** IBC 2509.2

**Subject:** Gypsum Board in Showers

How To Install Drywall in Your Shower - YouTube



For SI: 1 inch = 25.4 mm.

Water-resistant gypsum backing board is prohibited where either one of two general conditions exist:  
(1) over a vapor retarder in shower or bathtub compartments, or (2) where there will be direct exposure to water or in areas subject to continuous high humidity.

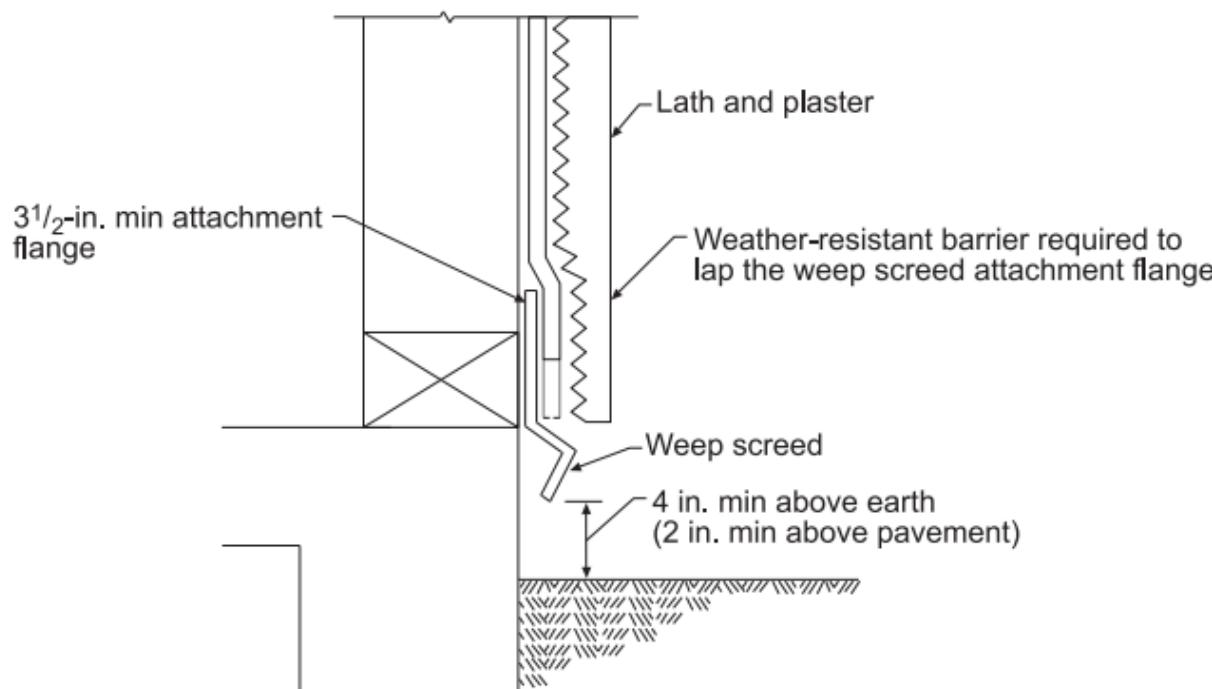
Source: 2021 IBC

**Topic:** Weep Screeds

**Reference:** IBC 2512.1.2

**Category:** Gypsum Board and Plaster

**Subject:** Exterior Plaster



For SI: 1 inch = 25.4 mm.

[AMICO Drain Screead • AMICO Products • Weep Screeds in Stucco \(amicoglobal.com\)](#)

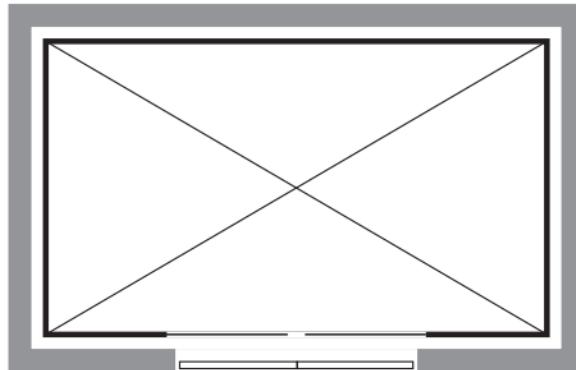
To allow the water to escape away from the building, the required water-resistive barrier in the wall assembly must lap the attachment flange of the weep screed. In addition, the exterior lath shall cover and terminate on the attachment flange.

**Topic:** Protection

**Reference:** IBC 3002.1, 3002.6

**Category:** Elevators and Conveying Systems

**Subject:** Hoistways Enclosures



Number of stories connected

Four or more

Three or less

Minimum rating of elevator enclosure

2 hours

1 hour

Dennis W. Olson, C.E.I. | Elevator & Escalator Expert  
(robsonforensic.com)

In many buildings, an elevator lobby is provided adjacent to the elevator. To help ensure that an individual does not become trapped within such a lobby, the lobby door must be openable without the use of a key.

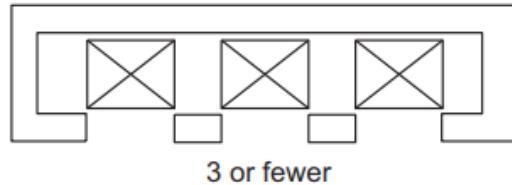
Source: 2021 IBC

**Topic:** Number of Cars in Hoistway

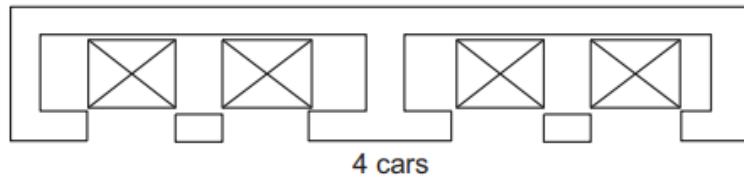
**Reference:** IBC 3002.2, 3002.7

**Category:** Elevators and Conveying Systems

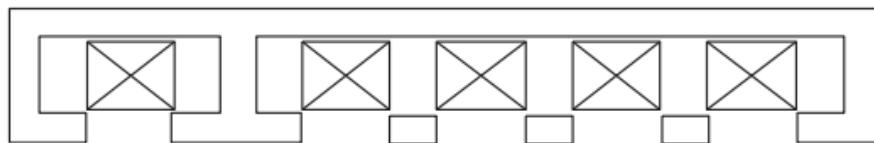
**Subject:** Hoistway Enclosures



3 or fewer



4 cars



5 or more

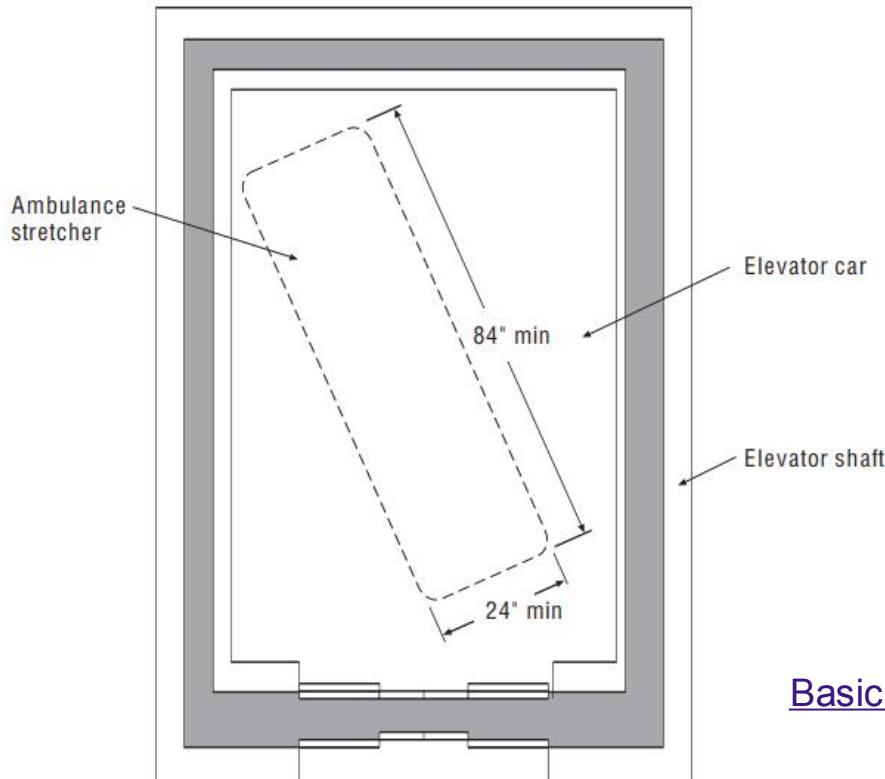
Other than for those elevators that are a part of an accessible means of egress or used for occupant self-evacuation in accordance with Section 3008, an approved pictorial sign must be provided adjacent to each elevator call station on all floors.

**Topic:** Fire Department Emergency Access

**Reference:** IBC 3002.4

**Category:** Elevators and Conveying Systems

**Subject:** Hoistway Enclosures



Elevator used for fire department emergency access

For SI: 1 inch = 24.5 mm.

The elevator car sized in a manner to accommodate the required size ambulance stretcher must be identified by the international symbol for emergency medical services (star of life). The symbol is required to be a minimum of 3 inches in height and is to be placed on both sides of the hoistway door frame.

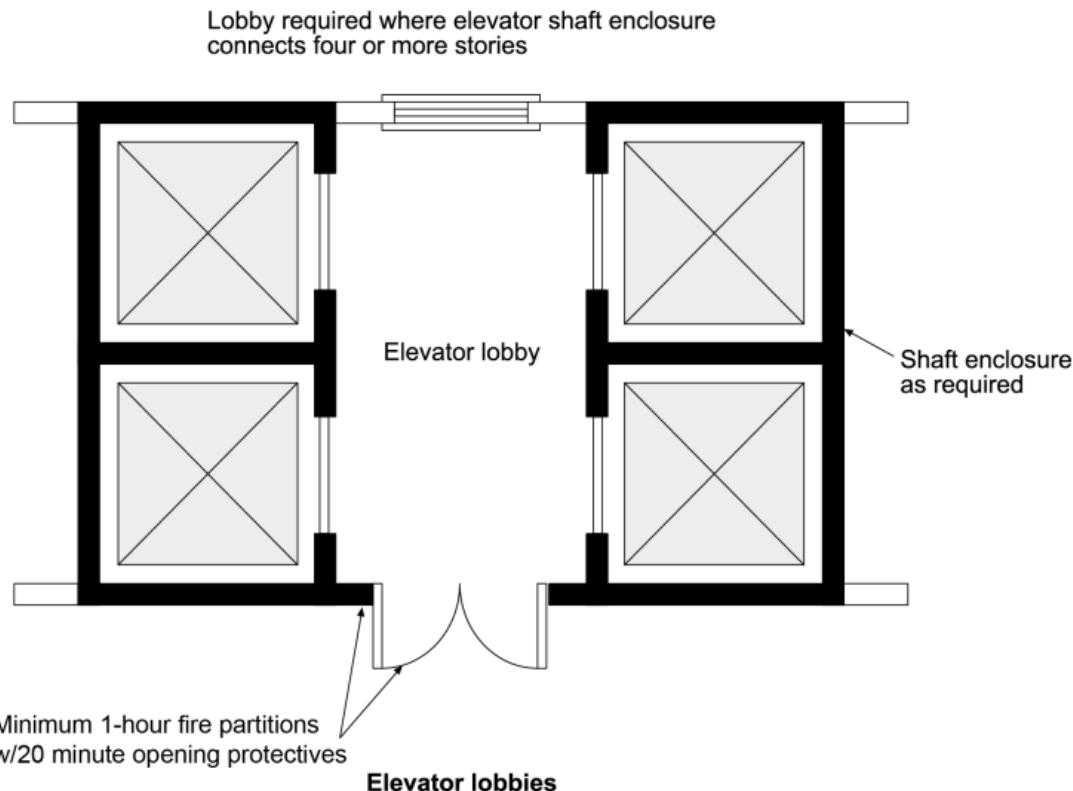
[Basic Elevator Rescue - YouTube](#)

**Topic:** Hoistway Opening Protection

**Category:** Elevators and Conveying Systems

**Reference:** IBC 3006.2

**Subject:** Elevator Lobbies

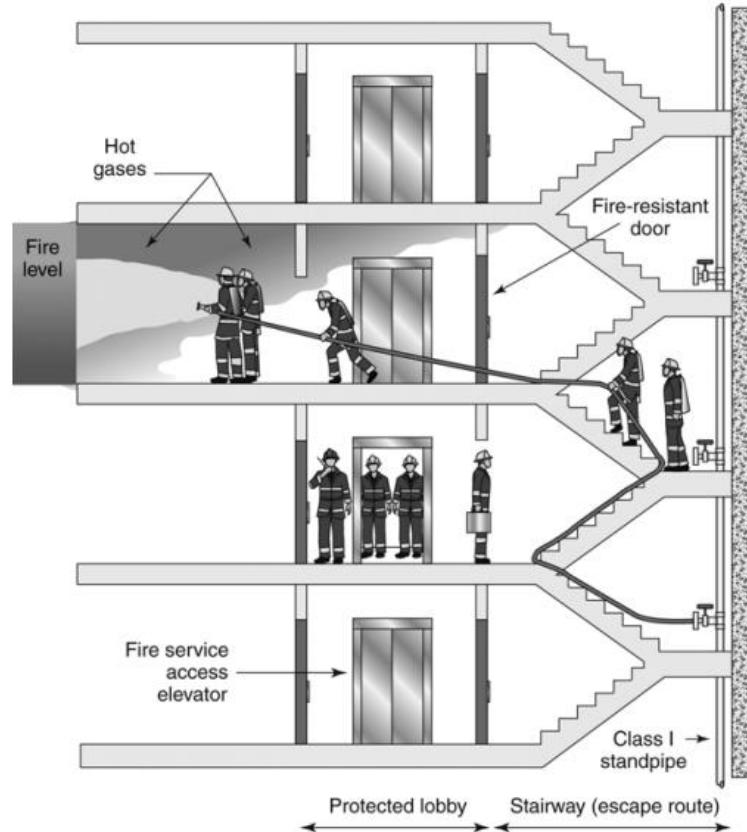


In those cases where a fire-resistance-rated corridor is required by Section 1020.2 and an elevator hoistway opening opens directly into the corridor, the opening must be protected by either an elevator lobby, an additional door or hoistway pressurization.

Source: 2021 IBC

**Topic:** General Provisions  
**Reference:** IBC 3007

**Category:** Elevators and Conveying Systems  
**Subject:** Fire Service Access Elevator



[Basic Elevator Rescue - YouTube](#)

Another specific type of elevator, an "occupant evacuation" elevator, is also addressed in Chapter 30. Public-use passenger elevators are specifically allowed to be used for the self-evacuation of occupants in high-rise buildings. The installation of such elevators is voluntary; however, they can be installed as an alternative to the additional exit stairway mandated by Section 403.5.2.

Source: 2021 IBC

# **Class 13: Chapters 11 Accessibility**

Source: 2021 IBC

# Objective

- To become familiar with the scoping provisions relating to the design and construction of accessible buildings, facilities and elements.

