ADVANCED MODULE – FL BUILDING CODE BUILDING/STRUCTURAL SUMMARY

One (1) Unit Continuing Education
50 Minutes

This course has one Part with a 20-question quiz at the end of the Part. To successfully complete this course, you must:

* View each page content page at least once

* Score at least 80 percent on the quiz

* Spend a total of at least 50 minutes on the content pages

You must meet the above requirements in order to pass this course.

To navigate the content pages in this course, do so by clicking "Previous" or "Continue" in the upper-right-hand corner of your screen or by clicking directly on a content page in the Table of Contents. Do not use the "Back" and "Forward" buttons on your browser.

After you complete the quiz, click on "Submit" to see your score. If you do not achieve a score of at least 80 percent, you will be given the opportunity to retake the quiz.

IMPORTANT: The time you spend on the quiz pages does not count toward your total course time.

If you have not submitted your quiz and click back into the course content pages to check the answer you think is correct, you will gain time toward the requirement for time spent on those content pages (any page marked other than "Quiz" in the Table of Contents), and you will not lose the answers you've already marked on the quiz.

You can verify your time spent in the course at any time by checking the running total in the box above your Table of Contents.

For those agencies that require electronic submission of continuing education hours (i.e. Florida Construction Industry Licensing Board), we report once a day at 7 p.m. EST – Monday through Friday, excluding state/federal holidays. So, for example, if you finish a course at 8 p.m. EST, your course hours will be reported by 7 p.m. the following business day. Further, if you finish a course on a weekend, your course hours will be reported by 7 p.m. on Monday.

Note: It might take as long as 24 hours after we report your continuing education to the state of Florida for your hours to appear in your state license profile.

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Print and retain a copy of the course completion confirmation e-mail you receive from us because that e-mail is your written proof that you completed this course until you receive your Certificate of Completion in the mail from us.

Please make sure the address you provided at registration is correct as that is the address to which we will send your certificate.

If you enroll in more than one course, as is the case with our packages, we will send all of your certificates at once.

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If you are logged out of this course due to inactivity, you will lose the entire time spent on the page from which you were logged out.

To avoid being automatically logged out of this course, click to another page in the course before the 20-minute-per-page time limit expires.

This is a security measure designed to comply with the requirements that licensing agencies have for online courses. If you are logged out of the system and you lose the time spent on a page, we have no way of recovering that time.

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Our telephone customer service hours are Monday through Friday, 9 a.m. to 7 p.m. EST, excluding state and federal holidays.
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If for some reason our hours change and we become unavailable during these times, we will post a notice at www.contractorsed.com.

You have 30 days after enrollment to complete the course, and you may use as many sessions as necessary to do so.

In addition, your access to the course will expire upon your completing the course, and you will not be able to log back into the course after that time. So if you want to make note of any information contained in the course, please do so before you're complete.

If for some reason you wish to gain access to course material after your access it has expired, please contact us at registar@contractorsed.com, and we will give your request every consideration.

This course provides an overview and summary of changes found in the 2004 Florida Building Code, Building. The changes are extensive because:

*The 2003 *International Building Code, Building* is the base code (new for the 2004 version of the *Florida Building Code*)

It is significant that the *2004 Florida Building Code* uses the *International Building Code* (2003 edition) as a "base code". *The 2001 Florida Building Code* used the *Standard Building Code* as the "base code" and represents an entirely different building code. Although there are some similarities it should be noted that there are many differences.

*One-and two-family and townhouse residential construction will comply with the 2004 *Florida Building Code, Residential*, which uses the 2003 *International Residential Code* as the base code (new)

The format for the code is also different, with a separate code document for Residential Construction. The Florida Building Commission adopted the *International Residential Code* for Florida. The *2004 Florida Building Code, Residential* (based on the *International Building Code* edition) shall govern all one- and two-family and townhouse residential construction.

A complete review of the 2004 Florida Building Code, Residential should be done by all professionals designing and building residential structures.

It is important to keep in mind that this course only covers changes to *Florida Building Code, Building*. For future reference you might want to consider also reviewing the following areas of the *2004 Florida Building Code* for important changes :

2004 Florida Building Code, Residential

2004 Florida Building Code, Mechanical/Energy

2004 Florida Building Code, Plumbing/Fuel Gas

2004 Florida Building Code, Building/Fire Technical Core Update (4-hour course

Please note that the code changes on the following pages will be presented first as a summary of the change that has been made. Immediately after the summary, you will see the entire text of the rule in italics as written in the Code. This will allow you to focus in on the change itself as well as seeing the change in the context of the entire rule as written in the Code.

If the summary of the change is very brief and is identical or almost identical to the rule as written in the Code, the summary and the actual rule will be presented as one.

Please be sure to review, both the summary and the entire rule thoroughly.

Finally, all tables and illustrations presented in this course are also located in the Digital Library, accessible from the course homepage. You can print the tables for easy access during the course as well as while you're taking the quiz at the end of the course.

As you move through this course, please remember that the *2004 Florida Building Code* , as well as current supplements to the code, can be found in its entirety at www.floridabuilding.org.

Chapter 1: Administration

The *Florida Building Code, Building* provisions apply to every building except:

*Detached 1- and 2-family dwellings and townhouses of not more than 3 stories
Refer to the *Florida Building Code, Residential*

*Existing buildings
Refer to the *Florida Building Code, Existing Buildings*.

CHAPTER 1 ADMINISTRATION

SECTION 101 GENERAL

101.2 Scope. *The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.*

Exceptions

1. Detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the Florida Building Code, Residential.

2. Existing buildings undergoing repair, alterations or additions and change of occupancy shall be permitted to comply with the Chapter 34, Florida Existing Building Code.

CHAPTER 1 ADMINISTRATION

102 APPLICABILITY

102.2.6 This section does not apply to swings and other playground equipment accessory to a one- or two-family dwelling

Exception:

Electrical service to such playground equipment shall be in accordance with Chapter 27 of this code.

Chapter 1: Administration (cont)

102 APPLICABILITY

102.7 Relocation of manufactured buildings.

Relocation of an existing manufactured building is not considered an alteration.

A relocated building shall comply with wind speed requirements of the new location, using the appropriate wind speed map. If the existing building was manufactured in compliance with the *Standard Building Code* (prior to March 1, 2002), the wind speed map of the Standard Building Code shall apply.

CHAPTER 1 ADMINISTRATION

SECTION 102 APPLICABILITY

102.7 Relocation of manufactured buildings.

(1) Relocation of an existing manufactured building does not constitute an alteration.

(2) A relocated building shall comply with wind speed requirements of the new location, using the appropriate wind speed map. If the existing building was manufactured in compliance with the Standard Building Code (prior to March 1, 2002), the wind speed map of the Standard Building Code shall be applicable. If the existing building was manufactured in compliance with the Florida Building Code (after March 1, 2002), the wind speed map of the Florida Building Code shall be applicable.

Chapter 1: Administration (cont)

CHAPTER 1 ADMINISTRATION

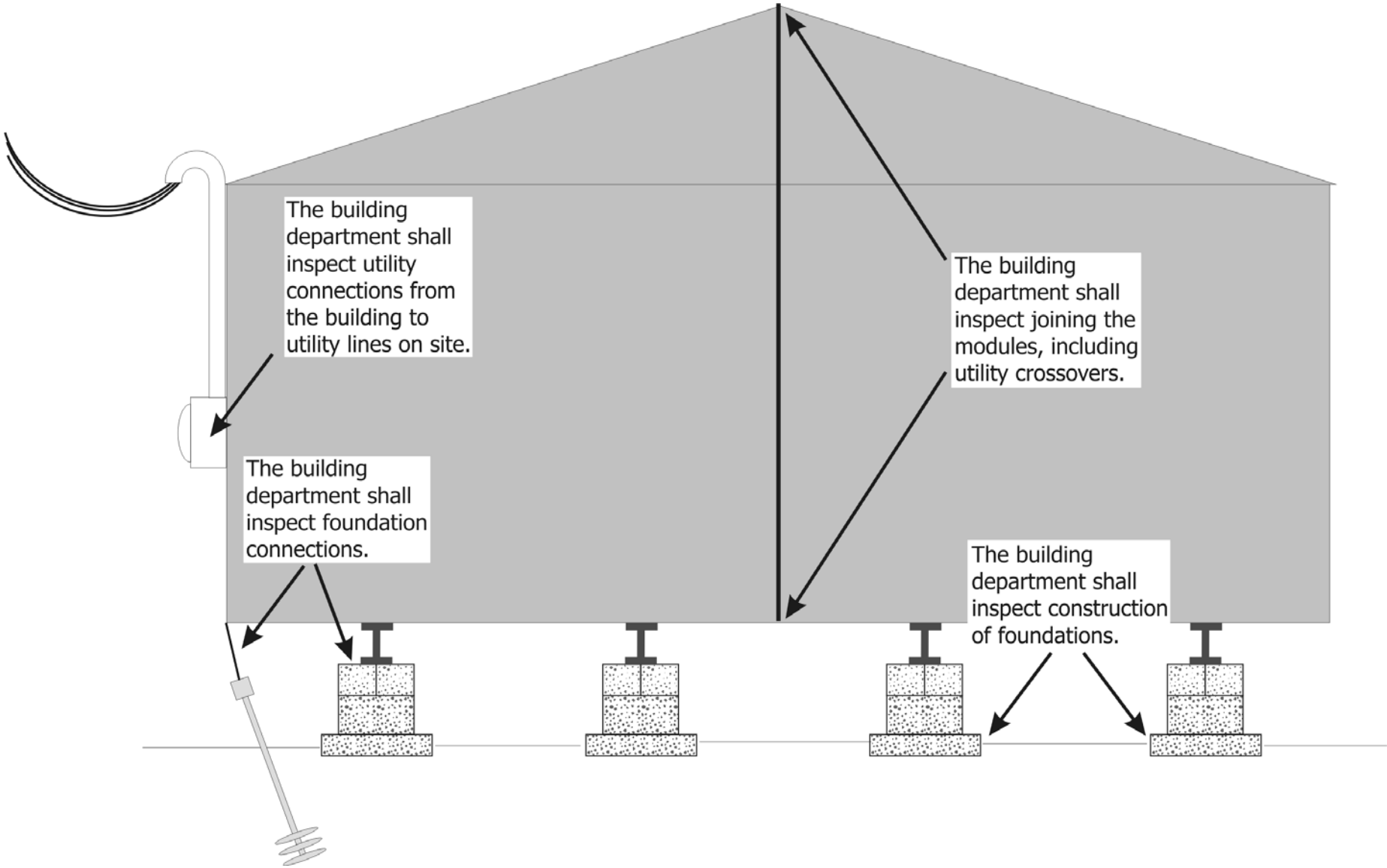
SECTION 109 INSPECTIONS

109.3 Required inspections.

Building

The building department shall inspect construction of foundations; connecting buildings to foundations; installation of parts identified on plans as site installed items, joining the modules, including utility crossovers; utility connections from the building to utility lines on site; and any other work done on site which requires compliance with the *Florida Building Code*. Additional inspections may be required for public educational facilities. See §423.27.20.

(Please refer to the illustration on the following page)



The building inspector shall inspect installation of items identified on plans as site-installed items, eg. Water coolers/drinking fountains, accessibility ramps, aesthetics/trim boards, fire alarms, fire sprinkler systems, etc.

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

OVERVIEW

Classification based on commonality of fire risk present and expected ability of occupants to respond to this risk.

Assembly Group A is subdivided (5-divisions) by the assembly use.

Groups B, M and S classifications are similar to the *Florida Building Code 2001*

Factory – three categories (moderate-hazard, low hazard, and special purpose)

High-Hazard Group H – divided into five groups (detonable material, materials that present a rapid burning hazard, materials that readily support combustion, health hazards, and semiconductor fabrication facilities.

Institutional Group I – include facilities used for health and wellness care, correctional institutions and mental institutions

Group D – replaced I-4 Adult care facilities

Utility and Miscellaneous Group U – intended for accessory and miscellaneous structures

(continued)

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

SECTION 302 CLASSIFICATION

302.1 General. *Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. Structures with multiple uses shall be classified according to Section 302.3. Where a structure is proposed for a purpose which is not specifically provided for in this code, such structure shall be classified in the group which the occupancy most nearly resembles, according to the fire safety and relative hazard involved.*

1. *Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5*
2. *Business (see Section 304): Group B*
3. *Educational (see Section 305): Group E*
4. *Factory and Industrial (see Section 306): Groups F-1 and F-2*
5. *High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5*
6. *Institutional (see Section 308): Groups I-1, I-2 and I-3*
7. *Mercantile (see Section 309): Group M*
8. *Residential (see Section 310): Groups R-1, R-2, R-3 as applicable in Section 101.2, and R-4*
9. *Storage (see Section 311): Groups S-1 and S-2*
10. *Utility and Miscellaneous (see Section 312): Group U*
11. *Daycare (see Section 313); Group D*

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION
SECTION 308 INSTITUTIONAL GROUP I

Group I-1

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

Group I-2

Hospitals
Nursing homes
Mental hospitals

Group I-2 (cont)

Detoxification facilities
Infant Care (24-hour basis)

Group I-3

Prisons
Jails
Reformatories
Detention Centers
Correction Centers
Pre-release centers

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

Section 312 UTILITY & MISCELLANEOUS GROUP U

312.1 General. Buildings and structures of an accessory character and miscellaneous structure not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include but not be limited to the following:

*Aircraft hangars (accessory to one- or two family residences)

*Barns

*Carports

*Fences more than 6 feet in height

*Greenhouses

*Livestock shelters

*Private garages

*Retaining walls

*Sheds

*Stables

*Tanks

*Grain silos (accessory to a residential occupancy)

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

CHAPTER 3 USE AND OCCUPANCY

SECTION 303 ASSEMBLY GROUP A

Group A-1

Motion picture theaters

Symphony and concert halls

Television and radio studios admitting an audience

Theaters

Group A-2

Banquet halls

Nightclubs

Group A-3

Amusement arcades

Art galleries

Bowling alleys

Churches

Community halls

Group A-3 (cont)

Courtrooms

Dance halls (not including food or drink consumption)

Exhibition halls

Funeral parlors

Gymnasiums (without spectator seating)

Indoor swimming pools (without spectator seating)

Indoor tennis courts (without spectator seating)

Lecture halls

Libraries

Museums

Waiting areas in transportation terminals

Pool and billiard parlors

Group A-4

Arenas

Skating rinks

Swimming pools

Tennis courts

Group A-5

Amusement park structures

Bleachers

Grandstands

Stadiums

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

Chapter 3 Use and Occupancy Classification

Section 303 Assembly Group A

(continued)

303.1.1 Restaurants and drinking establishments with an occupant load of less than 50 persons shall be classified as Group M, Mercantile.

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.1.1 Incidental use areas.

*Area listed in Table 302.1.1 (see Table 302.1.1 on page after next) must be separated or protected, or both, in accordance with the Table, or

*Must be classified as a mixed occupancy and comply with Section 302.3 and shall be treated as a non-separated use in accordance with 302.3.1 or a separated use in accordance with 302.3.2,

*Must be classified in accordance with the main occupancy of the portion of the building in which the incidental use area is located.

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

302.1.1 Incidental use areas. *Spaces which are incidental to the main occupancy shall be separated or protected, or both, in accordance with Table 302.1.1 or the building shall be classified as a mixed occupancy and comply with Section 302.3. Areas that are incidental to the main occupancy shall be classified in accordance with the main occupancy of the portion of the building in which the incidental use area is located.*

Exception: *Incidental use areas within and serving a dwelling unit are not required to comply with this section.*

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.1.1.1 Separation.

Table 302.1.1 (see Table 302.1.1 on the following page)

The incidental use area must be separated from the remainder of the building with a fire barrier and/or or must be provided with an automatic fire-extinguishing system with smoke barrier (both are sometimes required and sometimes a fire barrier is the only option).

Doors: Must be self-closing or automatic-closing upon detection of smoke, must not have air transfer openings, and must not have undercut in excess of the clearance permitted in accordance with NFPA 80 (see illustration on page after next).

