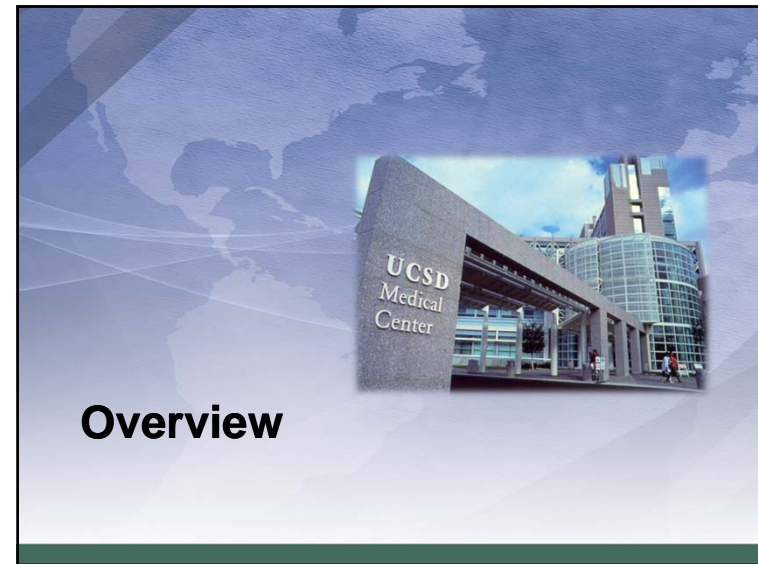


2018 IBC Care Facilities Provisions



Course Description

This seminar addresses provisions in the 2018 *International Building Code*® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses.



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Goal

- Participants will be able to apply the appropriate care facility provisions and to explain the requirements that are unique to care facilities.



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Objectives

Upon completion, participants will be better able to:

1. Determine the appropriate occupancy classification based on the attributes of the respective care facility.
2. Explain the three different levels of care facilities addressed by the IBC.
3. Explain the distinction between the various “condition” designations for care facilities.
4. Describe the significant special provisions for the various levels of medical care facilities.



Objectives (continued)

5. Explain the different fire protection features required in each type of care facility.
6. Identify the special provisions that show how care facilities are regulated differently from other types of uses, including egress, accessibility, allowable areas and other aspects.



Target Audience



- Architects
- Building Officials
- Code Officials
- Designers
- Plans Examiners



Module 1

Occupancy Classification



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Overview

The main factors that separate and distinguish the various occupancies are:

- Level of care
- Length of stay
- Capabilities of care recipients
- Age of care recipients
- Number of care recipients



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General Requirements

The occupancy groups relating to care facilities include:

- Group B – Business
- Group I – Institutional
- Group R – Residential
- Group E – Educational



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Group B – Business (Section 304)

The characteristics of Group B occupancies include:

- Many occupants are familiar with the premises.
- Most occupants are adult capable of recognizing and effectively responding to emergency situations.
- Moderate fire load.



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Group B – Business

Care facilities in Group B include ambulatory health care facilities and lower hazard spaces, such as a doctor's office or outpatient clinic.



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Group B – Definitions

Definitions from Chapter 2 relating to Business Group B:

- Ambulatory care facility
- Incapable of self-preservation
- Outpatient clinic
- Medical care



Group I – Institutional (Section 308)

The characteristics of Group I occupancies include:

- People are cared for or live in a supervised environment.
- People with physical limitations because of health or age are harbored for medical treatment or other care/treatment.
- Are divided into four classifications (I-1, I-2, I-3, I-4) based on the degree of care or detention and physical mobility of the occupants.



Group I-1 (Section 308.2)

The characteristics of Group I-1 occupancies include:

- It is a custodial care facility.
- The number of persons receiving care and residing in such facilities is greater than 16.
- There is 24-hour-a-day supervision (for counseling and assistance purposes, not for medical purposes).



Group I-1 (Section 308.2) continued

- Divided into “Condition 1” or “Condition 2”
- In Condition 1 the care recipients are capable of reaching safety in an emergency situation without assistance. (This is comparable to 2012 I-1 occupancy)
- Condition 2 applies where any of the care recipients require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation. (Would have been moved to I-2 in 2012 code)



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Group I-1 – Definitions

Definitions from Chapter 2 relating to Business Group I-1:

- Custodial care
- Group home



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Group I-2 (Section 308.3)

The characteristics of Group I-2 occupancies include:

- It is a medical care facility.
- There is 24-hour-a-day medical supervision for the individuals receiving care.
- More than five of those persons are incapable of self-preservation in an emergency situation. They cannot respond as an individual.



Continued on next slide

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Group I-2 (Section 308.3) continued

- Divided into “Condition 1” and “Condition 2”
- Condition 1 is generally a nursing home – and is without emergency care, surgery, etc.
- Condition 2 is generally a hospital – and can include emergency care, surgery, obstetrics, and in-patient stabilization units



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Group I-2 – Definitions

Definitions from Chapter 2 relating to Institutional Group I-2:

- Medical Care
- 24-Hour basis
- Foster care facilities
- Detoxification facilities
- Hospitals and psychiatric hospitals
- Nursing homes



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Group I-4 (Section 308.5)

The characteristics of Group I-4 occupancies include:

- It contains provisions for the custodial care on less than a 24 hour basis for more than five persons of any age.
- Are intended to be used for less than 24 hours and are not intended to provide medical supervision.
- Include both adult day care and child day care.



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Group R-3 (Section 308.3.2)

Any facility that has the characteristics of a Group I-2 occupancy but does not have more than five persons receiving care at any one time is to be classified as a Group R-3 occupancy.

- Can comply with IRC provided an automatic sprinkler system is installed



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Group R – Residential (Section 310)

The characteristics of Group R occupancies include:

- Represents some of the highest fire safety risks.
- The fuel load is often high.
- It is common to use extensive amounts of combustible materials.
- The wide range of occupant types (from infants to the aged, for the longest periods of time) makes this occupancy more susceptible to the careless acts of occupants.



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Group R – Residential

The term Group R refers to four individual residential occupancy classifications (R-1, R-2, R-3, R-4) that are differentiated based on:

- Whether the occupants are transient or nontransient in nature.
- The type and number of dwelling units or sleeping units contained in a single building.
- The number of occupants in the facility.



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Group R-3 (Section 310.4)

The characteristics of Group R-3 occupancies include:

- Residential occupancies where the occupants are primarily permanent and not classified as Group R-1, R-2, or R-4 or I.
- Include care facilities that provide accommodation for five or fewer persons receiving care, nontransient congregate living facilities with 16 or fewer occupants, transient congregate living facilities with 10 or fewer occupants, and lodging houses with 5 or fewer guest rooms and 10 or fewer occupants.



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Group R-4 (Section 310.5)

The characteristics of Group R-4 occupancies include:

- When a limited number of people who require custodial care live in a facility where more than 5 but not more than 16 persons are receiving care, such facility is no longer classified as Group I-1 but as a Group R-4.
- Includes alcohol and drug centers, assisted living facilities, group homes, halfway houses, residential board and custodial care facilities.

Continued on next slide



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Group R-4 (Section 310.5) Continued

- Divided into “Condition 1” or “Condition 2”
- In Condition 1 the care recipients are capable of reaching safety in an emergency situation without assistance. (This is comparable to 2012 R-4 occupancy)
- Condition 2 applies where any of the care recipients require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation. (Would have been moved to I-2 in 2012 code)



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Group E – Educational (Section 305.2)

The characteristics of Group E occupancies include:

- Facilities intended to be used for the care and supervision of more than five children older than 2½ years of age where individual care is for a period of less than 24 hours per day.
- Day care centers are a special concern since they are generally occupied by preschool children who are less capable of responding to an emergency.
- Day care facilities with more than 10 children must be provided with two means of egress.



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Group E – Definitions

A definition from Chapter 2 relating to Educational Group E:

- Personal care service



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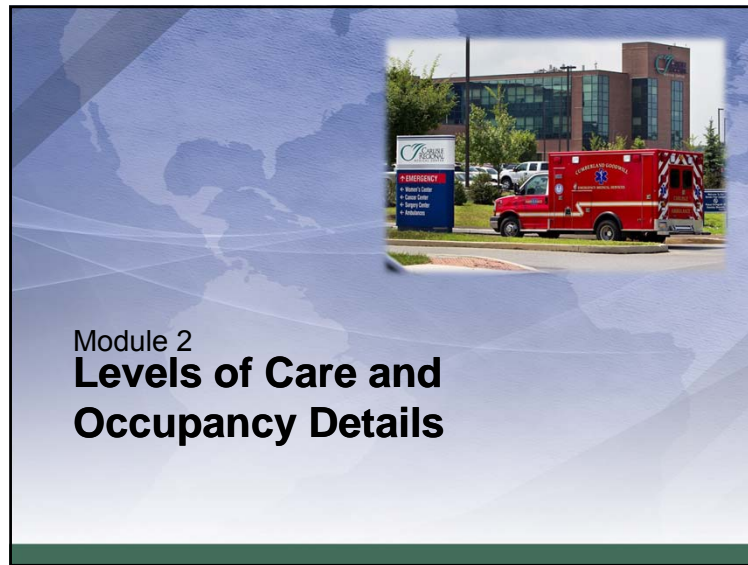


		Occupancy										
		B- Out-patient ¹	B-ACF ²	I-1 ¹	I-2 ²	I-4 ¹	R-3	R-4	E			
Attributes	Occupant load	≤ 5	X	X	See R-3	See R-3	Primary occupancy or see R-3 in dwelling	X Can use IBC			Primary occupancy or see R-3 in dwelling	
		6 - 16	X	X	See R-4	X	X		X	X		
	Length of stay	> 16	X	X	X	X	X				X	
		< 24 hrs	X	X			X				X	
	Capability of care recipient	Capable of self-preservation	Without assistance			X					X	
			With limited verbal or physical assistance	X		X			X		X	
Incapable of self-preservation			X		> 5 See R-3 if < 5			X				
Age	< 2.5 years					See 308.5.1 for option of E daycare				See 308.5.1 for option		
	≥ 2.5 years									X		



1. Custodial Care 2. Medical Care

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Module 2 Levels of Care and Occupancy Details

Levels of Care

The three basic levels of care are:

- Medical
- Custodial
- Personal care services



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Medical Care

The primary occupancies used for medical care are:

- Group B
- Group I-2
- Note: Very small medical care facilities (with five or fewer persons) can be classified as a part of a Group R-3 occupancy or constructed using the IRC.



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Group B Occupancies—Medical Care Less than 24 Hour Basis

Business Group B includes the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. This group includes:

- Ambulatory care facilities
- Outpatient clinic
- Professional services



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Less than 24-hour Care				
Type of Care (and/or age)	Capability of Residents	Number of Care Recipients		
		1 – 5	6 – 16	Over 16
Medical	Capable of self-preservation	B	B	B
Medical	Not capable of self-preservation	B (ACF) ¹	B (ACF)	B (ACF)
Personal Care Service Over 2 ½ years	Capable of self-preservation	Part of primary occupancy ²	E ³	E ³
Custodial		Part of primary occupancy ²	I-4 ³	I-4 ³
Custodial 2 ½ years or less		Part of primary occupancy ²	I-4 ³ or E ⁴	I-4 ³ or E ⁴

B (ACF) = Group B ambulatory care facility
 1. Group B ACF have certain additional requirements that apply when there are four or more care recipients who are not capable of self-preservation.
 2. If located within a dwelling unit. Classified as R-3 or comply with IRC.
 3. Within places of religious worship, care provided during religious functions shall be classified as part of the primary occupancy (Typically an A-3)
 4. See Section 308.5.1. Child day care for more than five but no more than 100 shall be classified as a Group E where the rooms are located on the level of exit discharge and each care room has an exit door directly to the exterior.



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Group B Occupancies—Medical Care Less than 24 Hour Basis

Group B—Ambulatory Care Facility (ACF)

- Complies with many of the general Type B occupancy requirements.
- Specific requirements are found in Section 422.
- Special incidental use requirements in Table 509.
- Special sprinkler requirements in Sections 903.2.2 and 903.3.2.
- Special fire alarm and detection system requirements in Section 907.2.2.



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Group B Occupancies—Medical Care Less than 24 Hour Basis

Group B—Outpatient Clinic or Professional Services

- No specific or unique provisions.
- General Type B occupancy provisions are applicable.



Group B Occupancies—Medical Care Less than 24 Hour Basis

A few items to consider when making this determination:

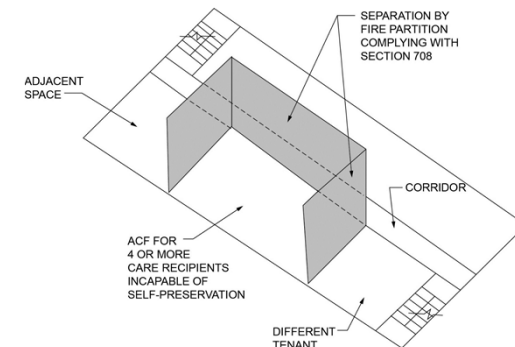
- Emphasize the word “incapable.”
- Typically must rely on the information and statements from the facility regarding the types of care and treatments and how they affect the care recipients.
- The person must be capable of responding on their own.



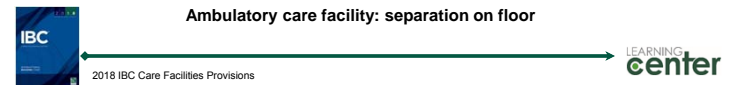
Section 422.2 Separation (ACF)

Separation of ambulatory care facilities is:

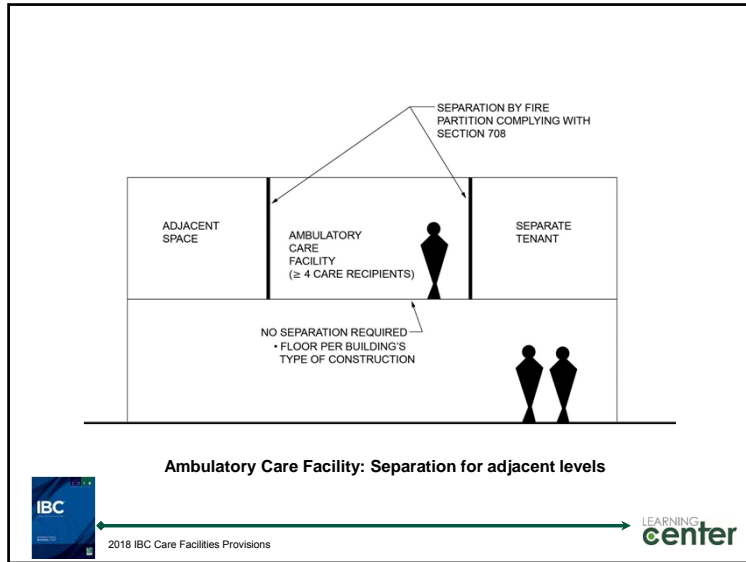
- Required where the potential for four or more care recipients to be incapable of self-preservation at any time.
- Separated from adjacent spaces, corridors or tenants.
- Done with fire partition complying with Section 708.
- Not required between adjacent floors.



Ambulatory care facility: separation on floor

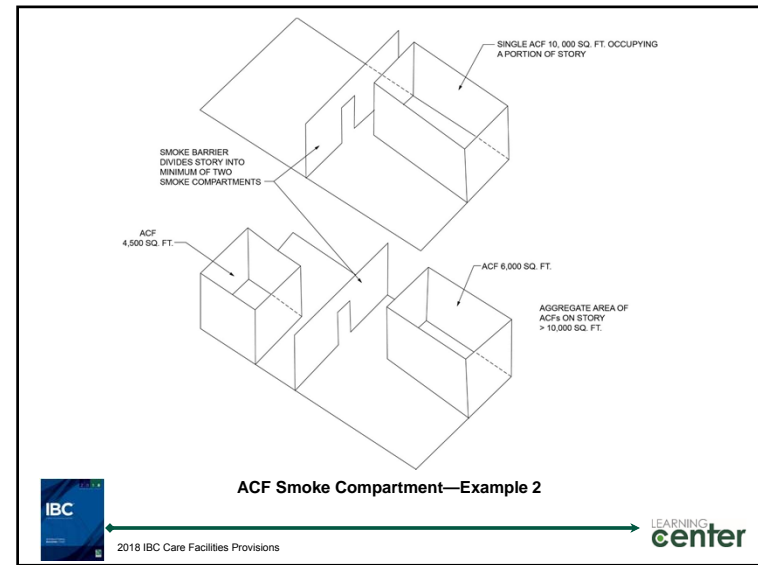
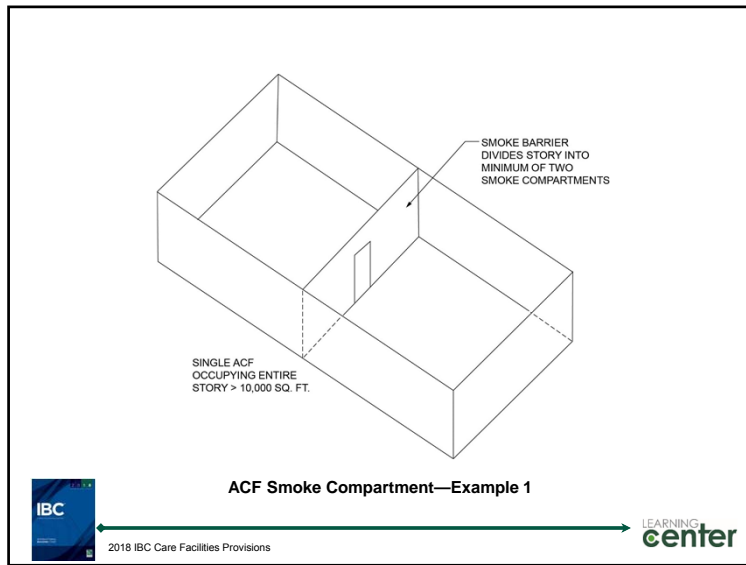


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Section 422.2 Separation (ACF)

Although not equivalent to the level of protection provided by the smoke compartments in Section 422.3, this separation requirement in 422.2 will help isolate that ambulatory care facility from hazards in other parts of the building and provides a level of separation for facilities that are below the 10,000-square-foot threshold in Section 422.3.