[AC 006 - ADA vs Bldg Code](#)  
[Accessibility - YouTube](#)

**Topic:** Scope

**Reference:** IBC 1101.1, 1102.1

**Category:** Accessibility

**Subject:** General Provisions

---

**Code Text:** *The provisions of Chapter 11 shall control the design and construction of facilities for accessibility for individuals with disabilities. Buildings and facilities shall be designed and constructed to be accessible in accordance with the IBC and ICC A117.1.*

**Discussion and Commentary:** Chapter 11 of the *International Building Code* sets forth the scoping provisions that identify where and to what degree access must be provided. Once it has been determined that accessible elements are required, the ICC design standard *Accessible and Usable Buildings and Facilities* sets forth the specific technical criteria. As with any other provision of the code, alternative designs, products or technologies that provide equivalent or superior compliance may be accepted by the building official.

[AC 020 - The Best Video on Accessibility Requirements for Restrooms - CALIFORNIA EDITION!!! - YouTube](#)

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**Topic:** Where Required

**Reference:** IBC 1103

**Category:** Accessibility

**Subject:** Scoping Requirements

---

**Code Text:** *Sites, buildings, structures, facilities, elements and spaces, temporary or permanent, shall be accessible to individuals with disabilities.* See the fourteen general exceptions.

**Discussion and Commentary:** In general, all portions of all buildings are to be provided with elements that will make them fully accessible to individuals with disabilities. There are, however, a number of general exceptions that reduce or eliminate accessibility requirements. Specific areas that are not required to be accessible include: individual employee work areas; detached dwellings and their accessory structures; construction sites; raised security or safety areas, such as observation galleries or fire towers; nonoccupiable spaces and equipment spaces, including elevator pits and transformer vaults; and single-occupant structures accessed at other than grade, such as toll booths.

**Topic:** Where Required**Reference:** IBC 1103**Category:** Accessibility**Subject:** Scoping Requirements

---

**Specific requirements.** Where not required per Sections 1104 through 1111.

**Employee work areas.** Need only comply with fire alarm, accessible means of egress and common use circulation path provisions. Must be able to approach, enter and exit the work area (small raised work areas totally exempted).

**Detached dwellings.** Detached one- and two-family dwellings and accessory structures, and their associated sites and facilities.

**Utility buildings.** Group U are exempt except:

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.
2. Private garages or carports that contain required accessible parking.

**Construction sites.** Structures, sites and equipment directly associated with the actual processes of construction.

**Raised areas.** Raised areas used primarily for purpose of security, life safety or fire safety.

**Limited access spaces.** Nonoccupiable spaces accessed only by ladders, catwalks, crawl spaces, freight elevators, very narrow passageways or tunnels.

**Areas in places of religious worship.** Raised or lowered areas in places of religious worship of limited size where used primarily for the performance of religious ceremonies.

**Equipment spaces.** Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.

**Highway toll booths.** Where accessed only by passageways below grade or elevated above grade.

**Residential Group R-1.** Buildings of Group R-1 containing not more than five sleeping units for rent or hire which are also occupied as the residence of the proprietor.

**Day care facilities.** Where part of a dwelling unit.

**Detention and correctional facilities.** Common use areas not serving accessible cells.

**Walk-in coolers and freezers.** Cooler and freezer equipment accessed only from employee work areas.

---

Other than those residential occupancies exempt from the accessibility provisions, most buildings will require some level of accessibility. Only those specific areas identified by the code are exempt, whereas the remainder of the structure is regulated for complying accessibility and usability.

---

**Topic:** Connected Spaces

**Reference:** IBC 1104.3

**Category:** Accessibility

**Subject:** Accessible Route

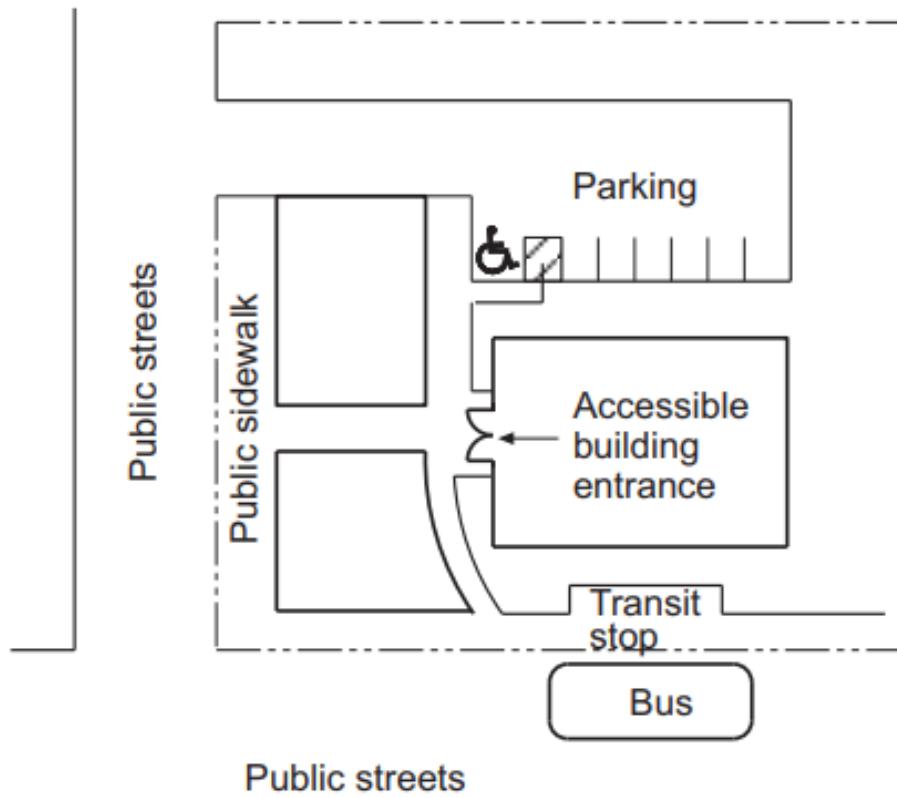
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**Code Text:** *When a building or portion of a building is required to be accessible, at least one accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and the public way.* See the exceptions for (1) stories and mezzanines exempted by Section 1104.4, (2) fixed-seating assembly areas, (3) elevated work stations within a courtroom and (4) recreational facilities.

**Discussion and Commentary:** An accessible route is defined as a continuous, unobstructed path that complies with Chapter 11. It potentially includes corridors, aisles, ramps, elevators, platform (wheelchair) lifts and clear floor space at fixtures. The general requirement for the connection of accessible spaces is modified for common use circulation paths within employee work areas and for access to press boxes. Chapter 4 of ICC A117.1 addresses the design and construction specifications for the elements of an accessible route.

**Topic:** Connected Spaces  
**Reference:** IBC 1104.3

**Category:** Accessibility  
**Subject:** Accessible Route



Site arrival points and exterior elements on the site must also be provided with an accessible route to an accessible building entrance. The elements addressed may include public transportation stops, accessible passenger loading zones and accessible parking spaces.

---

**Topic:** Multilevel Buildings

**Category:** Accessibility

**Reference:** IBC 1104.4

**Subject:** Accessible Route

---

**Code Text:** *At least one accessible route shall connect each accessible story, mezzanine and occupied roofs in multilevel buildings and facilities.* See the exceptions for specific occupancies with small floor areas, areas without accessible elements, air traffic control towers and two-story buildings with a small occupant load on one story.

**Discussion and Commentary:** Access must be provided both horizontally and vertically throughout a building. Under most conditions, multilevel facilities will contain an accessible elevator to extend an accessible route to the other levels. Ramps also can be used where the elevation change is not excessive. In some occupancies, an accessible route is not required for levels above or below an accessible level, provided that the aggregate size of the inaccessible levels does not exceed 3,000 square feet. It has been determined that it is not feasible to require elevator service for such small spaces.

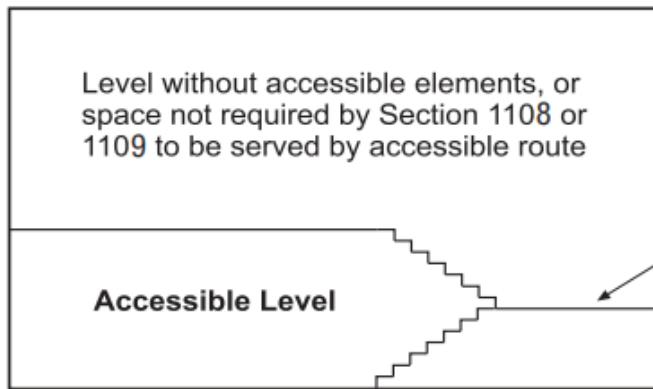
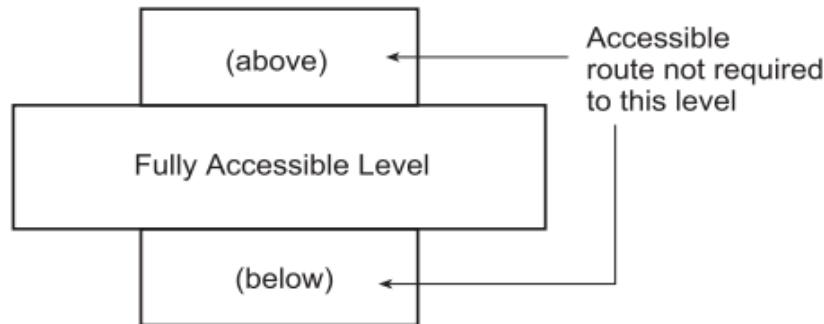
[AC 007 - UPDATED!!! - ADA Size and Clearance Requirements for Doors - YouTube](#)

**Topic:** Multilevel Buildings  
**Reference:** IBC 1104.4

**Category:** Accessibility  
**Subject:** Accessible Route

**Exception 1:**

Accessible route not required to floors above and below if aggregate area  $\leq 3,000$  sq ft and does not contain offices of health care providers, passenger transportation facilities and airports, or multiple tenant ( $\geq 5$ ) facilities of Group M. Also not applicable to government buildings and structures with  $\geq 4$  dwelling units.



**Exception 2:**

Levels that do not contain accessible elements or other spaces as determined by Section 1108 or 1109 need not be served by an accessible route from an accessible level.

Accessible route between levels is not required per Section 1108 or 1109.

Where a multilevel building is provided with an interior circulation path between levels, the required accessible route must also be interior. In such situations, it is inappropriate to use an exterior route, such as a series of ramps, as the only accessible means between floor levels.

---

**Topic:** Where Required  
**Reference:** IBC 1105.1

**Category:** Accessibility  
**Subject:** Accessible Entrances

---

**Code Text:** *In addition to accessible entrances required by Sections 1105.1.1 through 1105.1.8 (parking garage entrances, entrances from tunnels or elevated walkways, restricted entrances, entrances for inmates or detainees, service entrances and entrances to tenant spaces, dwelling units and sleeping units), at least 60 percent of all public entrances shall be accessible.* See the exceptions for entrances to areas not required to be accessible and loading/service entrances that are not the only tenant space entrance.

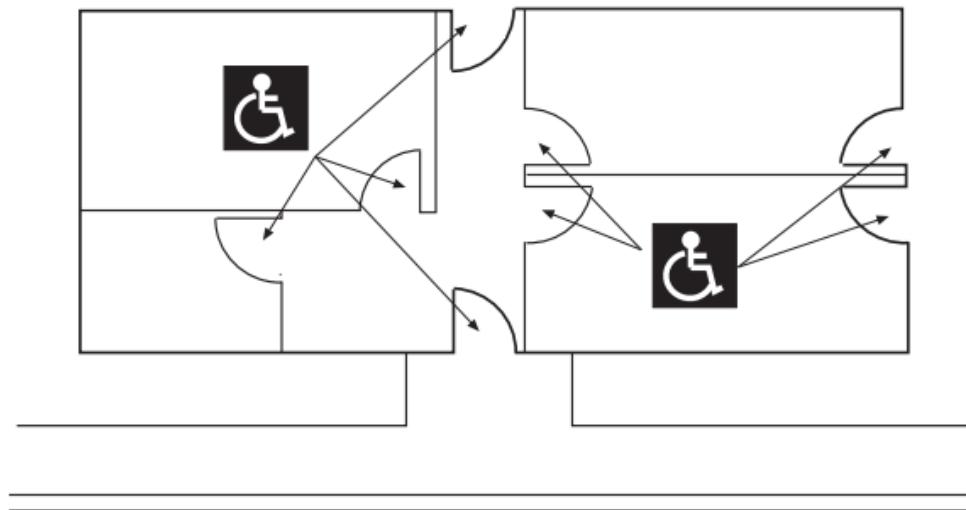
**Discussion and Commentary:** To provide accessibility to all buildings and tenant spaces, a minimum of one accessible entrance is required. Where additional entrances are provided, often for convenience purposes, at least 60 percent of the total number of entrances must be accessible. Elements to be considered at entrances include the slope of exterior surfaces, door hardware and clear floor space for maneuvering clearances.

**Topic:** Where Required

**Reference:** IBC 1105.1

**Category:** Accessibility

**Subject:** Accessible Entrances



When a building has entrances that normally serve accessible parking facilities, passenger loading zones, public sidewalks and other site elements, then at least one of the entrances serving each of the functions shall comply with the accessible route provisions.

---

**Topic:** General Provisions  
**Reference:** IBC 1106

**Category:** Accessibility  
**Subject:** Parking Facilities

---

**Code Text:** *Where parking is provided, accessible parking spaces shall be provided in compliance with Table 1106.2 except as required by Sections 1106.3 (Groups R-2 and R-3), 1106.4, (hospital outpatient facilities) and 1106.5 (rehabilitation facilities). For every six or fraction of six accessible parking spaces, at least one shall be a van-accessible parking space. See the exception for private garages serving Groups R-2 and R-3. Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance.*

**Discussion and Commentary:** The number of required accessible parking spaces is based on the total number of spaces in the lot or garage. In hospital outpatient facilities where it is anticipated that more accessible spaces will be needed, at least one in ten parking spaces must be accessible. All accessible parking spaces shall be located as close as possible to an accessible building entrance to reduce the distance of travel for those individuals with mobility limitations.

**Topic:** General Provisions  
**Reference:** IBC 1106

**Category:** Accessibility  
**Subject:** Parking Facilities

Where parking is provided, accessible parking spaces shall be provided in compliance with Table 1106.2.

**Exceptions:**

1. Where Group R-2, R-3 and R-4 occupancies are required to have accessible dwelling units, 2% of the parking spaces shall be accessible. (Sec. 1106.3)
2. Where parking is provided within or beneath a building, accessible parking spaces shall also be provided within or beneath the building.
3. Where care recipient and visitor parking spaces serve hospital outpatient facilities, 10% of the spaces shall be accessible. (Sec. 1106.4)
4. At rehabilitation facilities and outpatient physical therapy facilities, 20% of care recipient and visitor parking spaces shall be accessible.

**TABLE 1106.2**  
**ACCESSIBLE PARKING SPACES**

TOTAL PARKING SPACES PROVIDED IN PARKING FACILITIES	REQUIRED MINIMUM NUMBER OF ACCESSIBLE SPACES
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2% of total
1,001 and over	20, plus one for each 100, or fraction thereof, over 1,000

Every parking facility with at least one accessible parking space must provide for accessible van parking. Based on a percentage of the total number of accessible spaces, the van space or spaces must have a vertical clearance of at least 98 inches and a minimum 8-foot access aisle.