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

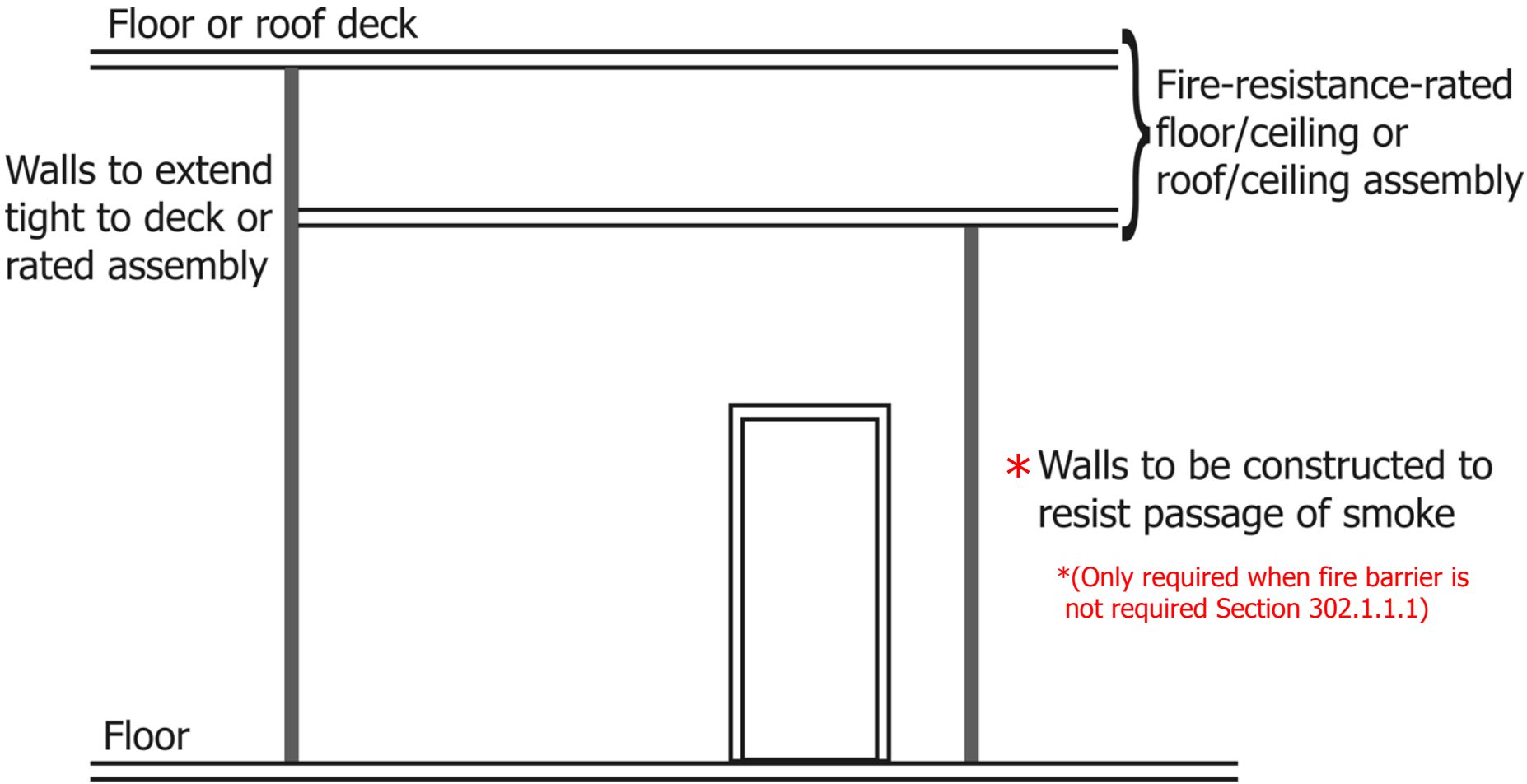
302.1.1.1 Separation. *Where Table 302.1.1 requires a fire-resistance-rated separation, the incidental use area shall be separated from the remainder of the building with a fire barrier. Where Table 302.1.1 permits an automatic fire-extinguishing system without a fire barrier, the incidental use area shall be separated by construction capable of resisting the passage of smoke. The partitions shall extend from the floor to the underside of the fire-resistance-rated floor/ceiling assembly or fire-resistance-rated roof/ceiling assembly or to the underside of the floor or roof deck above. Doors shall be self-closing or automatic-closing upon detection of smoke. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.*

TABLE 302.1.1: INCIDENTAL USE AREAS

ROOM OR AREA	SEPARATION [a]
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic fire-extinguishing system
Rooms with any boiler over 15 psi and 10 horsepower	1 hour or provide automatic fire-extinguishing system
Refrigerant machinery rooms	1 hour or provide automatic sprinkler system
Parking garage (Section 406.2)	2 hours; or 1 hour and provide automatic fire-extinguishing system
Hydrogen cut-off rooms	1-hour fire barriers and floor/ceiling assemblies in Group B, F, H, M, S and U occupancies. 2-hour fire barriers and floor/ceiling assemblies in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and 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 fire-extinguishing system
Laboratories and vocational shops, not classified as Group H, located in Group E or I-2 occupancies	1 hour or provide automatic fire-extinguishing system
Laundry rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Storage rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Group I-3 cells equipped with padded surfaces	1 hour
Group I-2 waste and linen collection rooms	1 hour
Waste and linen collection rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Stationary lead-acid battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies	1-hour fire barriers and floor/ceiling assemblies in Group B, F, H, M, S and U occupancies. 2-hour fire barriers and floor/ceiling assemblies in Group A, E, I and R occupancies

For SI: 1 sq ft = 0.0929 m^2, 1 lb per sq in = 6.9 kPa, 1 British thermal unit = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L.

[a] Where an automatic fire-extinguishing system is provided, it need only be provided in the incidental use room or area.



Note: Doors shall • be self-closing or automatic-closing upon detection of smoke
• have no air transfer openings
• have no excessive undercuts

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.2 Accessory use areas.

*Can be of any occupancy except Group H and incidental use areas.

*When combined, total areas can not exceed 10% of the area of the story in which they are located and the limitation of Table 503.

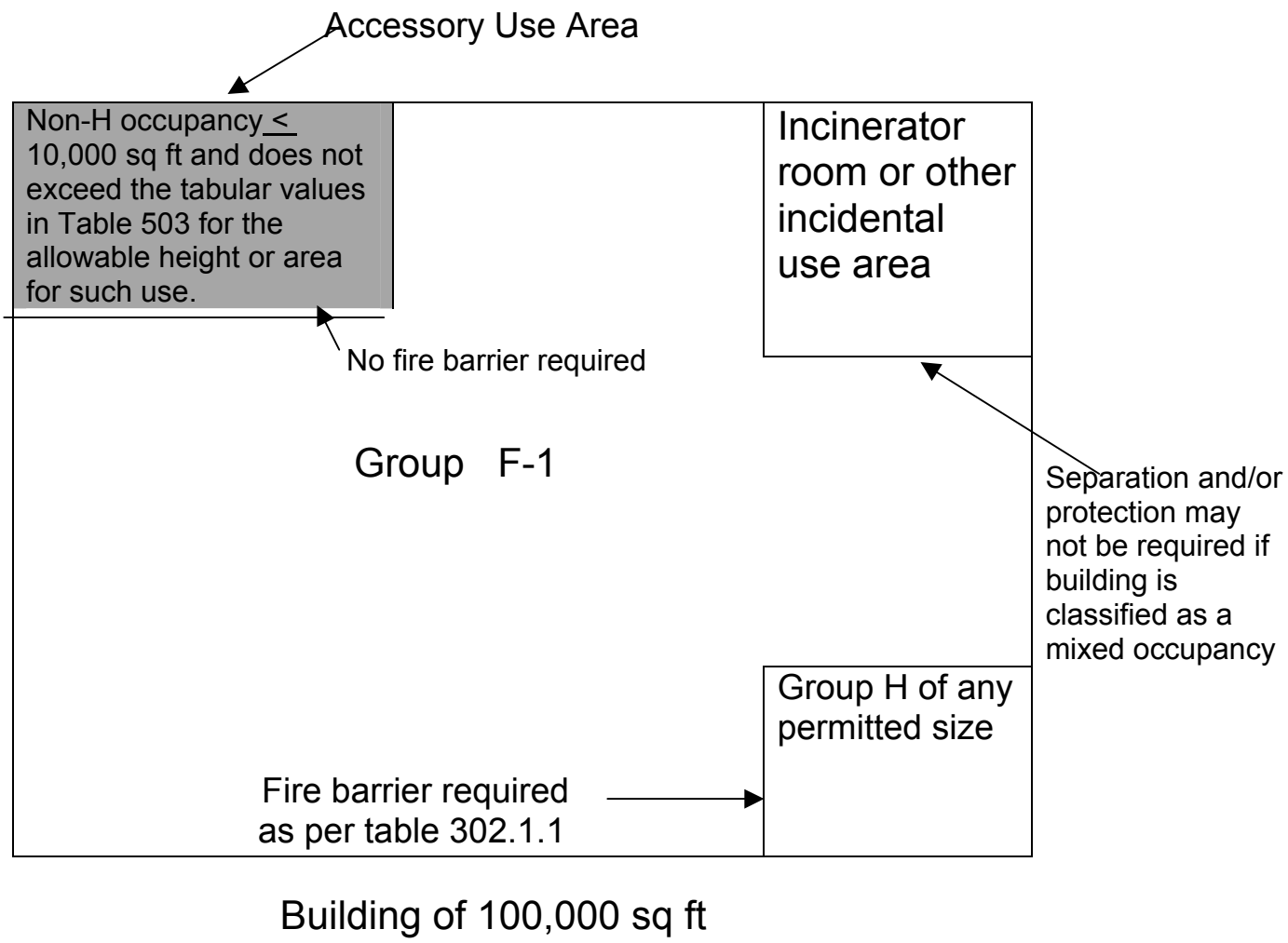
*Are not required to be separated by a fire barrier as per Table 302.3.2.

(see illustration on next page)

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

302.2 Accessory use areas*. A fire barrier shall be required to separate accessory use areas classified as Group H in accordance with Section 302.3.2, and incidental use areas in accordance with Section 302.1.1. Any other accessory use area shall not be required to be separated by a fire barrier provided the accessory use area occupies an area not more than 10 percent of the area of the story in which it is located and does not exceed the tabular values in Table 503 for the allowable height or area for such use.*



Building of 100,000 sq ft

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.2.1 Assembly areas.

*Accessory assembly areas are not considered separate occupancies when:

*The floor area is equal to or less than 750 square feet (69.7 m^2).

*Assembly areas are accessory to Group E.

*Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100.

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

302.2.1 Assembly areas. *Accessory assembly areas are not considered separate occupancies if the floor area is equal to or less than 750 square feet. Assembly areas that are accessory to Group E are not considered separate occupancies. Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 are not considered separate occupancies.*

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.3 Mixed occupancies.

When a building is occupied by two or more uses the building must meet:

*Either one of the exceptions of Section 302.3 or

*Be designed as:

*A Non-Separated Use (Section 302.3.1) or

*Separated Use (Section 302.3.2) or

*A combination of these sections.

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

302.3 Mixed occupancies. *Where a building is occupied by two or more uses not included in the same occupancy classification, the building or portion thereof shall comply with Section 302.3.1 or 302.3.2 or a combination of these sections.*

(continued)

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.3 Mixed occupancies.

(continued)

Exceptions:

1. *Occupancies separated in accordance with Section 508.*
2. *Areas of Group H-2, H-3, H-4 or H-5 occupancies shall be separated from any other occupancy in accordance with Section 302.3.2.*
3. *Where required by Table 415.3.2, areas of Group H-1, H-2 or H-3 occupancy shall be located in a separate and detached building or structure.*
4. *Accessory use areas in accordance with Section 302.2.*
5. *Incidental use areas in accordance with Section 302.1.1.*

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.3.1 Nonseparated uses.

*Each portion of the building must be classified as to use.

*Required type of construction is determined by applying the height and area limitations for each of the applicable occupancies to the entire building.

*Most restrictive type of construction must apply to the entire building.

*All other code requirements shall apply to each portion of the building based on the use of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to nonseparated uses.

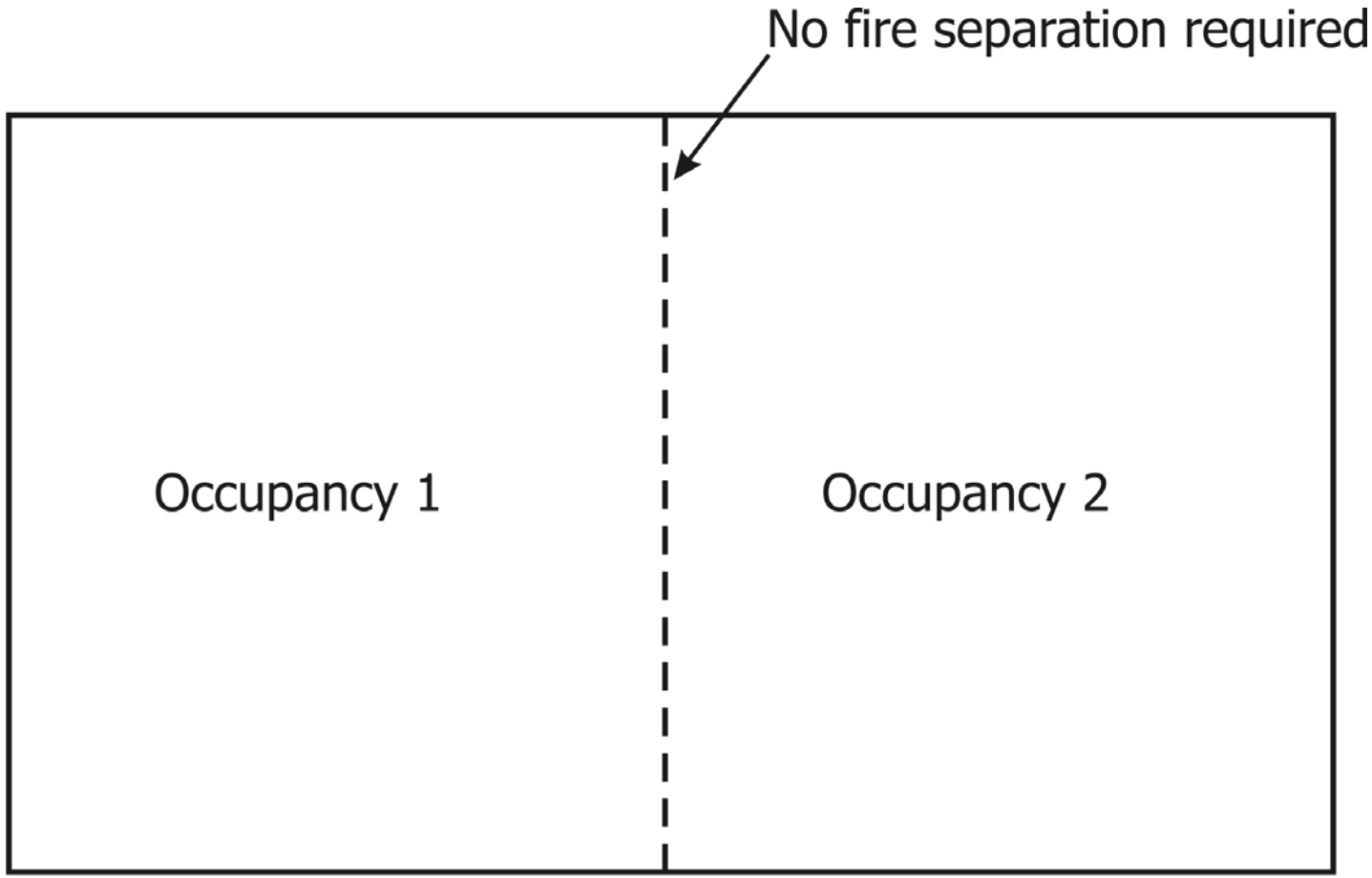
*Fire separations are not required between uses, except as required by other provisions.

(see illustration on next page)

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 302 CLASSIFICATION

302.3.1 Nonseparated uses. *Each portion of the building shall be individually classified as to use. The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building. All other code requirements shall apply to each portion of the building based on the use of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to these nonseparated uses. Fire separations are not required between uses, except as required by other provisions.*



- Type of construction limited by:
  - Lesser height limit of Occupancy 1 or 2
  - Lesser floor area limit of Occupancy 1 or 2
- Most restrictive fire-protection system requirements of Occupancy 1 and 2 (also high-rise provisions)

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

302 CLASSIFICATION

302.3.2 Separated uses.

*Each portion of the building must be classified as to use and shall be completely separated from adjacent areas by fire barrier walls or horizontal assemblies or both having a fire-resistance rating determined in accordance with Table 302.3.2 for uses being separated.

*Each fire area shall comply with this code based on the use of that space.

*Each fire area shall comply with the height limitations based on the use of that space and the type of construction

Exceptions:

*Permission to reduce the fire- resistance rating by one hour for sprinklered buildings.

*Does not apply to Group H and Group I-2 use areas.