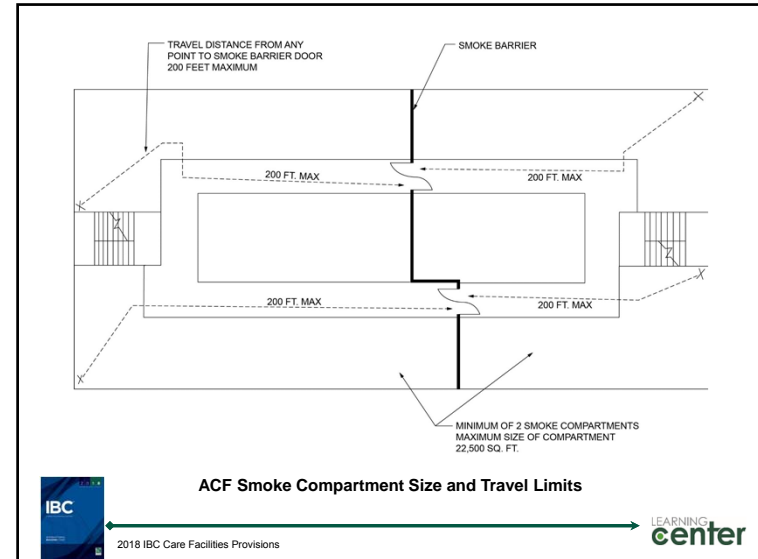
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Section 422.3 Smoke compartments

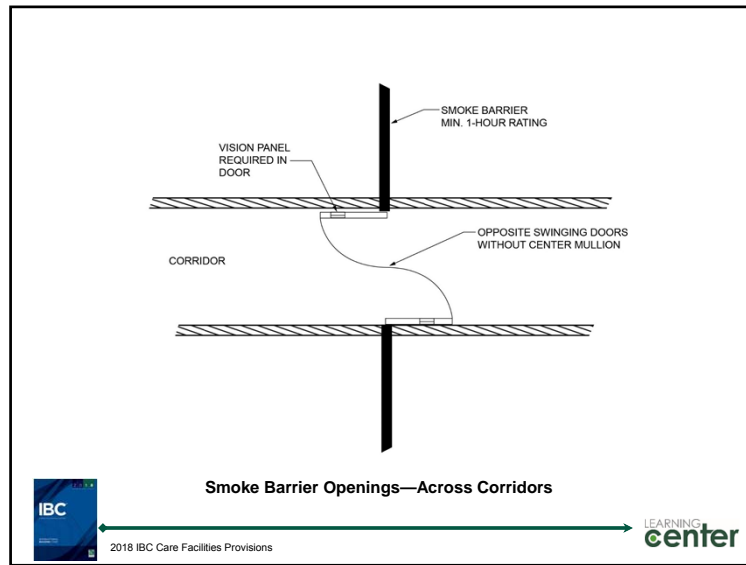
- The maximum area of any smoke compartment is 22,500 square feet.
- The maximum travel distance from any point in the smoke compartment to the smoke barrier is 200 feet.
- A smoke barrier is installed in accordance with Section 709.
- The intent is to provide for protect-in-place environment to where care recipients can be evacuated.



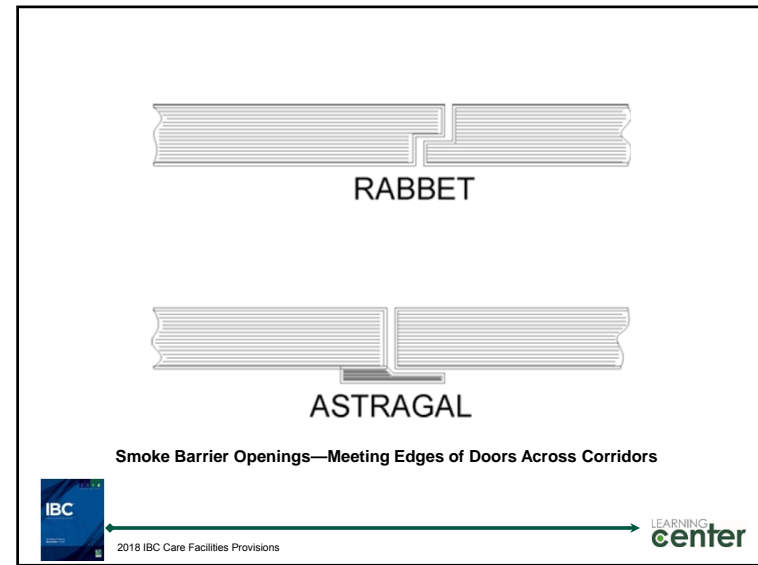
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Section 709.5 Openings in smoke barriers

- Openings in a smoke barrier are required to comply with Section 716.

Type of Assembly	Required Wall Assembly Rating (hours)	Minimum Fire Door and Fire Shutter Assembly Rating (hours)	Door Vision Panel Size	Fire Rated Glazing Marking Door Vision Panel e	Minimum Sidelight/ Transom Assembly Rating (hours)	Fire-Rated Glazing Marking Sidelight/ Transom Panel
					Fire Protection	Fire Protection
Smoke Barrier	1	1/3 b	Maximum size tested	D-20	3/4	D-H-OH-45

b. For testing requirements, see Section 716.2.2.1



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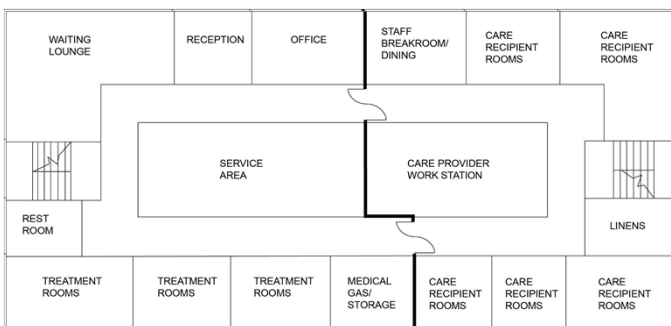
Section 709.5 Openings in smoke barriers

Exceptions to Section 709.5 allow:

- A pair of opposite-swinging doors without a center mullion to be used where the smoke barrier crosses a corridor in a Group I-1 Condition 2, I-2 or ambulatory care facility.
- A horizontal sliding, accordion or folding door can be installed in a Group I-1 Condition 2, I-2 or ambulatory care facility provided the door complies with Sections 1010.1.4.3 and 716.



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Smoke Compartment Refuge Area



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Section 422.3.2 Refuge Area

Within each smoke compartment, an adequately-sized area (called a refuge area) must be available for care recipients to be relocated to during an emergency. They must meet these criteria:

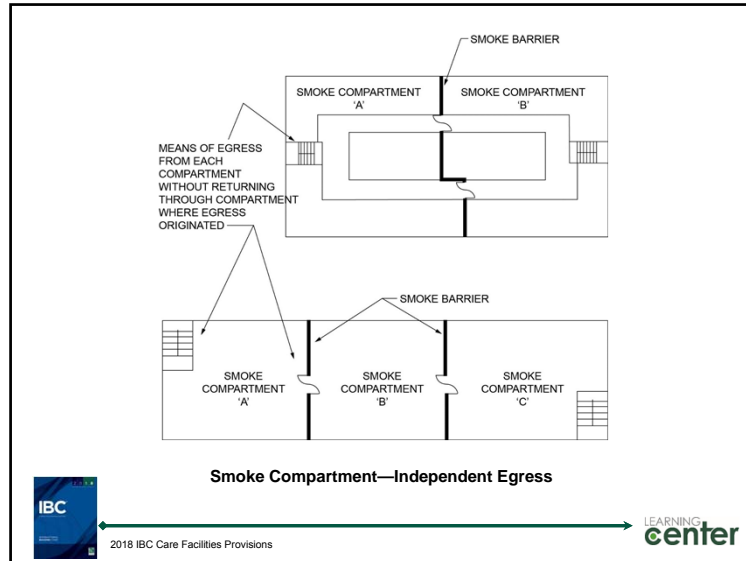
- Not less than 30 net square feet for each nonambulatory care recipient.
- Can be located within corridors, care recipient rooms, treatment rooms, lounge or dining areas.
- Occupants must have access to the refuge area without passing through adjacent tenant spaces.



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Section 422.3.3 Independent Egress

A means of egress shall be provided from each smoke compartment created by smoke barriers:

- Requires a means of egress, not an “exit.”
- Cannot return through the smoke compartment from which egress originated.
- Can pass through multiple smoke compartments.



Group I-2 Occupancies

Institutional facilities use four basic criteria to determine which occupancy is correct:

- Residents live in a supervised environment (Group I-1).
- The length of stay is 24 hours or more (Groups I-1 and I-2), or less than 24 hours (Group I-4).
- Are the residents capable of self-preservation? (Groups I-1, I-2 and I-4)
- The number of residents/care recipients (Groups I-1, I-2, and I-4).



Group I-2 Occupancies

24-hour Care Facilities				
Type of Care	Capability of Residents	Number of Care Recipients		
		1 – 5	6 – 16	Over 16
Custodial	Capable of self-preservation *	R-3 or IRC	R-4	I-1
Medical	Not capable of self-preservation	R-3 or IRC	I-2 [†]	I-2 [†]

* See Section 308.2 for Condition 1 and 2. Limited verbal or physical assistance is permitted.
[†] See Section 308.3 for Condition 1 and 2. Nursing homes versus hospitals.

Group Designations for 24-hour Care Facilities



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Group I-2 Medical Care

Provisions that may be applicable:

- Uses many of the general requirements
- Allowed to be a Group R-3 for smaller occupant loads Section 308.3.2
- Specific and unique requirements Section 407
- Unique height and area provisions Tables 504 and 506.2
- Special incidental use requirements Table 509



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Group I-2 Medical Care (continued)

Provisions that may be applicable:

- Special restrictions on vertical openings Section 712
- Special floor covering and decorative materials requirements Sections 804 and IFC 807.5
- Special sprinkler requirements Sections 903.2.6 and 903.3.2



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Group I-2 Medical Care (continued)

Provisions that may be applicable:

- Special fire alarm and detection system requirements Section 907.2.6
- Unique change in elevation requirement Section 1003.5
- Special door locking arrangements Section 1010
- Specific accessibility requirements Section 1107.5



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Module 3

Special Provisions for the Various Levels of Medical Care Facilities

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Overview

Levels of protection provided by Section 407 include:

- Early detection.
- Fire containment.
- Horizontal evacuation.
- Fire extinguishment.



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Section 407.2 Corridor Continuity and Separation (Group I-2)

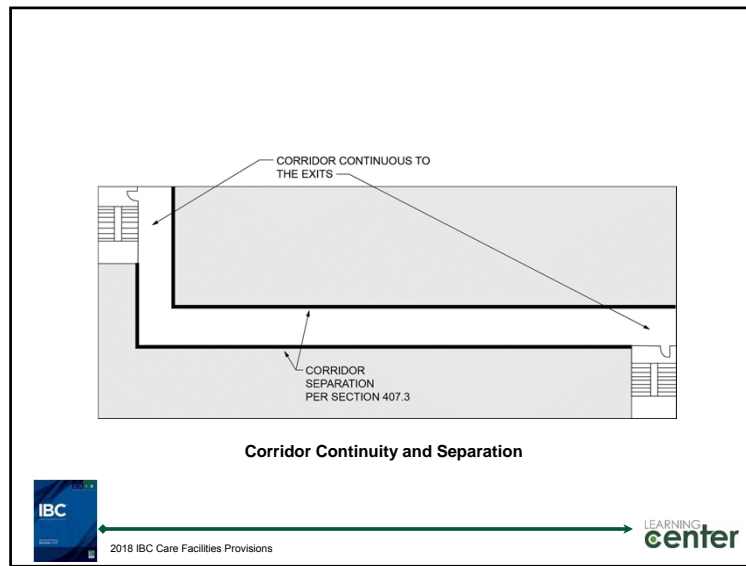
Corridors in Group I-2 shall be continuous to the exits and separated from other areas in accordance with Section 407.3.

Spaces allowed to be open to the corridor due to special requirements include:

- Waiting and similar areas (Section 407.2.1)
- Care providers' stations (Section 407.2.2)
- Psychiatric treatment areas (Section 407.2.3)
- Gift shops (Section 407.2.4)



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Section 407.2.1 Waiting and Similar Areas

Waiting areas and similar spaces constructed as required for corridors shall be permitted to be open to a corridor where all of the following criteria are met:

Space is not occupied as

- Care recipient's sleeping room.
- Treatment rooms.
- Incidental use in accordance with Section 509.
- Hazardous uses.

Open space is protected by an automatic fire detection system in accordance with Section 907.



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Section 407.2.1 Waiting and Similar Areas (continued)

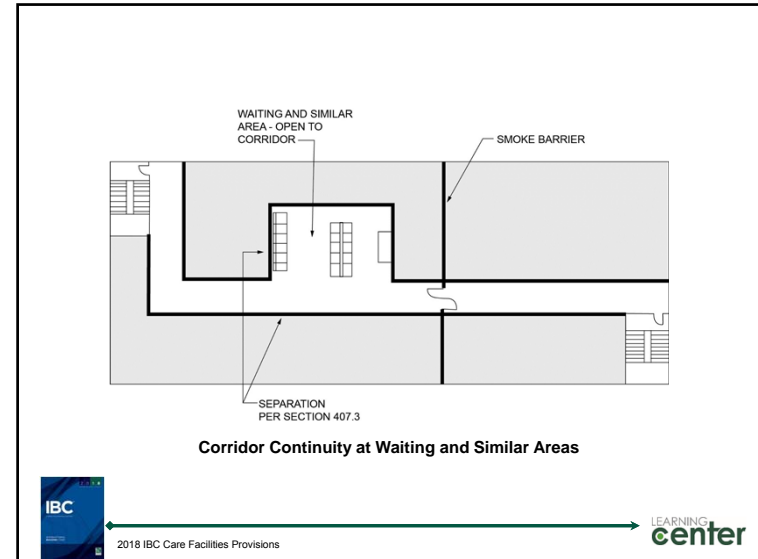
Corridors that are open to the space in the same smoke compartment are protected by either:

- Automatic fire detection system in accordance with Section 907; or
- All spaces within the smoke compartment have quick-response sprinklers in accordance with Section 903.3.2.

The open space is arranged so as not to obstruct access to the required exits.



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Section 407.2.2 Care Providers' Stations

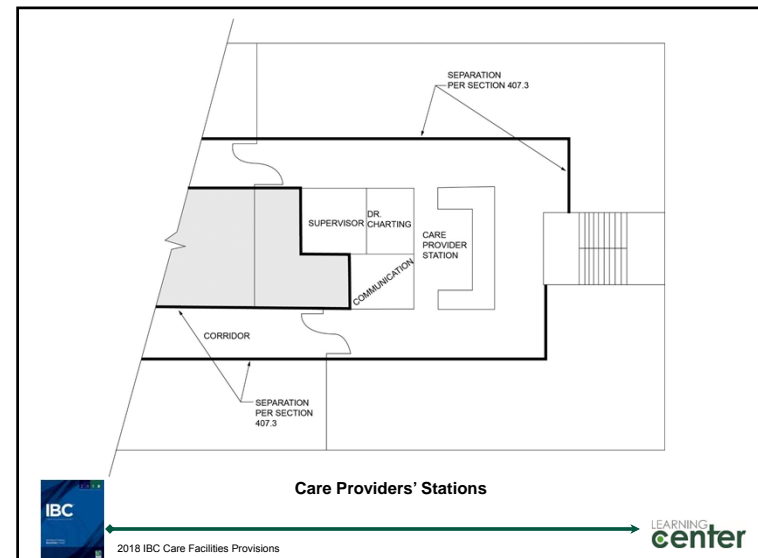
Care provider stations are permitted to be open to a corridor where such spaces are constructed as required for corridors.

Types of spaces that are allowed include:

- Spaces for care providers.
- Supervisory staff.
- Doctors' and nurses' charting.
- Communications.
- Related clerical areas.



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Section 407.2.3 Psychiatric Treatment Areas

Psychiatric treatment areas shall be permitted to be open to a corridor where all of the following criteria are met:

- Each area does not exceed 1,500 square feet.
- Area is located to permit supervision by the facility staff.
- Area is arranged so as not to obstruct any access to required exits.

(Continued on next slide)



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Section 407.2.3 Psychiatric Treatment Areas (continued)

- Area is equipped with automatic fire detection system in accordance with Section 907.2.
- No more than one such space is permitted in any one smoke compartment.
- Walls and ceilings of the space are constructed as required for corridors.



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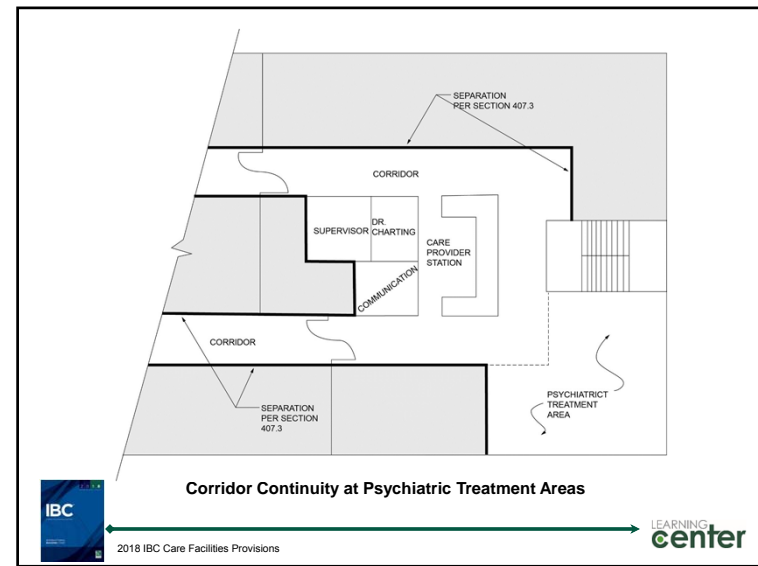
Section 407.2.3 Psychiatric Treatment Areas

Where, under continuous supervision by facility staff, psychiatric treatment areas that are allowed to be open to the corridor include:

- Where psychiatric care recipients who are not capable of self-preservation are housed.
 - Group meeting spaces.
 - Multipurpose therapeutic spaces.
- Does **not** include incidental uses in accordance with Section 509.



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Section 407.2.4 Gift Shops

Gift shops and associated storage that are less than 500 square feet in area shall be permitted to be open to the corridor where such spaces are constructed as required for corridors.



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LEARNING center

Nursing home housing units Section 407.2.5

In Group I-2 Condition 1 uses (Nursing homes) shared spaces are allowed to be open to the corridor.

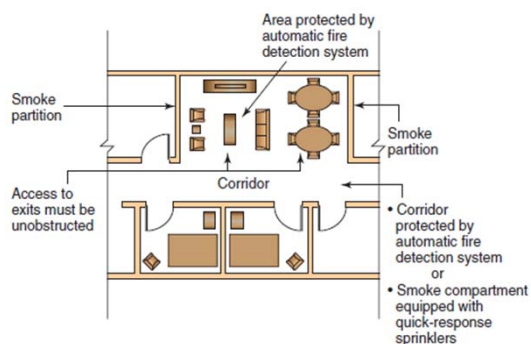
- Must comply with 5 specific requirements
- Very similar to provisions for “waiting and similar areas” covered by Section 407.2.1



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LEARNING center

Nursing home housing units Section 407.2.5



Group I-2 shared living space

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LEARNING center

Nursing home cooking facilities Section 407.2.6

- In Group I-2 Condition 1 uses (Nursing homes) spaces with “domestic” cooking appliances are allowed to be open to the corridor
- Coordinates with changes in IMC
- 11 requirements must be met to allow this:
 - Limits occupant load and number of areas
 - Requires “domestic” hood and extinguishing system, plus manual activation and portable extinguisher
 - Requires interlocks and fuel/power shutoffs
- Limits types of appliances allowed

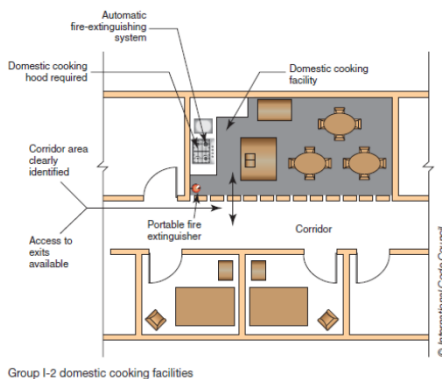


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LEARNING center

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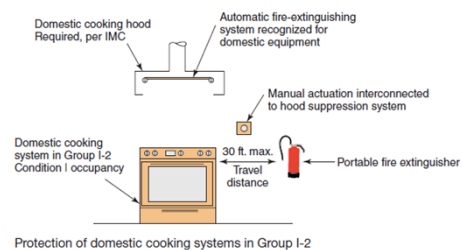
Nursing home cooking facilities Section 407.2.6



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Nursing home cooking facilities Section 407.2.6 and 904.13



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Section 407.3 Corridor Wall Construction

- Corridor walls shall be constructed as smoke partitions in accordance with Section 710.
- This includes not only the actual corridor walls themselves, but also the wall separating other areas from waiting areas, care providers' stations, psychiatric treatment areas and gift shops that are allowed to be open to the corridor.