---

**Topic:** Group I Occupancies

**Category:** Accessibility

**Reference:** IBC 1108.5

**Subject:** Dwelling Units and Sleeping Units

---

**Code Text:** *In Group I-1, Condition 1, at least 4 percent, but not less than one, of the dwelling units and sleeping units shall be Accessible units. In Group I-1, Condition 2, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be Accessible units. In nursing homes of Group I-2 occupancies, at least 50 percent but not less than one of each type of the dwelling units and sleeping units shall be Accessible units. In general-purpose hospitals, psychiatric facilities, detoxification facilities and residential care/assisted living facilities of Group I-2 occupancies, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be Accessible units. In hospitals and rehabilitation facilities of Group I-2 occupancies which specialize in treating conditions that affect mobility, or units within either which specialize in treating conditions that affect mobility, 100 percent of the dwelling and sleeping units shall be Accessible units. In Group I-3 occupancies, at least 3 percent of the total number of sleeping units in the facility, but not less than one unit in each classification, shall be Accessible units.*

**Discussion and Commentary:** In Groups I-1, I-2 and I-3, a percentage of dwelling and sleeping units must be Accessible units as regulated by Section 1102 of ICC A117.1. The percentage of required Accessible units varies based on the anticipated need for such units because of the specifics of the institutional use.

[AC 035 - "Accessible Units", "Type A Units" & "Type B Units". - YouTube](#)

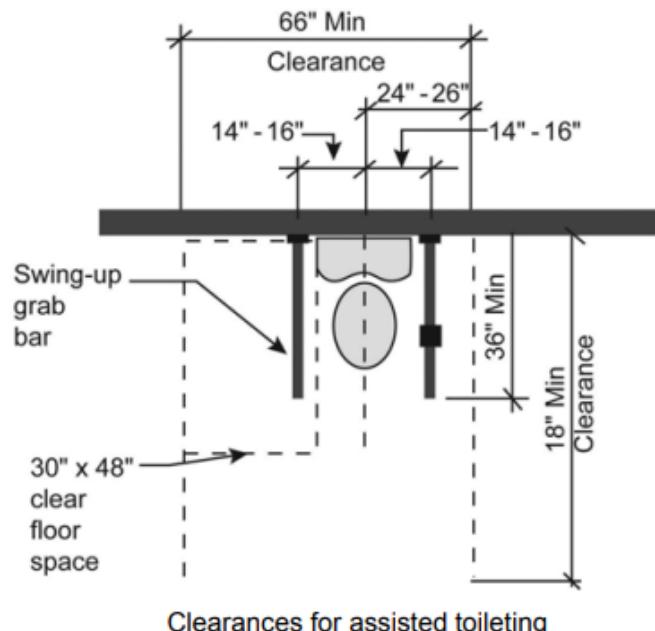
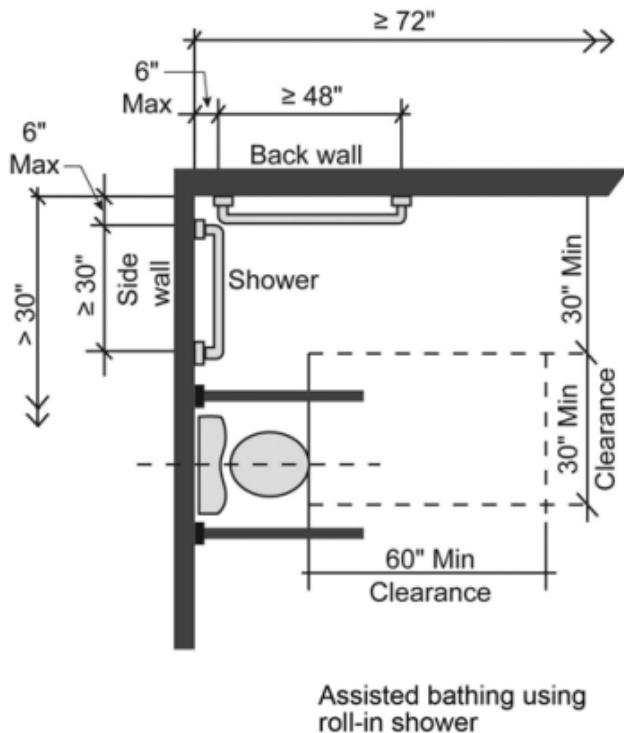
Source: 2021 IBC

**Topic:** Group I Occupancies

**Reference:** IBC 1108.5

**Category:** Accessibility

**Subject:** Dwelling Units and Sleeping Units



Allowances for assisted toileting and bathing are established to accommodate occupants residing in accessible housing units in Group I-1 and I-2 assisted living facilities, nursing homes and rehabilitation facilities.

Source: 2021 IBC

---

**Topic:** Group R Occupancies

**Category:** Accessibility

**Reference:** IBC 1108.6

**Subject:** Dwelling Units and Sleeping Units

---

**Code Text:** In Group R-1 occupancies, *Accessible dwelling units and sleeping units shall be provided in accordance with Table 1108.6.1.1.* In Group R-2 occupancies (limited to apartment houses, monasteries and convents) *containing more than 20 dwelling units or sleeping units, at least 2 percent but not less than one of the units shall be a Type A unit. Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling and sleeping unit intended to be occupied as a residence shall be a Type B unit.* See the general exceptions in Section 1108.7.

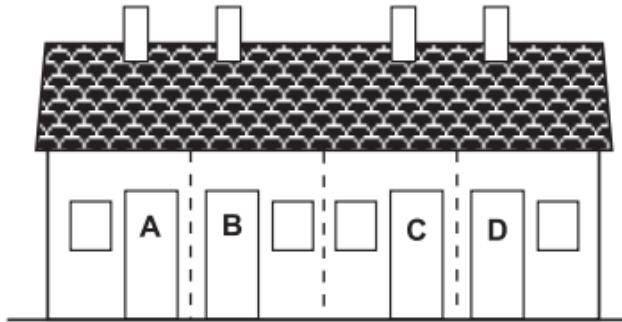
**Discussion and Commentary:** Accessible, Type A and Type B dwelling units and sleeping units are defined in IBC Section 202 and described in Chapter 10 of ICC A117.1. Accessible units are generally regarded as fully accessible. Type A units provide a considerable degree of accessibility, whereas Type B units are only required to have specific accessible elements. A dwelling unit designed and constructed as a Type B unit is intended to comply with the technical requirements for Fair Housing required by federal law.

**Topic:** Group R Occupancies

**Reference:** IBC 1108.6

**Category:** Accessibility

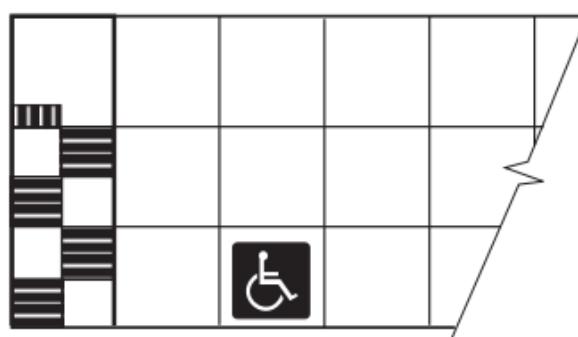
**Subject:** Dwelling Units and Sleeping Units



In R-2 and R-3 occupancies where there are  $\geq 4$  dwelling units in a single structure, every unit shall be a Type B dwelling unit. (Type A units may be substituted for Type B.)

In R-2 occupancies containing  $> 20$  dwelling units, at least 2 percent but not less than 1 shall be a Type A dwelling unit.

The general exceptions of Section 1108.7 selectively permit the required number of Type A units and Type B units to be reduced.



Where Group R-2 and R-3 occupancies contain public or common-use areas, such areas must be accessible if they serve accessible dwelling units. Any recreational facilities serving these occupancies must also be accessible to a limited degree.

---

**Topic:** Assembly Area Seating  
**Reference:** IBC 1109.2

**Category:** Accessibility  
**Subject:** Special Occupancies

---

**Code Text:** *In rooms and spaces used for assembly purposes with fixed seating, accessible wheelchair spaces complying with ICC A117.1 shall be provided in accordance with Sections 1109.2.2.1 through 1109.2.2.3. Wheelchair spaces shall be provided in accordance with Table 1109.2.2.1. In multilevel assembly seating areas, wheelchair spaces shall be provided on the main floor level and on one of each two additional floor or mezzanine levels. See the two exceptions where all wheelchair spaces may be located on the main level.*

**Discussion and Commentary:** The unique features of assembly occupancies dictate special accessibility features. In addition to the requirements for wheelchair spaces and assistive listening devices, the code requires accessible seating throughout all dining areas. Specific provisions address fixed seating at booths and tables, as well as at counters.

**Topic:** Assembly Area Seating

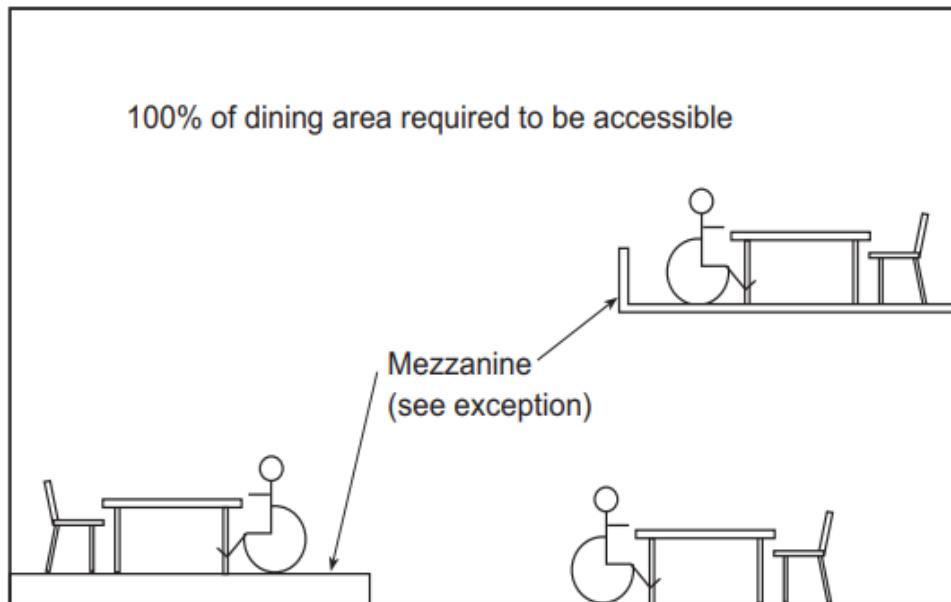
**Category:** Accessibility

**Reference:** IBC 1109.2

**Subject:** Special Occupancies

In dining areas, the total floor area allotted for seating and tables shall be accessible.

**Exception:** An accessible route to a mezzanine seating area is not required, provided that the mezzanine contains less than 25 percent of the total area and the same services are provided in the accessible area.



Under limited conditions, a dining area may have a mezzanine level that is not served by an accessible route. The mezzanine must be limited in size to 25 percent of the total floor area, and the services provided on the mezzanine must be available on the accessible level.

---

**Topic:** Assistive Listening Systems

**Reference:** IBC 1109.2.7

**Category:** Accessibility

**Subject:** Special Occupancies

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**Code Text:** *Each building, room or space used for assembly purposes where audible communications are integral to the use of the space shall have an assistive listening system.* See the exception for spaces, other than courtrooms, where no audio amplification system is installed. *The number and type of receivers shall be provided for assistive listening systems in accordance with Table 1109.2.7.1.* See the exceptions for (1) buildings with multiple assembly areas, and (2) assembly areas where all seats are served by an induction loop system.

**Discussion and Commentary:** These provisions are intended to accommodate people with a hearing impairment. In these assembly areas, audible communication is often integral to the use and full enjoyment of the space. This requirement offers the possibility for individuals with hearing impairments to attend functions in these facilities without having to give advance notice and without disrupting the event in order to have a portable assistive listening system set up and made ready for use.

[What Are Assistive Listening Systems? - YouTube](#)

**Topic:** Assistive Listening Systems  
**Reference:** IBC 1109.2.7

**Category:** Accessibility  
**Subject:** Special Occupancies



International symbol of access for hearing loss

**TABLE 1109.2.7.1**  
**RECEIVERS FOR ASSISTIVE LISTENING SYSTEMS**

CAPACITY OF SEATING IN ASSEMBLY AREAS	MINIMUM REQUIRED NUMBER OF RECEIVERS	MINIMUM NUMBER OF RECEIVERS TO BE HEARING-AID COMPATIBLE
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats*	2
201 to 500	2, plus 1 per 25 seats over 50 seats*	1 per 4 receivers*
501 to 1,000	20, plus 1 per 33 seats over 500 seats*	1 per 4 receivers*
1,001 to 2,000	35, plus 1 per 50 seats over 1,000 seats*	1 per 4 receivers*
Over 2,000	55, plus 1 per 100 seats over 2,000 seats*	1 per 4 receivers*

**Note:** \* = or fraction thereof

There are four primary types of listening systems available: induction loop, FM, sound field and infrared. Each type of system has certain advantages and disadvantages that should be taken into consideration when choosing the system that is most appropriate for the intended application.

: 2021 IBC

**Topic:** General Provisions  
**Reference:** IBC 1110

**Category:** Accessibility  
**Subject:** Features and Facilities

**Code Text:** *Accessible building features and facilities shall be provided in accordance with Sections 1110.2 through 1110.16.* See the exception for Type A and Type B dwelling and sleeping units.

**Discussion and Commentary:** Where elements such as sinks, drinking fountains, storage lockers, fitting rooms and check-out aisles are provided, a portion, but not less than one of each type of element, must be accessible. In general, all toilet rooms must be accessible. Within each toilet room, at least one water closet and lavatory must be accessible. When other elements are provided, such as mirrors and towel fixtures, at least one must be accessible. Operating mechanisms intended for occupant operation, such as light switches and convenience outlets, must also be usable by persons with physical disabilities.

---

**Topic:** General Provisions

**Category:** Accessibility

**Reference:** IBC 1110

**Subject:** Features and Facilities

---

**In other than Type A and Type B dwelling units, accessible building features and facilities shall be provided as required in Section 1110. This includes:**

- Toilet and bathing facilities
- Sinks
- Kitchens and kitchenettes
- Drinking fountains
- Bottle-filling stations
- Saunas and steam rooms
- Elevators
- Lifts
- Storage
- Detectable warnings
- Seating at tables, counters and work surfaces
- Service facilities
- Controls, operating mechanisms and hardware
- Fuel-dispensing systems
- Gaming machines and gaming tables

---

Certain elements addressed in ICC A117.1, including telephones and automatic teller machines, have not been included in the scoping provisions of Chapter 11. However, scoping requirements for such features are set forth in Appendix E of the IBC.