(continued)

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION (cont)

SECTION 302 CLASSIFICATION

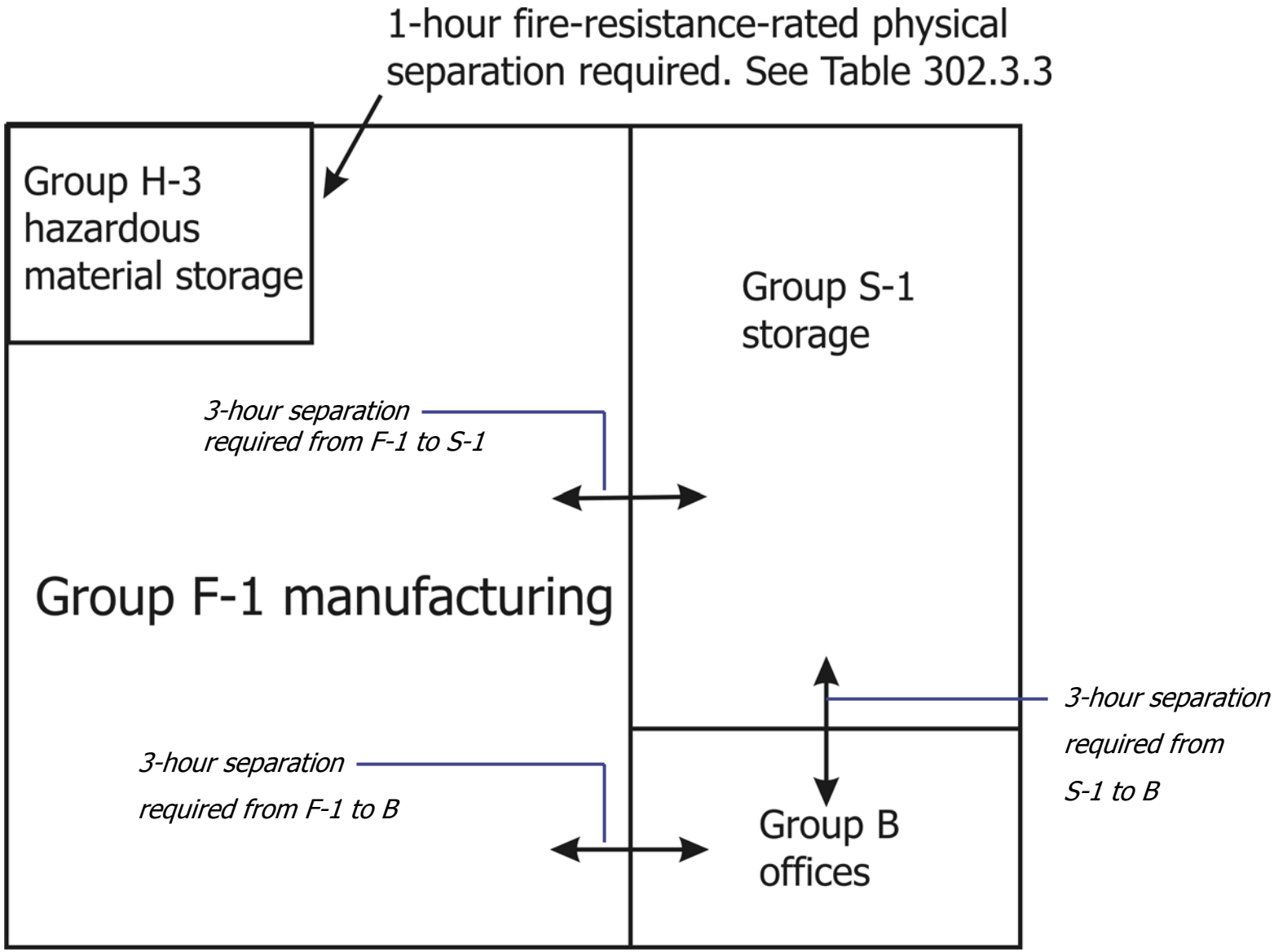
(continued)

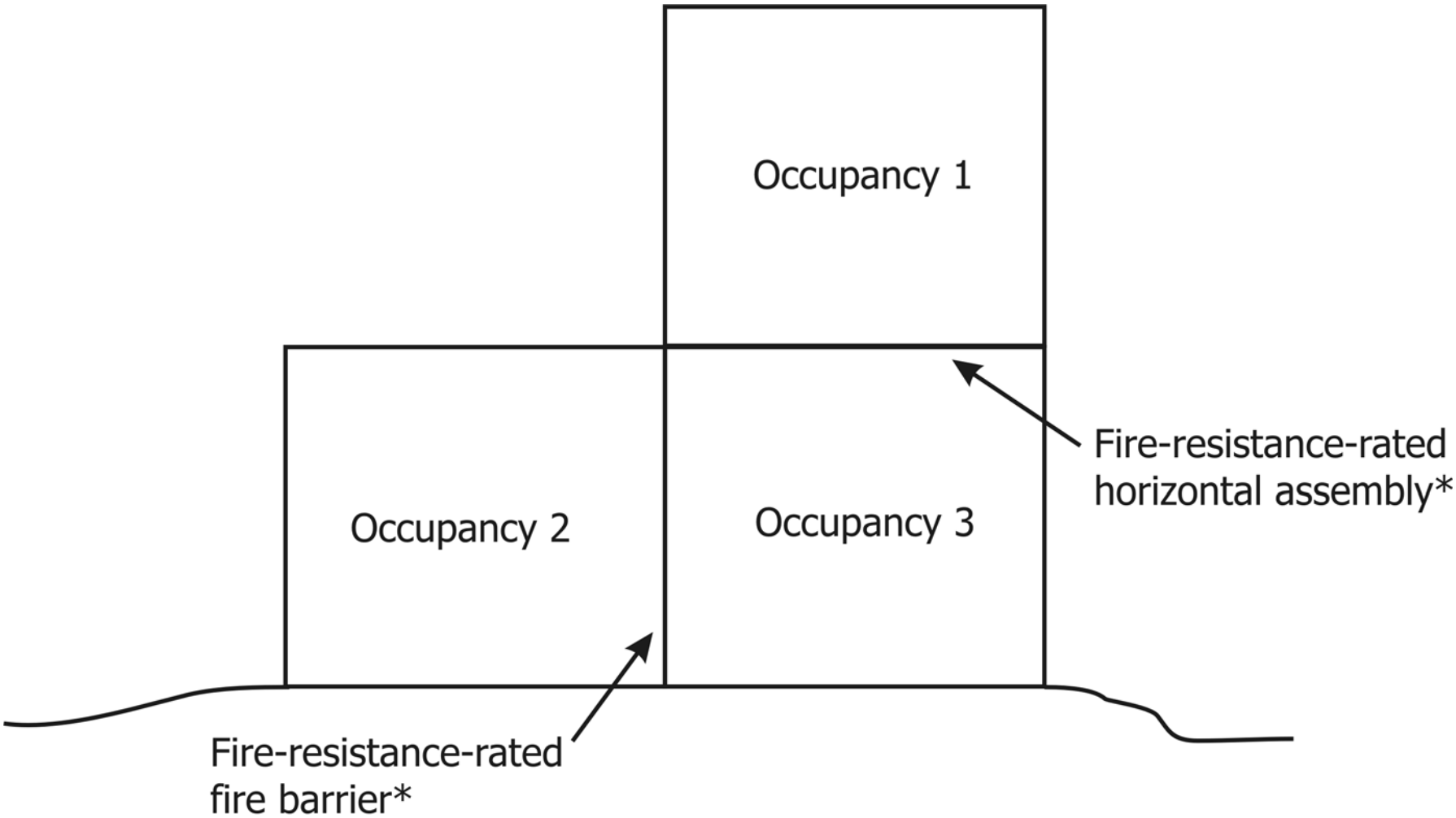
302.3.2 Separated uses. *Each portion of the building shall be individually classified as to use and shall be completely separated from adjacent areas by fire barrier walls or horizontal assemblies or both having a fire-resistance rating determined in accordance with Table 302.3.2 for uses being separated. Each fire area shall comply with this code based on the use of that space. Each fire area shall comply with the height limitations based on the use of that space and the type of construction classification. In each story, the building area shall be such that the sum of the ratios of the floor area of each use divided by the allowable area for each use shall not exceed one.*

Exception:

Except for Group H and I-2 areas, where the building is equipped throughout with an automatic sprinkler system, installed in accordance with Section 903.3.1.1, the fire-resistance ratings in Table 302.3.2 shall be reduced by 1 hour but to not less than 1 hour and to not less than that required for floor construction according to the type of construction.

(see illustrations on following pages)


1-hour fire-resistance-rated physical separation required. See Table 302.3.3
Group H-3 hazardous material storage
Group S-1 storage
3-hour separation required from F-1 to S-1
Group F-1 manufacturing
3-hour separation required from S-1 to B
3-hour separation required from F-1 to B
Group B offices



* Minimum fire-resistance rating based on Section 302.3.3 and Table 302.3.3

Chapter 4: Special Detailed Requirements Based on Use and Occupancy

OVERVIEW

*Adds sections addressing:

***Adult Day Care** (433)

***Assisted Living Facilities** (434)

***Control of Radiation Hazards** (435)

*Occupancy use provisions expanded in all special occupancies.

*Includes relevant definition per occupancy.

*Swimming Pools and Bathing Places brought forth from 2001 *Florida Building Code* and modified (10 changes)

Chapter 4: Special Detailed Requirements Based on Use and Occupancy (cont)

424 SWIMMING POOLS AND BATHING PLACES

424.1.3.1 Decks and Walkways.

424.1.3.1.9.

* All public pools shall be surrounded by a minimum 48 inch in height fence (fence must be continuous).

* Access through the barrier other than from doored exits of adjacent building(s) has to be through self-closing self-latching lockable gates of 48 inches.

SECTION 424 SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

424.1.3.1.9 *All public pools shall be surrounded by a minimum 48 inch in height fence. The fence shall be continuous around the perimeter of the pool area that is not otherwise blocked or obstructed by adjacent buildings or structures and shall adjoin with itself or abut to the adjacent members. Access through the barrier other than from doored exits of adjacent building(s) shall be through self-closing self-latching lockable gates of 48 inch minimal height with the latch located near the top. Consideration shall be given to the U.S. Consumer Product Safety Commission (CPSC) Pub. No. 362 guidelines. Safety Covers that comply with ASTM Standard F1346 do not satisfy this requirement.*

Chapter 4: Special Detailed Requirements Based on Use and Occupancy (cont)

424 SWIMMING POOLS & BATHING PLACES

424.2.17.1.16 Adjacent Waterways.

*Permanent natural/permanent man-made features (canals, lakes, etc.) adjacent to a swimming pool/spa may be permitted as a barrier when approved by the authority having jurisdiction, if:

*Barrier feature is not subject to natural changes, deviations or alterations and is capable of providing an equivalent level of protection

*The barrier feature prevents or restricts access to the swimming pool or spa.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 424 SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

424.2.17.1.16 Adjacent Waterways. *Permanent natural or permanent man-made features such as bulkheads, canals, lakes, navigable waterways, etc., adjacent to a public or private swimming pool or spa may be permitted as a barrier when approved by the authority having jurisdiction. When evaluating such barrier features, the authority may perform on-site inspections and review evidence such as surveys, aerial photographs, water management*

(continued)

Chapter 4: Special Detailed Requirements Based on Use and Occupancy (cont)

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 424 SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)

(continued)

agency standards and specifications, and any other similar documentation to verify, at a minimum, the following:

1. The barrier feature is not subject to natural changes, deviations, or alterations and is capable of providing an equivalent level of protection as that provided by the code.

2. The barrier feature clearly impedes, prohibits or restricts access to the swimming pool or spa.

Chapter 5: General Building Heights and Areas

OVERVIEW

*Table 503, Allowable Height and Building Areas new/different

*Section 501.2, Premises Identification, requires a building to be provided with approved numbers or address clearly visible from the street.

*Landscaping around the perimeter of a building may be important in determining allowable heights and areas, since grade plane is used in determining the allowable height of the building.

503 GENERAL HEIGHT AND AREA LIMITATIONS

*Portions of a building within exterior walls and fire walls are permitted to be considered as separate buildings.

*Table 503, Allowable Height and Building Areas, provides allowable height and building areas in story based on the occupancy group and type of construction.

*Special industrial occupancies housing low-hazard processes that require larger areas and unusual heights are allowed to be exempt from the height and area limitation of Table 503.

TABLE 503
ALLOWABLE HEIGHT AND BUILDING AREAS

Height limitations shown as stories and feet above grade plane. Area limitations as determined by the definition of "Area, building," per floor.

		TYPE OF CONSTRUCTION								
		Type I		Type II		Type III		Type IV	Type V	
		A	B	A	B	A	B	HT	A	B
GROUP	Hgt (ft) Hgt (S)	UL	160	65	55	65	55	65	50	40
A-1	S A	UL UL	5 UL	3 15,500	2 8,500	3 14,000	2 8,500	3 15,000	2 11,500	1 5,500
A-2	S A	UL UL	11 UL	3 15,500	2 9,500	3 14,000	2 9,500	3 15,000	2 11,500	1 6,000
A-3	S A	UL UL	11 UL	3 15,500	2 9,500	3 14,000	2 9,500	3 15,000	2 11,500	1 6,000
A-4	S A	UL UL	11 UL	3 15,500	2 9,500	3 14,000	2 9,500	3 15,000	2 11,500	1 6,000
A-5	S A	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL
B	S A	UL UL	11 UL	5 37,500	4 23,000	5 28,500	4 19,000	5 36,000	3 18,000	2 9,000
E / D	S A	UL UL	5 UL	3 26,500	2 14,500	3 23,500	2 14,500	3 25,500	1 18,500	1 9,500
F-1	S A	UL UL	11 UL	4 25,000	2 15,500	3 19,000	2 12,000	4 33,500	2 14,000	1 8,500
F-2 / F-3	S A	UL UL	11 UL	5, 37,500	3 23,000	4 28,500	3 18,000	5 50,500	3 21,000	2 13,000
H-1	S A	1 21,000	1 16,500	1 11,000	1 7,000	1 9,500	1 7,000	1 10,500	1 7,500	NP NP
H-2	S A	UL 21,000	3 16,500	2 11,000	1 7,000	2 9,500	1 7,000	2 10,500	1 7,500	1 3,000
H-3	S A	UL UL	6 60,000	4 26,500	2 14,000	4 17,500	2 13,000	4 25,500	2 10,000	1 5,000
H-4	S A	UL UL	7 UL	5 37,500	3 17,500	5 28,500	3 17,500	5 36,000	3 18,000	2 6,500
H-5	S A	3 UL	3 UL	3 37,500	3 23,000	3 28,500	3 19,000	3 36,000	3 18,000	2 9,000
I-1	S A	UL UL	9 55,000	4 19,000	3 10,000	4 16,500	3 10,000	4 18,000	3 10,500	2 4,500
I-2	S A	UL UL	4 UL	2 15,000	1 11,000	1 12,000	NP NP	1 12,000	1 9,500	NP NP
I-3	S A	UL UL	4 UL	2 15,000	1 10,000	2 10,500	1 7,500	2 12,000	2 7,500	1 5,000
M	S A	UL UL	11 UL	4 21,500	4 12,500	4 18,500	4 12,500	4 20,500	3 14,000	1 9,000
R-1	S A	UL UL	11 UL	4 24,000	4 16,000	4 24,000	4 16,000	4 20,500	3 12,000	2 7,000
R-2 [a]	S A	UL UL	11 UL	4 24,000	4 16,000	4 24,000	4 16,000	4 20,500	3 12,000	2 7,000
R-3 [a]	S A	UL UL	11 UL	4 UL	4 UL	4 UL	4 UL	4 UL	3 UL	3 UL
R-4	S A	UL UL	11 UL	4 24,000	4 16,000	4 24,000	4 16,000	4 20,500	3 12,000	2 7,000
S-1	S A	UL UL	11 48,000	4 26,000	3 17,500	3 26,000	3 17,500	4 25,500	3 14,000	1 9,000
S-2 [b, c]	S A	UL UL	11 79,000	5 39,000	4 26,000	4 39,000	4 26,000	5 38,500	4 21,000	2 13,500
U [c]	S A	UL UL	5 35,500	4 19,000	2 8,500	3 14,000	2 8,500	4 18,000	2 9,000	1 5,500

For SI: 1 foot = 304.8 mm, 1 squre foot = 0.0929 m^2 UL = Unlimited, NP = Not permitted.

[a] As applicable in Section 101.2 [b] For open parking structures, see Section 406.3 [c] For private garages, see Section 406.1

Chapter 5: General Building Heights and Areas (cont)

503 GENERAL HEIGHT AND AREA LIMITATIONS

503.1.3 Buildings on same lot.

Requires two or more buildings on the same lot to be treated as separate buildings unless the aggregate area and height of the two buildings together meet the requirements of Table 503, Allowable Height and Building Areas.

(see illustration on next 2 pages)

503.1.4 Type I construction.

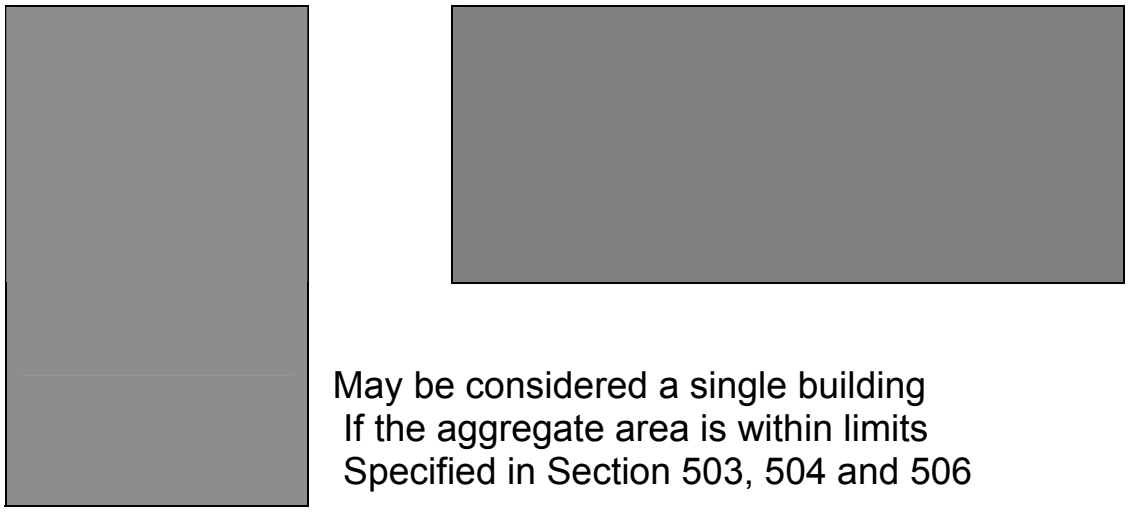
Table 503 allows unlimited heights and areas for Type I buildings of most groups

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

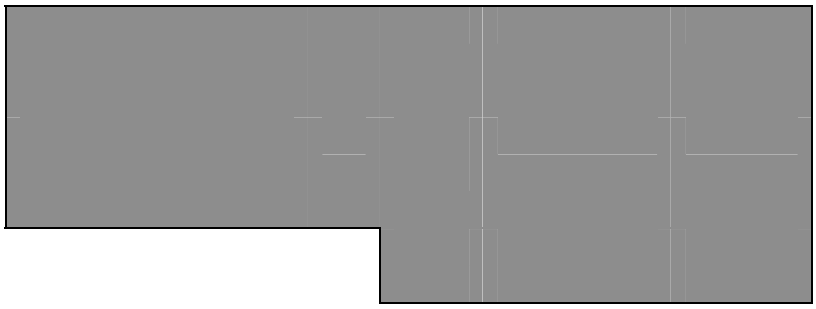
503 GENERAL HEIGHT AND AREA LIMITATIONS

503.1.3 Buildings on same lot. *Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the height of each building and the aggregate area of buildings are within the limitations of Table 503 as modified by Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.*

503.1.4 Type I construction. *Buildings of Type I construction permitted to be of unlimited tabular heights and areas are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited height in Section 504.3 or increased height and areas for other types of construction.*



May be considered a single building
If the aggregate area is within limits
Specified in Section 503, 504 and 506

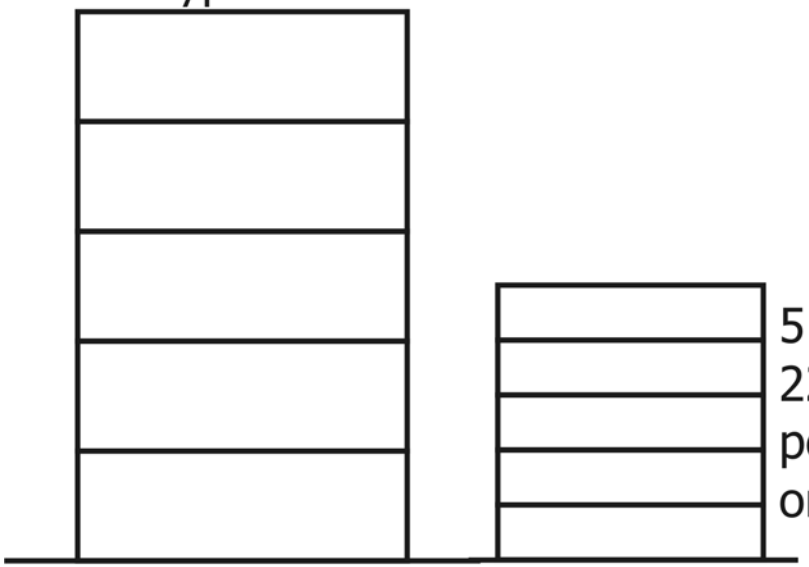


Provisions of code applicable to aggregate building to be applicable to each building.