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Section 710.4 Corridor Wall Construction—Smoke Partition Continuity

Smoke partitions shall extend from the top of the foundation or floor below to the underside of:

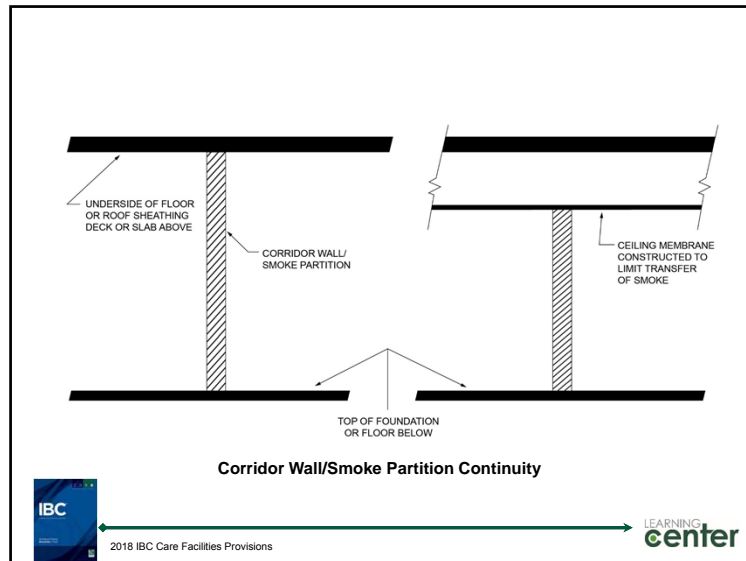
- the floor or roof sheathing, deck or slab above; or
- to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke.



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Sections 407.3 and 710 Smoke Partition

Corridor walls must be constructed as smoke partitions and:

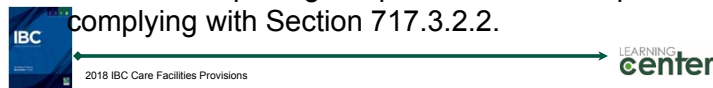
- have walls constructed of materials permitted by the building's type of construction.
- not required to have a fire-resistance rating.



Sections 407.3 and 710 Smoke Partition

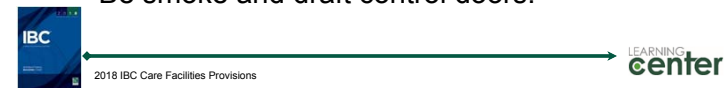
Corridor walls must have openings and penetrations protected as follows:

- Windows must be sealed to resist the free passage of smoke or be automatic closing upon detection of smoke.
- Joints and the space around penetrations or duct must be filled with an "approved" material to limit the free passage of smoke.
- Air transfer openings require a smoke damper complying with Section 717.3.2.2.

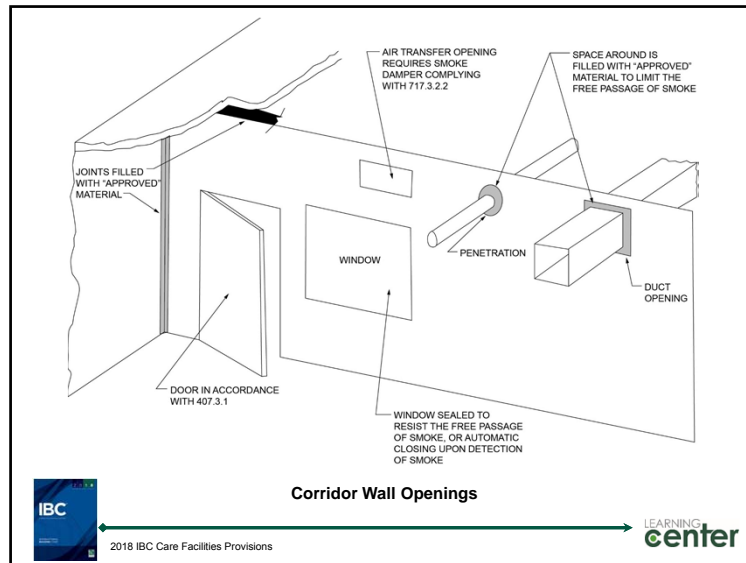


Sections 407.3 and 710 Smoke Partition (continued)

- Doors follow specific requirements of Section 407.3.1 versus general requirements of Section 710.5.2 or other code sections.
- Door must provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching. Doors are not required to:
 - Have a fire-protection rating.
 - Be self-closing or automatic closing.
 - Be smoke and draft control doors.



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Sections 407.3 and 710.8 Ducts and Air Transfer Openings—Smoke Partition

- Smoke dampers are required to be provided to maintain the integrity of the smoke partition as a means to prevent the spread of smoke when an “air transfer opening” exists.
- If a ducted system is used, then the code specifies that the annular space around the duct must be protected.

Controlling Code Section

Element/Feature	Code Sections		
	407.3	710	Other Sections
Construction			
Material		710.2	602
Fire-resistance		710.3	1020.1
Continuity		710.4	
Openings			
Windows		710.5.1	716 (NR)
Doors	407.3.1	710.5.2	716 (NR) 716.2.2.1 (NR)
Louvers		710.5.2.1	
Smoke and draft control		710.5.2.2 (NR)	716.2.2.1.1 (NR)
Closing	407.3.1	710.5.2.3	716.2.6.6
Penetrations		710.6	714 (NR)
Joints		710.7	715 (NR)
Ducts and air transfer openings		710.8 - for air transfer	NFPA – for ducted 717.5.4.1 (NR) 717.5.7

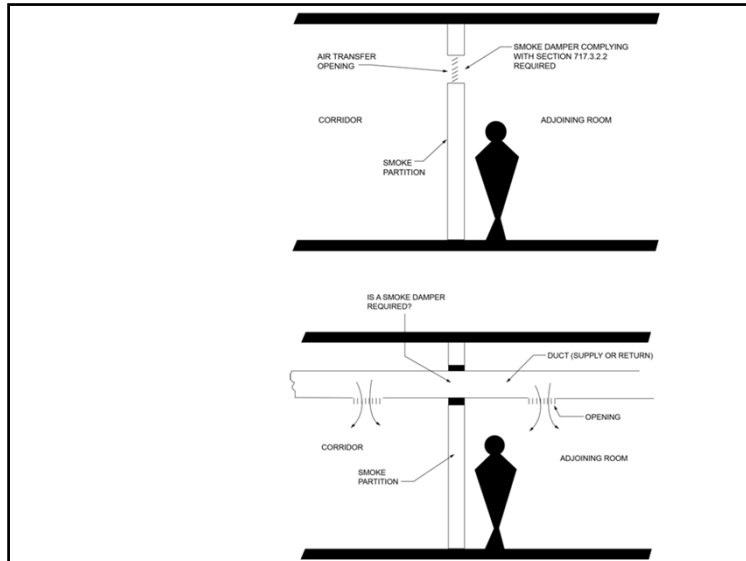
NR = Not required or not applicable
 = Controlling section/requirement

ACTIVITY

Activity: Smoke Dampers

1. Is a smoke damper required at the point where a duct runs through the smoke partition?
2. Is the building official responsible for ensuring a damper is provided in a ducted system or are they limited to only enforcing/requiring what the IBC indicates?


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ACTIVITY

Activity: Door Requirements

Is a corridor door in a Group I-2 hospital allowed to have louvers? Is Section 407.3.1 or 710.5.2.1 the controlling section?



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Means of Egress – Section 407.4

Group I-2 occupancies have several unique or specific egress requirements:

- Covered within Sections 407.4.1 through 407.4.4
- References Section 1002.2 and IFC provisions for Fire Safety and Evacuation Plan. Uses a “defend-in-place” system.



Section 407.4.1 Direct Access to a Corridor

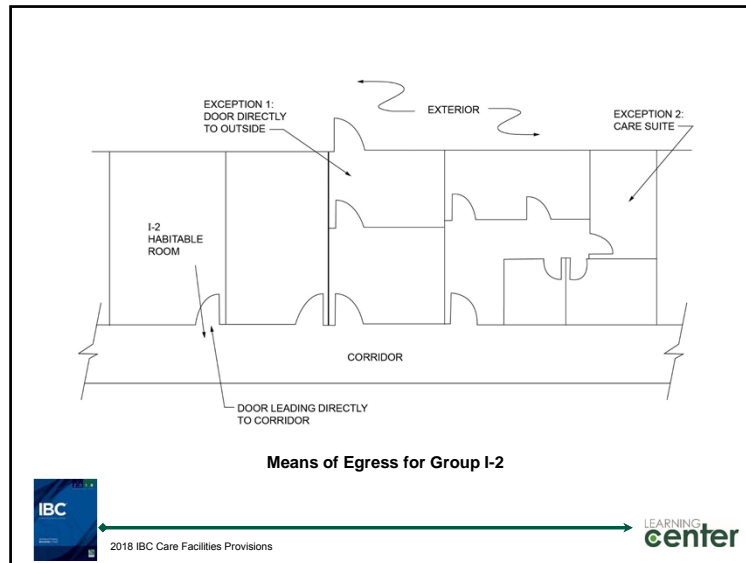
Habitable rooms in Group I-2 occupancies shall have an exit access door leading directly to a corridor.

Exceptions are provided for:

- Rooms with exit doors opening directly to the outside at ground level.
- Rooms within care suites that comply with Section 407.4.4.



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Section 407.4.1.1 Locking Devices

- Egress doors are required to be readily openable from the egress side without the use of a key or special knowledge or effort.
- Section 407.4.1.1 allows doors from the corridor to be locked so that access to a care recipient's room from the corridor can be restricted.



Section 407.4.1.1 Locking Devices

Exceptions to Section 407.4.1.1 are applicable to:

- Rooms in psychiatric treatment and similar care areas; or
- Controlled egress locking arrangements that comply with Section 1010.1.9.7.



Section 1010.1.9.7 Locking Devices

The special locking arrangements of Section 1010.1.9.7 can be used for a Group I-1 or I-2 occupancy where:

- The clinical needs of the persons receiving care require such locking.
- The building is equipped throughout with a sprinkler system or with smoke or heat detection.
- The doors operate in accordance with all of eight specific items.



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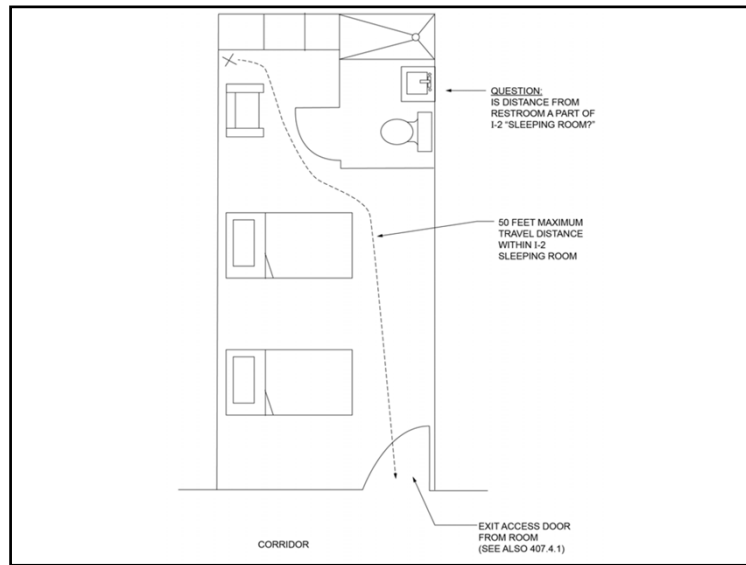
Section 407.4.2 Travel Distance

- This section limits the overall travel distance within an individual patient sleeping room through the exit access door in that room.
- The travel distance between any point in a Group I-2 sleeping room and the exit access door from that room is limited to a maximum of 50 feet.



Activity: Travel Distance

1. Given the code language and the room layout, is the 50-foot limitation applicable to travel distance from within the bathroom?
2. Is the bathroom considered a part of the sleeping room or is the requirement only applicable to the main area of the patient sleeping room?



Projections in Nursing Home Corridors – Section 407.4.3

Furniture is allowed as a projection in corridors of nursing homes (I-2 Condition 1).

Must comply with 6 items:

- Must maintain 72 inch minimum width
- Limits grouping size and separation
- Limited to one side of corridor to prevent need for zig-zagging in emergency
- Furniture must be fixed to wall or floor



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Section 407.4.4 Care Suites

Care suites are allowed within a Group I-2 occupancy if they comply with the requirements of Section 407.4.4. The care suite requirements are divided into three parts:

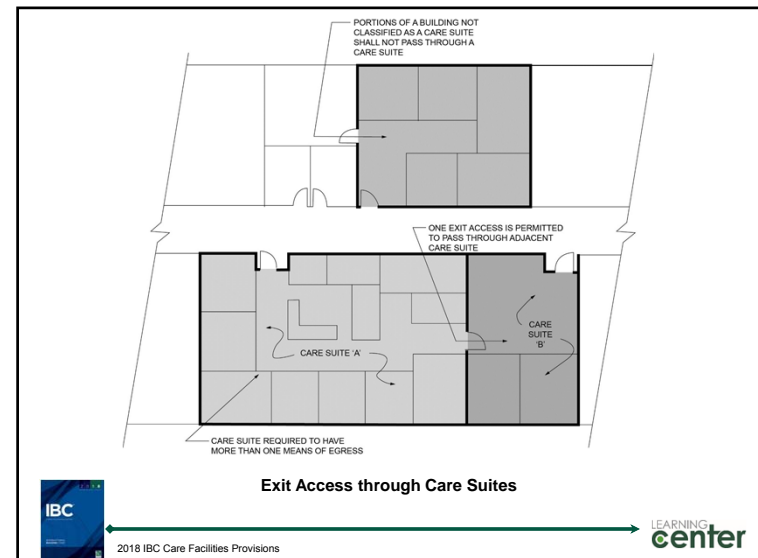
- General requirements applicable to all care suites.
- Requirements for care suites containing sleeping rooms.
- Requirements for care suites not containing sleeping rooms.



Section 407.4.4.1 Egress through Care Suites

While Section 1016.2 allows egress through intervening rooms, the care suites within a Group I-2 occupancy have additional restrictions:

- Portions of the building that are not classified as a care suite shall not pass through a care suite.
- Where a care suite is required to have more than one means of egress from the suite, one path of the exit access is allowed to pass through an adjacent suite if certain requirements are met.



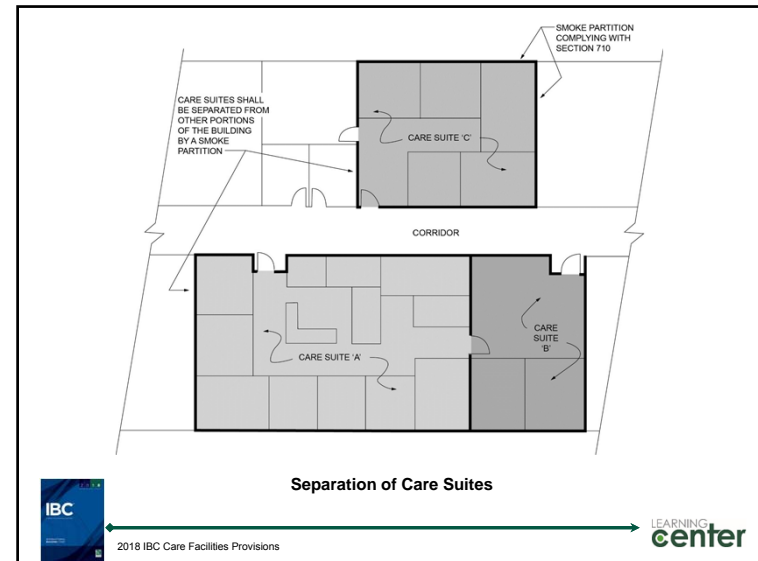
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Section 407.4.4.2 Care Suite Separation

- Care suites shall be separated from other portions of the building by a smoke partition complying with Section 710.
- Because each care suite is addressed separately, the separation requirement of Section 407.4.4.2 means that each suite is separated from:
 - Adjacent care suites.
 - The corridor.
 - All other portions of the building.



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Section 407.4.4.3 Travel within Care Suite

Travel within the suite

- Within a care suite, habitable rooms are permitted to pass through three doors in order to enter the corridor, and the travel distance within the care suite is limited to not more than 100 feet.
- Travel distance can be increased to 125 feet where an automatic smoke detection system is provided within the entire care suite



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Section 407.4.4.4 Doors within Care Suite

Doors within a care suite can be:

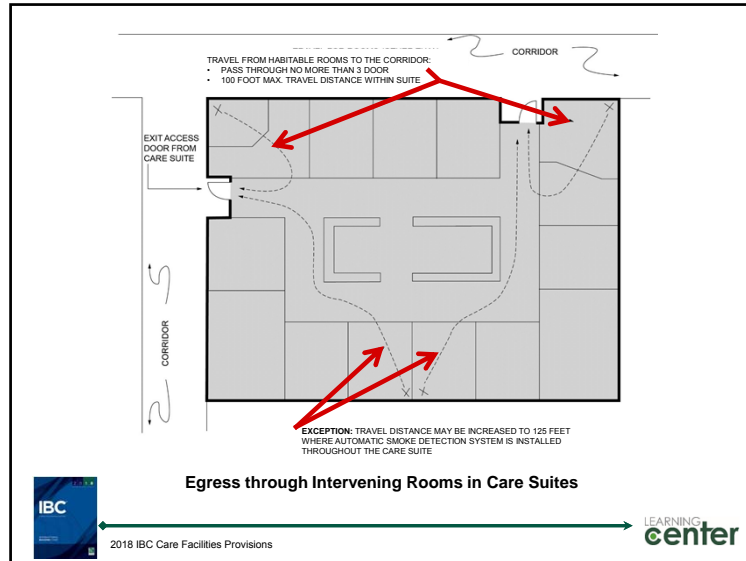
- Manually operated horizontal sliding doors – if serving 10 or less occupants
- Power operated doors complying with Section 1010.1.4.2
- Egress doors complying with Section 1010.



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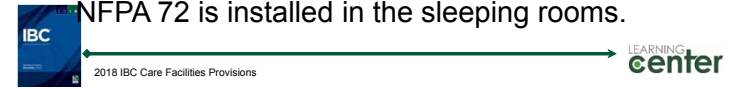
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Section 407.4.4.5 Care Suite Containing Sleeping Room

Sleeping rooms are permitted to be grouped into care suites if using one of the following criteria:

- Care suite is not used as exit access for more than eight care recipient beds.
- Arrangement of the care suite allows for direct and constant visual supervision by care providers.
- Automatic smoke detection complying with NFPA 72 is installed in the sleeping rooms.



Sections 407.4.4.5.1 Care Suites Containing Sleeping Rooms

- Maximum area of care suite containing sleeping rooms

7,500 SQ. FT. MAX.

- Care suites containing sleep rooms shall not be greater than 7,500 square feet (696 m²) in area.