Source: 2021 IBC

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**Topic:** Toilet and Bathing Facilities

**Category:** Accessibility

**Reference:** IBC 1110.2

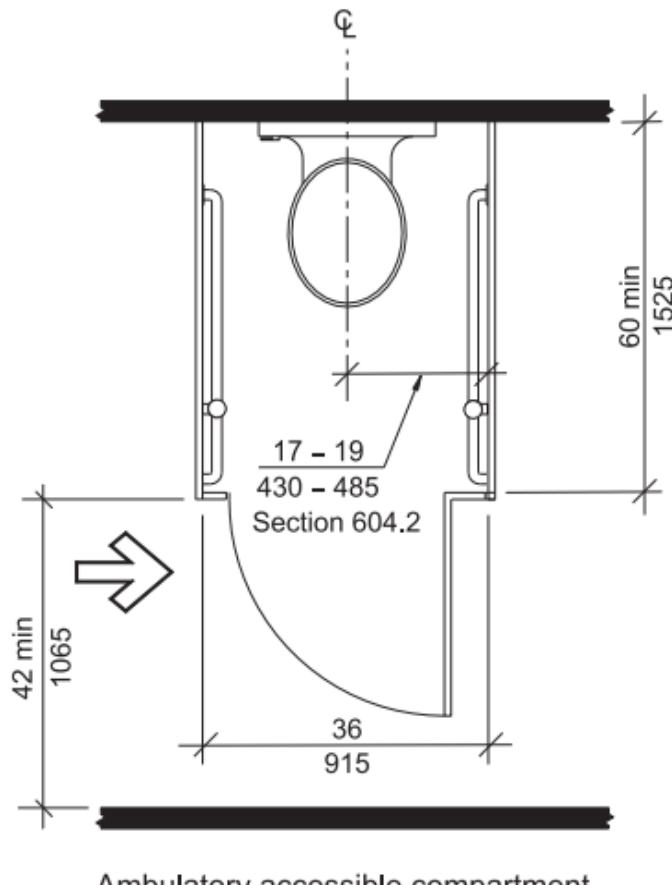
**Subject:** Features and Facilities

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**Code Text:** *Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1110.2.4 through 1110.2.5, at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.* See the exceptions for toilet rooms and bathing rooms (1) accessed through a private office and intended for use by a single occupant, (2) that serve a dwelling unit or sleeping unit not required to be accessible, (3) clustered in a single location, (4) part of critical care or intensive care patient sleeping rooms, (5) designed for bariatrics patients, and (6) primarily for children's use. An additional exception provides that where only one urinal is provided in a toilet room or bathing facility, it need not be accessible. Two exceptions also address allowances for water closets designed for assisted toileting and showers designed for assisted bathing.

**Discussion and Commentary:** As a general rule, all toilet rooms and bathing facilities must provide for accessibility. There are limited conditions under which some facilities need not be made accessible.

[Accessible Bathing Facilities - YouTube](#)



In those toilet rooms and bathing facilities where water closet compartments are provided, a minimum of 5 percent of the compartments must be wheelchair-accessible. If the total number of water closet compartments and urinals provided is six or more, a minimum of 5 percent of compartments must also be ambulatory-accessible water closet compartments.

---

**Topic:** Family or Assisted-Use Toilet Rooms **Category:** Accessibility

**Reference:** IBC 1110.2.1

**Subject:** Features and Facilities

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**Code Text:** *In assembly and mercantile occupancies, an accessible family or assisted-use toilet room shall be provided where an aggregate of six or more male and female water closets is required. In recreational facilities where separate-sex bathing rooms are provided, an accessible family or assisted-use bathing room shall be provided. See the exception for single-fixture bathing rooms. Fixtures located within family or assisted-use toilet and bathing rooms shall be included in determining the number of fixtures provided in an occupancy.*

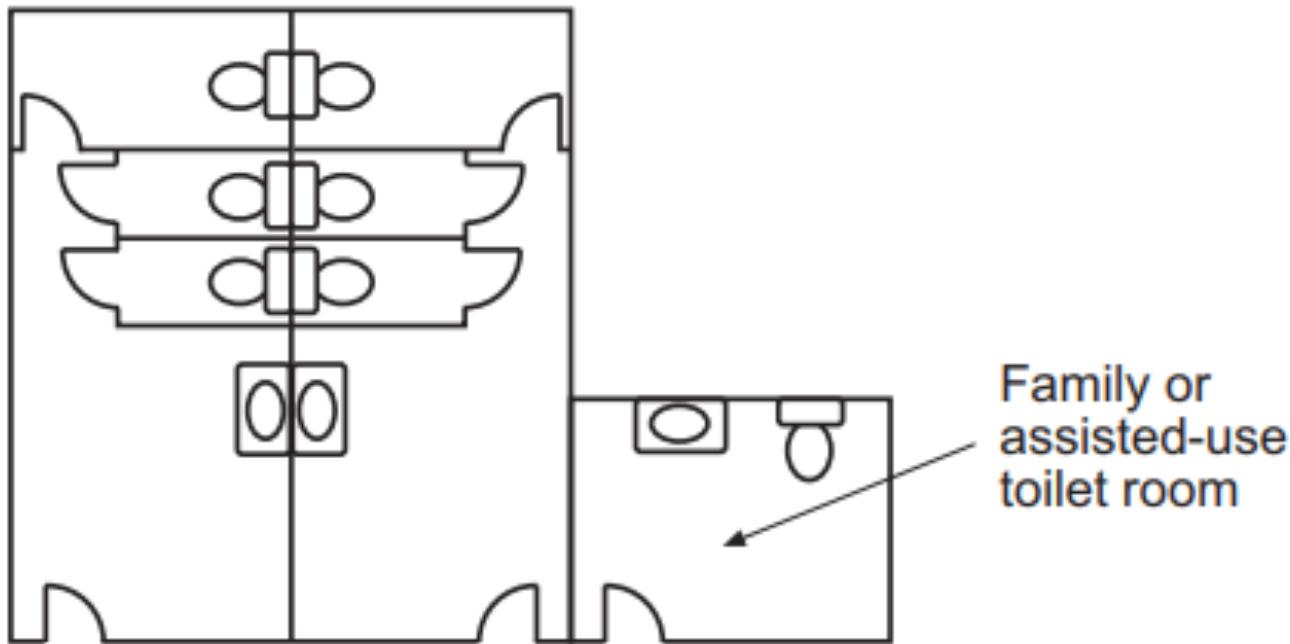
**Discussion and Commentary:** The primary issue relative to family or assisted-use toilet/bathing facilities is that some people with disabilities require assistance to utilize them. If the attendant is of the opposite sex, a facility that can accommodate both persons is required. The provisions are applicable only to those types of transient uses where it is expected such facilities are frequently required.

**Topic:** Family or Assisted-Use Toilet Rooms

**Category:** Accessibility

**Reference:** IBC 1110.2.1

**Subject:** Features and Facilities



Applicable only to assembly and mercantile occupancies

Family or assisted-use toilet rooms shall include only one water closet and one lavatory. A urinal is also permitted but not required. Doors to family or assisted-use toilet and bathing rooms must be securable from within the room.

---

**Topic:** Accessible Recreational Features  
**Reference:** IBC 1111

**Category:** Accessibility  
**Subject:** Recreation Facilities

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**Code Text:** *Recreational facilities shall be provided with accessible features in accordance with Sections 1111.2 through 1111.4.*

**Discussion and Commentary:** Some degree of accessibility and usability is required for a wide variety of recreational facilities. Although full accessibility is typically not required, some degree of access is mandated in order to provide recreational opportunities to a wide spectrum of individuals. Facilities that are specifically addressed include (1) team or player seating; (2) bowling lanes; (3) court sports; (4) raised boxing or wrestling rings; (5) raised refereeing, judging and scoring areas; (6) animal containment areas; (7) amusement rides; (8) recreational boating facilities; (9) exercise machines and equipment; (10) fishing piers and platforms; (11) miniature golf facilities; (12) play areas; (13) swimming pools, wading pools, hot tubs and spas; and (14) shooting facilities with firing positions.

**Topic:** Accessible Recreational Features

**Reference:** IBC 1111

**Category:** Accessibility

**Subject:** Recreation Facilities



Specific provisions are established for recreational facilities that serve residential Group R-2, R-3 and R-4 occupancies. The required number of accessible facilities varies based upon the type of accessible units provided (Accessible, Type A, Type B), as well as the number of residential buildings on the site.

---

**Topic:** Signs

**Reference:** IBC 1112

**Category:** Accessibility

**Subject:** Signage

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**Code Text:** *Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations: (1) accessible parking spaces required by Section 1106.2 except where the total number of parking spaces provided is four or less; (2) accessible parking spaces required by Section 1106.3 (not required where dwelling and sleeping units have assigned spaces); (3) accessible passenger loading zones; (4) accessible toilet or bathing rooms where not all toilet or bathing rooms are accessible; (5) accessible entrances where not all entrances are accessible; (6) accessible check-out aisles where not all aisles are accessible; (7) accessible dressing, fitting, and locker rooms where not all such rooms are accessible; (8) accessible areas of refuge in accordance with Section 1009.9; (9) exterior areas for assisted rescue in accordance with Section 1110.10 and (10) in recreational facilities, lockers that are required to be accessible.*

**Discussion and Commentary:** Those site or building elements that need to be identified as accessible for convenience, clarification or life safety purposes are specified in the code. Special signage is also required for assistive listening capabilities and at every exit stairway door.

[AC 009 - ADA requirements for signage installation - YouTube](#)

**Topic:** Signs

**Reference:** IBC 1112

**Category:** Accessibility

**Subject:** Signage



**International Symbol of Accessibility**

Where building entrances are not accessible, directional signage must be installed indicating the travel route to the nearest accessible entrance. Signs must also be provided at inaccessible public toilets directing occupants to the nearest accessible toilet facilities.

# **2021 IBC Chapter 4**

## **Special Detailed Requirements Based on Use and Occupancy**

**OBJECTIVE:** To obtain an understanding of special building types, features and uses, including covered mall and open mall buildings, high-rise buildings, atriums, underground buildings, storm shelters, motor-vehicle-related occupancies, stages and platforms, concealed combustible storage areas, hazardous materials, dwelling unit and sleeping unit separations, live/work units, ambulatory care facilities, and Group I-2, I-3 and H occupancies.

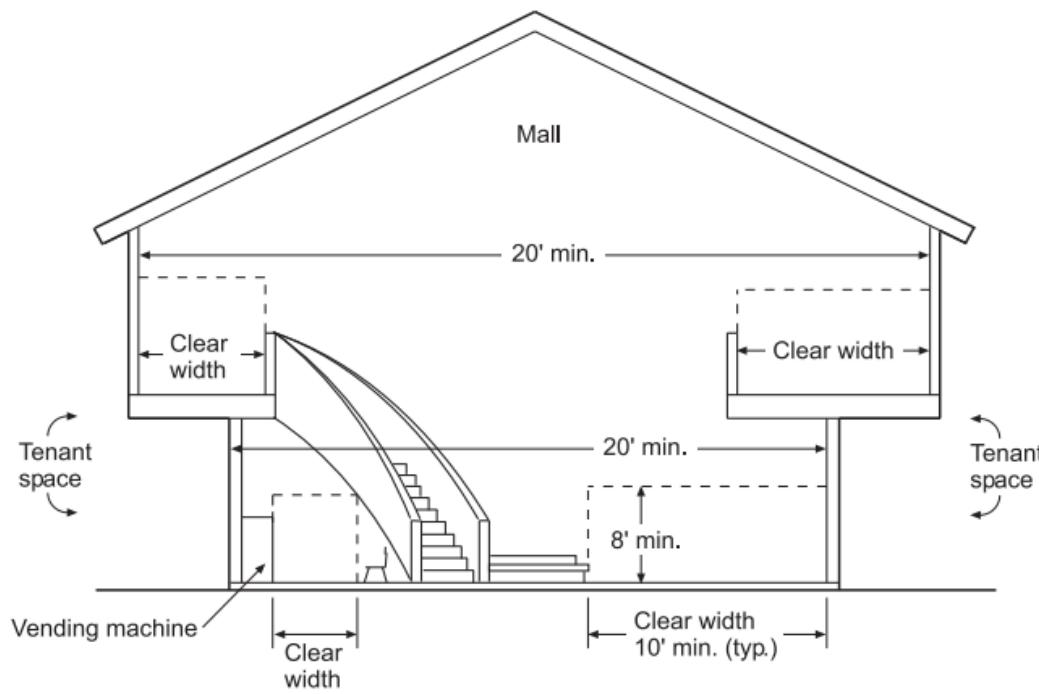
**Topic:** General Requirements  
**Reference:** IBC 402

**Category:** Detailed Use Requirements  
**Subject:** Covered Mall and Open Mall Buildings

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**Code Text:** *A covered mall building (or open mall building) and attached anchor buildings and parking garages shall be surrounded on all sides by a permanent open space or not less than 60 feet (18 288 mm). The building area of any covered mall or open mall building shall not be limited provided the covered mall or open mall building does not exceed three floor levels at any point nor three stories above grade plane, and is of Type I, II, III or IV construction. See the allowance for anchor buildings. Fire-resistance-rated separation is not required between tenant spaces and the mall.*

**Discussion and Commentary:** A covered mall building is defined as a single building enclosing a number of tenants and occupants, such as retail stores, drinking and dining establishments, entertainment and amusement facilities, passenger transportation terminals, offices, and other similar uses wherein two or more tenants have a main entrance into one or more malls. Because of its character, a covered mall building is uniquely regulated for fire protection and egress. An open mall building, where the pedestrian ways are unroofed, is regulated in a similar manner.



For SI: 1 foot = 304.8 mm

Mall width requirements

The provisions for covered mall and open mall buildings and their associated anchor buildings and parking structures allow for an alternative method of design for structures that have these specific features. Where compliant with the provisions of Section 402, similar requirements found elsewhere in the code can be superseded.

**Topic:** General Requirements  
**Reference:** IBC 403, 202

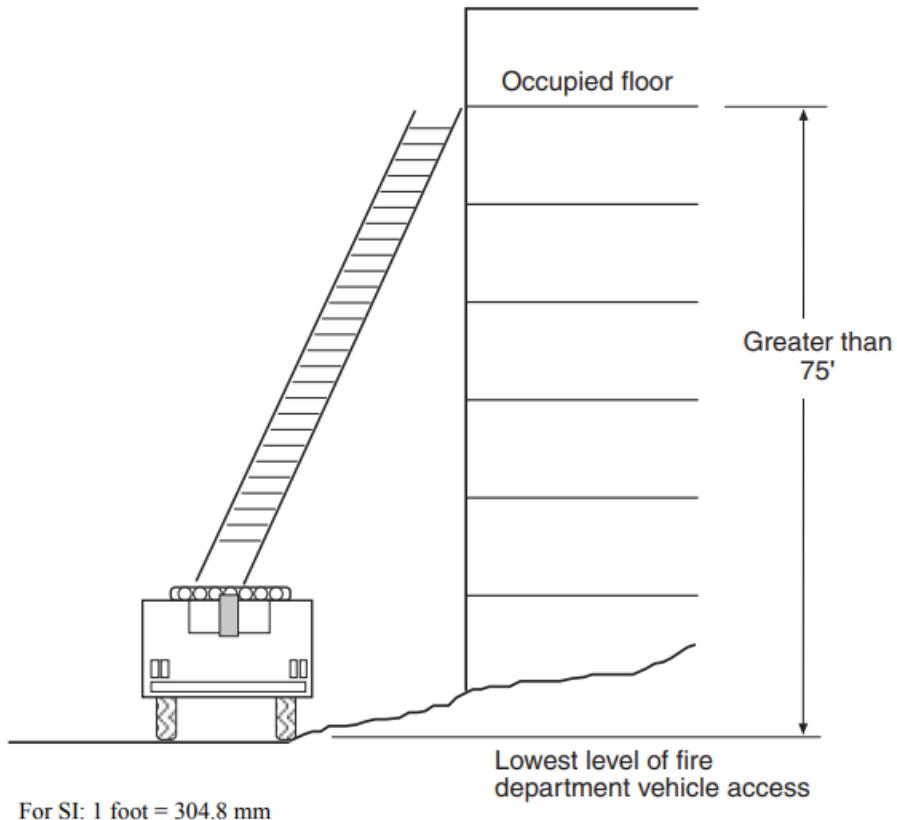
**Category:** Detailed Use Requirements  
**Subject:** High-Rise Buildings

**Code Text:** A high-rise building *is a building with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.* See the five exceptions where high-rise provisions are not applicable. *Buildings and structures shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 403.3.3.*

**Discussion and Commentary:** A high-rise building is characterized by several features: (1) it is impractical to completely evacuate the building in a timely manner, (2) prompt rescue and fire fighting operations are difficult, (3) the occupant load is relatively high and (4) a potential exists for stack effect. The special provisions of Section 403 are designed to address these concerns. Additional provisions are applicable for those buildings more than 420 feet in height, sometimes referred to as super high-rises. Prohibited reductions in fire-resistance rating, additional criteria for structural integrity and bond strength of SFRM, and an additional required exit stairway are a few of the extra requirements for these super high-rise buildings.