Group A-2
Type VA

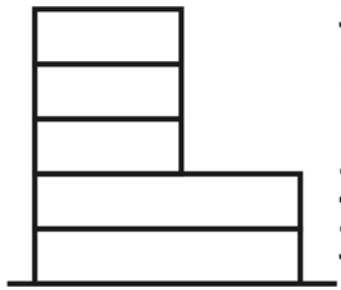
Maximum area per floor: 11,500 sq ft
Maximum area for building: 11,500 sq ft
× 2
23,000 sq ft

Group B
Type IIA



Maximum area per floor: 37,500 sq ft
Maximum area for building: 37,500 sq ft
× 3
112,500 sq ft

5 stories @
22,500 sq ft
per floor
or



3 stories @
12,500 sq ft per floor

2 stories @
37,500 sq ft per floor
or
other combinations
up to 5 stories and
65 feet in height

Chapter 5: General Building Heights and Areas (cont)

504 HEIGHT MODIFICATIONS

504.1 Special unlimited height.

Group B, Group M and Group R occupancies of Type I-B , provided:

*Fire resistance of all columns must be not less than 3 hours

*Other structural members including floors must be not less than 2 hours, except that roofs and their supporting beams, girders, trusses and arches shall be not less than 1½ hours

*Exceptions for Aircraft hangers

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

504 HEIGHT MODIFICATIONS

504.1 Special unlimited height. *The height of Group B, Group M and Group R occupancies of Type I-B construction shall not be limited, provided the fire resistance of all columns shall be not less than 3 hours and the other structural members including floors shall be not less than that shown in Chapter 6, but in no case less than 2 hours except that roofs and their supporting beams, girders, trusses and arches shall be not less than 1½ hours.*

Exception: *The height of one-story aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited if the building is provided with an automatic fire extinguishing system in accordance with Chapter 9 and is entirely surrounded by public ways or yards not less in width than one and one-half times the height of the building.*

Chapter 5: General Building Heights and Areas (cont)

504 HEIGHT MODIFICATIONS

504.2 Automatic sprinkler system increase.

*Where a building is equipped throughout with an approved automatic sprinkler system,

*The value specified in Table 503 for maximum height may be increased by 20 feet and

*The maximum number of stories may be increased by one story.

*These increases are permitted in addition to the area increase in accordance with Sections 506.2 and 506.3.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

504 HEIGHT MODIFICATIONS

504.2 Automatic sprinkler system increase. *Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet and the maximum number of stories is increased by one story. These increases are permitted in addition to the area increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum height is increased by 20 feet and*

(continued)

Chapter 5: General Building Heights and Areas (cont)

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

504 HEIGHT MODIFICATIONS

(continued)

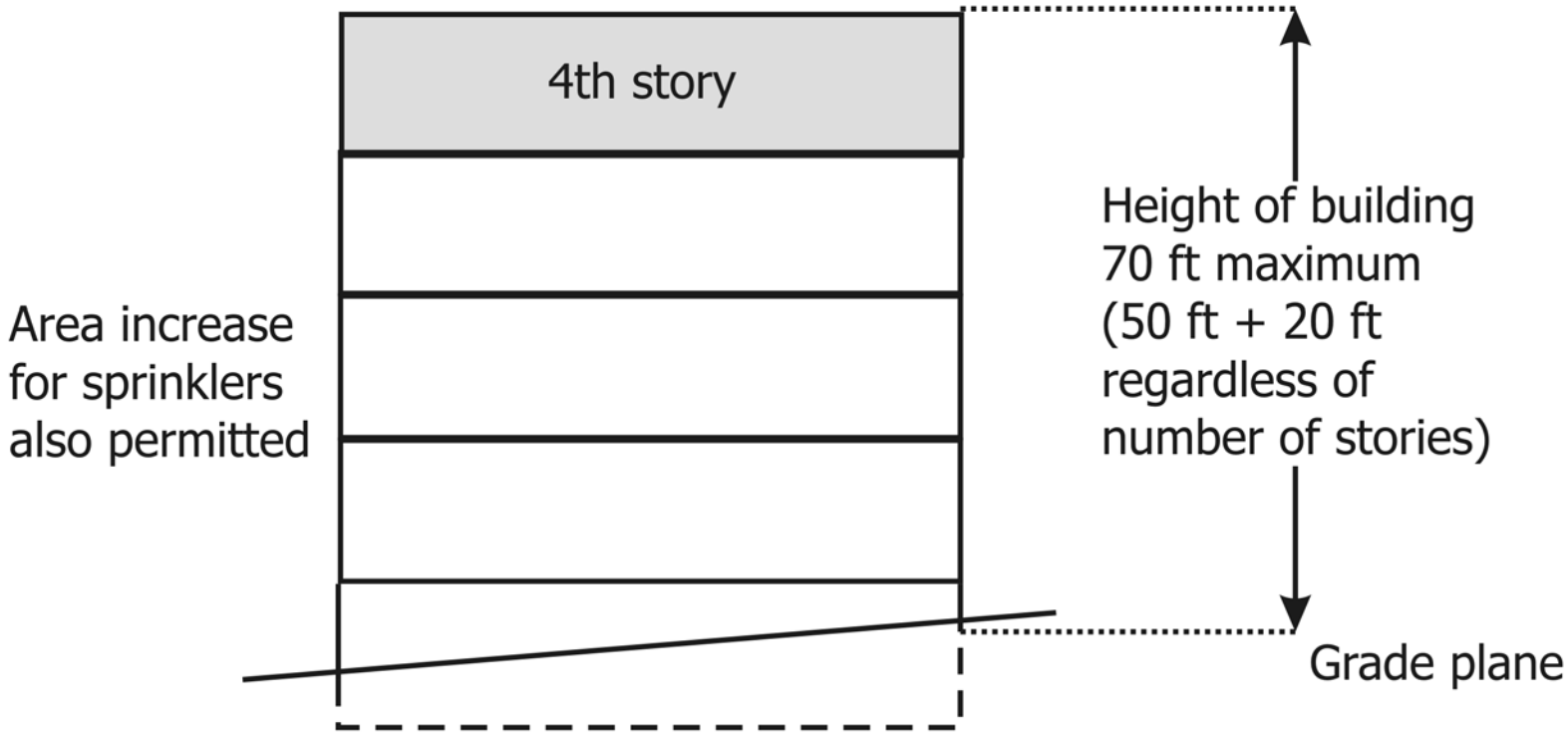
the maximum number of stories is increased by one story, but shall not exceed four stories or 60 feet, respectively. Group R limited to 4 stories or 60 feet.

Exceptions:

1. *Group I-2 of Type IIB, III, IV or V construction.*
2. *Group H-1, H-2, H-3 or H-5.*
3. *Fire-resistance rating substitution in accordance with Table 601.*

(see illustration on following page)

Maximum height and number of stories based upon occupancy and type of construction as set forth in Table 503.
Given: a type VA office building is permitted to be 3 stories and 50 feet in height per Table 503.
If sprinkler system installed per Section 504.2, the story limit may be increased by one story, and the height can exceed the limit in Table 503 by 20 feet.



Increase does not apply when sprinkler installed under following conditions:
1. Group I-2 of Type IIB, III, IV or V construction
2. Group H-1, H-2, H-3 or H-5.

Chapter 5: General Building Heights and Areas (cont)

504 HEIGHT MODIFICATIONS

504.3 Roof structures.

*Towers, spires, steeples and other roof structures.

*Such structures shall not be used for habitation or storage.

The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet above the allowable height if of combustible materials (see Chapter 15 for additional requirements).

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

504 HEIGHT MODIFICATIONS

504.3 Roof structures. *Towers, spires, steeples and other roof structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1509.2.1. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet above the allowable height if of combustible materials (see Chapter 15 for additional requirements).*

Chapter 5: General Building Heights and Areas (cont)

506 AREA MODIFICATIONS

506.1 General.

The areas limited by Table 503 shall be permitted to be increased due to:

*Frontage (I_f) and

*Automatic sprinkler system protection (I_s)

in accordance with Equation 5-1.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

506 AREA MODIFICATIONS

***506.1 General**. The areas limited by Table 503 shall be permitted to be increased due to frontage (I_f) and automatic sprinkler system protection (I_s) in accordance with the following:*

$$A_a = A_t + \left[\frac{A_t\, I_f}{100}\right] + \left[\frac{A_t I_s}{100}\right] \qquad \text{(Equation 5-1)}$$

where:

A_a = allowable area per floor (square feet)

A_t = Tabular area per floor in accordancde with Table 503 (square feet)

I_f = Area increase due to frontage (percent) as calculated in accordance with Section 506.2

I_s = Area increase due to sprinkler protection (percent) as calculated in accordance with Section 506.3

Chapter 5: General Building Heights and Areas (cont)

506 AREA MODIFICATIONS

506.2 Frontage increase.

To receive an area increase for frontage:

*Building must adjoin or have access to a public way.

*The frontage increase must as per Equation 5-2 where a building has more than 25 percent of its perimeter on a public way or open space having a minimum width of 20 feet

(see illustration on following page)

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

506 AREA MODIFICATIONS

506.2 Frontage increase. *Every building shall adjoin or have access to a public way to receive an area increase for frontage. Where a building has more than 25 percent of its perimeter on a public way or open space having a minimum width of 20 feet, the frontage increase shall be determined in accordance with the following:*

$$I_f = 100\left[\frac{F}{P} - 0.25\right]\frac{W}{30} \qquad \text{(Equation 5-2)}$$

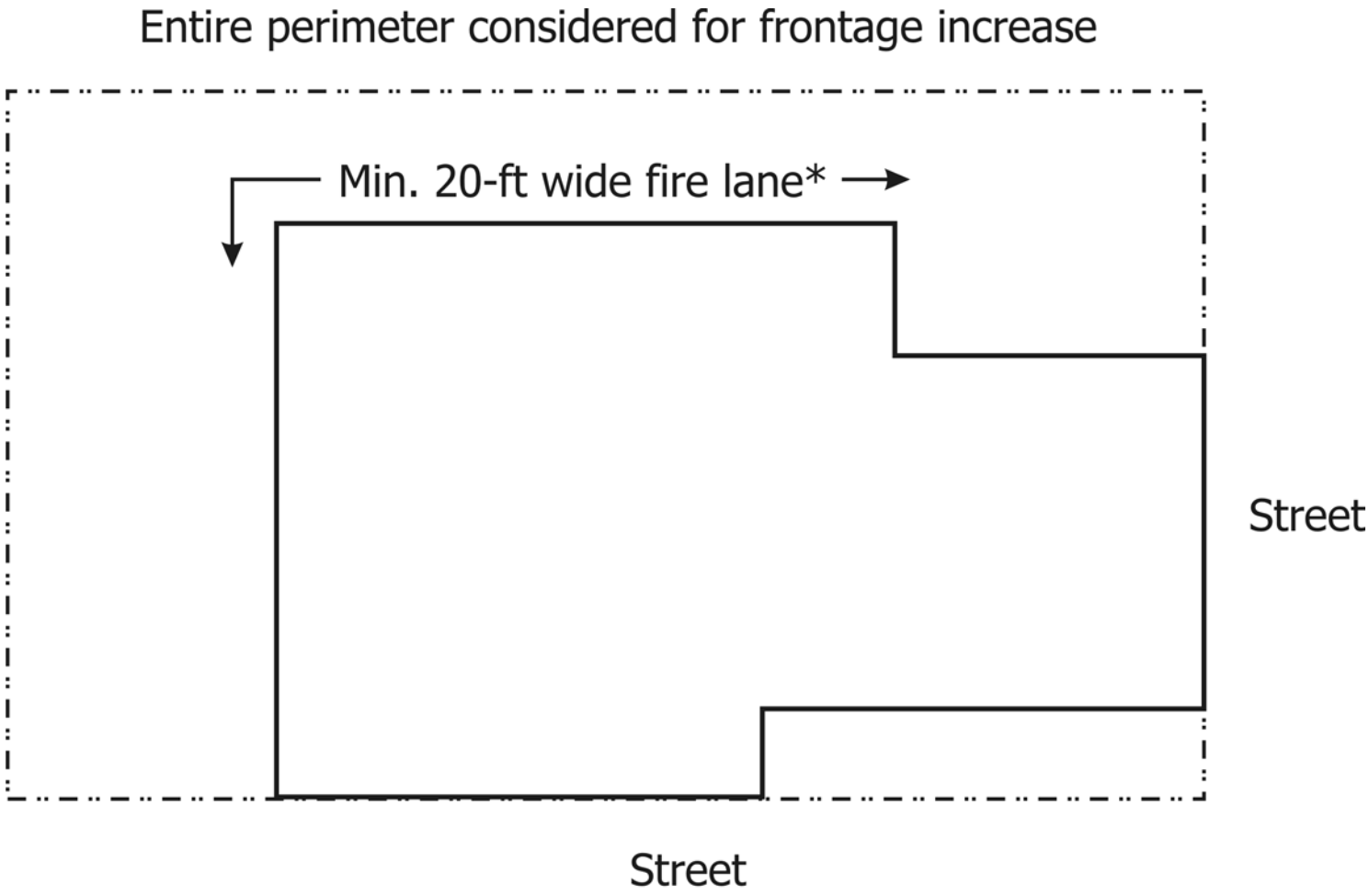
where:

I_f = Area increase due to frontage

F = Building perimeter which fronts on a public way or open space having 20 feet open minimum width (feet)

P = Perimeter of entire building (feet)

W = Width of public way or open space (feet) in accordance with Section 506.2.1



Open space to be on same lot or dedicated for public use, and accessed from a street or approved fire lane

*Fire lane need only be provided to within 150 feet of exterior wall per the *Florida Fire Prevention Code*.

Chapter 5: General Building Heights and Areas (cont)

506 AREA MODIFICATIONS

506.3 Automatic sprinkler system increase.

Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the area limitation in Table 503 is permitted to be increased by

*An additional 200 percent (I_s = 200 percent) for multistory buildings and

*An additional 300 percent (I_s = 300 percent) for single-story buildings.

* Exceptions are: H-1, H-2 and H-3.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

506 AREA MODIFICATIONS

506.3 Automatic sprinkler system increase. *Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the area limitation in Table 503 is permitted to be increased by an additional 200 percent (I_s = 200 percent) for multistory buildings and an additional 300 percent (I_s = 300 percent) for single-story buildings. These increases are permitted in addition to the height and story increases in accordance with Section 504.2.*

Exceptions:

1. *Buildings with an occupancy in Group H-1, H-2 or H-3.*
2. *Fire-resistance rating substitution in accordance with Table 601.*

Chapter 5: General Building Heights and Areas (cont)

506 AREA MODIFICATIONS

506.3 Automatic sprinkler system increase.

Example #1

*Given: Group B occupancy single-story
Type VB construction
No open yards available

*Find: Total allowable area

Basic allowable area	=	9,000 sq ft (Table 503)
Sprinkler increase (I_s)	=	27,000 sq ft (300%)
Total allowable area	=	36,000 sq ft

Chapter 5: General Building Heights and Areas (cont)

Example #2

*Given: Group B occupancy two-story
Type VB construction
No open yards available

*Find: Total allowable area

Basic allowable area	=	9,000 sq ft (Table 503)
Sprinkler increase (I_s)	=	18,000 sq ft (200%)
Total allowable area per floor	=	27,000 sq ft

Chapter 5: General Building Heights and Areas (cont)

507 UNLIMITED AREA BUILDINGS

507.2 Sprinklered, one story.

The area of a one-story, Group B, F,M or S building or a one-story Group A-4 building of other than Type V construction shall not be limited when the building is provided with:

*An automatic sprinkler system throughout, and

*Surrounded and adjoined by public ways or yards not less than 60 feet in width.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

507 UNLIMITED AREA BUILDINGS

507.2 Sprinklered, one story. *The area of a one-story, Group B, F,Mor S building or a one-story Group A-4 building of other than Type V construction shall not be limited when the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1, and is surrounded and adjoined by public ways or yards not less than 60 feet in width.*

Exceptions:

1. *Buildings and structures of Type I and II construction for rack storage facilities which do not have access by the public shall not be limited in height provided that such buildings conform to the requirements of NFPA 231C.*

(continued)

Chapter 5: General Building Heights and Areas (cont)

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

507 UNLIMITED AREA BUILDINGS

Exceptions: *(continued)*

2. The automatic sprinkler system shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities, in occupancies in Group A-4, provided that:

2.1 Exit doors directly to the outside are provided for occupants of the participant sports areas, and

2.2. The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.

Chapter 5: General Building Heights and Areas (cont)

507 UNLIMITED AREA BUILDINGS

507.8 Group E buildings.

The area of a one-story Group E building of Type II, IIIA or IV construction shall not be limited when the following criteria are met:

*Each classroom must have two means of egress, or the building is provided with smoke barriers with a minimum 1-hour fire-resistance rating dividing the building into areas no more than 30,000 square feet in floor area.