10,000 SQ. FT. MAX.

- **EXCEPTION:** Care suites containing sleeping rooms, shall not be greater than 10,000 square feet (929 m²) in area where an automatic smoke detection system is provided.



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Sections 407.4.4.6.1 Care Suites Not Containing Sleeping Rooms

- Maximum area of care suite not containing sleeping rooms



- Care suites of rooms other than sleeping rooms, shall not be greater than 12,500 square feet (1161 m²) in area.



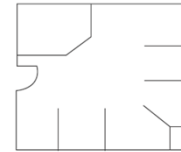
- EXCEPTION:** Care suites not containing sleeping rooms, shall not be greater than 15,000 square feet (1394 m²) in area where an automatic smoke detection system is provided.



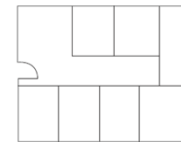
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Exit Access – Sections 407.4.4.5.2 and 407.4.4.6.2



- Two exit access doors required from any sleeping room, or any care suite containing sleeping rooms that is more than 1,000 square feet (93 m²) in area.



- Two exit access doors required from any care suite not containing sleeping rooms that is more than 2,500 square feet (232 m²) in area.

- Egress separation per Section 1007.



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Section 407.4.4 Comparison of Types

Care Suites			
Requirement:		Containing sleeping room	Not containing sleeping room
Area limitation	General	7,500 sq. ft.	12,500 sq. ft.
	Exception	10,000 sq. ft. with smoke detection system	15,000 sq. ft. with smoke detection system
Two MOE required		>1,000 square feet	>2,500 square feet
Travel distance within suite		100 feet maximum 125 feet maximum with smoke detection system	
Number of intervening doors to access corridor		Passage through a maximum of 3 doors "within" suite (Excludes door into the corridor)	



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Section 407.5 Smoke Compartments

Smoke barriers are required to subdivide every story into a minimum of two smoke compartments where the story:

- Is used by persons receiving care, receiving treatment, or sleeping, or
- Has an occupant load of 50 or more.

Smoke barrier is installed in accordance with Section 709.



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Section 407.5 Smoke Compartments (continued)

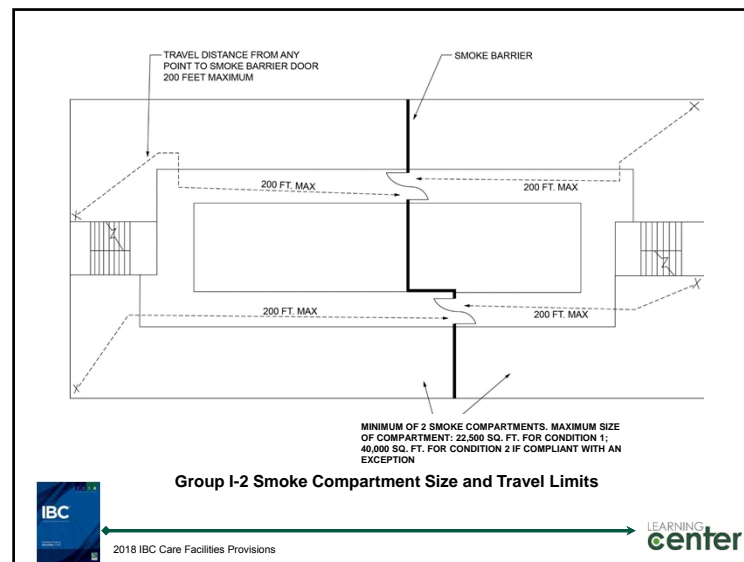
Story is subdivided into maximum 22,500 sq. ft. smoke compartments. Except:

- Maximum area of 40,000 square feet for Condition 2 with single occupancy rooms.
- Maximum area of 40,000 square feet for Condition 2 without patient sleeping rooms.

Maximum travel distance from any point in smoke compartment to the smoke barrier door is 200 feet



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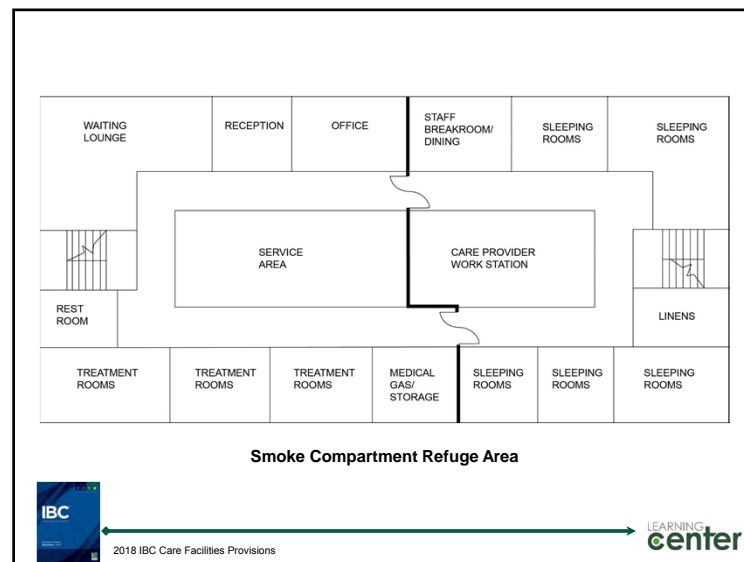
Section 407.5.3 Refuge Area

A refuge area must meet specific criteria:

- Not less than 30 net square feet for each care recipient confined to bed or stretcher.
- Not less than 6 square feet for each ambulatory care recipient not confined to bed or stretcher.
- Not less than 6 square feet for other occupants.
- Can be located within corridors, sleeping areas, treatment rooms, lounge or dining areas and other low-hazard areas.



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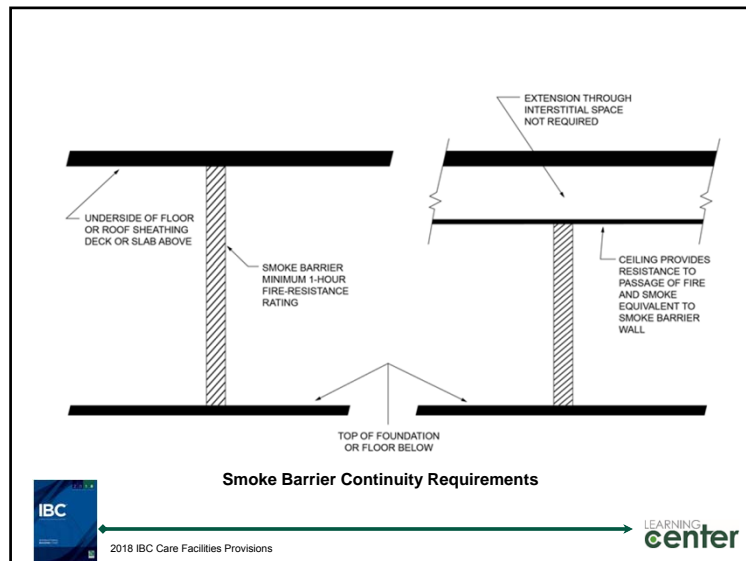
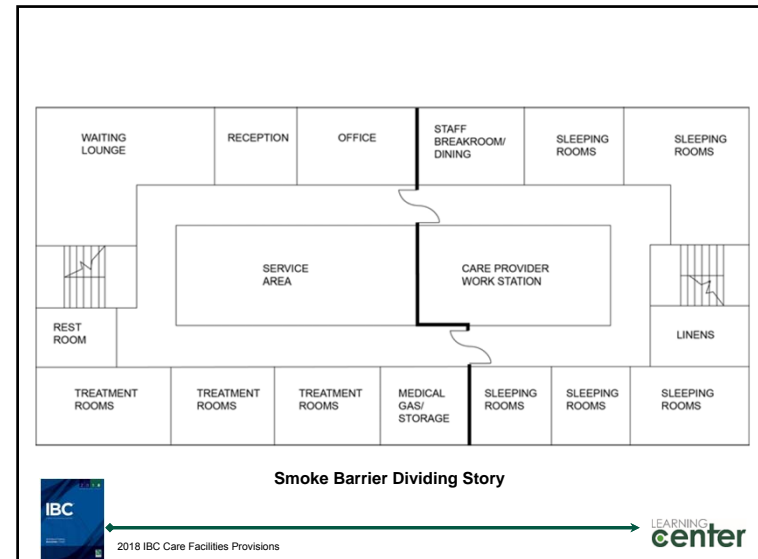
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Section 709 Smoke Barriers

- Smoke barriers are used to compartment both Group I-2 uses and Group B ambulatory care facilities in order to create refuge areas.
- Smoke barriers are required to extend from outside wall to outside wall and from the top of the floor below to the underside of the floor, roof sheathing, deck or slab above.



Section 709.5 Openings in Smoke Barriers

- Openings in a smoke barrier are required to comply with Section 716.
- In I-1 Condition 2, I-2 or ambulatory care facility, exceptions to Section 709.5 allow:
 - A pair of opposite-swinging doors without a center mullion can be used where the smoke barrier crosses a corridor, or
 - A horizontal sliding door can be installed if the door complies with Section 1010.1.4.3 and 716.

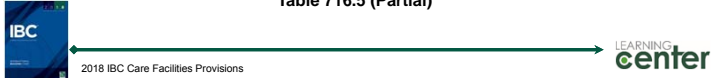


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Type of Assembly	Required Wall Assembly Rating (hours)	Minimum Fire Door and Fire Shutter Assembly Rating (hours)	Door Vision Panel Size	Fire Rated Glazing Marking Door Vision Panel ^e	Minimum Sidelight/Transom Assembly Rating (hours)	Fire-Rated Glazing Marking Sidelight/Transom Panel
Smoke Barrier	1	1/3 *	Maximum size tested	D-20	3/4	D-H-OH-45

* For testing requirements, see Section 716.2.2.1

Table 716.5 (Partial)




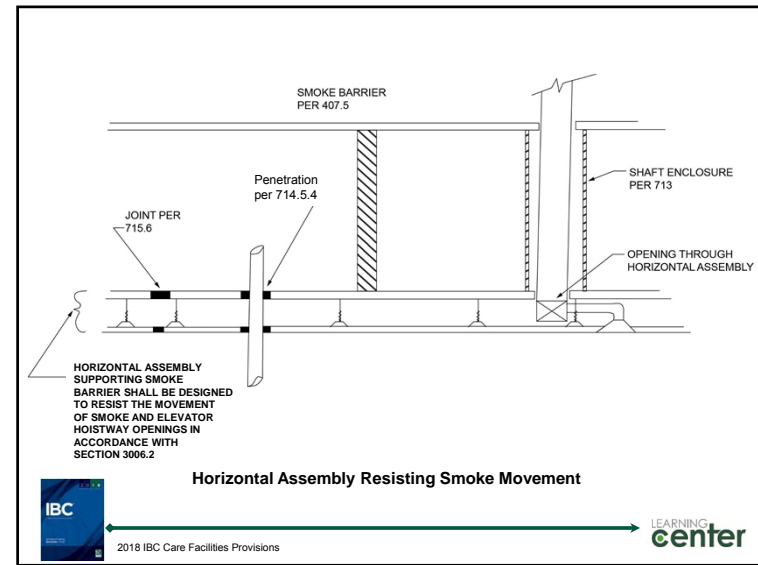
Section 407.5.4 Independent Egress

- A means of egress shall be provided from each smoke compartment created by smoke barriers.
 - The means of egress shall not require return through the smoke compartment from which egress originated.
 - If a smoke compartment does not contain an “Exit” then access to two adjacent smoke compartments.
- 

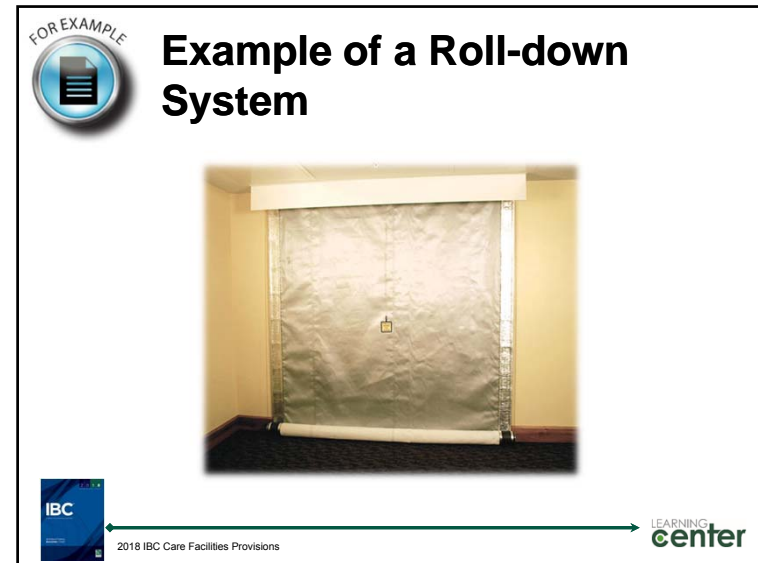
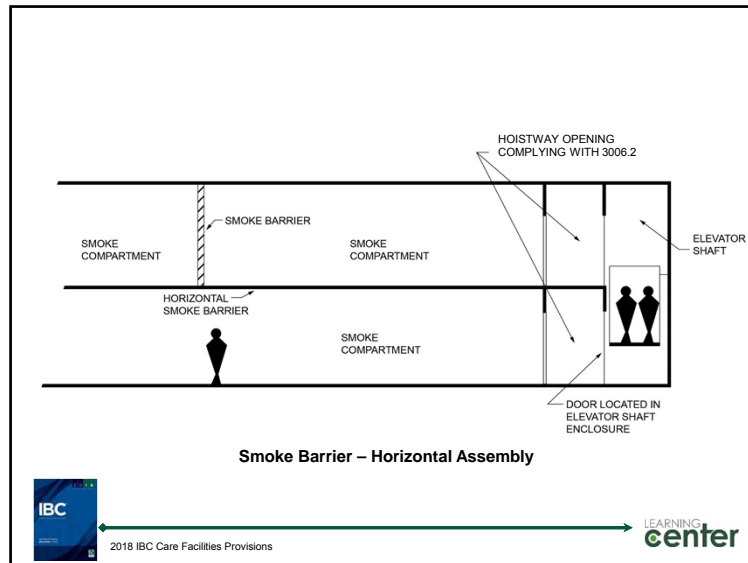
Section 407.5.5 Horizontal Assemblies Supporting Smoke Barriers

Horizontal assemblies supporting smoke barriers required by Section 407.5 shall be:

- Designed to resist the movement of smoke; and
 - Elevator hoistway opening protection shall be in accordance with Section 3006.2.
- 



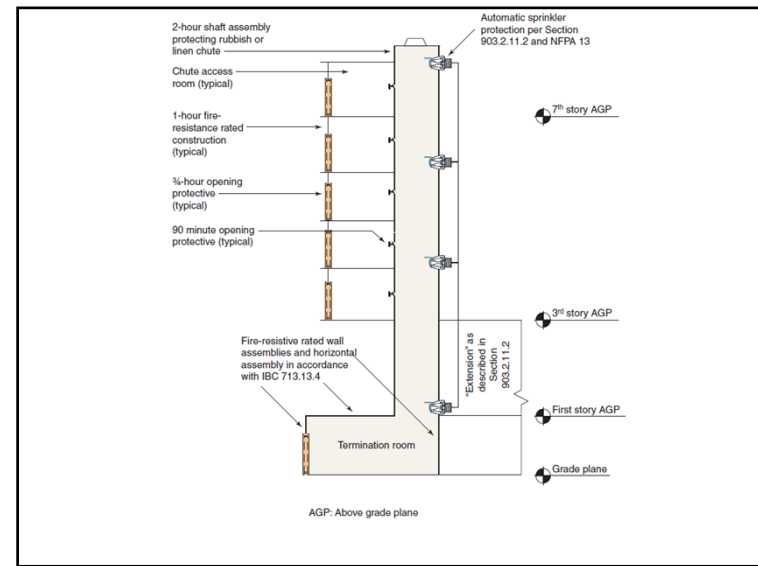
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Section 713.13 Waste and Linen Chutes

Waste and linen chutes:

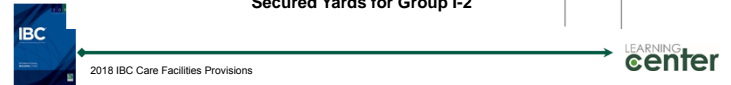
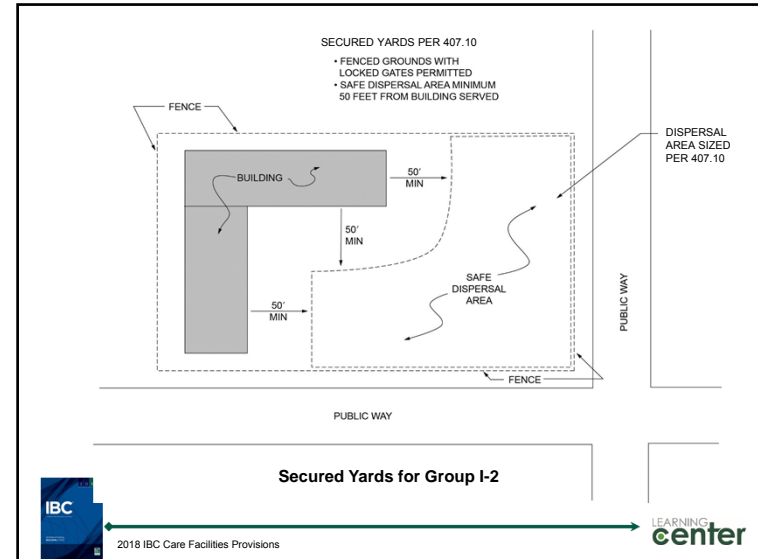
- Are similar to elevator shafts in that the code provides detailed requirements to protect them.
- Must comply with NFPA 82, Chapter 6, and
- IBC Sections 712 and 713.13.1 through 713.13.6



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Section 407.10 Secured Yards

- The exit discharge does not need to continue unobstructed to the public way if the secured yards provide a safe dispersal area complying with Section 407.10. Secured yard provisions include:
 - Grounds permitted to be fenced and gates are permitted to be equipped with locks.
 - Safe dispersal area must be not less than 50 feet from the building it serves.
 - Safe dispersal area must be sized to provide 30 square feet for bed and stretcher care recipients, 6 square feet for ambulatory care recipients, and 6 square feet for all other building occupants.



Sections 503, 504 and 506 Building Heights and Areas I-2 Occupancy

- The building height and area shall not exceed the limits specified in Sections 504 and 506 except as modified by Sections 503 through 510.