**Topic:** General Requirements  
**Reference:** IBC 403, 202

**Category:** Detailed Use Requirements  
**Subject:** High-Rise Buildings



Additional provisions for a high-rise building include the installation of a smoke detection system, emergency voice/alarm and fire department communications systems, a fire command center for use by fire department personnel, smokeproof exit stairway enclosures, luminous egress path markings, and standby power, light and emergency systems.

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**Topic:** General Requirements  
**Reference:** IBC 404, 202

**Category:** Detailed Use Requirements  
**Subject:** Atriums

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**Code Text:** *An atrium is a vertical space that is closed at the top, connecting two or more stories in Group I-2 and I-3 occupancies or three or more stories in all other occupancies. An approved automatic sprinkler system shall be installed throughout the entire building. A smoke-control system shall be installed in accordance with Section 909. Atrium spaces shall be separated from adjacent spaces by a 1-hour fire barrier. See the exceptions to the sprinkler system, smoke-control system and fire barrier separation requirements.*

**Discussion and Commentary:** The concept of developing atriums is to maintain equivalence in safety to that of an open court, as well as to provide protection of a shaft enclosure. The provisions for atriums are only applicable where Section 712.1.7 is utilized to address vertical openings. Where another method established in Section 712.1 is used, such as Section 712.1.3 applicable to escalator openings, the atrium provisions of Section 404 are not to be applied.

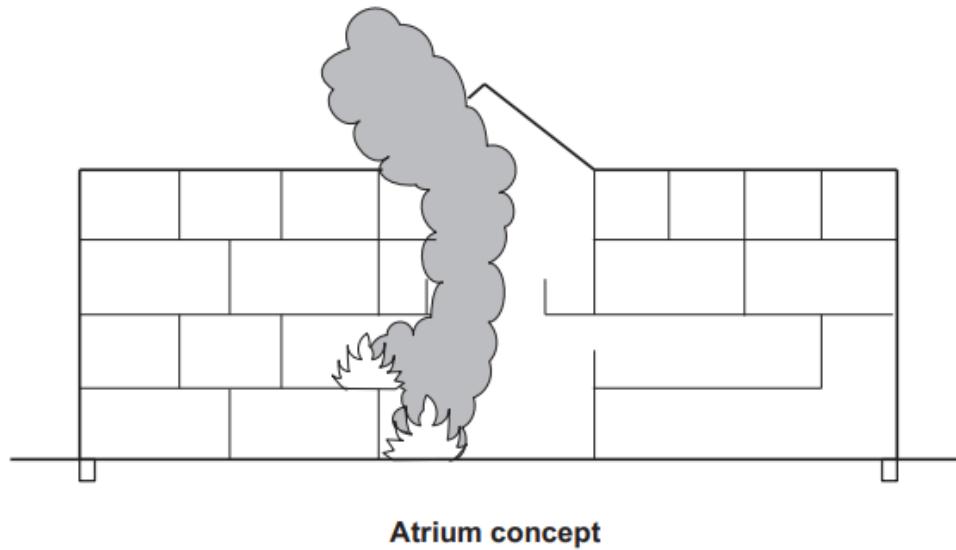
[Atrium Smoke Control Testing -  
YouTube](#)

**Topic:** General Requirements  
**Reference:** IBC 404, 202

**Category:** Detailed Use Requirements  
**Subject:** Atriums

Sprinkler system throughout—prevents spread of fire.

Smoke-control system—keeps building and atrium clear of smoke so that safe exiting may be accomplished through the atrium.



Atrium concept

Atriums are permitted based on alternative methods of protecting the building from vertical spread of fire, smoke and toxic gases. Additional protection is provided through (1) limited travel distance, (2) standby power, (3) smoke detection and (4) interior finish regulation.

**Topic:** General Requirements  
**Reference:** IBC 405

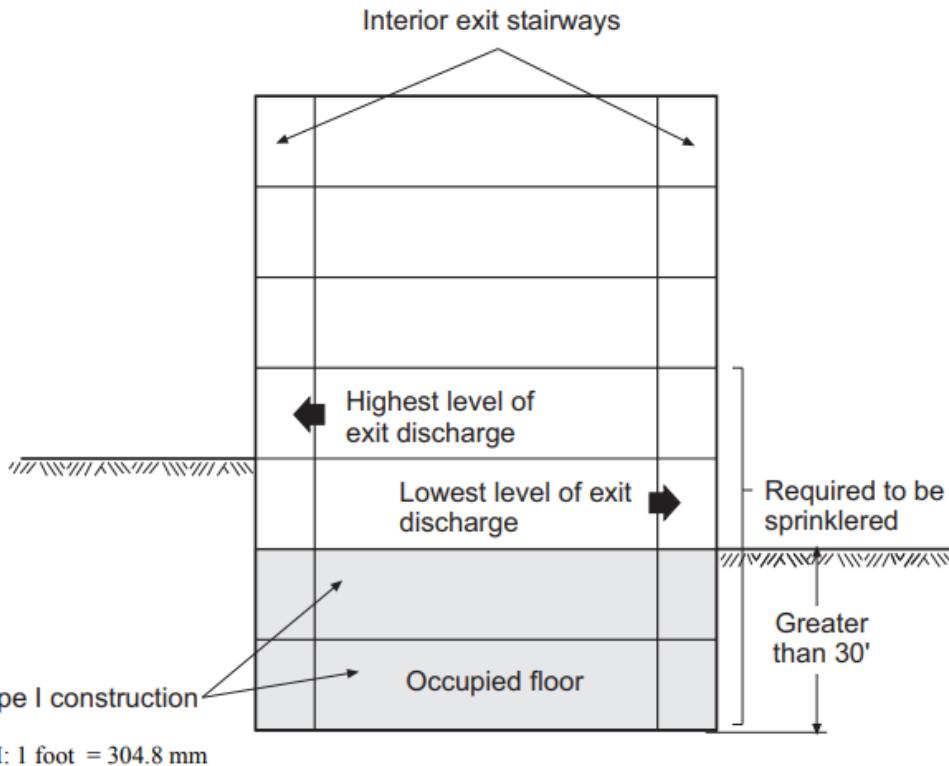
**Category:** Detailed Use Requirements  
**Subject:** Underground Buildings

**Code Text:** *The provisions of Sections 405.2 through 405.9 apply to building spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest level of exit discharge. See the six exceptions for uses not regulated as underground buildings. The underground portion of the building shall be of Type I construction. The highest level of exit discharge serving the underground portions of the building and all levels below shall be equipped with an automatic sprinkler system installed in accordance with Section 903.3.1.1.*

**Discussion and Commentary:** An underground building is highly regulated for many of the same reasons as is a high-rise building. In the case of a structure substantially below ground level, fire department access and fire-fighting operations are often even more difficult. Therefore, the code mandates the installation of multiple fire protection systems, including a smoke-control system.

**Topic:** General Requirements  
**Reference:** IBC 405

**Category:** Detailed Use Requirements  
**Subject:** Underground Buildings



Additional protection must be provided where an underground building has a floor level more than 60 feet below the finished floor of the lowest level of exit discharge. The required creation of multiple compartments assists in both occupant egress and fire department operations.

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**Topic:** General Requirements

**Reference:** IBC 406.1

**Category:** Detailed Use Requirements

**Subject:** Motor-Vehicle-Related Occupancies

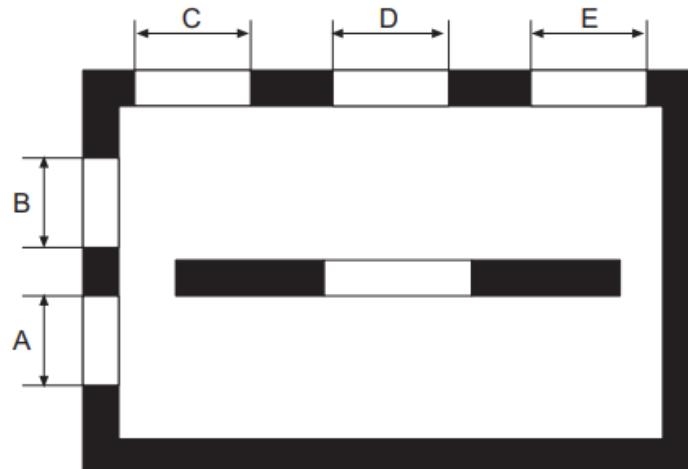
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**Code Text:** *All motor-vehicle-related occupancies shall comply with Section 406.2. Private garages and carports shall also comply with Section 406.3. Open public parking garages shall also comply with Sections 406.4 and 406.5. Enclosed public parking garages shall also comply with Sections 406.4 and 406.6. Motor fuel-dispensing facilities shall also comply with Section 406.7. Repair garages shall also comply with Section 406.8.*

**Discussion and Commentary:** Where motor vehicles are located within a structure, varying degrees of hazard are involved. In a small, private garage or carport, the hazard is relatively low. A moderate level of hazard exists in open parking garages, increasing where the parking garage is enclosed. In structures where vehicles are being fueled or repaired, a relatively high hazard exists. Specific provisions of the IBC address each type of motor-vehicle-related use.

Exterior walls must have uniformly distributed openings on two or more sides.

Interior wall and column lines shall be at least 20 percent open (area) with uniformly distributed openings.



General case

1. Area:  $A + B + C + D + E \geq 20\%$  total perimeter area of each tier
2. Length:  $A + B + C + D + E \geq 40\%$  total perimeter area of each tier

#### Open parking garages

Private garages classified as Group U occupancies are limited to 1,000 square feet in floor area. However, such structures are permitted to be increased in floor area to that allowed by Section 506 provided the garages are separated from each other by minimum 1-hour fire barriers.

---

**Topic:** Smoke Barriers  
**Reference:** IBC 407.5

**Category:** Detailed Use Requirements  
**Subject:** Group I-2 Occupancies

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**Code Text:** *Smoke barriers shall be provided to subdivide every story used by persons receiving care, treatment or sleeping and to divide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Stories shall be divided into smoke compartments with an area of not more than 22,500 square feet ( $2092\text{ m}^2$ ) in Group I-2 occupancies. See two exceptions where the maximum smoke compartment size can be extended to 40,000 square feet. The distance of travel from any point in a smoke compartment to a smoke barrier door shall be not greater than 200 feet (60 960 mm).*

**Discussion and Commentary:** Hospitals, nursing homes and similar uses must have unique life-safety characteristics due to the immobility or limited mobility of most of the care recipients. By providing multiple refuge areas on each story of the building, occupants can be moved horizontally into an adjoining smoke compartment that provides protection from adjacent areas. In multistory buildings, smoke compartments are further enclosed through the use of horizontal assemblies that must be designed to resist the movement of smoke.

[Smoke barriers \(Stoebich fire protection\) - YouTube](#)

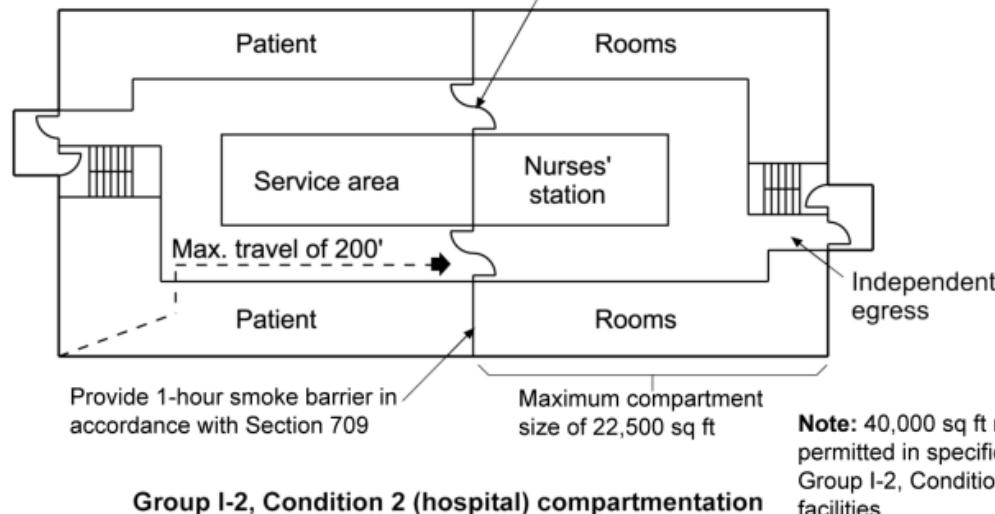
**Topic: Smoke Barriers**  
**Reference: IBC 407.5**

**Category: Detailed Use Requirements**  
**Subject: Group I-2 Occupancies**

Refuge area sized at:

- 30 sq ft/patient where confined to beds
- 6 sq ft/patient where not confined to beds

20-minute opening protectives per  
Table 716.1(2) (see exception for cross  
corridor doors in Section 709.5  
41½ min clear doorways per  
Section 1010.1



For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m<sup>2</sup>

An automatic sprinkler system is required throughout all smoke compartments containing sleeping rooms. To provide for a more immediate response, the use of approved quick-response or residential sprinklers is mandated throughout the smoke compartments containing care recipient sleeping units.