*The building has an automatic sprinkler system throughout.

*The building is surrounded and adjoined by public ways or yards not less than 60 feet wide.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

507 UNLIMITED AREA BUILDINGS

507.8 Group E buildings*. The area of a one-story Group E building of Type II, IIIA or IV construction shall not be limited when the following criteria are met:*

1. *Each classroom shall have not less than two means of egress, with one of the means of egress being a direct exit to the outside of the building complying with Section 1017 or the building is*

(continued)

Chapter 5: General Building Heights and Areas (cont)

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

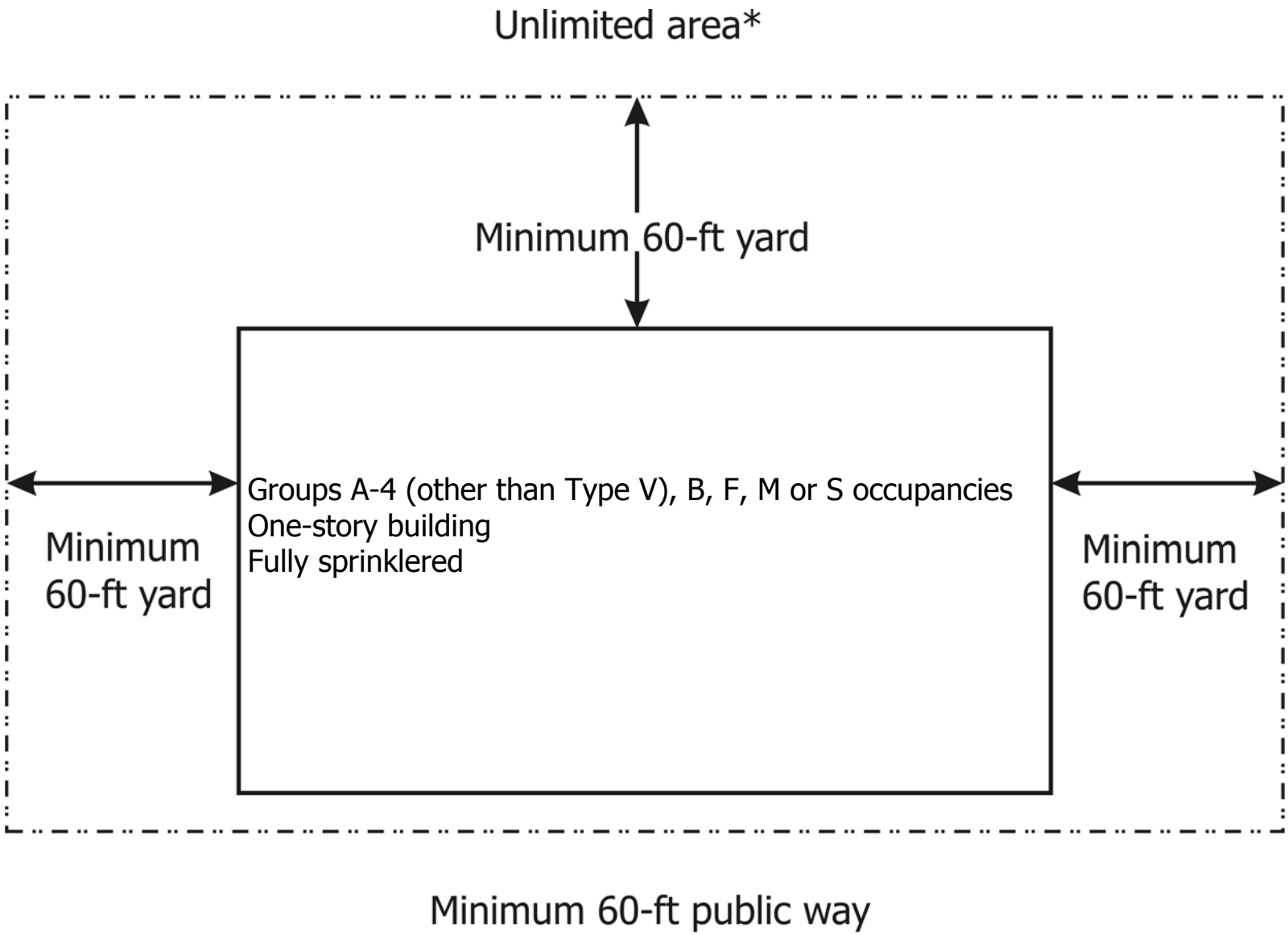
507 UNLIMITED AREA BUILDINGS

(continued)

provided with smoke barriers having a minimum 1-hour fire-resistance rating dividing the building into areas not to exceed 30,000 square feet in floor area.

2. *The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.*
3. *The building is surrounded and adjoined by public ways or yards not less than 60 feet in width.*

(see illustration on next page)


Unlimited area*
Minimum 60-ft yard
Groups A-4 (other than Type V), B, F, M or S occupancies
One-story building
Fully sprinklered
Minimum
60-ft yard
Minimum
60-ft yard
Minimum 60-ft public way

Chapter 6: Type of Construction

602 CONSTRUCTION CLASSIFICATION

602.1 General.

Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5.

CHAPTER 6 TYPES OF CONSTRUCTION

SECTION 602 CONSTRUCTION CLASSIFICATION

602.1 General. *Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602.*

602.1.1 Minimum requirements*. A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type, which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.*

Chapter 6: Type of Construction (cont)

602 CONSTRUCTION CLASSIFICATION

602.2 Types I and II.

*Types of construction in which the building elements listed in Table 601 are of noncombustible materials.

602.3 Type III.

*The exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code.

*Fire-retardant-treated wood framing are permitted within exterior wall assemblies of a 2-hour rating or less.

(see illustration on next page)

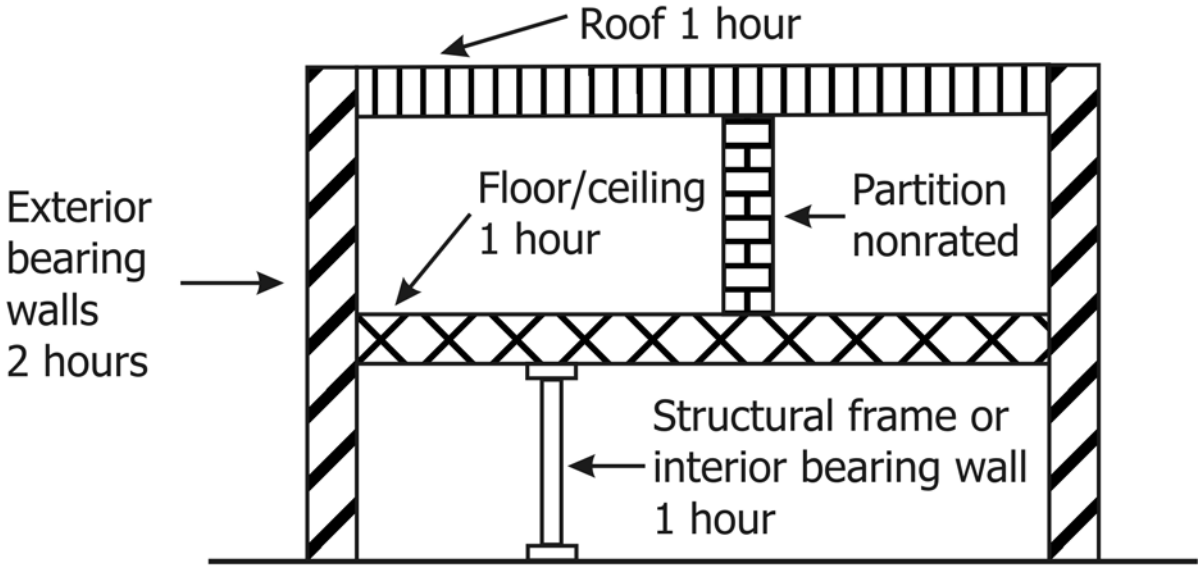
CHAPTER 6 TYPES OF CONSTRUCTION

SECTION 602 CONSTRUCTION CLASSIFICATION

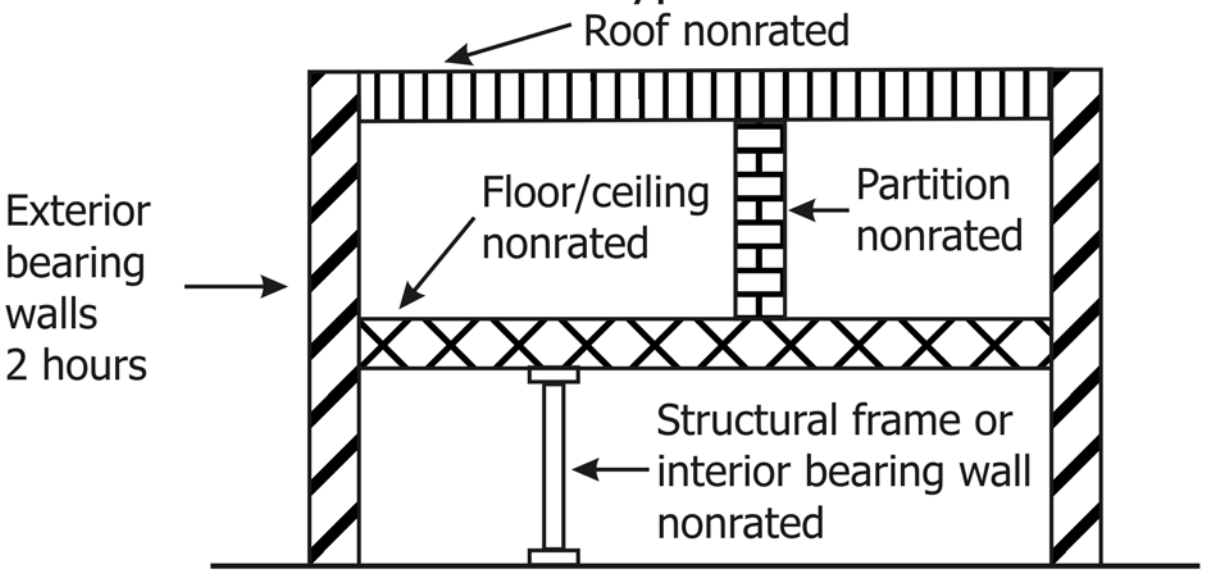
602.2 Types I and II. *Type I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials.*

602.3 Type III. *Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.*

Type III-A



Type III-B



* See Notes to Tables 601 and 602

Chapter 6: Type of Construction (cont)

602 CONSTRUCTION CLASSIFICATION

602.4 Type IV.

*Type IV construction (Heavy Timber, HT).

*The exterior walls are of noncombustible materials.

*The interior building elements are of solid or laminated wood without concealed spaces.

*Fire-retardant-treated wood framing are permitted within exterior wall assemblies with a 2-hour rating or less.

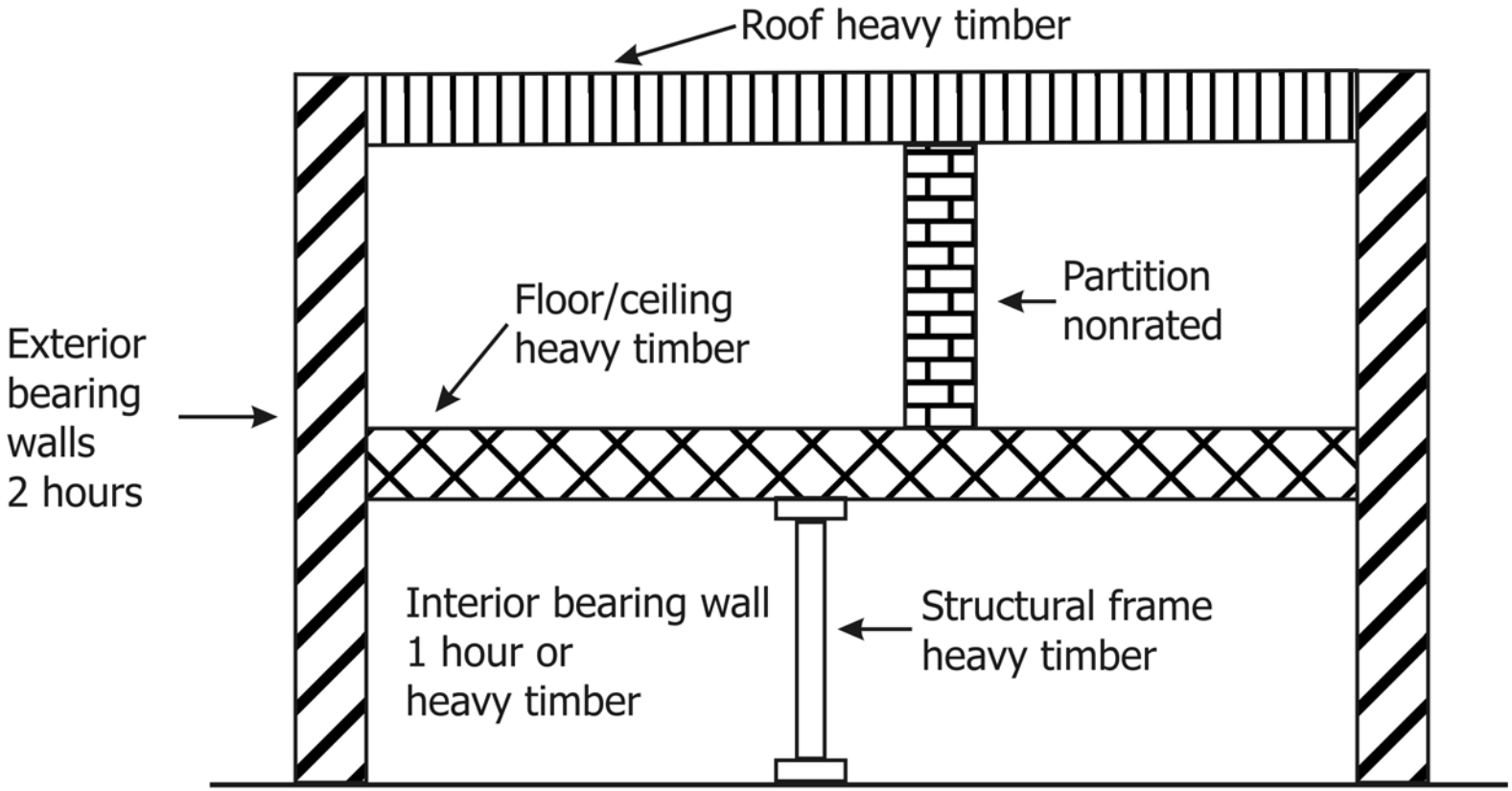
(see illustration on following page)

CHAPTER 6 TYPES OF CONSTRUCTION

SECTION 602 CONSTRUCTION CLASSIFICATION

602.4 Type IV. *Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.*

Type IV Heavy Timber



* See Notes to Tables 601 and 602

Chapter 6: Type of Construction (cont)