TABLE 504.3^a
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V		
		A	B	A	B	A	B	HT	A	B	
I-1 Condition 2, I-2	NS ^{d, f, g}	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85							



TABLE 504.4^{a, b}
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V		
		A	B	A	B	A	B	HT	A	B	
I-2	NS ^{d, f}	UL	4	2	1	1	NP	1	1	NP	
	S	UL	5	3							

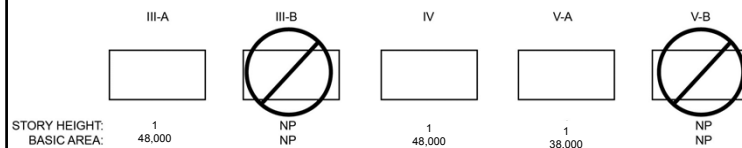
TABLE 506.2^{a, b}—continued
ALLOWABLE AREA FACTOR (A_i = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V		
		A	B	A	B	A	B	HT	A	B	
I-2	NS ^{d, f}	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP	
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP	
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP	

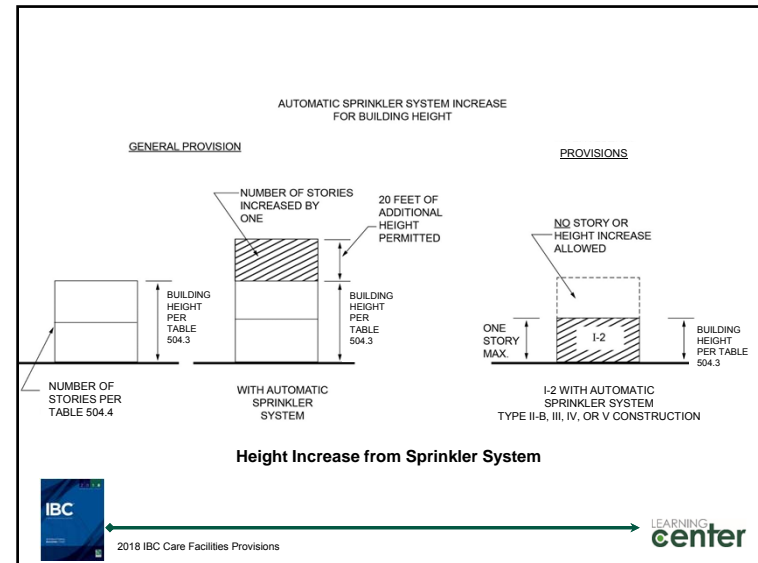


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Group I-2 Occupancies in Buildings of Combustible Construction



Height and Area Limits for Group I-2 Occupancies from Tables 504.3, 504.4 and 506.2



Section 509 and Table 509

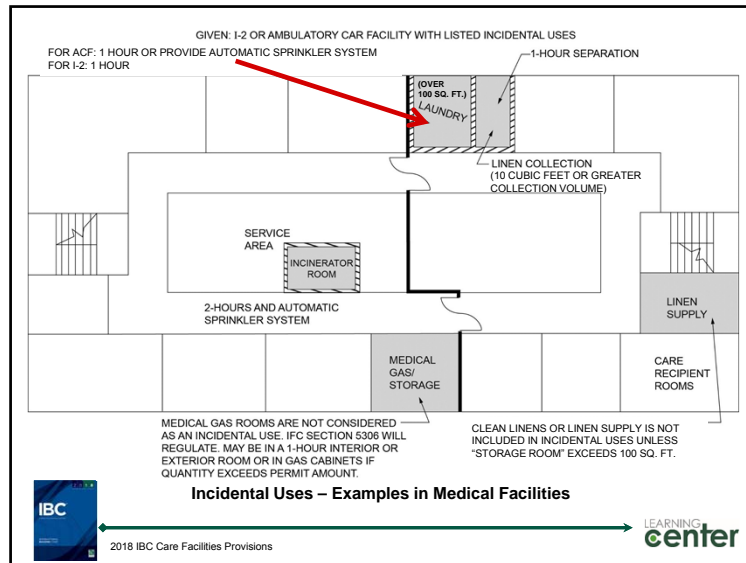
- Section 509 addresses incidental uses. These uses are considered as being a part of the primary use and are not considered as being a separate occupancy.
- Only the rooms or areas included in Table 509 are considered and regulated as incidental uses.



ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having an energy capacity greater than the threshold quantity specified in Table 1206.2 of the <i>International Fire Code</i>	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.

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

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ACTIVITY

Incidental Use Discussion

1. Given the figure related to incidental uses, would it be permissible to provide a single separation around the laundry and linen collection room or must they be separated from each other?
2. Why would the incidental use requirements only regulate the linen collection rooms and not apply to the linen supply or clean linen storage areas?

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ACTIVITY

Incidental Use Discussion

3. Is it appropriate that the medical gas supply room is not regulated as an incidental use room?
4. Are the walls that are required by Section 509.4.2 to be “capable of resisting the passage of smoke” required to be constructed as “smoke partitions” in accordance with Section 710?

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ACTIVITY

Incidental Use Discussion

5. Where Section 509.4.2 requires smoke dampers in accordance with Section 710.8 for “air transfer openings,” is that requirement applicable if a duct system is used to go through the wall?

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Custodial Care

The primary occupancies used for custodial care are:

- Group I-1
- Group R-4
- Group I-4
- **Note:** Very small custodial care facilities (with five or fewer persons) can be classified as a part of a Group R-3 occupancy or constructed using the IRC.



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Custodial Care

The proper occupancy classification and distinction between the various levels of custodial care are dependent upon the:

- Capabilities of care recipients.
- Number of people being cared for.
- Length of care.



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Custodial Care Group I-1 Occupancies

This occupancy includes buildings, structures or portions thereof for more than 16 persons who reside on a 24 hour basis in a supervised environment and receive custodial care.

Divided into two “Conditions”

- **Condition 1:** Care recipients are capable of responding to emergency without any assistance.
- **Condition 2:** Care recipients require limited verbal or physical assistance to respond to emergency situation



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Custodial Care Group I-1 Occupancies

Examples of Group I-1 include:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities



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Section 308.2.3 Six to Sixteen Persons Receiving Care

A facility housing not fewer than six and not more than 16 persons receiving care shall be classified as Group R-4.



Section 308.2.4 Five or Fewer Persons Receiving Care

- A facility with five or fewer persons receiving care shall be classified as Group R-3 or shall comply with the IRC provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or with Section P2904 of the IRC.



Group I-1 Classification

The occupancy classification as Group I-1 is appropriate when:

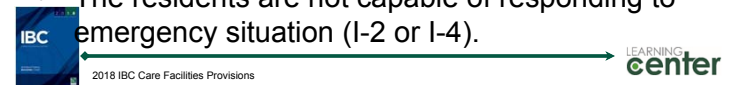
- The facility provides custodial care for more than 16 people.
- The care recipients reside at the facility on a 24-hour basis.
- The care recipients are capable of responding without assistance or only require limited verbal or physical assistance during emergency



Group I-1 Classification

Where these conditions are not found, then classification into a different occupancy is appropriate as follows:

- The number of residents/care recipients is 16 or less (R-4 or R-3).
- The type of care provided exceeds custodial care (medical care is I-2 or B).
- The length of stay is less than 24 hours (I-4).
- The residents are not capable of responding to emergency situation (I-2 or I-4).



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Group I-1 Custodial Care Services

Provisions that may be applicable:

- Typically uses general requirements.
- Allowed to be an R-3 or R-4 for smaller occupant loads in accordance with Section 308.2.
- No separate specific section similar to Group I-2's Section 407.
- Numerous exceptions or exclusions limit use of general provisions (Section 107.2.3, Section 404.5 Exception, Section 508.2.4 Exception 2).
- Special separation, sprinkler and detection system provisions in Section 420.



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Group I-1 Custodial Care Services (continued)

- Special floor covering and decorative materials requirements in Section 804 and IFC 807.
- Special sprinkler requirements in Sections 903.2.6 and 903.3.2.
- Special fire alarm and detection system requirements in Section 907.2.6.
- Specific accessibility requirements in Section 1107.5.
- Special elevator hoistway opening requirements in Section 3006.2.
- Special smoke alarm requirements for existing building in IEBC Sections 502.6, 503.14 & 1104.1.



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Custodial Care Group R-4 Occupancies

Where the number of care recipients is 16 or less for people who reside at a custodial care facility, the proper occupancy classification drops into a Group R-4 occupancy instead of the typical Group I-1 occupancy. (R-4 also has the two "Conditions".)

The occupancy changes based on the number of care recipients in the facility. The allowable height, area, type of construction and fire protection features are then based on the Group R-4 provisions.



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Group R-4 Custodial Care Services

Provisions that may be applicable:

- Allowance to construct as Group R-3 unless otherwise stated Section 310.5
- Use of NFPA 13R or 13D sprinkler based on "condition" Section 903.2.8
- Special smoke alarm provisions Section 907.2.10.2
- Specific accessibility requirements Section 1107.6.4



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Custodial Care Group I-4 Occupancies

This occupancy is covered by Section 308.5 and includes custodial care for adult day care and child day care.



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Section 308.5 Day Care Facilities

This group includes buildings and structures occupied by more than five persons of any age who receive custodial care for fewer than 24 hours per day by persons other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for.

This group includes adult day care and child day care facilities.



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Group I-4 Occupancies

This group is covered by the following sections:

- Section 308.5.1 – Classification as Group E.
- Section 308.5.2 – Within a place of religious worship.
- Section 308.5.3 – Five or fewer persons receiving care.
- Section 308.5.4 – Five or fewer persons receiving care in a dwelling unit.



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Group I-4 Custodial Care Services

Provisions that may be applicable:

- Typically uses general requirements.
- Allowed to be an E, R-3 or part of primary occupancy in accordance with Section 308.5.
- No separate specific section similar to Group I-2's Section 407.
- Special sprinkler requirements in Section 903.2.6.



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Personal Care Service

- Personal care service is the care of persons who do not require medical care. It includes responsibility for the safety of the persons while inside the building.
- The primary occupancy for personal care service is Group E, day care facilities.



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Section 305.2 Group E Day Care Facilities

This group includes buildings and structures or portions thereof occupied by more than five children older than 2½ years of age who receive educational, supervision or personal care services for fewer than 24 hours a day.

Sections relating to day care facilities include:

- Section 305.2.1 – Within place of religious worship.
- Section 305.2.2 – Five or fewer children.
- Section 305.2.3 – Five or fewer children in a dwelling unit.



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Group E Day Care Facilities

Provisions that may be applicable:

- Typically uses general requirements.
- Allowed to be an R-3 or part of primary occupancy in accordance with Section 305.2.
- No separate specific section to address this occupancy in Chapter 4.
- Allowance for unlimited area building in Section 507.11.



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Group E Day Care Facilities (continued)


- Special sprinkler requirements in Section 903.2.3.
- Special fire alarm provisions in Section 907.2.3.
- Exception for corridor construction rating in Section 1020.
- Minimum corridor width increased – Table 1020.2.



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Module 4

Fire Protection

Overview

Fire protection systems are intended to:

- Detect a fire.
- Alert the occupants or fire department of a fire emergency.
- Control smoke.
- Control or extinguish the fire.



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Overview

Though not specific to care facilities, code users should be aware:

- Fire protection systems are required to be installed, repaired, operated and maintained in accordance with Section 901.2.
- Any fire protection system for which an exception or reduction in code provisions has been taken shall be considered as a required system (Section 901.2).



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Overview

Though not specific to care facilities, code users should be aware:

- Fire protection systems shall not be removed or modified without approval of the code official; this includes any existing system even if that system is not required (Section 901.3).
- It is unlawful to occupy portions of a structure until the fire protection systems have been tested and approved (Section 901.5).



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Sprinkler System Requirements: Medical Care Facilities

Sections relating to the sprinkler system requirements for medical care facilities include:

- Section 903.2.2 – Automatic sprinkler system – ambulatory care facilities (ACF)
- Section 903.3.2 – Quick-response and residential sprinklers – ambulatory care facilities
- Section 903.2.6 – Automatic sprinkler system – Group I Occupancies
- Sections 407.7 and 903.3.2 – Quick-response and residential sprinklers – Group I-2



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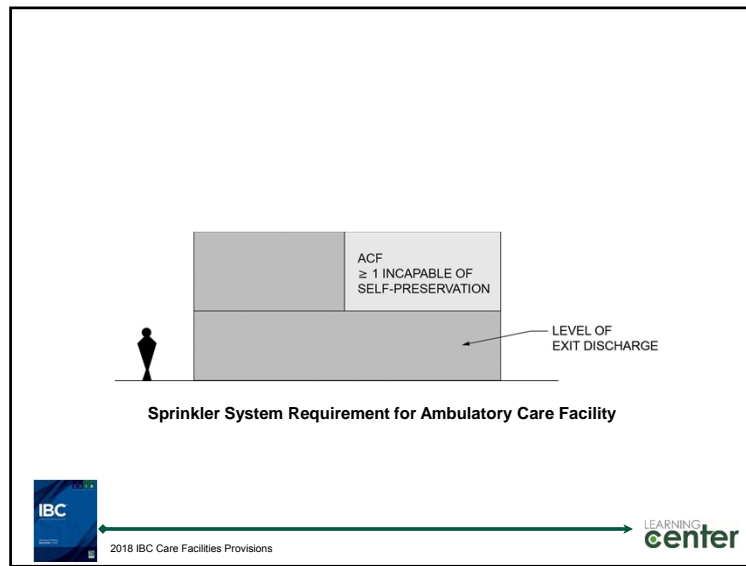
Section 903.2.2 Automatic Sprinkler System - ACF

An automatic sprinkler system shall be installed throughout the entire floor containing a Group B ambulatory care facility where either of the following conditions exist at any time:

- Serving four or more care recipients that are incapable of self-preservation. Whether rendered incapable by staff or staff has accepted responsibility for care recipients who are already incapable.
- One or more care recipients are incapable of self-preservation and are located at other than the level of exit discharge.



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Section 903.2.2 Automatic Sprinkler System – ACF

Where ambulatory care is provided on levels other than the level of exit discharge, the sprinkler system shall be installed throughout the floor where such care is provided as well as other floors. A sprinkler system is required on:

- Floor where care is provided
- All floors between the level of ACF and nearest level of exit discharge, including the level of exit discharge.
- All floors below the level of exit discharge

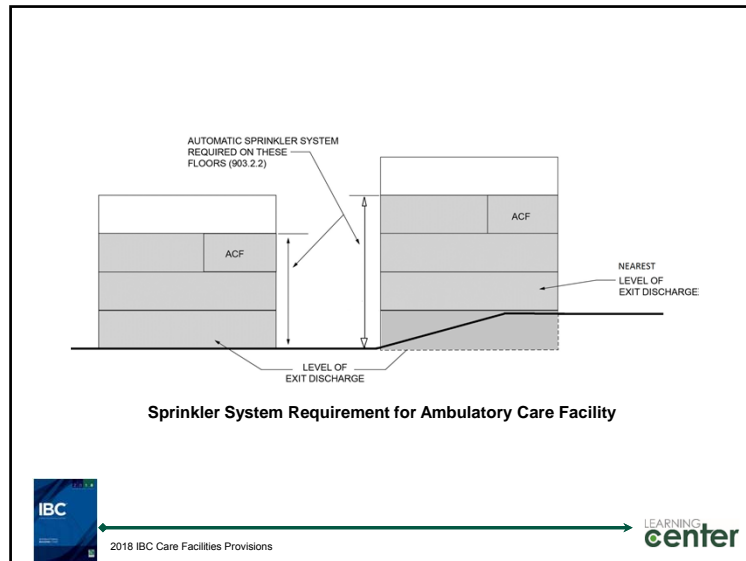


Exception: Exempts floors of an open parking garage

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Section 903.3.2 Quick-response and Residential Sprinklers – ACF

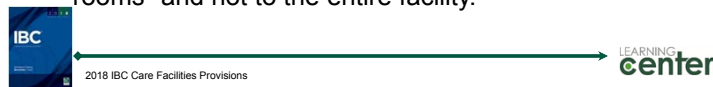
Section 903.3.2 places an additional requirement for quick-response or residential sprinklers to be used within a smoke compartment containing treatment rooms in an ambulatory care facility:

- Code allows either type of sprinkler (quick-response or residential) as long as it is installed in accordance with their listing.
- Requirement applies to all spaces within the smoke compartment, not just to the ambulatory care facility or the treatment rooms.



Section 903.3.2 Quick-response and Residential Sprinklers – ACF (continued)

- Requirement does not extend beyond the smoke barrier or affect other smoke compartments that do not contain ambulatory care facility treatment rooms.
- Notice the requirement is tied to “treatment rooms.” It would be wise to discuss with the code official in advance if the ambulatory care facility has its treatment and recovery rooms in different smoke compartments. A code-literal interpretation would be that the requirement only applies to the “treatment rooms” and not to the entire facility.

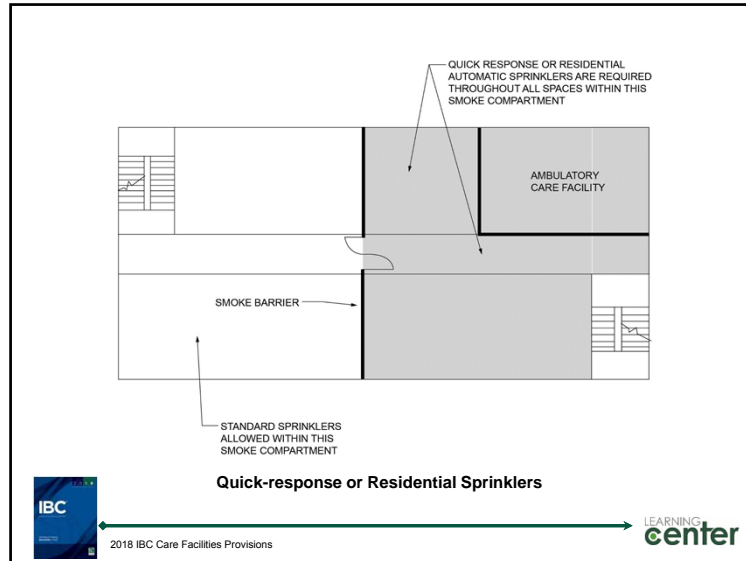


Section 903.3.2 Quick-response and Residential Sprinklers – ACF (continued)

- Review when sprinklers and smoke compartments are required (Sections 903.2.2 and 422.3).

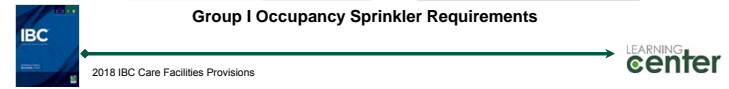
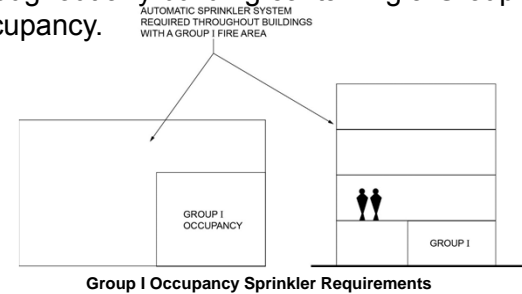


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Section 903.2.6 Automatic Sprinkler System – Group I Occupancies

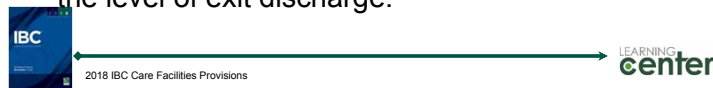
- An automatic sprinkler system is required throughout any building containing a Group I occupancy.



Section 903.2.6 Automatic Sprinkler System – Group I Occupancies

Exceptions:

- An exception modifies the type of sprinkler system used in a Group I-1 Condition 1 facility:
 - An NFPA 13R system is permitted to be used.
- An exception eliminates the sprinkler system for certain Group I-4 day care facilities located at the level of exit discharge.



Section 903.2.6 Automatic Sprinkler System – Group I Occupancies

Exceptions:

- An exception eliminates the sprinkler system for certain portions of a building where a Group I-4 day care facility is located on a level other than the level of exit discharge.



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Sections 407.7 and 903.3.2 Quick-response and Residential Sprinklers – Group I-2

Sections 407.7 and 903.3.2 place an additional requirement for quick-response or residential sprinklers to be used within a smoke compartment containing care recipient sleeping rooms:

- Code allows either type of sprinkler (quick-response or residential) as long as it is installed in accordance with their listing.
- Requirement applies to all spaces within the smoke compartment, not just to the sleeping rooms.