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**Topic:** General Requirements

**Reference:** IBC 408.4

**Category:** Detailed Use Requirements

**Subject:** Group I-3 Occupancies

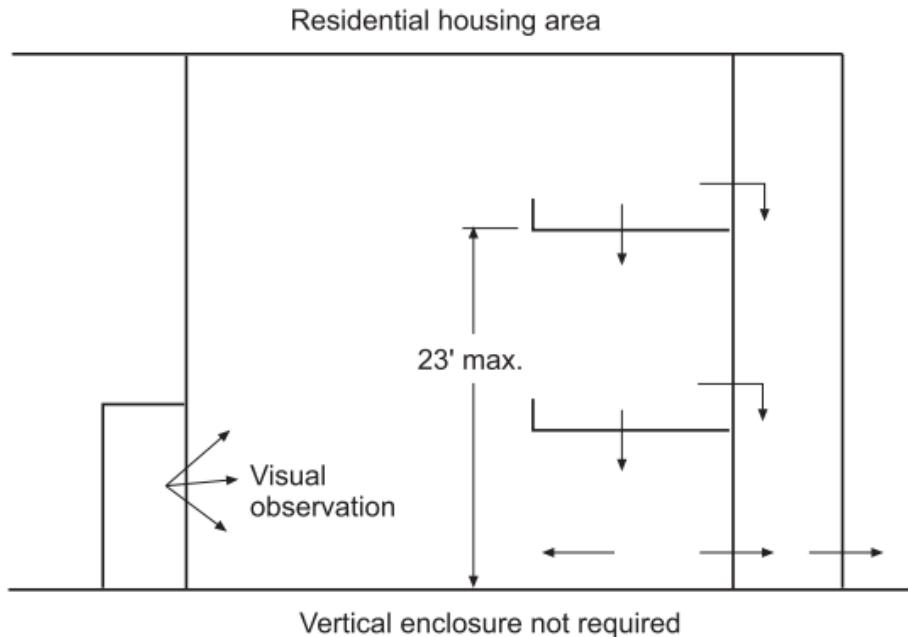
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**Code Text:** In Group I-3 occupancies, *egress doors are permitted to be locked in accordance with the applicable use condition. Doors from a refuge area to the outside are permitted to be locked with a key in lieu of locking methods described in Section 408.4.1 (remote release). The keys to unlock the exterior doors shall be available at all times and the locks shall be operable from both sides of the door. Remote release of locks on doors in a means of egress shall be provided with reliable means of operation, remote from the resident living areas, to release locks on all required doors.*

**Discussion and Commentary:** The need for restraint or security in specific types of uses such as jails, prisons and detention centers makes it necessary to install locking devices that are usually unacceptable for a means of egress. The code recognizes such a need and provides alternative design methods to balance the desire for both safety and security.

**Topic:** General Requirements  
**Reference:** IBC 408.4

**Category:** Detailed Use Requirements  
**Subject:** Group I-3 Occupancies



For SI: 1 foot = 304.8 mm

It is often important to ensure that several resident detention areas can be observed from a single location. The code permits the design of a vertical arrangement where several tiers of resident housing areas can be open to each other and to the supervisory area.

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**Topic:** Stages

**Reference:** IBC 410.2, 202

**Category:** Detailed Use Requirements

**Subject:** Stages and Platforms

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**Code Text:** A stage is *a space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting or sound.* Stages shall be constructed of materials as required for floors for the type of construction of the building in which such stages are located. See the three exceptions. *Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending continuously from the foundation to the roof.*

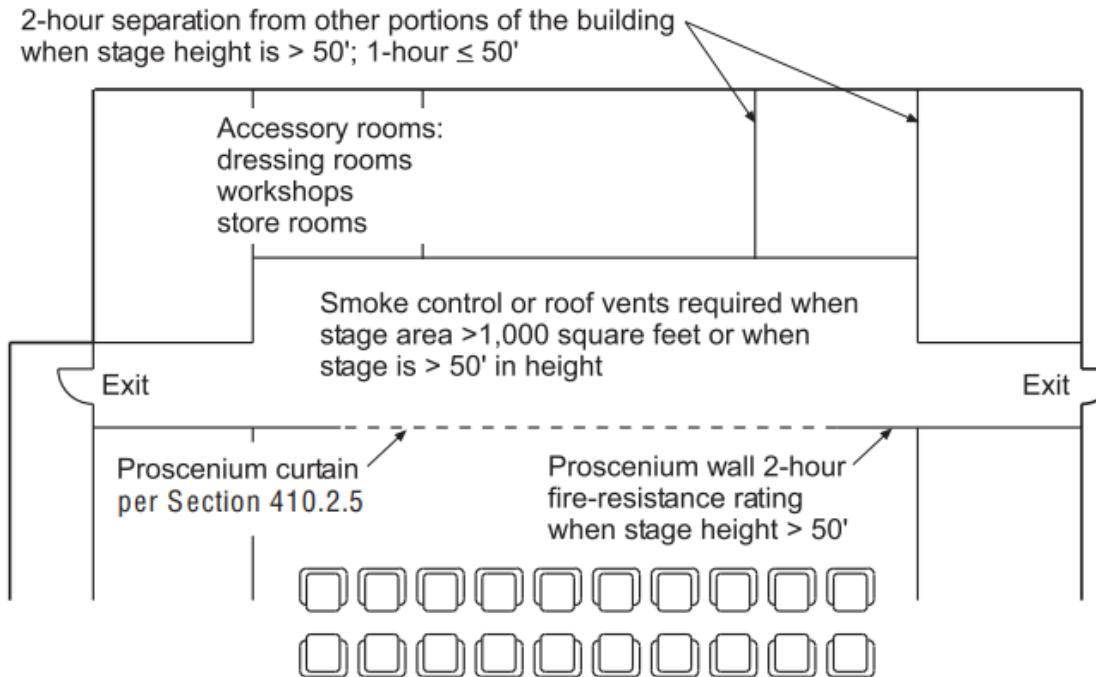
**Discussion and Commentary:** Given the increased potential for fire hazards in an assembly occupancy with a stage, such a use is regulated for certain elements. The stage must be separated from accessory spaces by fire barriers; ventilation of the stage must be accomplished through smoke control or roof vents; and the proscenium opening must be protected with a curtain of approved materials or an approved water curtain.

**Topic:** Stages

**Reference:** IBC 410.2, 202

**Category:** Detailed Use Requirements

**Subject:** Stages and Platforms



A-341

For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m<sup>2</sup>.

A stage differs from a platform in that it usually has curtains, drops, stage effects and/or scenery. Where the stage is of a considerable height, it is possible to provide large amounts of such stage elements overhead and out of sight. This condition creates the potential for a high fire load.

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**Topic:** Platforms

**Reference:** IBC 410.3, 202

**Category:** Detailed Use Requirements

**Subject:** Stages and Platforms

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**Code Text:** A platform is *a raised area within a building used for worship, the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round stages; and similar purposes wherein, other than horizontal sliding curtains, there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. Permanent platforms shall be constructed of materials as required for the type of construction of the building in which the permanent platform is located.* See allowances for use of fire-retardant-treated wood in Types I, II or IV construction.

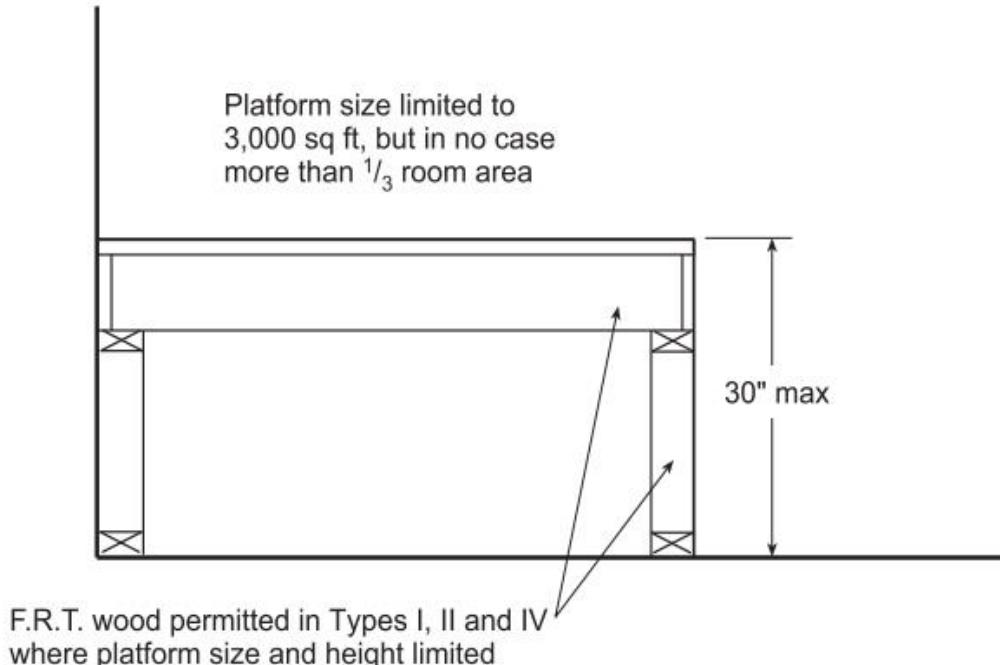
**Discussion and Commentary:** Few requirements are placed on platforms. However, a minimum 1-hour fire-resistant platform floor construction is required when the area below the platform is used for storage or a similar purpose, because of concern about combustibles being stored within a concealed space below a raised area.

**Topic:** Platforms

**Reference:** IBC 410.3, 202

**Category:** Detailed Use Requirements

**Subject:** Stages and Platforms



For SI: 1 inch = 25.4 mm, 1 square foot = 0.093 m<sup>2</sup>

Temporary platforms are those platforms used within an area for a period not to exceed 30 days. They may be constructed of any materials; however, the space between the floor and the platform cannot be used for any purpose other than wiring or plumbing for platform equipment.

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**Topic:** General Requirements  
**Reference:** IBC 411, 202

**Category:** Detailed Use Requirements  
**Subject:** Special Amusement Areas

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**Code Text:** A special amusement area *is any temporary or permanent building or portion thereof that is occupied for amusement, entertainment or educational purposes and is arranged in a manner that: (1) makes the means of egress path not readily apparent due to visual or audio distractions, (2) intentionally confounds identification of the means of egress path, or (3) otherwise makes the means of egress path not readily available because of the nature of the attraction or mode of conveyance through the building or structure.*

**Discussion and Commentary:** In most cases, an amusement building will be classified as a Group A occupancy. The hazards associated with such a unique use are addressed through provisions for the detection of fire, the illumination of the exit path, the presence of an alarm and emergency voice/alarm communications system and the sprinklering of the structure. Sprinklers are not required for small temporary buildings with limited exit access travel distance.

**Topic:** General Requirements  
**Reference:** IBC 411, 202

**Category:** Detailed Use Requirements  
**Subject:** Special Amusement Areas



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Rapid detection and notification of a fire condition, as well as the discernment of the exit path, are critical in an amusement building. Actuation of either the sprinkler system or the fire detection system shall automatically activate the approved egress directional markings.

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**Topic:** Aircraft Hangars

**Category:** Detailed Use Requirements

**Reference:** IBC 412.3

**Subject:** Aircraft-Related Occupancies

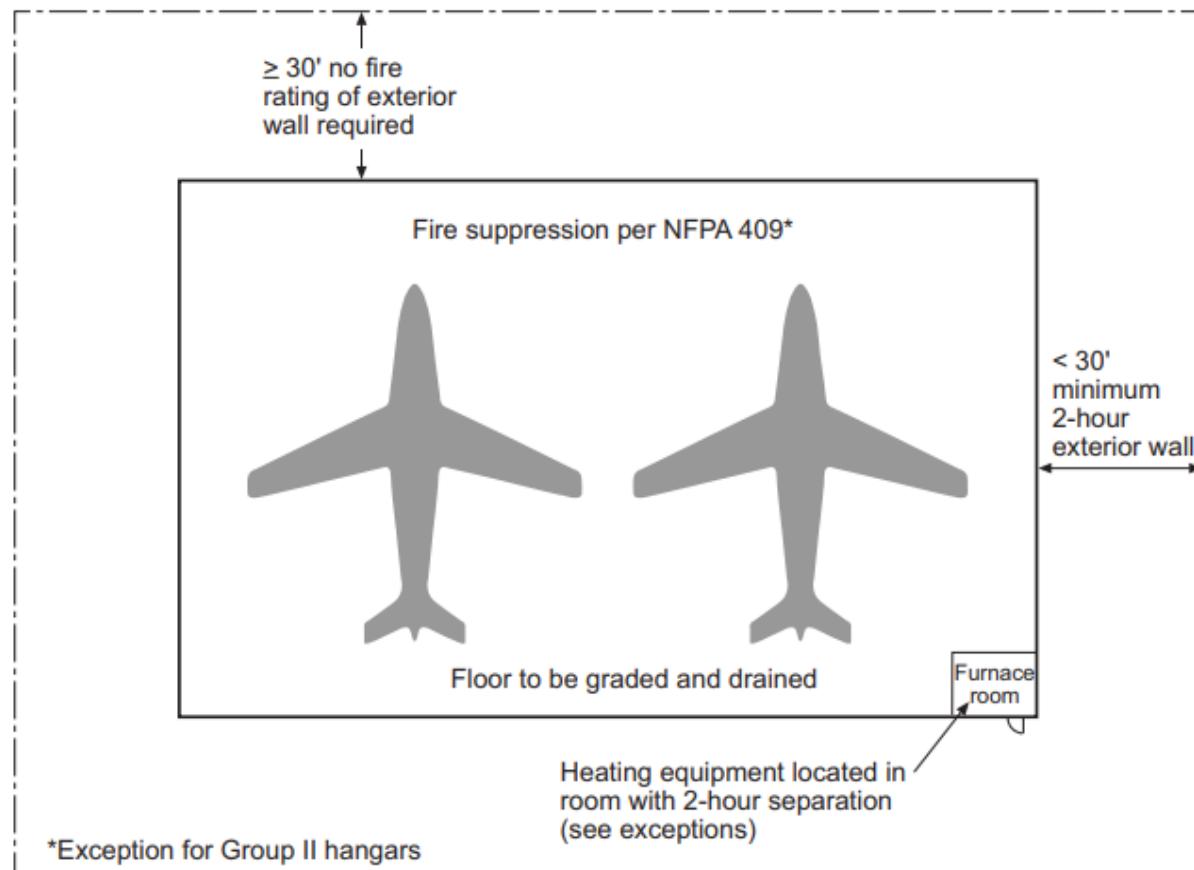
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**Code Text:** Aircraft hangar *exterior walls located less than 30 feet (9144 mm) from lot lines or a public way shall have a fire-resistance rating not less than 2 hours. Heating equipment shall be placed in another room separated by 2-hour fire barriers, or horizontal assemblies, or both. Aircraft hangars shall be provided with a fire suppression system designed in accordance with NFPA 409, based upon the classification for the hangar given in Table 412.3.6.*

**Discussion and Commentary:** Although most commercial aircraft hangars will not be limited in height (Section 504.1) or in area (Section 507) based on the presence of an automatic sprinkler system, they must be regulated in regards to exterior-wall fire-resistance ratings, basement limitations, floor surfaces, heating equipment separation and finishing restrictions. All of these provisions serve to abate the hazards associated with large aircraft and their integral fuel tanks to acceptable fire safety levels.

**Topic:** Aircraft Hangars  
**Reference:** IBC 412.3

**Category:** Detailed Use Requirements  
**Subject:** Aircraft-Related Occupancies



Aircraft hangars

Table 412.3.6 provides the fire suppression requirements for aircraft hangars based upon the fire area size and construction type. Maximum single fire areas are to be separated by minimum 2-hour fire walls.