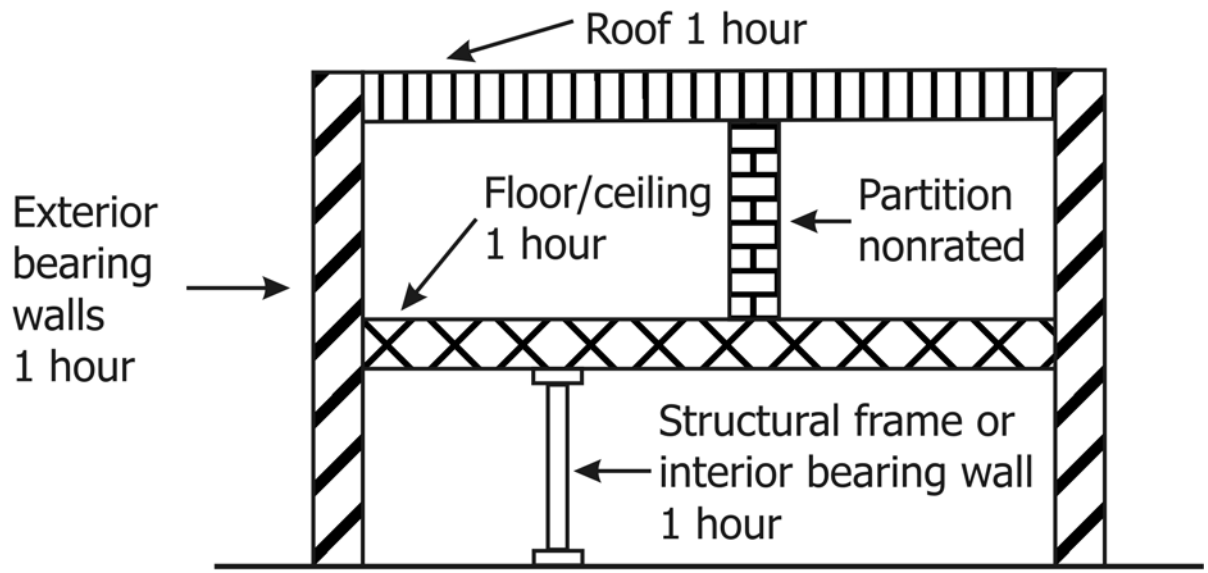
602 CONSTRUCTION CLASSIFICATION

602.5 Type V.

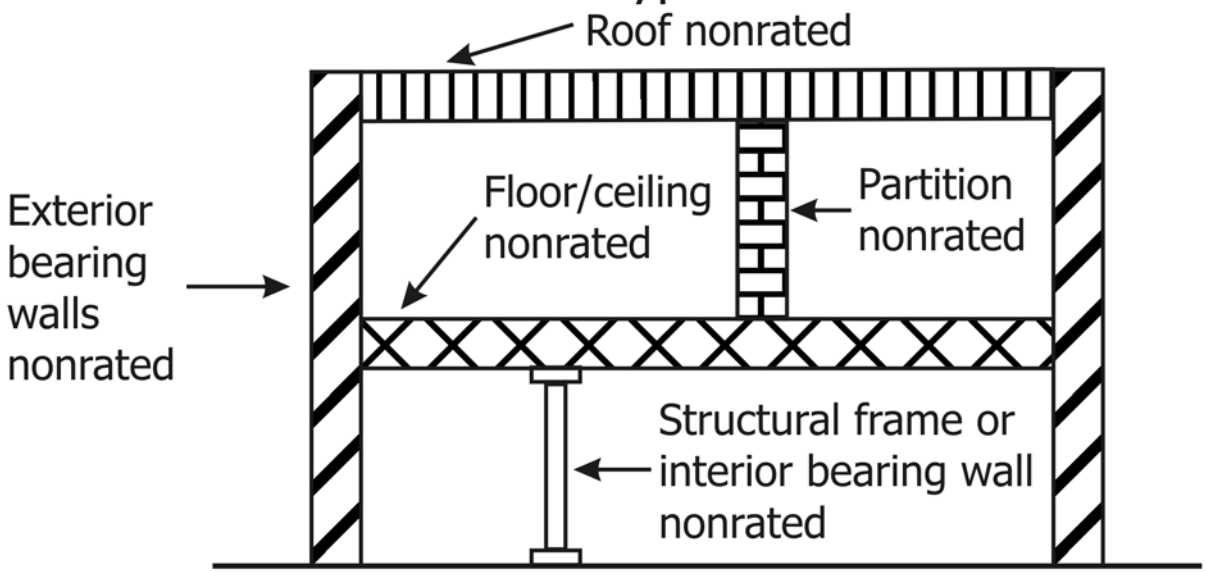
Type V construction is that type of construction in which the structural elements, exterior walls and interior walls are of any materials permitted by this code.

(see illustration on following page)

Type V-A



Type V-B



* See Notes to Tables 601 and 602

Chapter 6: Type of Construction (cont)

OVERVIEW

Section 603.1 Allowable Materials

*Combustible materials permitted in buildings of Type I and Type II construction in the following applications

*Fire-retardant-treated wood in:

*nonbearing partitions with fire-resistance rating $\leq$ 2 hours

*nonbearing exterior walls requiring no fire rating

*roof construction as permitted in T601, note c, Item 3

*Thermal and acoustical insulation other than foam plastics with limited flame spread

*Foam plastics per Chapter 26

*A, B, or C roof coverings

*Interior floor finish, trim, millwork, doors, frames, etc.

*Where not installed over 15 feet (4572 mm) above grade, show windows, nailing or furring strips, wooden bulkheads below show windows, their frames, aprons and show cases. *Finished flooring applied directly to the floor slab or to wood sleepers that are firestopped in accordance with Section 717.2.7.

Chapter 6: Type of Construction (cont)

OVERVIEW

Section 603.1 Allowable Materials (cont)

*Partitions dividing portions of stores, offices or similar places occupied by one tenant only and which do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.

*Platforms per Section 410

*Combustible exterior wall coverings, balconies, bay or oriel windows, or similar appendages in accordance with Chapter 14.

*Blocking for handrails, cabinets, fixtures, etc.

*Light-transmitting plastics per Chapter 26

*Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction

*Exterior plastic veneer installed in accordance with Section 2605.2.

*Nailing or furring strips per Section 803.3

(continued)

Chapter 6: Type of Construction (cont)

OVERVIEW

Section 603.1 Allowable Materials (cont)

*Heavy timber for specific components

*Aggregates, component materials and admixtures as permitted by Section 703.2.2.

*Sprayed cementitious and mineral fiber fire-resistance-rated materials installed to comply with Section 1704.11.

*Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 712.

*Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 713.

*Materials allowed in the concealed spaces of buildings of Type I and II construction in accordance with Section 717.5.

*Materials exposed within plenums complying with Section 602 of the *Florida Building Code, Mechanical*.

*Additional applications as specified

SUMMARY TABLE

Noncombustible	Exterior and interior (bearing or nonbearing) walls, floors, roofs and structural elements to be of noncombustible materials	I	A	B
		II	A	B
Combustible	Exterior walls to be of noncombustible materials	III	A	B
		IV	A	B
		V	A	B

Characteristics of combustion types

2004 FLORIDA EXISTING BUILDINGS CODE, APPENDIX D

Type of Construction	
2001 Florida Building Code	**2004 Florida Building Code**
Type I	Type I-A
Type II	Type I-B
Type III	Type IV
Type IV 1-hour protected	Type II-A
Type IV Unprotected	Type II-B
Type V 1-hour protected	Type III-A
Type V Unprotected	Type III-B
Type VI 1-hour protected	Type V-A
Type VI Unprotected	Type V-B

Source: *2003 Life Safety Code Handbook,* Commentary Table 8.1, Cross-Reference of Building Construction Types.

Chapter 6: Type of Construction (cont)

TABLE 601: FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

*Provide fire-resistive requirements for building elements by construction types.

*Elements include structural frame, bearing walls, non-bearing walls and partitions, floor construction, and roof construction.

*The fire-resistive rating are provided in hours.

(See Table 601 on following page)

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Structural frame [a] Including columns, girders, trusses	3 [b,g]	2[b]	1	0	1	0	HT	1	0
Bearing walls Exterior [f] Interior	4 4[b]	3 3[b]	1 1	0 0	2 1	2 0	2 2 [b]/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior [e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Nonbearing walls and partitions Interior [e]	3 [g]	2	1[d]	0 [d,h]	1[d]	0[d,h]	HT	1	0[h]
Roof construction Including supporting beams and joists	1-1/2[c,g]	1[c]	1[c]	0	1[c]	0	HT	1[c]	0

For SI: 1 foot = 304.8 mm.

a. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not a part of the structural frame.

b. Fire-resistance ratings of the structural frame and bearing walls are permitted to be reduced by 1 hour where supporting one floor or one roof only.

c. 1. Except in Factory-Industrial (F-1), Hazardous (H), Institutional (I), Mercantile (M) and Moderate-Hazard Storage (S-1) occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below.

2. In Type I and II construction, fire-retardant-treated wood shall be allowed in buildings including girders and trusses as part of the roof construction when the building is:

i. Two stories or less in height;

ii. Type II construction over two stories; or

iii. Type I construction over two stories and the vertical distance from the upper floor to the roof is 20 feet or more.

d. Group B and M occupancies of Type II or III construction five or more stories in height shall be required to have a minimum 2-hour fire-resistance rating for the floor construction located over the basement.

e. Not less than the fire-resistance rating required by other sections of this code.

f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

g. For Group A, B, E, F and R occupancies and parking garages, the required fire-resistance ratings for the structural frame, floor and roof construction, including supporting beams and joists, shall be permitted to be reduced by 1-hour where the building is protected throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 , but the fire resistance rating shall not be less than 1-hour.

h. For unsprinklered Group E occupancies of Type, II-B, III-B, IV or V-B construction, the floor construction located immediately above useable space in basements shall have a fire-resistance rating of not less than 1-hour.

Chapter 6: Type of Construction (cont)

TABLE 602: FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

*Addresses exterior wall fire-resistance based upon setbacks to property lines ranging from less than five feet to greater than thirty feet.

*The fire-resistive requirements of exterior walls are a function of both construction type and occupancy classification. The rating range from four hours to zero hours.

*Table 602 regulates exterior walls only

*Table 602 used in conjunction with 601 for fire resistance of exterior bearing walls

*Only Table 602 used for nonbearing exterior walls

*Highest required rating for exterior wall is 3 hours

*Final threshold at $\geq$ 30 feet

*Additional provisions for exterior walls and openings in Section 704

...

TABLE 602: FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE [a]

FIRE SEPARATION DISTANCES (feet)	TYPE OF CONSTRUCTION	GROUP H	GROUP F-1, M,S-1	GROUP A, B, E, F-2, I, R [b], S-2, U
< 5(c)	I-A, I-B, III-A, III-B, IV Others	3 3	3 2	3 1
≥ 5 < 10	I-A, I-B, III-A, III-B, IV Others	3 2	2 1	2 1
≥10 < 20	I-A, I-B, III-A, III-B, IV II-B, VB Others	2 1 1	2 0 1	2 0 1
20 ≤ 30	I-A, I-B, III-A, III-B, IV Others	1 1	1 0	1 0
≥30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. Group R-3 and Group U when used as accessory to Group R-3, as applicable in Section 101.2 shall not be required to have a fire-resistance rating where the fire separation distance is 3 feet or more.

c. See Section 503.2 for party walls.

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION

CHAPTER 7:

*Mandates specific fire-resistance ratings and how to apply the specific requirements to safeguard against the spread of fire and smoke from building to building and within buildings.

*Provides prescriptive fire-resistance and calculated fire-resistance.

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 701 GENERAL

701.1 Scope. *The provisions of this chapter shall govern the materials and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.*

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

703 FIRE-RESISTANCE RATING AND FIRE TESTS

Rating of assemblies and structural elements are required to meet ASTM E 119, a test that evaluates the ability of an assembly to meet structural integrity and fire containment criteria.

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 703 FIRE-RESISTANCE RATINGS AND FIRE TESTS

703.1 Scope. *Materials prescribed herein for fire resistance shall conform to the requirements of this chapter.*

703.2 Fire-resistance ratings. *The fire-resistance rating of building elements shall be determined in accordance with the test procedures set forth in ASTM E 119 or in accordance with Section 703.3. Where materials, systems or devices that have not been tested as part of a fire-resistance-rated assembly are incorporated into the assembly, sufficient data shall be made available to the building official to show that the required fire-resistance rating is not reduced. Materials and methods of construction used to protect joints and penetrations in fire-resistance-rated building elements shall not reduce the required fire-resistance rating.*

(continued)

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 703 FIRE-RESISTANCE RATINGS AND FIRE TESTS

(continued)

***Exception**: In determining the fire-resistance rating of exterior bearing walls, compliance withthe ASTM E 119 criteria for unexposed surface temperature rise and ignition of cotton waste due to passage of flame or gases is required only for a period of time corresponding to the required fire-resistance rating of an exterior nonbearing wall with the same fire separation distance, and in a building of the same group. When the fire-resistance rating determined in accordance with this exception exceeds the fire-resistance rating determined in accordance with ASTM E 119, the fire exposure time period, water pressure, and application duration criteria for the hose stream test of ASTM E 119 shall be based upon the fire-resistance rating determined in accordance with this exception.*

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

704 EXTERIOR WALLS

Address the exterior enclosures of buildings to prevent the spread of fire between buildings and between stories in a buildings.

Table 704.8: Maximum Area of Exterior Wall Openings

The maximum area of unprotected or protected openings permitted in an exterior wall in any story shall not exceed the values set forth in Table 704.8 (on following page)

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 704 EXTERIOR WALLS

704.1 General. *Exterior walls shall be fire-resistance rated and have opening protection as required by this section.*

Table 704.8

MAXIMUM AREA OF EXTERIOR WALL OPENINGS [a]

CLASSIFICATION OF OPENING	FIRE SEPARATION DISTANCE (feet)							
	0 to 3 [e, h]	>3 to 5 [b]	>5 to 10 [d, f]	>10 to 15 [c, d, f]	>15 to 20 c, f	>20 to 25 c, f	>25 to 30 c, f	>30
Unprotected	Not permitted [g]	Not Permitted [b, g]	10% [g]	15% [g]	25% [g]	45% [g]	70% [g]	No Limit
Protected	Not permitted	15%	25%	45%	75%	No limit	No limit	No Limit

For SI: 1 foot = 304.8 mm.

a. Values given are percentage of the area of the exterior wall.
b. For occupancies in Group R-3, as applicable in Section 101.2, the maximum percentage of unprotected and protected exterior wall openings shall be 25 percent.
c. The area of openings in an open parking structure with a fire separation distance of greater than 10 feet shall not be limited.
d. For occupancies in Group H-2 or H-3, unprotected openings shall not be permitted for openings with a fire separation distance of 15 feet or less.
e. For requirements for fire walls for buildings with differing roof heights, see Section 705.6.1.
f. The area of unprotected and protected openings is not limited for occupancies in Group R-3, as applicable in Section 101.2, with a fire separation distance greater than 5 feet.
g. Buildings whose exterior bearing wall, exterior nonbearing wall and exterior structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.
h. Includes accessory buildings to Group R-3 as applicable in Section 101.2.

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

705 FIRE WALLS

705.1 General.

For the purposes of determining height and area in accordance with Table 503, fire walls dividing buildings into separate buildings shall provide a 4-hour fire resistance rating. The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates groups that are required to be separated by a fire barrier wall, the most restrictive of each separation shall apply.

705.4.1 Townhouse fire separation

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 705 FIRE WALLS

705.1 General. *Each portion of a building separated by one or more fire walls that comply with the provisions of this section shall be considered a separate building. For the purposes of determining height and area in accordance with Table 503, fire walls dividing buildings into separate buildings shall provide a 4-hour fire resistance rating. The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates groups that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply. Fire walls located on lot lines shall also comply with Section 503.2. Such fire walls (party walls) shall provide a 4-hour fire resistance rating and shall be constructed without openings.*

(continued)

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 705 FIRE WALLS

(continued)

705.4.1 Townhouse fire separation.

705.4.1.1 *Each townhouse shall be considered a separate building and shall be separated from adjoining townhouses by a party wall complying with Section 503.2 or by the use of separate exterior walls meeting the requirements of Tables 601 and 602 for zero clearance from property lines as required for the type of construction. Separate exterior walls shall include one of the following:*

1. A parapet not less than 18 inches above the roof line.

2. Roof sheathing of noncombustible material or fire retardant treated wood, for not less than a 4 ft width on each side of the exterior dividing wall.

3. One layer of 5/8 inch Type X gypsum board attached to the underside of roof decking, for not less than a 4 ft width on each side of the exterior dividing wall.

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

706 FIRE BARRIERS

*Assemblies with required fire resistance rating used to separate fire areas, exits, and mixed use areas.

*The locations of fire barriers are generally provided in other sections of the Code, such as Chapter 10 for exits and Chapter 3.

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 706 FIRE BARRIERS

706.1 General. *Fire barriers used for separation of shafts, exits, exit passageways, horizontal exits or incidental use areas, to separate different occupancies, to separate a single occupancy into different fire areas, or to separate other areas where a fire barrier is required elsewhere in this code or the Florida Fire Prevention Code, shall comply with this section.*

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

709 SMOKE BARRIERS

Divide buildings into smoke compartments and are required to be of one-hour construction, except as permitted by the exception for steel barriers in Group I-3 occupancies.

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 709 SMOKE BARRIERS

709.1 General. *Smoke barriers shall comply with this section.*

709.2 Materials. *Smoke barriers shall be of materials permitted by the building type of construction.*

709.3 Fire-resistance rating. *A 1-hour fire-resistance rating is required for smoke barriers.*

Exception*: Smoke barriers constructed of minimum 0.10-inch-thick steel in Group I-3 buildings.*

CHAPTER 7: FIRE-RESISTANCE-RATED CONSTRUCTION (cont)

720 PRESCRIPTIVE RESISTANCE

720.1 General.

The provisions of this section contain prescriptive details of fire-resistance-rated building elements. The materials of construction listed in Tables 720.1(1), 720.1(2), and 720.1(3) shall be assumed to have the fire-resistance ratings prescribed therein.