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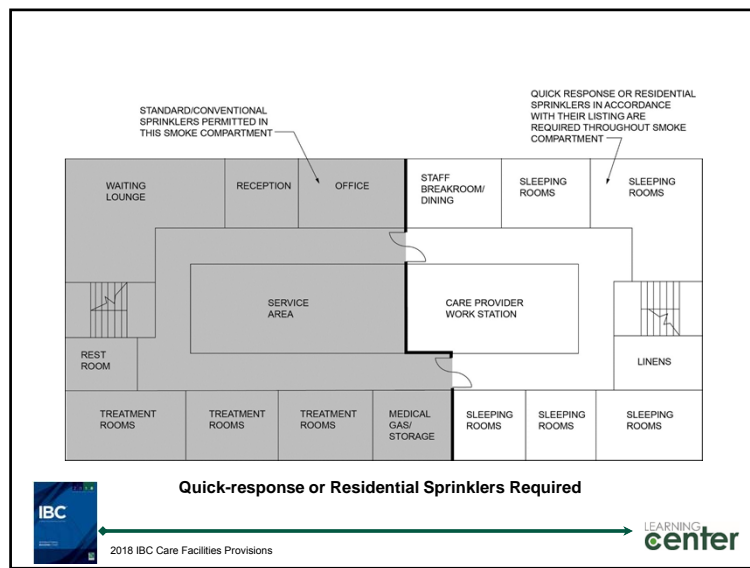


Sections 407.7 and 903.3.2 Quick-response and Residential Sprinklers – Group I-2

- Requirement does not extend beyond the smoke barrier or affect other smoke compartments which do not contain sleeping rooms.
- Notice the requirement does not apply to all sleeping rooms; it only applies to the care-recipient sleeping rooms. Rooms used by staff for sleeping would not be included in this requirement if they are in a smoke compartment that does not include care-recipient sleeping rooms.



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Sprinkler System Requirements: Custodial Care Facilities

The primary occupancies used for custodial care facilities are Groups I-1, R-4, and I-4.

For Groups I-1 and I-4, quick-response and residential sprinklers are:

- Required in the Group I-1 dwelling and sleeping units in accordance with Section 903.3.2, Item 3.
- Not required for the Group I-4 occupancies.



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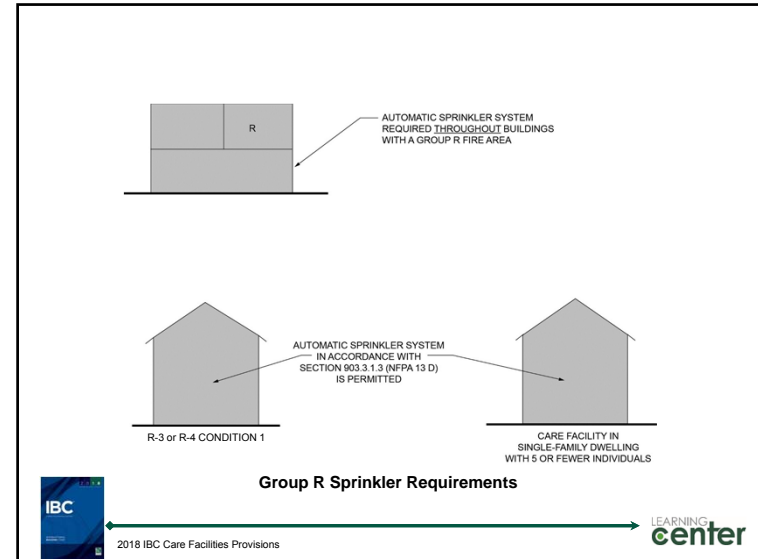
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Sprinkler System Requirements: Custodial Care Facilities

An automatic sprinkler system shall be provided throughout all buildings with a Group R occupancy in it.

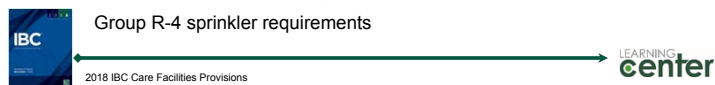
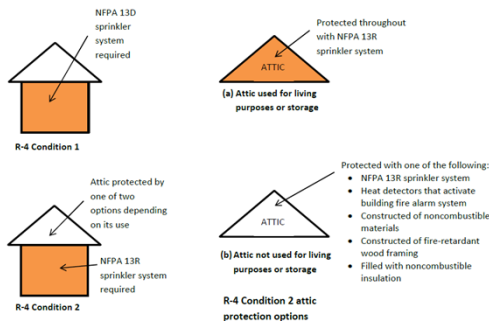
The sprinkler system shall be in accordance with Section 903.3 and dependent upon the building size and uses may be an:

- NFPA 13 (Section 903.3.1.1)
- NFPA 13R (Section 903.3.1.2)
- NFPA 13D (Section 903.3.1.3)



R-4 sprinkler provisions vary based on Condition.

- Condition 2 requires 13R system and attics then require additional evaluation per 903.3.1.2.3.

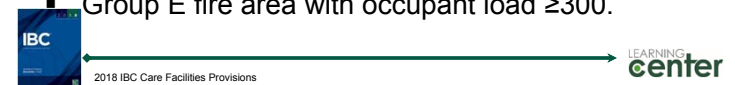


Sprinkler System Requirements: Personal Care Facilities

The primary occupancy used for personal care services is Group E.

According to Section 903.2.3, an automatic sprinkler system is required in Group E occupancies as follows:

- Throughout Group E fire areas greater than 12,000 square feet in area.
- Group E fire area on other than level of exit discharge serving that occupancy.
- Group E fire area with occupant load ≥ 300 .



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Alarm and Detection Systems: Medical Care Facilities

Sections relating to the alarm and detection system requirements for medical care facilities include:

- Section 907.2.2 – Fire alarm and detection systems – ambulatory care facilities
- Section 907.2.6 – Fire alarm and detection systems – Group I occupancies
- Section 407.9 – Automatic fire detection – Group I-2



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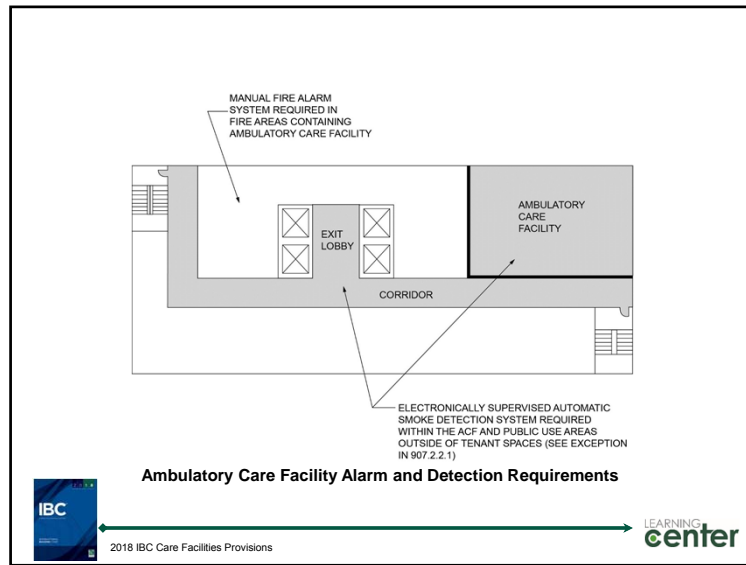
Section 907.2.2 Fire Alarm and Detection Systems - ACF

A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

- The combined Group B occupant load of all floors is 500 or more.
- The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge.
- The fire area contains an ambulatory care facility.



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Section 907.2.6 Fire Alarm and Detection Systems – Group I Occupancies

A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies.

Visible notification appliances are allowed in lieu of audible alarms in the critical care areas of Group I-2, Condition 2 occupancies. (907.5.2.1 Exception 1)

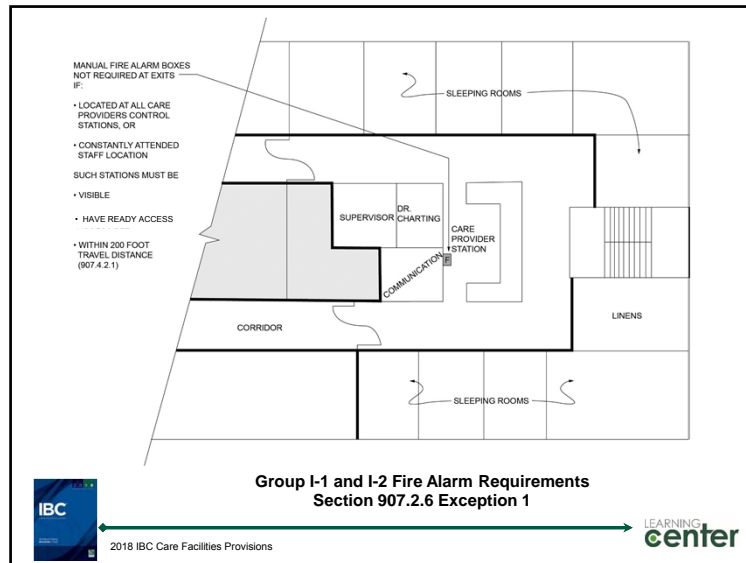
An automatic smoke detection system shall be provided as required for the specific occupancy classification (I-1, I-2, I-3).



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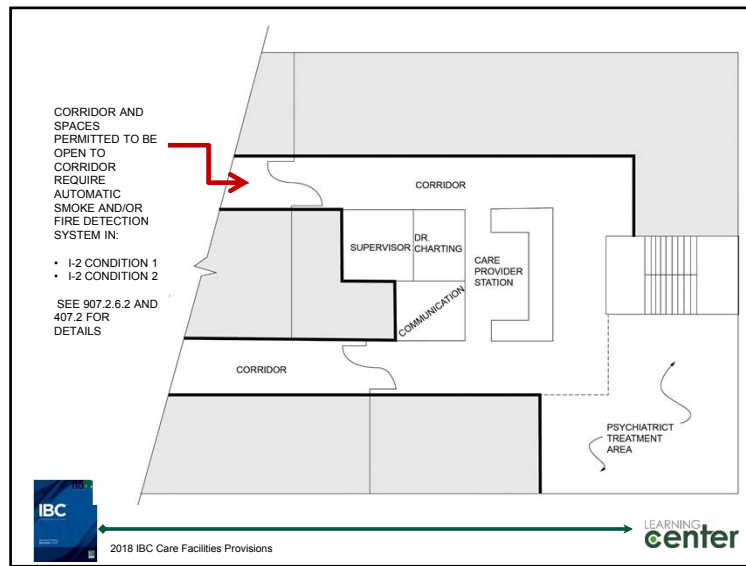


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Section 407.9 Automatic Fire Detection – Group I-2

- In Group I-2 Condition 1, an automatic fire detection system is required in the corridors and spaces permitted to be open to the corridor. See Exceptions in Sections 407.8 and 907.2.6.2.
 - System is required to be a smoke detection system in accordance with Section 907.2.6.2.
 - System is required to be activated in accordance with Section 907.4 (907.2.6.2).
- Group I-2 Condition 2 requires smoke detection per Section 407.2



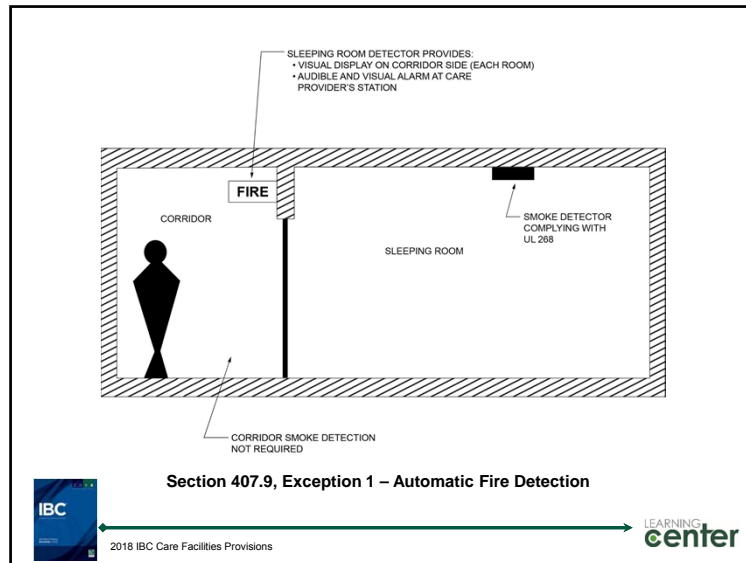
Section 407.9 Automatic Fire Detection – Group I-2 Exceptions

Exception 1 will allow a room smoke detector to be used provided the detectors:

- Comply with UL 268.
- Provide a visual display on the corridor side of each sleeping room.
- Provide an audible and visual alarm at the sleeping room's care provider's station.



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Section 407.9 Automatic Fire Detection – Group I-2 Exceptions

Exception 2 will allow an automatic door closing device with an integral smoke detector to be used provided:

- Detector is installed on the room side in accordance with its listing.
- The integral detector provides the required alerting function (see Section 907, including Sections 907.3, 907.4 and 907.5).



Alarm and Detection Systems: Custodial Care Facilities

Sections relating to the alarm and detection system requirements for custodial care facilities include:

- Section 907.2.6.1 – Smoke detection systems and alarms – Group I-1 occupancies
- Section 907.2.10 and 907.2.10.2 – Smoke detection systems and alarms – Group R-4 occupancies.



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Section 907.2.6.1 Smoke Detection Systems and Alarms – Group I-1 Occupancies

An automatic smoke detection system shall be installed in Group I-1 occupancies in the following locations:

- Corridors.
- Waiting areas open to corridors.
- Habitable spaces, excluding kitchens and sleeping units.



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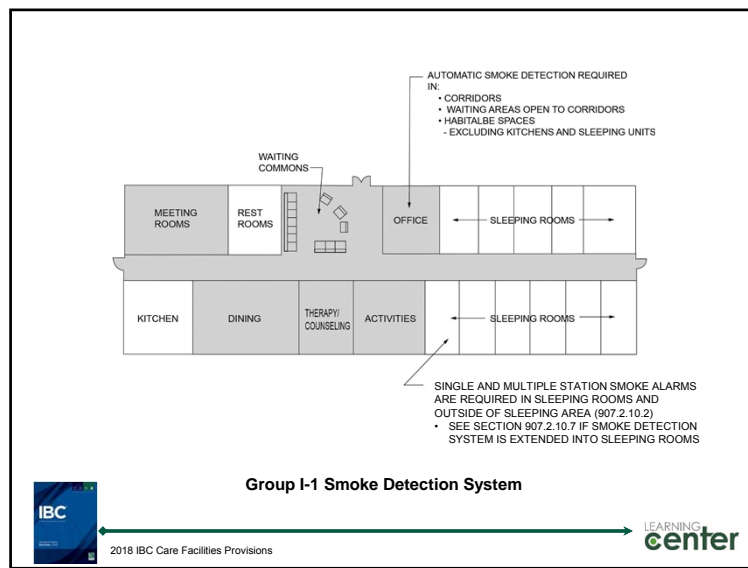
Section 907.2.6.1 Smoke Detection Systems and Alarms – Group I-1 Occupancies

A smoke detection system is not required:

- For Condition 1 uses in habitable spaces where the facility is protected by a compliant 903.3.1.1 automatic sprinkler system.
- For exterior balconies (in either Condition 1 or Condition 2 uses).



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Section 907.2.10 Smoke Alarms – Group R-4 Occupancies

Single or multiple-station smoke alarms are required to be installed in Group R-4 occupancies.

- Interconnection of smoke alarms is required

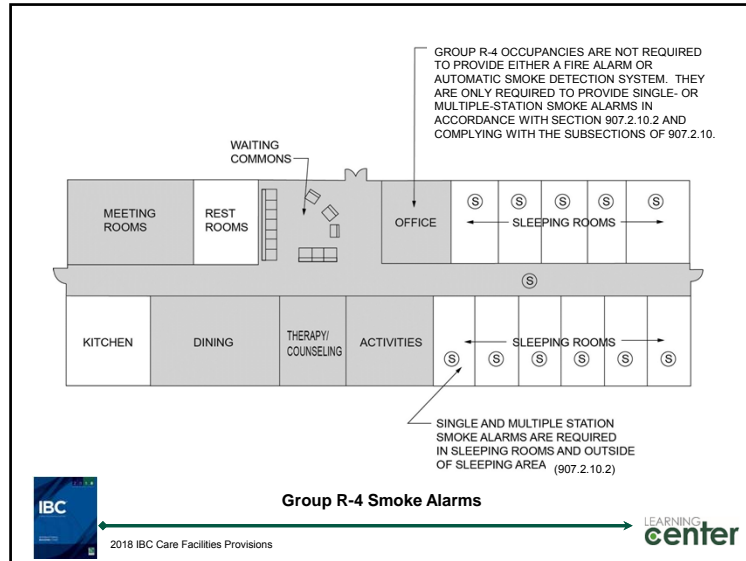
A “fire” alarm system is not required to be installed in Group R-4 occupancies under the 2018 IBC



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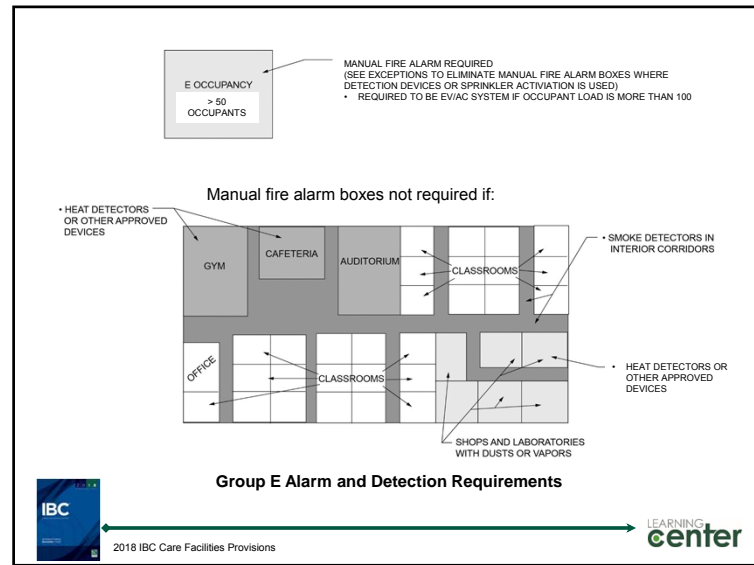
Alarm and Detection Systems: Personal Care Services Facilities

The section relating to the alarm and detection system requirements for personal care services facilities is Section 907.2.3 – Fire alarm and detection systems – Group E occupancies



Section 907.2.3 Fire Alarm and Detection Systems – Group E Occupancies

- A manual fire alarm system is required in any Group E occupancy with more than 50 occupants.
- When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.
- Alarm system to initiate occupant notification by an emergency voice/alarm communication system if occupant load > 100.



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Alarm and Detection Systems: Group R-3 Used for Medical, Custodial, or Personal Care

Section 907.2 – Fire alarm and detection systems
– Group R-3 Occupancies

A fire alarm is NOT required in a Group R-3 occupancy. This includes all Group R-3 care facilities whether they are used for 24-hour care or less than 24-hour care.

Group R-3 occupancies do require single- and multiple-station smoke alarms in accordance with Section 907.2.10.