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**Topic:** Attic and Under-Floor Spaces

**Reference:** IBC 413.2

**Category:** Detailed Use Requirements

**Subject:** Combustible Storage

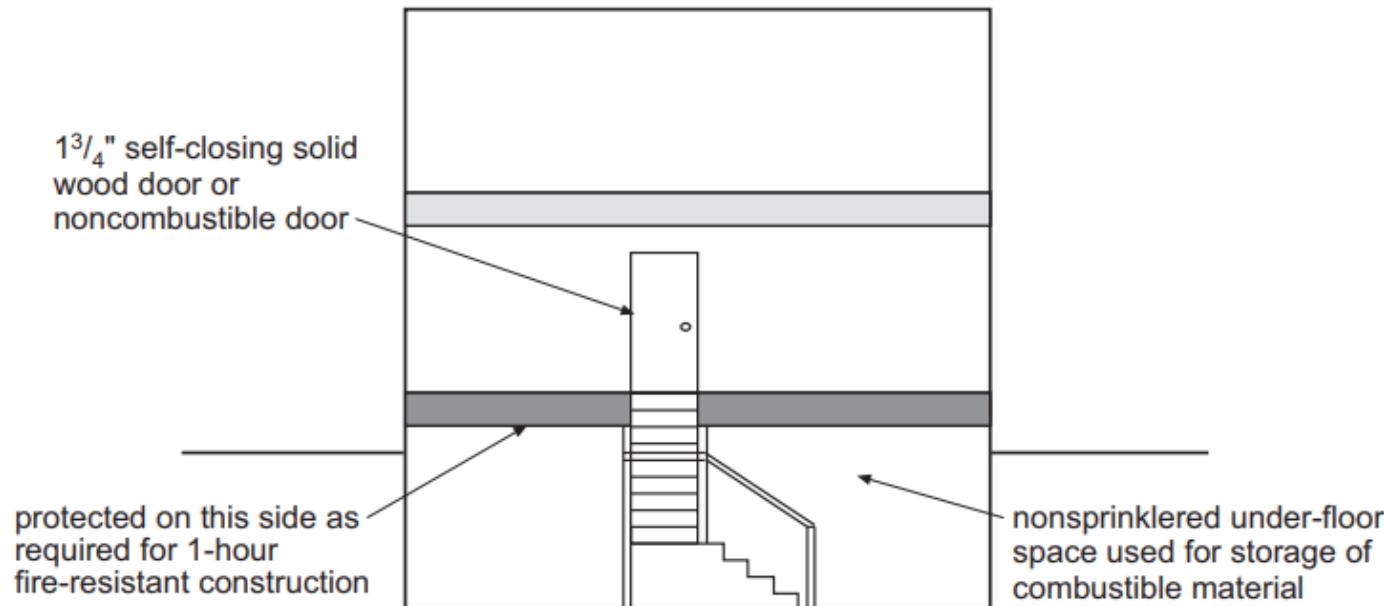
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**Code Text:** *Attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for 1-hour fire-resistant-rated construction. Openings shall be protected by assemblies that are self-closing and are of noncombustible construction or solid wood core not less than 1<sup>3</sup>/<sub>4</sub> inch (45 mm) in thickness. See the exceptions for (1) areas protected by an automatic sprinkler system, and (2) Group R-3 and U occupancies.*

**Discussion and Commentary:** Those areas in a building that tend to be unoccupied present a potential fire hazard where combustible goods are being stored. The presence of a considerable fire load, coupled with the probable delay in recognition of the fire, makes it necessary to provide some degree of protection. A sprinkler system or a fire-resistant separation are considered acceptable methods to address any potential hazards.

**Topic:** Attic and Under-Floor Spaces  
**Reference:** IBC 413.2

**Category:** Detailed Use Requirements  
**Subject:** Combustible Storage



For SI: 1 inch = 25.4 mm.

The code does not mandate a full 1-hour fire-resistance-rated assembly to isolate the combustible storage area from the unoccupied space. Because the hazard presumably exists only on the inside of the storage space, that is the only side where the protection is required.

---

**Topic:** Control Areas

**Category:** Detailed Use Requirements

**Reference:** IBC 414.2.1, 202

**Subject:** Hazardous Materials

---

**Code Text:** Control areas are *spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled. Control areas shall be separated from each other by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.*

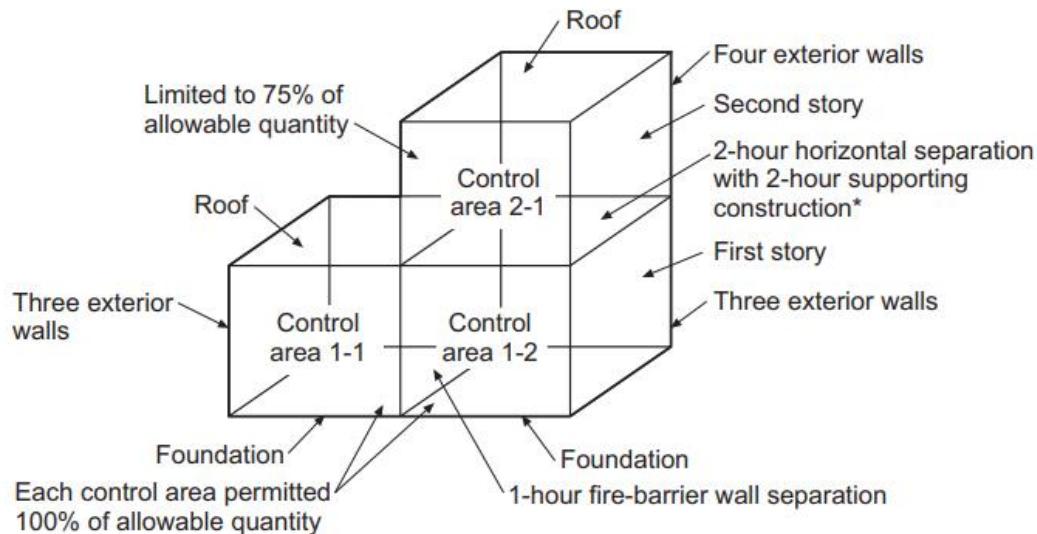
**Discussion and Commentary:** The use of control areas provides an alternative method for the use and storage of hazardous materials without classifying the building or structure as a high-hazard (Group H) occupancy. This concept is based on regulating the allowable quantities of hazardous materials per control area rather than per building area by giving credit for further compartmentation through the use of fire-resistance-rated fire barrier walls and horizontal assemblies.

**Topic:** Control Areas

**Reference:** IBC 414.2.1, 202

**Category:** Detailed Use Requirements

**Subject:** Hazardous Materials



\*Exception allows for 1-hour in fully sprinklered Type IIA, IIIA and VA buildings no more than three stories in height.

#### Multistory control areas

The maximum quantities of hazardous materials within a given control area cannot exceed the quantities for a given material listed in either Table 307.1(1) for physical hazards and Table 307.1(2) for health hazards, as modified by Table 414.2.2 for location within the building.

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**Topic:** Control Areas

**Reference:** IBC 414.2.2–414.2.4

**Category:** Detailed Use Requirements

**Subject:** Hazardous Materials

---

**Code Text:** *The percentage of maximum allowable quantities of hazardous materials per control area permitted at each floor level within a building shall be in accordance with Table 414.2.2. The maximum number of control areas within a building shall be in accordance with Table 414.2.2. The required fire-resistance rating for fire barriers shall be in accordance with Table 414.2.2. The floor assembly of the control area and the construction supporting the floor of the control area shall have a fire-resistance rating of not less than 2 hours. See the exception permitting a 1-hour floor separation in fully-sprinklered Type IIA, IIIA and VA buildings not exceeding three stories in height above grade.*

**Discussion and Commentary:** By distributing hazardous materials in multiple fire-resistant compartments throughout a structure, the amount of material exposed to an immediate fire event is limited. The code allows such limited quantities in buildings of other than Group H occupancy; hence, the use of control areas is an effective method for reducing the occupancy classification by reducing the hazard.

**Topic:** Control Areas

**Reference:** IBC 414.2.2–414.2.4

**Category:** Detailed Use Requirements

**Subject:** Hazardous Materials

[F] TABLE 414.2.2  
DESIGN AND NUMBER OF CONTROL AREAS

STORY		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA <sup>a</sup>	NUMBER OF CONTROL AREAS PER STORY	FIRE-RESISTANCE RATING FOR FIRE BARRIERS IN HOURS <sup>b</sup>
Above grade plane	Higher than 9	5	1	2
	7–9	5	2	2
	6	12.5	2	2
	5	12.5	2	2
	4	12.5	2	2
	3	50	2	1
	2	75	3	1
	1	100	4	1
Below grade plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

The purpose of a control area is to allow the building to be classified according to its general occupancy instead of being classified as a Group H occupancy. A building may comprise a single control area where the amount of hazardous materials in the entire structure is compliant.

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**Topic:** Distance to Lot Lines  
**Reference:** IBC 415.6.4

**Category:** Detailed Use Requirements  
**Subject:** Group H Occupancies

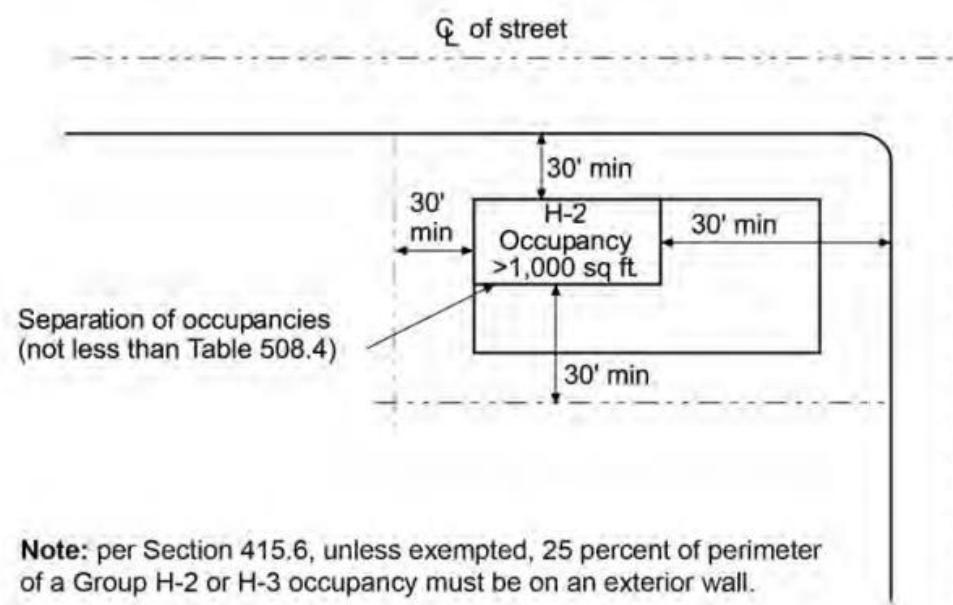
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**Code Text:** *Regardless of any other provisions, buildings containing Group H occupancies shall be set back to the minimum fire separation distance as set forth in Sections 415.6.4.1 through 415.6.4.4. Distances shall be measured from the walls enclosing the occupancy to lot lines, including those on a public way.*

**Discussion and Commentary:** Because of the potentially volatile nature of hazardous materials, specific setback requirements are necessary for Group H occupancies. These provisions take precedence over Table 705.5 regarding the minimum fire separation distance based on building construction type and exposure. The listed conditions are dependent on the type of materials that are indicative of the specified Group H occupancies, the size of the hazardous material storage area and whether or not a detached building is required.

**Topic:** Distance to Lot Lines  
**Reference:** IBC 415.6.4

**Category:** Detailed Use Requirements  
**Subject:** Group H Occupancies



**Location on lot for mixed occupancies that include a  
Group H-2 Occupancy**

For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m<sup>2</sup>

Note that the measurement is made to the lot line adjacent to a public way, not the centerline as utilized in Table 705.5. In addition, the distance is measured from the walls enclosing the Group H occupancy, which may not necessarily be the exterior wall lines.

---

**Topic:** Detached Buildings

**Reference:** IBC 415.7, 415.8

**Category:** Detailed Use Requirements

**Subject:** Group H Occupancies

---

**Code Text:** *Group H-1 occupancies shall be in detached buildings used for no other purpose. Group H-2 and H-3 occupancies containing quantities of hazardous materials in excess of those set forth in Table 415.6.5 shall be in detached buildings used for manufacturing, processing, dispensing, use or storage of hazardous materials. Materials listed for Group H-1 occupancies in Section 307.3 are permitted to be located within Group H-2 or H-3 detached buildings provided the amount of materials per control area do not exceed the maximum allowed quantity specified in Table 307.1(1).*

**Discussion and Commentary:** Because of the explosion hazard potential associated with Group H-1 materials, Group H-1 occupancies are required to be in separate detached structures. Higher-level Group H-2 and Group H-3 occupancies where the quantities of hazardous materials pose an extremely high risk must also be located in buildings with no other uses.

**[F] TABLE 415.6.5**  
**DETACHED BUILDING REQUIRED**

A DETACHED BUILDING IS REQUIRED WHERE THE QUANTITY OF MATERIAL EXCEEDS THAT SPECIFIED HEREIN			
Material	Class	Solids and Liquids (tons) <sup>a,b</sup>	Gases (cubic feet) <sup>a,b</sup>
Explosives	Division 1.1	Maximum Allowable Quantity	Not Applicable
	Division 1.2	Maximum Allowable Quantity	
	Division 1.3	Maximum Allowable Quantity	
	Division 1.4	Maximum Allowable Quantity	
	Division 1.4 <sup>c</sup>	1	
	Division 1.5	Maximum Allowable Quantity	
	Division 1.6	Maximum Allowable Quantity	
Oxidizers	Class 4	Maximum Allowable Quantity	Maximum Allowable Quantity
Unstable (reactives) detonable	Class 3 or 4	Maximum Allowable Quantity	Maximum Allowable Quantity
Oxidizer, liquids and solids	Class 3	1,200	Not Applicable
	Class 2	2,000	Not Applicable
Organic peroxides	Detonable	Maximum Allowable Quantity	Not Applicable
	Class I	Maximum Allowable Quantity	Not Applicable
	Class II	25	Not Applicable
	Class III	50	Not Applicable
Unstable (reactives) nondetonable	Class 3	1	2,000
	Class 2	25	10,000
Water reactives	Class 3	1	Not Applicable
	Class 2	25	Not Applicable
Pyrophoric gases <sup>d</sup>	Not Applicable	Not Applicable	2,000

For SI: 1 ton = 906 kg, 1 cubic foot = 0.02832 m<sup>3</sup>, 1 pound = 0.454 kg.

- a. For materials that are detonable, the distance to other buildings or lot lines shall be in accordance with Section 415.6 of this code or Chapter 56 of the *International Fire Code* based on trinitrotoluene (TNT) equivalence of the material, whichever is greater.
- b. "Maximum Allowable Quantity" means the maximum allowable quantity per control area set forth in Table 307.1(1).
- c. Limited to Division 1.4 materials and articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF) regulations or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles, provided that the net explosive weight of individual articles does not exceed 1 pound.
- d. Detached buildings are not required, for gases in gas rooms that support H-5 fabrication facilities where the gas room is separated from other areas by a fire barrier with a fire-resistance rating of not less than 2 hours and the gas is located in a gas cabinet that is internally sprinklered, equipped with continuous leak detection, automatic shutdown and is not manifolded upstream of pressure controls. Additionally, the gas supply is limited to cylinders that do not exceed 125 pounds (57 kg) water capacity in accordance with 49 CFR 173.192 for Hazard Zone A toxic gases.