(see above-referenced tables on following pages)

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 720 PRESCRIPTIVE FIRE RESISTANCE

720.1 General. *The provisions of this section contain prescriptive details of fire-resistance-rated building elements. The materials of construction listed in Tables 720.1(1), 720.1(2), and 720.1(3) shall be assumed to have the fire-resistance ratings prescribed therein. Where materials that change the capacity for heat dissipation are incorporated into a fire-resistance-rated assembly, fire test results or other substantiating data shall be made available to the building official to show that the required fire-resistance-rating time period is not reduced.*

TABLE 720.1 (1)
MINIMUM PROTECTION OF STRUCTURAL PARTS BASED ON TIME PERIODS FOR VARIOUS NONCOMBUSTIBLE INSULATING MATERIALS [m]

STRUCTURAL PARTS TO BE PROTECTED	ITEM NUMBER	INSULATING MATERIAL USED	MINIMUM THICKNESS OF INSULATING MATERIAL FOR THE FOLLOWING FIRE-RESISTANCE PERIODS (inches)			
			4 hr	3 hr	2 hr	1 hr
1 Steel columns and all of primary trusses	1-1.1	Carbonate, lightweight and sand-lightweight aggregate concrete, members 6" × 6" or greater (not including sandstone, granite and siliceous gravel). [a]	2½	2	1½	1
	1-1.2	Carbonate, lightweight and sand-lightweight aggregate concrete, members 8" × 8" or greater (not including sandstone, granite and siliceous gravel). [a]	2	1½	1	1
	1-1.3	Carbonate, lightweight and sand-lightweight aggregate concrete, members12" × 12"or greater (not including sandstone, granite and siliceous gravel).[a]	1½	1	1	1
	1-1.4	Siliceous aggregate concrete and concrete excluded in Item 1-1.1, members 6" × 6" or greater. [a]	3	2	1½	1
	1-1.5	Siliceous aggregate concrete and concrete excluded in Item 1-1.1, members 8" × 8" or greater. [a]	2½	2	1	1
	1-1.6	Siliceous aggregate concrete and concrete excluded in Item 1-1.1, members 12" × 12" or greater. [a]	2	1	1	1
	1-2.1	Clay or shale brick with brick and mortar fill. [a]	3¾	—	—	2¼
	1-3.1	4" hollow clay tile in two 2" layers; ½" mortar between tile and column; ⅜" metal mesh 0.046" wire diameter in horizontal joints; tile fill. [a]	4	—	—	—
	1-3.2	2" hollow clay tile; ¾" mortar between tile and column; ⅜" metal mesh 0.046" wire diameter in horizontal joints; limestone concrete fill; [a] plastered with ¾" gypsum plaster.	3	—	—	—
	1-3.3	2" hollow clay tile with outside wire ties 0.08" diameter at each course of tile or ⅜" metal mesh 0.046" diameter wire in horizontal joints; limestone or trap-rock concrete fill [l] extending 1" outside column on all sides.	—	—	3	—
	1-3.4	2" hollow clay tile with outside wire ties 0.08" diameter at each course of tile with or without concrete fill; ¾" mortar between tile and column.	—	—	—	2
	1-4.1	Cement plaster over metal lath wire tied to ¾" cold-rolled vertical channels with 0.049" (No. 18 B.W. gage) wire ties spaced 3" to 6" on center. Plaster mixed 1:2½ by volume, cement to sand.	—	—	2½ [b]	⅞
	1-5.1	Vermiculite concrete, 1:4 mix by volume over paperbacked wire fabric lath wrapped directly around column with additional 2" × 2" 0.065"/0.065" (No. 16/16 B.W. gage) wire fabric placed ¾" from outer concrete surface. Wire fabric tied with 0.049" (No. 18 B.W. gage) wire spaced 6" on center for inner layer and 2" on center for outer layer.	2	—	—	—
	1-6.1	Perlite or vermiculite gypsum plaster over metal lath wrapped around column and furred 1¼" from column flanges. Sheets lapped at ends and tied at 6" intervals with 0.049" (No. 18 B.W. gage) tie wire. Plaster pushed through to flanges.	1½	1	—	—
	1-6.2	Perlite or vermiculite gypsum plaster over self-furring metal lath wrapped directly around column, lapped 1" and tied at 6" intervals with 0.049" (No. 18 B.W. gage) wire.	1¾	1⅜	1	—

STRUCTURAL PARTS TO BE PROTECTED	ITEM NUMBER	INSULATING MATERIAL USED	MINIMUM THICKNESS OF INSULATING MATERIAL FOR THE FOLLOWING FIRE-RESISTANCE PERIODS (inches)			
			4 hr	3 hr	2 hr	1 hr
1. Steel columns and all of primary trusses	1-6.3	Perlite or vermiculite gypsum plaster on metal lath applied to ¾" cold-rolled channels spaced 24" apart vertically and wrapped flatwise around column.	1½	—	—	—
	1-6.4	Perlite or vermiculite gypsum plaster over two layers of ½" plain full-length gypsum lath applied tight to column flanges. Lath wrapped with 1" hexagonal mesh of No. 20 gage wire and tied with doubled 0.035" diameter (No. 18 B.W. gage) wire ties spaced 23" on center. For three-coat work, the plaster mix for the second coat shall not exceed 100 pounds of gypsum to 2½ cubic feet of aggregate for the 3-hour system.	2½	2	—	—
	1-6.5	Perlite or vermiculate gypsum plaster over one layer of ½" plain full-length gypsum lath applied tight to column flanges. Lath tied with doubled 0.049" (No. 18 B.W. gage) wire ties spaced 23" on center and scratch coat wrapped with 1" hexagonal mesh 0.035" (No. 20 B.W. gage) wire fabric. For three-coat work, the plaster mix for the second coat shall not exceed 100 pounds of gypsum to 2½ cubic feet of aggregate.	—	2	—	—
	1-7.1	Multiple layers of ½" gypsum wallboard [c] adhesively [d] secured to column flanges and successive layers. Wallboard applied without horizontal joints. Corner edges of each layer staggered. Wallboard layer below outer layer secured to column with doubled 0.049" (No. 18 B.W. gage) steel wire ties spaced 15" on center. Exposed corners taped and treated.	—	—	2	1
	1-7.2	Three layers of 5/8" Type X gypsum wallboard. [c] First and second layer held in place by 1/8" diameter by 1 3/8" long ring shank nails with 5/16" diameter heads spaced 24" on center at corners. Middle layer also secured with metal straps at mid-height and 18" from each end, and by metal corner bead at each corner held by the metal straps. Third layer attached to corner bead with 1" long gypsum wallboard screws spaced 12" on center.	—	—	1 7/8	—
	1-7.3	Three layers of 5/8" Type X gypsum wallboard, [c] each layer screw attached to 1 5/8" steel studs 0.018" thick (No. 25 carbon sheet steel gage) at each corner of column. Middle layer also secured with 0.049" (No. 18 B.W. gage) double-strand steel wire ties, 24" on center. Screws are No. 6 by 1" spaced 24" on center for inner layer, No. 6 by 1 5/8" spaced 12"on center for middle layer and No. 8 by 2¼" spaced 12" on center for outer layer.	—	1 7/8	—	—
	1-8.1	Wood-fibered gypsum plaster mixed 1:1 by weight gypsum-to-sand aggregate applied over metal lath. Lath lapped 1" and tied 6" on center at all end, edges and spacers with 0.049" (No. 18 B.W. gage) steel tie wires. Lath applied over ½" spacers made of ¾" furring channel with 2" legs bent around each corner. Spacers located 1" from top and bottom of member and a maximum of 40" on center and wire tied with a single strand of 0.049" (No. 18 B.W. gage) steel tie wires. Corner bead tied to the lath at 6" on center along each corner to provide plaster thickness.	—	—	1 5/8	—
Webs or 2 Webs or flanges of steel beams and girders	2-1.1	Carbonate, lightweight and sand-lightweight aggregate concrete (not including sandstone, granite and siliceous gravel) with 3" or finer metal mesh placed 1" from the finished surface anchored to the top flange and providing not less than 0.025 square inch of steel area per foot in each direction.	2	1½	1	1
	2-1.2	Siliceous aggregate concrete and concrete excluded in Item 2-1.1 with 3" or finer metal mesh placed 1" from the finished surface anchored to the top flange and providing not less than 0.025 square inch of steel area per foot in each direction.	2½	2	1½	1

STRUCTURAL PARTS TO BE PROTECTED	ITEM NUMBER	INSULATING MATERIAL USED	MINIMUM THICKNESS OF INSULATING MATERIAL FOR THE FOLLOWING FIRE-RESISTANCE PERIODS (inches)			
			4 hr	3 hr	2 hr	1 hr
2. Webs or flanges of steel beams and girders	2-2.1	Cement plaster on metal lath attached to ¾" cold-rolled channels with 0.049" (No. 18 B.W. gage) wire ties spaced 3" to 6" on center. Plaster mixed 1:2½ by volume, cement to sand.	—	—	2½ [b]	7/8
	2-3.1	Vermiculite gypsum plaster on a metal lath cage, wire tied to 0.165" diameter (No. 8 B. W. gage) steel wire hangers wrapped around beam and spaced 16" on center. Metal lath ties spaced approximately 5" on center at cage sides and bottom.	—	7/8	—	—
	2-4.1	Two layers of 5/8" Type X gypsum wallboard [c] are attached to U-shaped brackets spaced 24" on center. 0.018" thick (No. 25 carbon sheet steel gage) 1⅝" deep by 1" galvanized steel runner channels are first installed parallel to and on each side of the top beam flange to provide a ½" clearance to the flange. The channel runners are attached to steel deck or concrete floor construction with approved fasteners spaced 12" on center. U-shaped brackets are formed from members identical to the channel runners. At the bent portion of the U-shaped bracket, the flanges of the channel are cut out so that 1⅝" deep corner channels can be inserted without attachment parallel to each side of the lower flange. As an alternate, 0.021" thick (No. 24 carbon sheet steel gage) 1" × 2" runner and corner angles may be used in lieu of channels, and the web cutouts in the U-shaped brackets may be omitted. Each angle is attached to the bracket with ½"-long No. 8 self-drilling screws. The vertical legs of the U-shaped bracket are attached to the runners with one ½" long No. 8 self-drilling screw. The completed steel framing provides a 2⅛" and 1½" space between the inner layer of wallboard and the sides and bottom of the steel beam, respectively. The inner layer of wallboard is attached to the top runners and bottom corner channels or corner angles with 1¼"-long No. 6 self-drilling screws spaced 16" on center. The outer layer of wallboard is applied with 1¾"-long No. 6 self-drilling screws spaced 8" on center. The bottom corners are reinforced with metal corner beads.	—	—	1¼	—
	2-4.2	Three layers of 5/8" Type X gypsum wallboard [c] attached to a steel suspension system as described immediately above utilizing the 0.018" thick (No. 25 carbon sheet steel gage) 1" × 2" lower corner angles. The framing is located so that a 2⅛" and 2" space is provided between the inner layer of wallboard and the sides and bottom of the beam, respectively. The first two layers of wallboard are attached as described immediately above. A layer of 0.035" thick (No. 20 B.W. gage) 1" hexagonal galvanized wire mesh is applied under the soffit of the middle layer and up the sides approximately 2". The mesh is held in position with the No. 6 1⅝"-long screws installed in the vertical leg of the bottom corner angles. The outer layer of wallboard is attached with No. 6 2¼"-long screws spaced 8" on center. One screw is also installed at the mid-depth of the bracket in each layer. Bottom corners are finished as described above.	—	1 7/8	—	—
3. Bonded pretensioned reinforcement in prestressed concrete [e]	3-1.1	Carbonate, lightweight, sand-lightweight and siliceous [f] aggregate concrete Beams or girders Solid slabs [h]	 4 [g]	 3 [g] 2	 2½ 1½	 1½ 1

STRUCTURAL PARTS TO BE PROTECTED	ITEM NUMBER	INSULATING MATERIAL USED	MINIMUM THICKNESS OF INSULATING MATERIAL FOR THE FOLLOWING FIRE-RESISTANCE PERIODS (inches)			
			4 hr	3 hr	2 hr	1 hr
4. Bonded or unbonded post-tensioned tendons in prestressed concrete [e, i]	4-1.1	Carbonate, lightweight, sand-lightweight and siliceous [f] aggregate concrete				
		Unrestrained members:				
		Solid slabs [h]	—	2	1½	—
		Beams and girders [j]				
		8" wide		4½	2½	1¾
		greater than 12" wide	3	2½	2	1½
	4-1.2	Carbonate, lightweight, sand-lightweight and siliceous aggregate				
		Restrained members: [k]				
		Solid slabs [h]	1¼	1	¾	—
		Beams and girders [j]				
		8" wide	2½	2	1¾	—
		greater than 12" wide	2	1¾	1½	—
5. Reinforcing steel in reinforced concrete columns, beams, girders and trusses	5-1.1	Carbonate, lightweight and sand-lightweight aggregate concrete, members 12" or larger, square or round. (Size limit does not apply to beams and girders monolithic with floors.)	1½	1½	1½	1½
		Siliceous aggregate concrete, members 12" or larger, square or round. (Size limit does not apply to beams and girders monolithic with floors.)	2	1½	1½	1½
6. Reinforcing steel in reinforced concrete joists [l]	6-1.1	Carbonate, lightweight and sand-lightweight aggregate concrete.	1¼	1¼	1	¾
	6-1.2	Siliceous aggregate concrete.	1¾	1½	1	¾
7. Reinforcing and tie rods in floor and roof slabs [l]	7-1.1	Carbonate, lightweight and sand-lightweight aggregate concrete.	1	1	¾	¾
	7-1.2	Siliceous aggregate concrete.	1¼	1	1	¾

For SI: 1 inch = 25.4 mm, 1 square inch = 645.2 mm^2, 1 cubic foot = 0.0283 m^3.

a. Reentrant parts of protected members to be filled solidly.
b. Two layers of equal thickness with a ¾-inch airspace between.
c. For all of the construction with gypsum wallboard described in Table 720.1(1), gypsum base for veneer plaster of the same size, thickness and core type shall be permitted to be substituted for gypsum wallboard, provided attachment is identical to that specified for the wallboard and the joints on the face layer are reinforced, and the entire surface is covered with a minimum of 1/16-inch gypsum veneer plaster.
d. An approved adhesive qualified under ASTM E 119.
e. Where lightweight or sand-lightweight concrete having an oven-dry weight of 110 pounds per cubic foot or less is used, the tabulated minimum cover shall be permitted to be reduced 25 percent, except that in no case shall the cover be less than ¾ inch in slabs or 1½ inches in beams or girders.
f. For solid slabs of siliceous aggregate concrete, increase tendon cover 20 percent.
g. Adequate provisions against spalling shall be provided by U-shaped or hooped stirrups spaced not to exceed the depth of the member with a clear cover of 1 inch.
h. Prestressed slabs shall have a thickness not less than that required in Table 720.1(3) for the respective fire resistance time period.
i. Fire coverage and end anchorages shall be as follows: Cover to the prestressing steel at the anchor shall be ½ inch greater than that required away from the anchor. Minimum cover to steel-bearing plate shall be 1 inch in beams and ¾ inch in slabs.
j. For beam widths between 8 inches and 12 inches, cover thickness shall be permitted to be determined by interpolation.
k. Interior spans of continuous slabs, beams and girders shall be permitted to be considered restrained.
l. For use with concrete slabs having a comparable fire endurance where members are framed into the structure in such a manner as to provide equivalent performance to that of monolithic concrete construction.
m. Generic fire-resistance ratings (those not designated as PROPRIETARY* in the listing) in GA 600 shall be accepted as if herein listed.

TABLE 720.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS (a,o,p)

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
1. Brick of clay or shale	1-1.1	Solid brick of clay or shale (c)	6	4.9	3.8	2.7
	1-1.2	Hollow brick, not filled.	5.0	4.3	3.4	2.3
	1-1.3	Hollow brick unit wall, grout or filled with perlite vermiculite or expanded shale aggregate.	6.6	5.5	4.4	3.0
	1-2.1	4" nominal thick units at least 75 percent solid backed with a hat-shaped metal furring channel ¾" thick formed from 0.021" sheet metal attached to the brick wall on 24" centers with approved fasteners, and ½" Type X gypsum wallboard attached to the metal furring strips with 1"-long Type S screws spaced 8" on center.	-	-	5 (d)	-
2. Combination of clay brick and load-bearing hollow clay tile	2-1.1	4" solid brick and 4" tile (at least 40 percent solid).	-	8	-	-
	2-1.2	4" solid brick and 8" tile (at least 40 percent solid).	12	-	-	-
3. Concrete masonry units	3-1.1 (f, g)	Expanded slag or pumice.	4.7	4.0	3.2	2.1
	3-1.2 (f, g)	Expanded clay, shale or slate.	5.1	4.4	3.6	2.6
	3-1.3 (f)	Limestone, cinders or air-cooled slag.	5.9	5.0	4.0	2,7
	3-1.4 (f, g)	Calcareous or siliceous gravel.	6.2	5.3	4.2	2.8
4. Solid concrete (h, l)	4-1.1	Siliceous aggregate concrete.	7.0	6.2	5.0	3.5
	5-1.1	Carbonate aggregate concrete.	6.6	5.7	4.6	3.2
	5-1.2	Sand-lightweight concrete.	5.4	4.6	3.8	2.7
	5-1.3	Lightweight concrete.	5.1	4.4	3.6	2.5
5. Glazed or unglazed facing tile, nonload-bearing	5-1.1	One 2" unit cored 15 percent maximum and one 4" unit cored 25 percent maximum with ¾" mortar-filled collar joint. Unit positions reversed in alternate courses.	-	6 3/8	-	-
	5-1.2	One 2" unit cored 15 percent maximum and one 4" unit cored 40 percent maximum with ¾"mortar-filled collar joint. Unit positions side with ¾" gypsum plaster. Two wythes tied together every fourth course with No. 22 gage corrugated metal ties.	-	6 ¾	-	-
	5-1.3	One unit with three cells in wall thickness, cored 29 percent maximum.	-	-	6	-
	5-1.4	One 2" unit cored 22 percent maximum and one 4" unit cored 41 percent maximum with ¼" mortar-filled collar joint. Two wythes tied together every third course with 0.030" (No. 22 galvanized sheet steel gage) corrugated metal ties.	-	-	6	-
	5-1.5	One 4" unit cored 25 percent maximum with ¾" gypsum plaster on one side.	-	-	4 ¾	-
	5-1.6	One 4" unit with two cells in wall thickness, cored 22 percent maximum.	-	-	-	4
	5-1.7	One 4" unit cored 30 percent maximum with ¾" vermiculite gypsum plaster on one side.	-	-	4 ½	-
	5-1.8	One 4" unit cored 39 percent maximum with ¾" gypsum plaster on one side.	-	-	-	4 ½
6. Solid gypsum plaster	6-1.1	¾" by 0.055" (No. 16 carbon sheet steel gage) vertical cold-rolled channels, 16" on center with 2.6-pound flat metal lath applied to one face and tied with 0.049" (No. 18 B.W. Gage) wire at 6" spacing. Gypsum plaster each side mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	2 (d)
	6-1.2	¾" by 0.055" (No. 16 carbon sheet steel gage) cold-rolled channels 16" on center with metal lath applied to one face and tied with 0.049" (No. 18 B.W. gage) wire at 6" spacing. Perlite or vermiculite gypsum plaster each side. For three-coat work, the plaster mix for the second coat shall not exceed 100 pounds of gypsum to 2½ cubic feet of aggregate for the 1-hour system.	-	-	2 ½ (d)	2 (d)
	6-1.3	¾" by 0.055" (No. 16 carbon sheet steel gage) vertical cold-rolled channels, 16" on center with 3 / 8 " gypsum lath applied to one face and attached with sheet metal clips. Gypsum plaster each side mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	2 (d)
	6-2.1	Studless with ½" full-length plain gypsum lath and gypsum plaster each side. Plaster mixed 1:1 for scratch coat and 1:2 for brown coat, by weight, gypsum to sand aggregate.	-	-	-	2 (d)
	6-2.2	Studless with ½" full-length plain gypsum lath and perlite or vermiculite gypsum plaster each side.	-	-	2 ½ (d)	2 (d)
	6-2.3	Studless partition with 3 / 8 " rib metal lath installed vertically adjacent edges tied 6" on center with No. 18 gage wire ties, gypsum plaster each side mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	2 (d)