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Alarm and Detection Systems: Other Group R Uses (Groups R-1 and R-2)

If a care facility is located within a Group R-1 or R-2 occupancy, a manual fire alarm system is generally required by Sections 907.2.8 and 907.2.9.

A smoke detection system, or smoke alarms, will generally be required within these occupancies. See Sections 907.2.8, 907.2.9 and 907.2.10.



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Dwelling and Sleeping Unit Separations (Section 420)

- In order to provide a higher level of safety for people in the buildings where they live, Section 420 contains special requirements that are applicable to arrangements where multiple dwelling or sleeping units are located in the same building.



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Sections 420.2 and 420.3 Separations (Groups I-1, R-1, R-2, R-3 and R-4 Occupancies)

Fire partitions complying with Section 708 are required for:

- Walls separating dwelling units in the same building.
- Walls separating sleeping units in the same buildings.
- Walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building.



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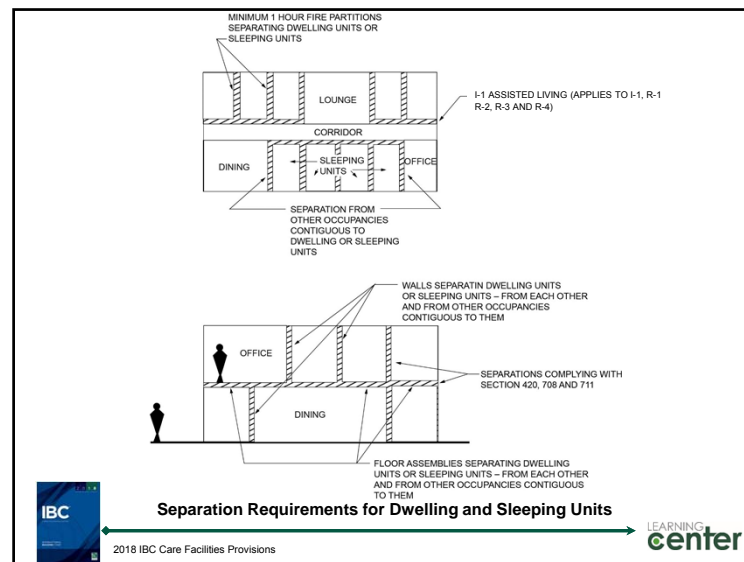
Sections 420.2 and 420.3 Separations (Groups I-1, R-1, R-2, R-3 and R-4 Occupancies)

Horizontal assemblies complying with Section 711 are required for:

- Floor assemblies separating dwelling units in the same building.
- Floor assemblies separating sleeping units in the same buildings.
- Floor assemblies separating dwelling or sleeping units from other occupancies contiguous to them in the same building.



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Overview

There are a number of provisions within Chapter 10 that can affect the design and construction of care facilities. Most of these requirements are not unique or special requirements, but instead they simply modify the general requirements.

This section will look at egress-related topics, but only to the extent of covering the differences or modifications that are applicable for the various care facility occupancies.



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Egress Provisions

Before looking at any egress plan, it is important to determine the occupant load of an area so that the number of occupants for whom the means of egress facilities need to be provided is known. The designer should review the occupant load determination requirements of Section 1004.

In most care facilities, the occupant load will generally be determined as indicated in Table 1004.5, which provides the maximum floor area allowance per occupant.



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Table 1004.5
Maximum Floor Area Allowances per Occupant

Function of Space	Occupant Load Factor
Business area	150 gross
Concentrated use area	See Section 1004.8
Day care	35 net
Institutional	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Residential	200 gross



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Egress Provisions

Sizing of the means of egress is done based on two factors:

- minimum widths specified for the egress component; or
- minimum width based on the egress capacity which is determined by multiplying the occupant load served by a means of egress capacity factor.



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Egress Component	Egress capacity factor per occupant (in inches)		
	General	For Group H or I-2 occupancies	Where building is equipped with automatic sprinkler system and emergency voice/alarm communication system and the occupancy is other than Group H or I-2
Stairways	0.3	0.3	0.2
"Other" egress components - (everything but stairways)	0.2	0.2	0.15



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Example : Assuming exit is serving 200 people

Component	Min width based on component (1005.2)	Min width based on occupant load (1005.3)	
		General ¹	Sprinklered building with EV/ACS ²
Corridor 'A'	44"	40"	30"
Door 'B'	32"	40"	30"
Stairway 'C'	44"	60"	40"
Door 'D'	32"	40"	30"

1. Building without sprinkler system or EV/ACS; (also includes Group H and I-2 occupancies)
2. Other than Group H and I-2 occupancies

Means of Egress Sizing (Section 1005.2 and 1005.3)

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Section 1010 Door Requirements

In general, doors, gates and turnstiles must follow the requirements of Section 1010. There are, however, several provisions that affect the door requirements for some of the various care facilities.

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Section 1010 Door Requirements

Egress doors shall be of the pivoted or side-hinged swinging type (Section 1010.1.2).

Exception:

3. Critical or intensive care patient rooms within suites of health care facilities.

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Active and Inactive Door Leafs
Sections 1010.1.1 and 1010.1.9.5 Exception 5

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Section 1010 Door Requirements

Manually operated flush bolts or surface bolts are not permitted (Section 1010.1.9.5).

Exception:

- Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress width requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware.



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Section 1010.1.9.7 Controlled Egress Doors in Group I-1 and I-2 Occupancies

In order to ensure the safety and protection of the care recipients, the code allows “Controlled egress doors” using electric locking systems where the clinical needs of the people receiving care require such protection.

In order to use these “controlled egress doors,” the system must be:

- In a sprinklered building, or have smoke or heat detection system.
- Egress must be controlled because the clinical needs of care recipients require their containment.



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Section 1010.1.9.6 Controlled Egress Doors in Group I-2 Occupancies (continued)

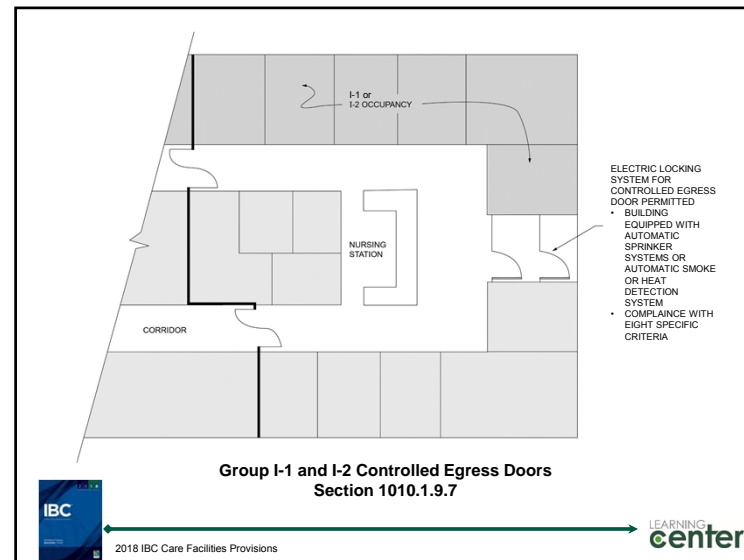
- In compliance with eight specifically-listed criteria.

Exceptions in Section 1010.1.9.7 can eliminate items 1 through 4 in:

- Psychiatric treatment areas where clinical needs require restraint or containment of the care recipients,
- Nursery or obstetrics areas of I-2 hospitals to reduce risk of child abduction



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Sections 1019.4, 712 and 404 Exit Access Stairways and Floor Openings – Group I-2 Occupancies

Where stories in a Group I-2 occupancy must be divided into smoke compartments, the code looks to stop or control the spread of smoke on that story and also from adjacent levels.

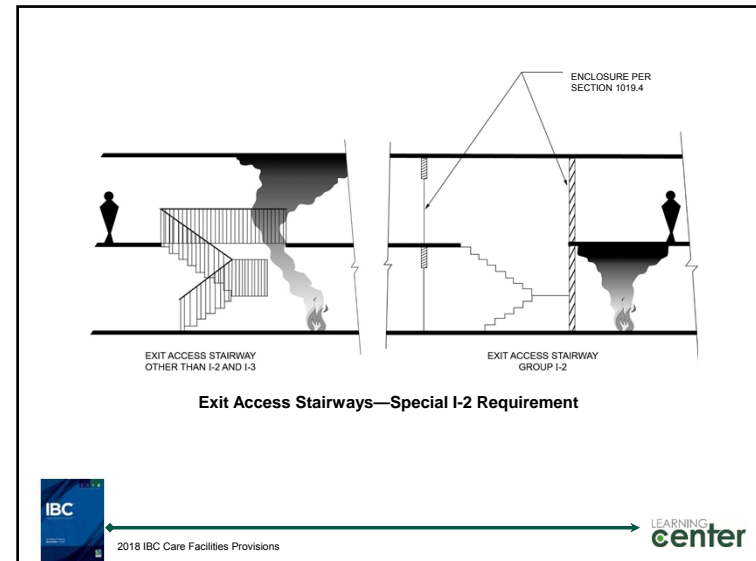
The restrictions for Group I-2 occupancies can be seen in the exit access stairway requirements of Section 1019.4 and the vertical opening requirements of Section 712.1.9. These two sections help to ensure that adjacent levels of Group I-2 occupancies are not interconnected and potentially allowing smoke to spread from one level to the next.

- Atriums also require a smoke control system per 404.5



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LEARNING center



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LEARNING center

Sections 1019.4, 712 and 404 Floor Openings – Group I-2 Occupancies

While exit access stairways are generally allowed to be open between two adjacent levels, Section 1019.4 indicates that, in Group I-2 occupancies, the stairway must be “enclosed”.

The enclosure for exit access stairways is required to comply with the shaft provisions of Section 713.



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LEARNING center

Section 1020 Corridors

The corridor requirements of Section 1020 are intended to ensure that a safe means of egress is provided. The requirements within this section address construction and fire-resistance ratings, width, obstructions, dead ends, air movement within the corridor and continuity to an exit.

Corridors shall be fire-resistance rated in accordance with Table 1020.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.



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**TABLE 1020.1
CORRIDOR FIRE-RESISTANCE RATING**

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



2018 IBC Care Facilities Provisions



Section 1020.1 Corridor Construction Exceptions

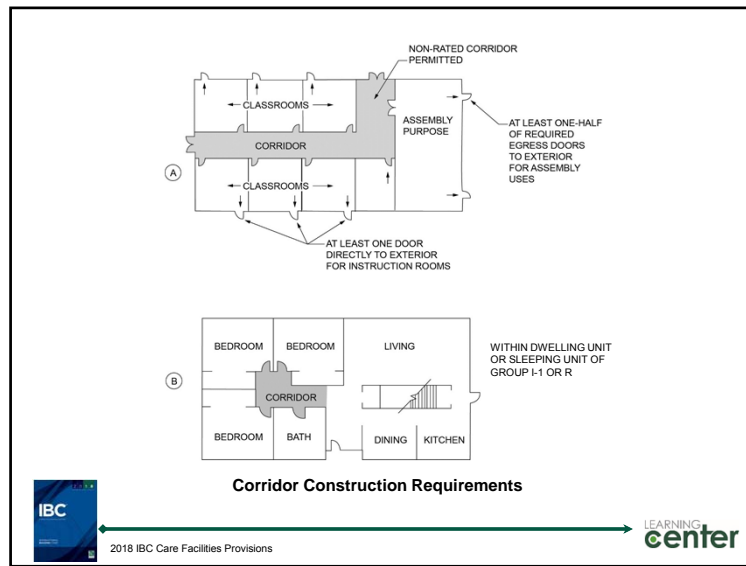
While corridor construction is generally regulated by Table 1020.1, the following exceptions may be used where indicated.

Corridors in Group E occupancies can be nonrated where:

- Each instruction room has at least one door directly to the exterior.
- Each room for assembly purpose has at least one-half of required egress doors directly to the exterior.



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Section 1020.1 Corridor Construction Exceptions

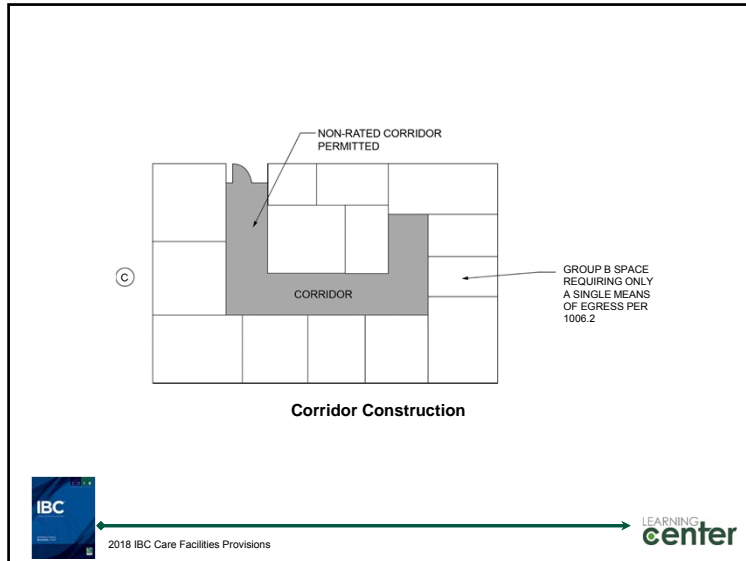
Corridors in Groups I-1 and R occupancies can be nonrated where the corridor is contained within an individual dwelling or sleeping unit.



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Section 1020.1 Corridor Construction Exceptions

Corridors in Group B occupancies can be nonrated where the space requires only one means of egress in accordance with Section 1006.2.

Which is:

- Occupant load of 49 or less.
- Common path of egress travel within 75 or 100 foot limit (Table 1006.2.1).



**TABLE 1020.2
MINIMUM CORRIDOR WIDTH**

OCCUPANCY	MINIMUM WIDTH (inches)
Any facilities not listed below	44
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24
With an occupant load of less than 50	36
Within a <i>dwelling unit</i>	36
In Group E with a <i>corridor</i> having an occupant load of 100 or more	72
In <i>corridors</i> and areas serving stretcher traffic in ambulatory care facilities	72
Group I-2 in areas where required for bed movement	96

For SI: 1 inch = 25.4 mm.

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LEARNING center

Section 1020.2 Corridor Width

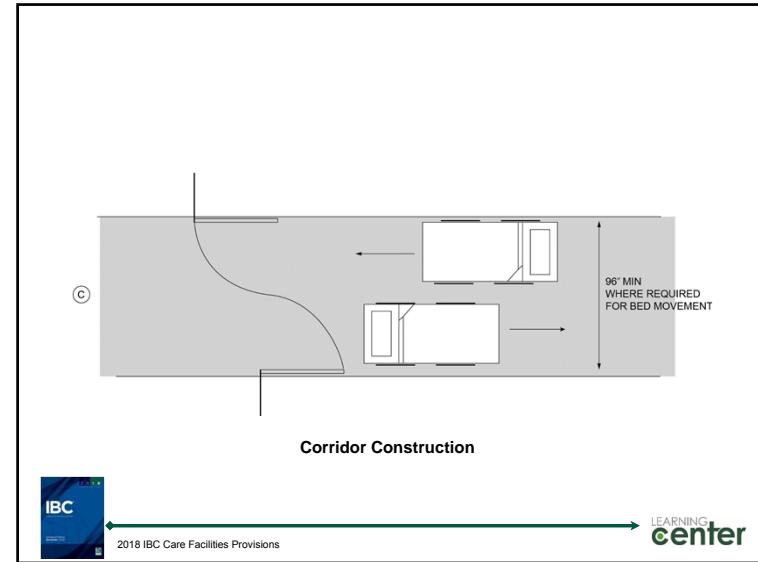
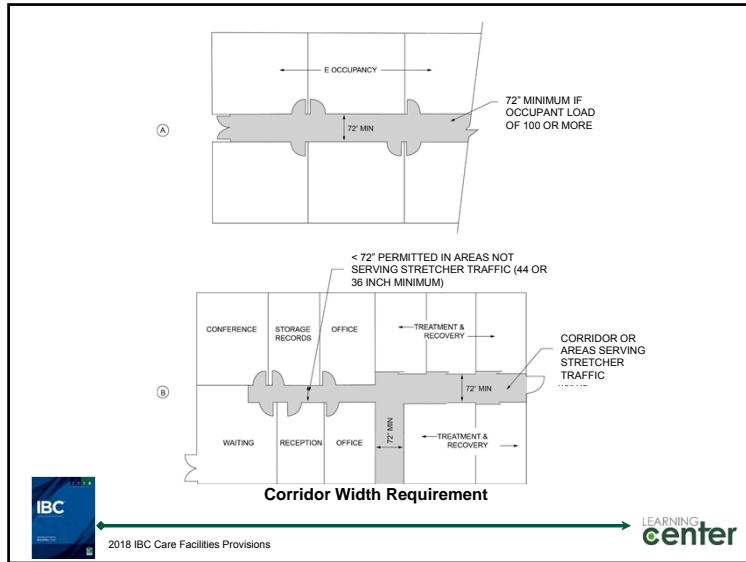
Group E with corridor having an occupant load of 100 or more: 72 inch minimum.

Corridors and areas serving stretcher traffic in ambulatory care facilities: 72 inch minimum.

Group I-2 areas where required for bed movement: 96 inch minimum.



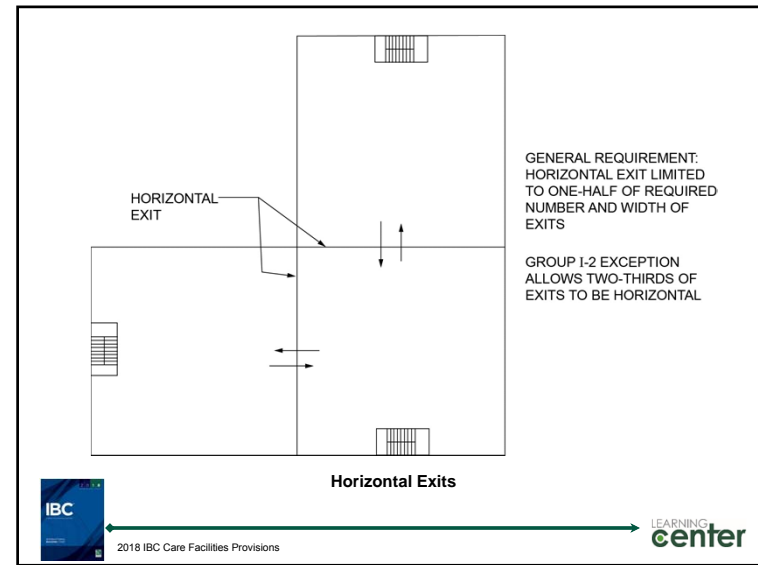
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Section 1026 Horizontal Exits – Group I-2 Occupancies

Horizontal exits are allowed to serve as a required exit in the means of egress system.

A horizontal exit may not serve as the only exit from a portion of a building and, generally, they are not allowed to serve as more than one-half of the total number of exits or total exit width.



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Section 1026 Horizontal Exits – Group I-2 Occupancies

Refuge areas for horizontal exits in Group I-2 occupancies are similar to the refuge area in a smoke compartment from the standpoint that the refuge area must be adequately sized to accommodate the relocated occupants until the emergency is over or they are able to be evacuated from the building.