The need for detached storage is a function of the type, physical state and quantity of material. Because such a single-use structure must be located an adequate distance from surrounding lot lines and other buildings, exterior walls and exterior openings need not be protected for exposure.

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**Topic:** General Requirements  
**Reference:** IBC 416.1, 416.2

**Category:** Detailed Use Requirements  
**Subject:** Spray Application of Flammable Finishes

---

**Code Text:** *The provisions of Section 416 shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the spray application of flammable finishes. Operations and equipment shall comply with the International Fire Code. Spray rooms shall be enclosed with not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Floors shall be waterproofed and drained in an approved manner. Mechanical ventilation and interlocks with the spraying operation shall be in accordance with the International Fire Code and International Mechanical Code.*

**Discussion and Commentary:** The primary hazards associated with paint spraying and spray booths originate from the presence of flammable liquids or powders and their vapors or mists. The requirements address such issues as the ventilation, sprinkler protection and interior surfaces of spray rooms and spraying spaces.

**Topic:** General Requirements  
**Reference:** IBC 416.1, 416.2

**Category:** Detailed Use Requirements  
**Subject:** Spray Application of Flammable Finishes

Spray rooms	Spray booths	Limited spray space
<ul style="list-style-type: none"><li>Designed and constructed per IBC Section 416</li><li>Separated from remainder of building by 1-hour fire barriers</li><li>Automatic fire-extinguishing system required</li></ul>	<ul style="list-style-type: none"><li>Designed and constructed per IFC Section 2404.3.3</li><li>Constructed of approved noncombustible materials</li><li>Limited in size and location</li><li>Automatic fire-extinguishing system required</li></ul>	<ul style="list-style-type: none"><li>Aggregate surface area to be sprayed limited to 9 sq ft</li><li>Spraying operations not to be continuous in nature</li><li>Mechanical ventilation and hazardous location wiring regulated</li></ul>

Chapter 24 of the *International Fire Code* provides comprehensive requirements for the application of flammable finishes, including detailed provisions for spray booths. Spray finishing operations in Group A, E, I or R occupancies shall be located in a spray room. In other occupancies, such operations may occur in a spray room, spray booth or spraying space approved for such use.

**Topic:** Unit Separations  
**Reference:** IBC 420

**Category:** Detailed Use Requirements  
**Subject:** Groups I-1, R-1, R-2 and R-3

**Code Text:** *Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.11 and other applicable provisions of the IBC. Walls separating dwelling units in the same building, walls separating sleeping units in the same building and walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708. Floor assemblies separating dwelling units in the same buildings, floor assemblies separating sleeping units in the same building and floor assemblies separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as horizontal assemblies in accordance with Section 711. See applicable exceptions.*

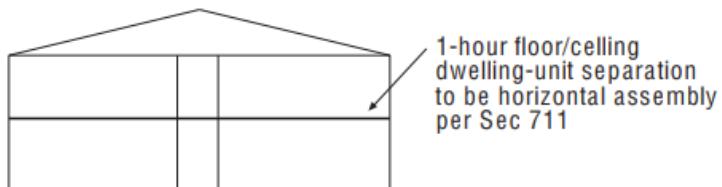
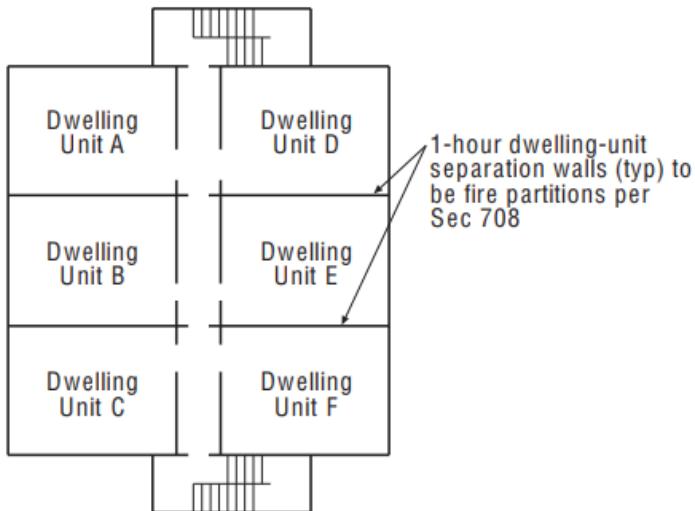
**Discussion and Commentary:** In residential-type occupancies, it is important that some degree of fire-resistive separation be provided to isolate each individual living unit from all others in the building. It is intended that should a fire initiate within one of the dwelling units or sleeping units, the occupants and contents of the other units would be adequately protected.

**Topic:** Unit Separations

**Reference:** IBC 420

**Category:** Detailed Use Requirements

**Subject:** Groups I-1, R-1, R-2 and R-3



Section AA

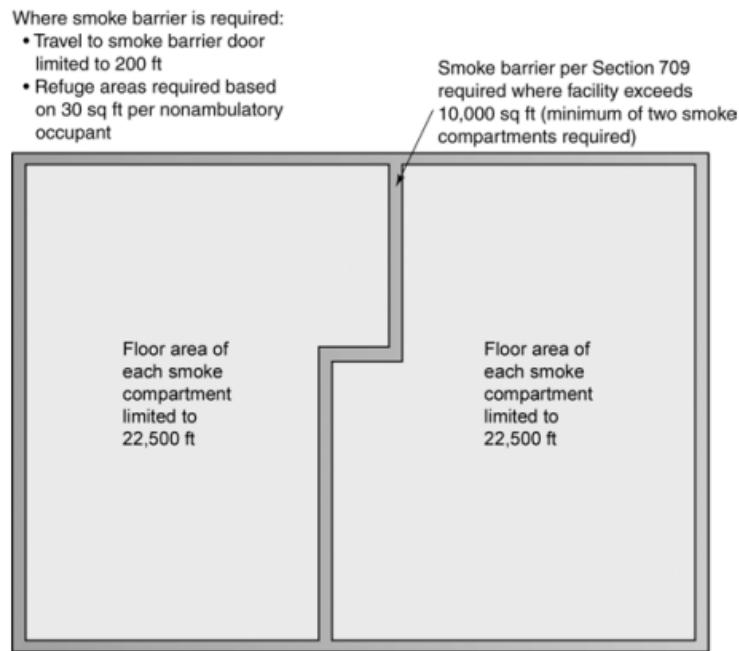
All vertical (fire partitions) and horizontal (horizontal assemblies) separation elements are required to be of minimum one-hour fire-resistance-rated construction and provided with protected openings. Where the building is sprinklered throughout with an NFPA 13 system, the required separation may be reduced to  $\frac{1}{2}$  hour.

**Topic:** Smoke Barriers  
**Reference:** IBC 422.2

**Category:** Detailed Use Requirements  
**Subject:** Ambulatory Care Facilities

**Code Text:** *Ambulatory care facilities where the potential for four or more care recipients are to be incapable of self preservation at any time shall be separated from adjacent spaces, corridors or tenants with a fire partition installed in accordance with Section 708. Where the aggregate area of one or more ambulatory care facilities is greater than 10,000 square feet ( $929\text{ m}^2$ ) on one story, the story shall be provided with a smoke barrier to subdivide the story into no fewer than two smoke compartments. The area of any one such smoke compartment shall be not greater than 22,500 square feet ( $2092\text{ m}^2$ ).*

**Discussion and Commentary:** A building used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation by the services provided is considered an ambulatory care facility. Although classified as a Group B occupancy in the same manner as an outpatient clinic or other health care office, such facilities pose distinctly different hazards to life and fire safety because of the presence of individuals who are temporarily rendered incapable of self-preservation that is due to the application of nerve blocks, sedation or anesthesia.



- Facility to be sprinklered where (Section 903.2.2):
  - Four or more persons incapable of self-preservation, or
  - Any persons incapable of self-preservation located at other than level of exit discharge
- Manual fire alarm system required (Section 907.2.2.1)
  - Alarm boxes not required where building is fully sprinklered and notification appliances activate upon sprinkler water flow

For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m<sup>2</sup>

**Ambulatory health care facility**

In addition to the requirement for smoke compartments in those ambulatory care facilities over 10,000 square feet in floor area, the installation of fire protection systems is often mandated. A manual fire alarm system is required in all ambulatory care facilities, and an automatic sprinkler system is required where there are four or more care recipients incapable of self-preservation, or if one or more such recipients is located on other than the level of exit discharge.

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**Topic:** Required Shelters

**Reference:** IBC 423.4, 423.5

**Category:** Detailed Use Requirements

**Subject:** Storm Shelters

---

**Code Text:** *In areas where the shelter design wind speed for tornados in accordance with Figure 304.2(1) of ICC 500 is 250 MPH, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall be provided with a storm shelter constructed in accordance with ICC 500. In areas where the shelter design wind speed for tornados in accordance with Figure 304.2(1) of ICC 500 is 250 MPH, all Group E occupancies with an aggregate occupant load of 50 or more shall have a storm shelter constructed in accordance with ICC 500. See the exceptions for day care centers, areas accessory to places of worship, and where an entire building is designed as storm shelter.*

**Discussion and Commentary:** Critical emergency operations facilities are essential for the delivery of vital services or the protection of a community. Due to the unpredictability and often very short tornado warning time, there are many high-wind events where it is unfeasible to evacuate school buildings. Therefore, the IBC mandates that storm shelters be provided in these types of structures where the tornado risk is high.

[Rule for tornado shelter sends Cathedral Prep expansion to court  
\(goerie.com\)](#)

[Tornado Resistant Doors for Shelters & Safe Rooms | Meets FEMA 361 & ICC 500 -  
YouTube](#)

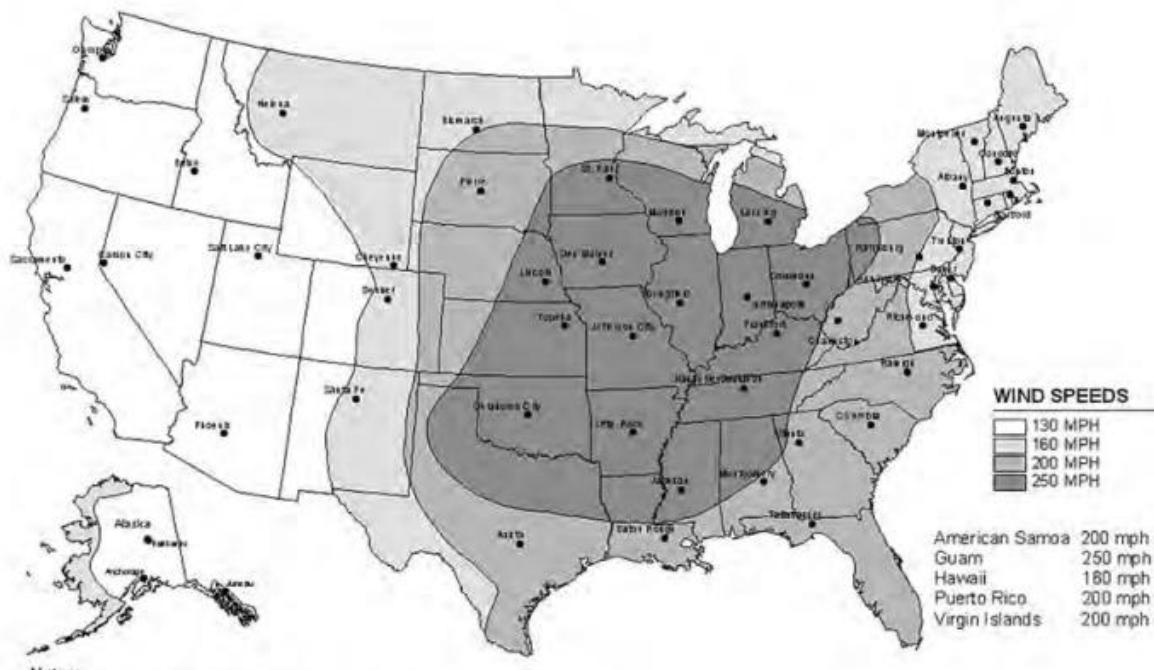
Source: 2021 IBC

**Topic:** Required Shelters

**Reference:** IBC 423.4, 423.5

**Category:** Detailed Use Requirements

**Subject:** Storm Shelters



In addition to the necessary administrative and application provisions established in Chapter 1 and definitions in Chapter 2, ICC 500, *ICC/NSSA Standard for the Design and Construction of Storm Shelters*, includes criteria for structural design, siting, occupancy, means of egress, access, accessibility and fire safety.

# Midterm – Extra Credits (CH 1 to 10)

You have an opportunity to earn extra credit points for the IBC course by making videos or writing essays on the topics covered in the course. You can pick any five topics that interest you and create a video or an essay for each one. The videos should be clear and engaging and use real life examples or site visits to demonstrate your understanding of the topic. The videos should be at least 3 minutes long and not more than 5 minutes long. The essays should be 500 words long. You will get one extra credit point for each video or essay you submit.

Title your Youtube Video OR 500 words Report in following format  
IBC#- Topic Name

For example:

IBC 510.7 Open Parking Garages

You should cover following content:

Definition, History why the code was developed, Specification a building inspector should consider reviewing the code.

# Class Project (20 Points)

Team of 3 to 4 students

Inspection Report writing

Commercial Property Inspection Preliminary Walkthrough - YouTube ← How to conduct property inspection

Flow of a Restaurant Inspection - YouTube

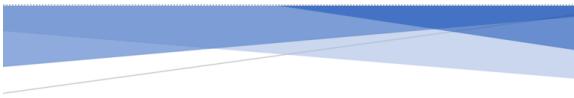
Office Suite Inspection - YouTube ← Examples

## Extra Credit!

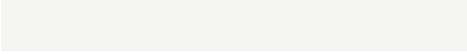
- Create a 10 minute video with your team demonstrating your inspection walk through. Each team member should have a chance to speak in the video. (+5 Points)

# Class Project (20 Points)

## Format



### INSPECTION REPORT

Building Address  


Executive Summary

Chapters 1 and 35—Scope and Administration  


Chapter 3 and Sections 508 and 509

Chapter 6—Types of Construction  


Chapter 5—General Building Heights and Areas

Sections 701 through 705—Fire and Smoke Protection Features I

Sections 706 through 712—Fire and Smoke Protection Features II

 Update

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Sections 1006, 1007 and 1016 through 1021—Means of Egress III .....	4
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Chapters 16, 17, 19, 21, 22 and 23—Special Inspections, Concrete, Masonry and Wood, Chapters 24 and 26—Glazing, Skylights and Plastics .....	5

**Minimum 300 word each chapter  
(Photos are encouraged)**

# Class Project (20 Points)

Team of 3 to 4 students

Inspection Report writing

Commercial Property Inspection Preliminary Walkthrough - YouTube ← How to conduct property inspection

Flow of a Restaurant Inspection - YouTube

Office Suite Inspection - YouTube ← Examples

## Extra Credit!

- Create a 10 minute video with your team demonstrating your inspection walk through. Each team member should have a chance to speak in the video. (+5 Points)