2018 IBC Care Facilities Provisions



Sizing of refuge area			
Capacity based on:	Horizontal exit (Section 1026.4)	Original occupant load in refuge area plus anticipated load from adjoining compartment	
	Smoke compartment (Section 407.5.3)	Shall accommodate the occupants and care recipients from the adjoining compartment	
Capacity factors: (sq. ft. per occupant)			
Horizontal Exit: General		3 square feet	
		Occupancy	
		I-2 ²	I-1 Condition 2 ² B – Ambulatory Care Facility ²
Smoke Compartment: Ambulatory care recipient – not confined to bed or stretcher		6 square feet	15 square feet ¹
Smoke Compartment: Non-ambulatory care recipient – confined to bed or stretcher		30 square feet	15 square feet ¹ 30 square feet

- 15 sq.ft. for each care recipient and 6 sq.ft. for other occupants
- For I-2, see 407.5.3; for I-1 Condition 2, see 420.6.1; for Group B ACF, see 422.3.2



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Section 1027 Exterior Stairways and Ramps

An exterior exit stairway shall not be used as an element of a required means of egress for Group I-2 occupancies.

For all other occupancies, exterior exit stairs are permitted as part of the means of egress provided the building is not more than six stories above grade plane or is not a high-rise.



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Section 1030 Emergency Escape and Rescue

In addition to the means of egress, an emergency escape and rescue opening is generally required to be provided from sleeping rooms below the fourth story above grade plane and from the basement in either Group R-3 or R-4 occupancies.



2018 IBC Care Facilities Provisions



2018 IBC Care Facilities Provisions

Accessibility Provisions

Accessibility provisions are contained in the IBC, which provides the scoping requirement for what and how many are required to be accessible. ICC A117.1 provides the technical requirements on how to make things accessible.

The IBC provides exceptions for certain care facilities.



Accessibility Provisions

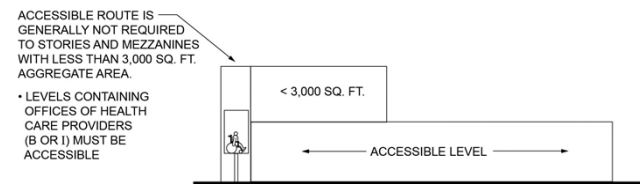
One item covered by a general exception is a day care facility that is part of a dwelling unit. The exception of Section 1103.2.12 states that only the portion of the structure utilized for the day care facility is required to be accessible.

This section recognizes that while dwellings are typically not required to be accessible, where the home is open to and serves the public that the part of the home serving as a day care and open to the public must be accessible.



Accessibility Provisions

- In multilevel buildings and facilities, the IBC is generally more restrictive than the Americans with Disabilities Act (ADA) in regards to providing access to a second story.
- While Exception 1 in Section 1104.4 will generally not require an accessible route to mezzanines and stories that are not more than 3,000 square feet in size, there is an exclusion that would prohibit the exception from applying to levels containing offices of health care providers (Group B or I). This exclusion coordinates with the ADA and should not be overlooked.



Access in Multilevel Building



2018 IBC Care Facilities Provisions

Section 1106 Parking and Passenger Loading Zones - Accessibility

Parking and passenger loading zone requirements are found in Section 1106 of the IBC. Special requirements apply for several care facilities.



Section 1106.3 Hospital Outpatient Facilities

- A minimum of 10 percent, but not less than one, of the care recipient and visitor parking spaces provided shall be accessible.



Section 1106.4 Rehabilitation Facilities and Outpatient Physical Therapy Facilities

- For a rehabilitation facility specializing in treating conditions that affect mobility and for outpatient physical therapy facilities, a minimum of 20 percent, but not less than one, of the care recipient and visitor parking spaces provided shall be accessible.



Section 1106.7 Passenger Loading Zones

A passenger loading zone shall be provided at an accessible entrance to licensed medical and long-term care facilities where:

- People receive physical or medical treatment or care; and
- The period of stay exceeds 24 hours.



2018 IBC Care Facilities Provisions

Section 1107 Accessibility for Dwelling and Sleeping Units

In addition to the general accessibility requirements of IBC Chapter 11, occupancies having dwelling or sleeping units are required to have the accessible features required by Section 1107.

These provisions regulate not only the dwelling units and sleeping units, but also rooms and spaces serving the units and available to the general public or available for use by the residents.



Section 1107 Accessibility for Dwelling and Sleeping Units

Section 1107.7 contains a number of exceptions that may eliminate or reduce the number of Type A and Type B units that must be provided.

Where a day care facility is part of a dwelling unit, only the portion of the structure utilized for the day care facility is required to be accessible (Section 1103.2.12).



Section 1107 Accessibility for Dwelling and Sleeping Units

There are three types of accessible dwelling and sleeping units addressed:

- Accessible units.
- Type A units.
- Type B units.

Section 1107.2 allows units having a higher level of accessibility to be substituted for the less accessible units.



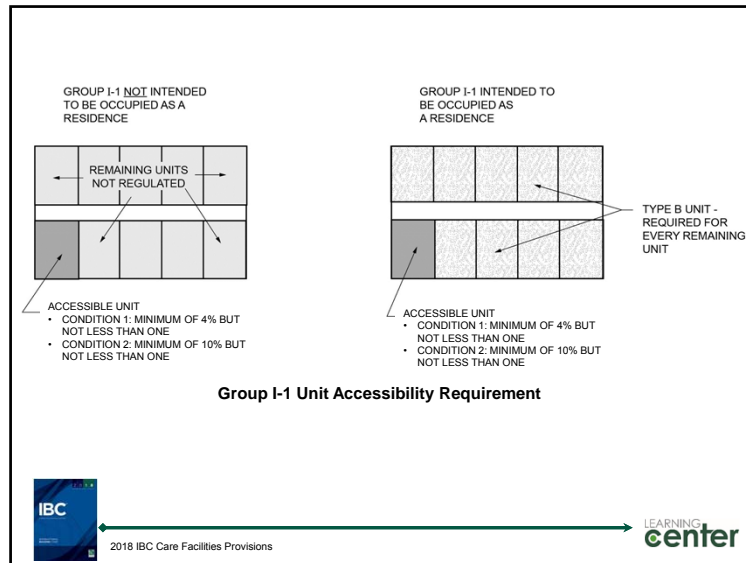
Section 1107.5 Accessibility for Dwelling and Sleeping Units – Group I Occupancies

For Group I-1 occupancy:

- Accessible units:
 - Condition 1: At least 4 percent, but not less than one, shall be Accessible units
 - Condition 2: At least 10 percent, but not less than one, shall be Accessible units
- Type B unit: If the units are intended to be occupied as a residence and there are four or more units within the structure, then every such unit shall be a Type B unit.



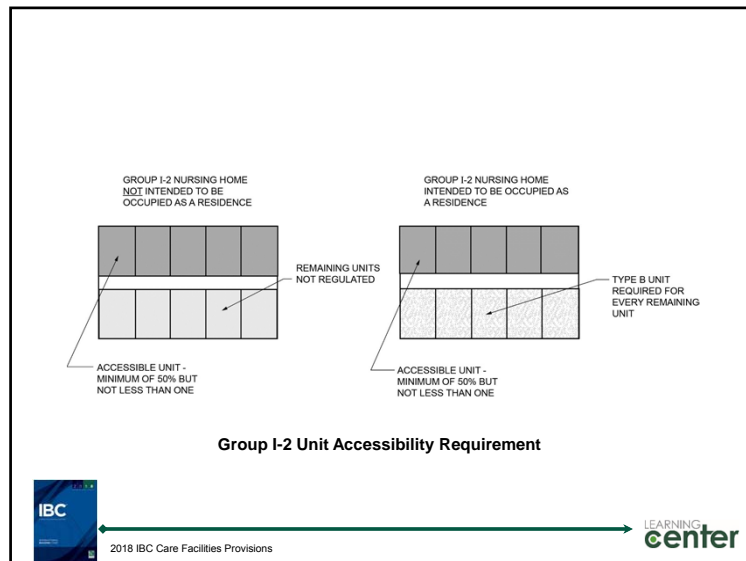
2018 IBC Care Facilities Provisions



Section 1107.5 Accessibility for Dwelling and Sleeping Units – Group I Occupancies

For Group I-2 occupancy (nursing home):

- Accessible units: At least 50 percent but not less than one of each type of the units is required to be an Accessible unit.
- Type B unit: If the units are intended to be occupied as a residence and there are four or more units within the structure, then every such unit shall be a Type B unit.



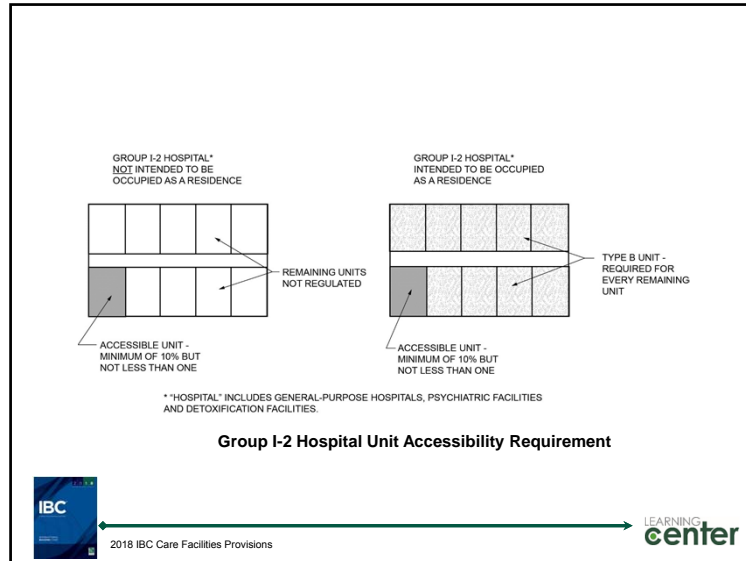
Section 1107.5 Accessibility for Dwelling and Sleeping Units – Group I Occupancies

For Group I-2 occupancy (hospitals):

- Accessible units: At least 10 percent but not less than one of the units is required to be an accessible unit.
- Type B unit: If the units are intended to be occupied as a residence and there are four or more units within the structure, then every such unit shall be a Type B unit.



2018 IBC Care Facilities Provisions

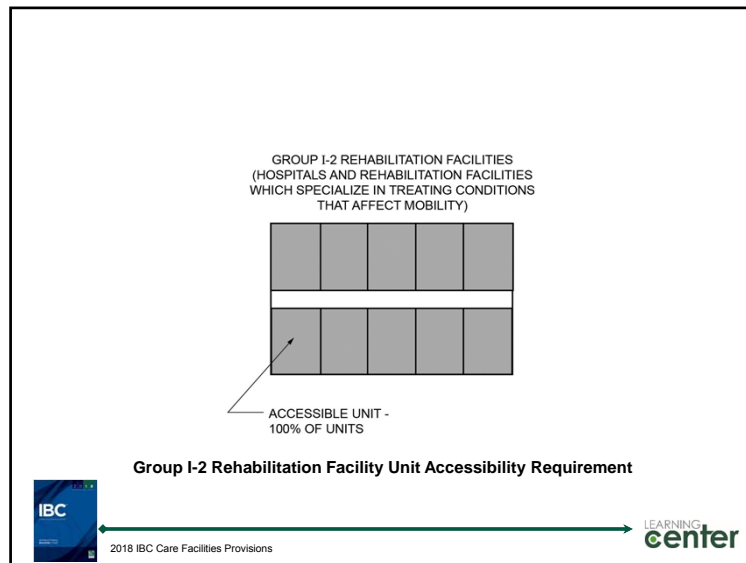


Section 1107.5 Accessibility for Dwelling and Sleeping Units – Group I Occupancies

For Group I-2 occupancy (rehabilitation facilities*):

- Accessible units: 100 percent of the units are required to be Accessible units.

*Hospitals and rehabilitation facilities specializing in treating conditions that affect mobility.

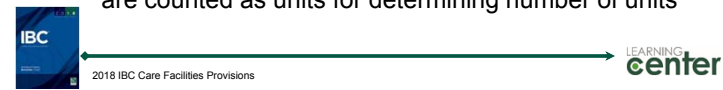


Section 1107.6 Accessibility for Dwelling and Sleeping Units – Group R Occupancies

Group R-1 (See 1107.6.1) and Group R-2 (See 1107.6.2) Not generally used for care facility.


Group R-3

- Type B unit: If the units are intended to be occupied as a residence and there are four or more units within the structure, then every such unit shall be a Type B unit.
- Note that bedrooms within congregate living facilities are counted as units for determining number of units



2018 IBC Care Facilities Provisions



GROUP R-3 (WITH FOUR OR MORE UNITS IN STRUCTURE) INTENDED TO BE OCCUPIED AS A RESIDENCE



TYPE B UNIT - REQUIRED FOR EVERY UNIT*

* THE NUMBER OF TYPE B UNITS IS PERMITTED TO BE REDUCED AS ALLOWED BY SECTION 1107.7

Group R-3 Unit Accessibility Requirement

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Section 1107.6 Accessibility for Dwelling and Sleeping Units – Group R Occupancies

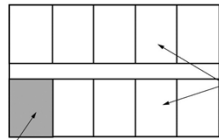
Group R-4 (Note that bedrooms within R-4 facilities are counted as units for determining number of units)

- Accessible units:
 - Condition 1: At least one of the units is required to be an Accessible unit.
 - Condition 2: At least two of the units are required to be an Accessible unit.
- Type B unit: If the units are intended to be occupied as a residence and there are four or more units within the structure, then every such unit shall be a Type B unit.




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GROUP R-4 NOT INTENDED TO BE OCCUPIED AS A RESIDENCE

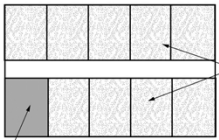


REMAINING UNITS NOT REGULATED

ACCESSIBLE UNIT

- CONDITION 1: AT LEAST ONE
- CONDITION 2: AT LEAST TWO

GROUP R-4 INTENDED TO BE OCCUPIED AS A RESIDENCE





TYPE B UNITS REQUIRED FOR EVERY REMAINING UNIT

ACCESSIBLE UNIT

- CONDITION 1: AT LEAST ONE
- CONDITION 2: AT LEAST TWO

Group R-4 Unit Accessibility Requirement

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Sections 1107.5.3.1 Door Maneuvering Clearance – Group I-2 Hospitals

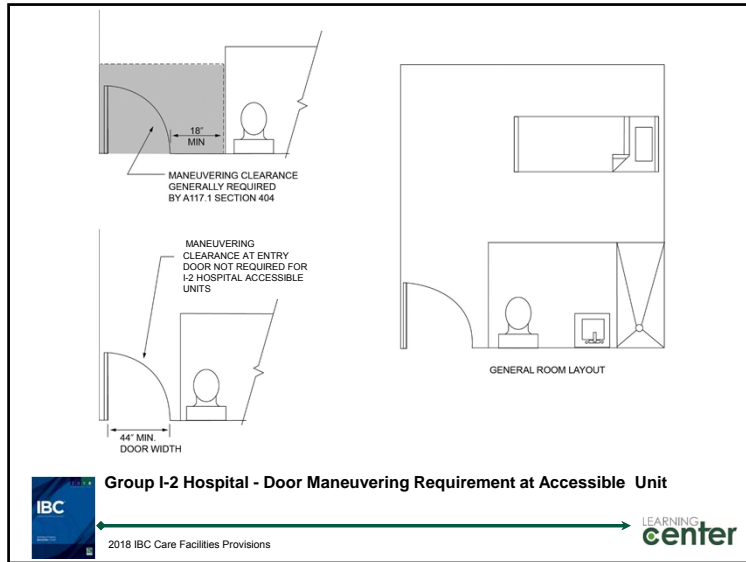
In Group I-2 hospitals, the IBC grants a special exception eliminating the requirement for maneuvering clearance on the latch side of the door for the Accessible units.

This exemption is important to notice since it can represent a substantial space savings and because it will override a requirement found within the A117.1 standard.




2018 IBC Care Facilities Provisions

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Chapter 5 - General Building Height and Area Limitations

- The building height and area shall not exceed the limits specified in Section 504 and 506 except as modified by Sections 503 through 510.



TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE^a

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
		A	B	A	B	A	B	HT	A	B	
A, B, E, F, M, S, U	NS ^b	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
H-1, H-2, H-3, H-5	NS ^{c,d}	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
H-4	NS ^{c,d}	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
I-1 Condition 1, I-3	NS ^{c,d}	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
I-1 Condition 2, I-2	NS ^{c,d}	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
I-4	NS ^f	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
R ^g	S13D	60	60	60	60	60	60	60	50	40	
	S13R	60	60	60	60	60	60	60	60	60	
	S	UL	180	85	75	85	75	85	70	60	

For SI: 1 foot = 304.8 mm.
 UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.
 a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
 b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
 c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
 d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.
 e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
 f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.
 g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
 h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

TABLE 504.4^{a,b} ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
		A	B	A	B	A	B	HT	A	B	
B	NS	UL	11	5	3	5	3	5	3	2	
	S	UL	12	6	4	6	4	6	4	3	
E	NS	UL	5	3	2	3	2	3	1	1	
	S	UL	6	4	3	4	3	4	2	2	
I-1 Condition 1	NS ^{c,d}	UL	9	4	3	4	3	4	3	2	
	S	UL	10	5	4	5	4	5	4	3	
I-1 Condition 2	NS ^{c,d}	UL	9	4	3	4	3	4	3	2	
	S	UL	10	5	4	5	4	5	4	3	
I-2	NS ^{c,d}	UL	4	2	1	1	NP	1	1	NP	
	S	UL	5	3	2	2	3	2	2	2	
I-3	NS ^{c,d}	UL	4	2	1	2	1	2	2	1	
	S	UL	5	3	2	3	2	3	3	2	
I-4	NS ^{c,d}	UL	5	3	2	3	2	3	1	1	
	S	UL	6	4	3	4	3	4	2	2	
R-3 ^h	NS ^g	UL	11	4	4	4	4	4	3	3	
	S13D	4	4	4	4	4	4	4	3	3	
	S13R	4	4	4	4	4	4	4	4	4	
	S	UL	12	5	5	5	5	5	4	4	
R-4 ^h	NS ^g	UL	11	4	4	4	4	4	3	2	
	S13D	4	4	4	4	4	4	4	3	2	
	S13R	4	4	4	4	4	4	4	4	3	
	S	UL	12	5	5	5	5	5	4	3	

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TABLE 506.2
ALLOWABLE AREA FACTOR (A_f = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET^{1,2}

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION										
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V		
		A	B	A	B	A	B	HT	A	B		
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000		
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000		
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000		
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500		
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000		
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500		
I-1	NS ^{3,c}	UL	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500	
	S1	UL	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000	
	SM	UL	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500	
I-2	NS ^{3,f}	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP		
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP		
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP		
I-3	NS ^{3,g}	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000		
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000		
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000		
I-4	NS ^{3,h}	UL	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000	
	S1	UL	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000	
	SM	UL	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000	

(Continued next page)

TABLE 506.2
ALLOWABLE AREA FACTOR (A_f = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET^{1,2}

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION										
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V		
		A	B	A	B	A	B	HT	A	B		
R-3 ⁴	NS ⁴											
	S13D											
	S13R	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1											
	SM											
R-4 ⁴	NS ⁴											
	S13D	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,900		
	S13R											
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000		
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000		

QUESTION & ANSWER

Questions and Answers

- Take this time to ask Questions about any areas of this course that you are having challenges!

IBC 2018 IBC Care Facilities Provisions LEARNING center

FINAL REFLECTION

Final Reflection

- What?** What happened and what was observed in the training?
- So what?** What did you learn? What difference did this training make?
- Now what?** How will you do things differently back on the job as a result of this training?

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