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
7. Solid perlite and portland cement	7-1.1	Perlite mixed in the ratio of 3 cubic feet to 100 pounds of portland cement and machine applied to stud side of 1½" mesh by 0.058-inch (No. 17 B.W. gage) paper-backed woven wire fabric lath wire-tied to 4"-deep steel trussed wire (j) studs 16" on center. Wire ties of 0.049" (No. 18 B.W. gage) galvanized steel wire 6" on center vertically.	-	-	3 1/8 (d)	-
8. Solid neat wood fibered gypsum plaster	8-1.1	¾" by 0.055-inch (No. 16 carbon sheet steel gage) cold-rolled channels, 12" on center with 2.5-pound flat metal lath applied to one face and tied with 0.049" (No. 18 B.W. gage) wire at 6" spacing. Neat gypsum plaster applied each side.	-	-	2 (d)	-
9. Solid wallboard partition	9-1.1	One full-length layer ½" Type X gypsum wallboard (e) laminated to each side of 1" full-length V-edge gypsum coreboard with approved laminating compound. Vertical joints of face layer and coreboard staggered at least 3".	-	-	2 (d)	-
10. Hollow (studless) gypsum wallboard partition	10-1.1	One full-length layer of 5 / 8 " Type X gypsum wallboard (e) attached to both sides of wood or metal top and bottom runners laminated to each side of 1" × 6" full-length gypsum coreboard ribs spaced 24" on center with approved laminating compound. Ribs centered at vertical joints of face plies and joints staggered 24" in opposing faces. Ribs may be recessed 6" from the top and bottom.	-	-	-	2 ¼ (d)
	10-1.2	1" regular gypsum V-edge full-length backing board attached to both sides of wood or metal top and bottom runners with nails or 1 5 / 8 " drywall screws at 24" on center. Minimum width of rumors 1 5 / 8 " . Face layer of ½" regular full-length gypsum wallboard laminated to outer faces of backing board with approved laminating compound.	-	-	4 5/8 (d)	-
11. Noncombustible studs—interior partition with plaster each side	11-1.1	3¼" × 0.044" (No. 18 carbon sheet steel gage) steel studs spaced 24" on center. 5 / 8 " gypsum plaster on metal lath each side mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	4 ¾ (d)
	11-1.2	3 3 / 8 " × 0.055" (No. 16 carbon sheet steel gage) approved nailable (k) studs spaced 24" on center. 5 / 8 " neat gypsum wood-fibered plaster each side over 3 / 8 " rib metal lath nailed to studs with 6d common nails, 8" on center. Nails driven 1¼" and bent over.	-	-	5 5/8	-
	11-1.3	4" × 0.044" (No. 18 carbon sheet steel gage) channel-shaped steel studs at 16" on center. On each side approved resilient clips pressed onto stud flange at 16" vertical spacing, ¼" pencil rods snapped into or wire tied onto outer loop of clips, metal lath wire-tied to pencil rods at 6" intervals, 1" perlite gypsum plaster, each side.	-	7 5/8 (d)	-	-
	11-1.4	2½" × 0.044" (No. 18 carbon sheet steel gage) steel studs spaced 16" on center. Wood fibered gypsum plaster mixed 1:1 by weight gypsum to sand aggregate applied on ¾-pound metal lath wire tied to studs, each side. ¾" plaster applied over each face, including finish coat.	-	-	4 ¼ (d)	-
12. Wood studs interior partition with plaster each side	12-1.1(l, m)	2" × 4" wood studs 16" on center with 5 / 8 " gypsum plaster on metal lath. Lath attached by 4d common nails bent over or No. 14 gage by 1¼" by ¾" crown width staples spaced 6" on center. Plaster mixed 1:1½ for scratch coat and 1:3 for brown coat, by weight, gypsum to sand aggregate.	-	-	-	5 1/8
	12-1.2 (l)	2" × 4" wood studs 16" on center with metal lath and 7 / 8 " neat wood-fibered gypsum plaster each side. Lath attached by 6d common nails, 7" on center. Nails driven 1¼" and bent over.	-	-	5 ½ (d)	-
	12-1.3(l)	2" × 4" wood studs 16" on center with 3 / 8 " perforated or plain gypsum lath and ½" gypsum plaster each side. Lath nailed with 1 1 / 8 " by No. 13 gage by 19 / 64 " head plasterboard blued nails, 4" on center. Plaster mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	5 1/4
	12-1.4(l)	2" × 4" wood studs 16" on center with 3 / 8 " Type X gypsum lath and ½" gypsum plaster each side. Lath nailed with 1 1 / 8 " by No. 13 gage by 19 / 64 " head plasterboard blued nails, 5" on center. Plaster mixed 1:2 by weight, gypsum to sand aggregate.	-	-	-	5 1/4
13.Noncumbustible studs—interior partition with gypsum wallboard each side	13-1.1	0.018" (No. 25 carbon sheet steel gage) channel-shaped studs 24" on center with one full-length layer of 5 / 8 " Type X gypsum wallboard (e) applied vertically attached with 1" long No. 6 drywall screws to each stud. Screws are 8" on center around the perimeter and 12" on center on the intermediate stud. The wallboard may be applied horizontally when attached to 3 5 / 8 " studs and the horizontal joints are staggered with those on the opposite side. Screws for the horizontal application shall be 8" on center at vertical edges and 12" on center at intermediate studs.	-	-	-	2 7/8 (d)

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
13.Noncumbustible studs—interior partition with gypsum wallboard each side (cont)	13-1.2	0.018" (No. 25 carbon sheet steel gage) channel-shaped studs 25" on center with two full-length layers of ½" Type X gypsum wallboard (e) applied vertically each side. First layer attached with 1"-long, No. 6 drywall screws, 8" on center around the perimeter and 12" on center on the intermediate stud. Second layer applied with vertical joints offset one stud space from first layer using 1 5 / 8 " long, No. 6 drywall screws spaced 9" on center along vertical joints, 12" on center at intermediate studs and 24" on center along top and bottom runners.	-	-	3 5/8 (d)	-
	13-1.3	0.055" (No. 16 carbon sheet steel gage) approved nailable metal studs (e) 24" on center with full-length 5 / 8 " Type X gypsum wallboard (e) applied vertically and nailed 7" on center with 6d cement-coated common nails. Approved metal fastener grips used with nails at vertical butt joints along studs.	-	-	-	4 7/8
	14-1.1(h, m)	2 ″ × 4 ″ wood studs 16 ″ on center with two layers of 3 / 8 " regular gypsum wallboard (e) each side, 4d cooler (n) or wallboard (n) nails at 8 ″ on center first layer, 5d cooler (n) or wallboard (n) nails at 8 ″ on center second layer with laminating compound between layers, joints staggered. First layer applied full length vertically, second layer applied horizontally or vertically.	-	-	-	5
14. Wood studs—interior partition with gypsum wallboard each side	14-1.2(l, m)	2 ″ × 4 ″ wood studs 16 " on center with two layers ½ " regular gypsum wallboard (e) applied vertically or horizontally each side (k) , joints staggered. Nail base layer with 5d cooler (n) or wallboard (n) nails at 8 ″ on center face layer with 8d cooler (n) or wallboard (n) nails at 8 ″ on center.	-	-	-	5 ½
	14-1.3(l, m)	2 ″ × 4 ″ wood studs 24 ″ on center with 5 / 8 " Type X gypsum wallboard (e) applied vertically or horizontally nailed with 6d cooler (n) or wallboard (n) nails at 7 ″ on center with end joints on nailing members. Stagger joints each side.	-	-	-	4 ¾
	14-1.4(l)	2 ″ × 4 ″ fire-retardant-treated wood studs spaced 24 ″ on center with one layer of 5 / 8 ″ Type X gypsum wallboard (e) applied with face paper grain (long dimension) parallel to studs. Wallboard attached with 6d cooler (n) or wallboard (n) nails at 7 ″ on center.	-	-	-	4 ¾ (d)
	14-1.5(l, m)	2 ″ × 4 ″ wood studs 16 ″ on center with two layers 5 / 8 " Type X gypsum wallboard (e) each side. Base layers applied vertically and nailed with 6d cooler (n) or wallboard (n) nails at 9 ″ on center. Face layer applied vertically or horizontally and nailed with 8d cooler (n) or wallboard (n) nails at 7 ″ on center. For nail-adhesive application, base layers are nailed 6 ″ on center. Face layers applied with coating of approved wallboard adhesive and nailed 12 ″ on center.	-	-	6	-
	14-1.6(l)	2 ″ × 3 ″ fire-retardant-treated wood studs spaced 24 ″ on center with one layer of 5 / 8 " Type X gypsum wallboard (e) applied with face paper grain (long dimension) at right angles to studs. Wallboard attached with 6d cement-coated box nails spaced 7 ″ on center.	-	-	-	3 5/8 (d)
15. Exterior or interior walls	15-1.1(l, m)	Exterior surface with ¾” drop siding over ½” gypsum sheathing on 2 ″ × 4 ″ wood studs at 16 ″ on center, interior surface treatment as required for 1-hour-rated exterior or interior 2 ″ × 4 ″ wood stud partitions. Gypsum sheathing nailed with 1¾” by No. 11 gage by 7 / 16 “ head galvanized nails at 8 ″ on center. Siding nailed with 7d galvanized smooth box nails.	-	-	-	Varies
	15-1.2(l, m)	2 ″ × 4 ″ wood studs 16 ″ on center with metal lath and ¾" cement plaster on each side. Lath attached with 6d common nails 7 ″ on center driven to 1 ″ minimum penetration and bent over. Plaster mix 1:4 for scratch coat and 1:5 for brown coat, by volume, cement to sand.	-	-	-	5 3/8
	15-1.3 (l, m)	2 ″ × 4 ″ wood studs 16 ″ on center with 7 / 8 " cement plaster (measured from the face of studs) on the exterior surface with interior surface treatment as required for interior wood stud partitions in this table. Plaster mix 1:4 for scratch coat and 1:5 for brown coat, by volume, cement to sand.	-	--	-	Varies

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
15. Exterior or interior walls (cont)	15-1.4	3 5 / 8 " No. 16 gage noncombustible studs 16 ″ on center with 7 / 8 " cement plaster (measured from the face of the studs) on the exterior surface with interior surface treatment as required for interior, nonbearing, noncombustible stud partitions in this table. Plaster mix 1:4 for scratch coat and 1:5 for brown coat, by volume, cement to sand.	-	-	-	Varies (d)
	15-1.5 (m)	2¼" × 3¾" clay face brick with cored holes over ½" gypsum sheathing on exterior surface of 2" × 4" wood studs at 16" on center and two layers 5 / 8 " Type X gypsum wallboard (e) on interior surface. Sheathing placed horizontally or vertically with vertical joints over studs nailed 6" on center with 1¾" × No. 11 gage by 7 / 16 " head galvanized nails. Inner layer of wallboard placed horizontally or vertically and nailed 8" on center with 6d cooler (n) or wallboard (n) nails. Outer layer of wallboard placed horizontally or vertically and nailed 8" on center with 8d cooler (n) or wallboard (n) nails. All joints staggered with vertical joints over studs. Outer layer joints taped and finished with compound. Nail heads covered with joint compound. 0.035 inch (No. 20 galvanized sheet gage) corrugated galvanized steel wall ties ¾" by 6 5 / 8 " attached to each stud with two 8d cooler (n) or wallboard (n) nails every sixth course of bricks.	-	-	10	-
	15-1.6 (l, m)	2" × 6" fire-retardant-treated wood studs 16" on center. Interior face has two layers of 5 / 8 " Type X gypsum with the base layer placed vertically and attached with 6d box nails 12" on center. The face layer is placed horizontally and attached with 8d box nails 8″ on center at joints and 12" on center elsewhere. The exterior face has a base layer of 5 / 8 " Type X gypsum sheathing placed vertically with 6d box nails 8" on center at joints and 12" on center elsewhere. An approved building paper is next applied, followed by self-furred exterior lath attached with 2½", No. 12 gage galvanized roofing nails with a 3 / 8 " diameter head and spaced 6" on center along each stud. Cement plaster consisting of a ½" brown coat is then applied. The scratch coat is mixed in the proportion of 1:3 by weight, cement to sand with 10 pounds of hydrated lime and 3 pounds of approved additives or admixtures per sack of cement. The brown coat is mixed in the proportion of 1:4 by weight, cement to sand with the same amounts of hydrated lime and approved additives or admixtures used in the scratch coat.	-	-	8 ¼	-
	15-1.7 (l, m)	2" × 6" wood studs 16" on center. The exterior face has a layer of 5 / 8 " Type X gypsum sheathing placed vertically with 6d box nails 8" on center at joints and 12" on center elsewhere. An approved building paper is next applied, followed by 1" by No. 18 gage self-furred exterior lath attached with 8d by 2½" long galvanized roofing nails spaced 6" on center along each stud. Cement plaster consisting of a ½" scratch coat, a bonding agent and a ½" brown coat and a finish coat is then applied. The scratch coat is mixed in the proportion of 1:3 by weight, cement to sand with 10 pounds of hydrated lime and 3 pounds of approved additives or admixtures per sack of cement. The brown coat is mixed in the proportion of 1:4 by weight, cement to sand with the same amounts of hydrated lime and approved additives or admixtures used in the scratch coat. The interior is covered with 3 / 8 " gypsum lath with 1" hexagonal mesh of 0.035 inch (No. 20 B.W. gage) woven wire lath furred out 5 / 16 " and 1" perlite or vermiculite gypsum plaster. Lath nailed with 1 1 / 8 " by No. 13 gage by 19 / 64 " head plasterboard glued nails spaced 5" on center. Mesh attached by 1¾" by No. 12 gage by 3 / 8 " head nails with 3 / 8 " furrings, spaced 8" on center. The plaster mix shall not exceed 100 pounds of gypsum to 2½ cubic feet of aggregate.	-	-	8 3/8	-
	15-1.8 (l, m)	2" × 6" wood studs 16" on center. The exterior face has a layer of 5 / 8 " Type X gypsum sheathing placed vertically with 6d box nails 8" on center at joints and 12" on center elsewhere. An approved building paper is next applied, followed by 1½" by No. 17 gage self-furred exterior lath attached with 8d by 2½" long galvanized roofing nails spaced 6" on center along each stud. Cement plaster consisting of a ½" scratch coat, and a ½" brown coat is then applied. The plaster may be placed by machine. The scratch coat is mixed in the proportion of 1:4 by weight, plastic cement to sand. The brown coat is mixed in the proportion of 1:5 by weight, plastic cement to sand. The interior is covered with 3 / 8 " gypsum lath with 1" hexagonal mesh of No. 20 gage woven wire lath furred out 5 / 16 " and 1" perlite or vermiculite gypsum plaster. Lath nailed with 1 1 / 8 " by No. 13 gage by 19 / 64 " head plasterboard glued nails spaced 5" on center. Mesh attached by 1¾" by No. 12 gage by 3 / 8 " head nails with 3 / 8 " furrings, spaced 8" on center. The plaster mix shall not exceed 100 pounds of gypsum to 2½ cubic feet of aggregate.	-	-	8 3/8	-

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
15. Exterior or interior walls (cont)	15-1.9	4" No. 18 gage, nonload-bearing metal studs, 16" on center, with 1" portland cement lime plaster [measured from the back side of the ¾-pound expanded metal lath] on the exterior surface. Interior surface to be covered with 1" of gypsum plaster on ¾-pound expanded metal lath proportioned by weight—1:2 for scratch coat, 1:3 for brown, gypsum to sand. Lath on one side of the partition fastened to ¼" diameter pencil rods supported by No. 20 gage metal clips, located 16" on center vertically, on each stud. 3" thick mineral fiber insulating batts friction fitted between the studs.	-	-	6 ½ (d)	-
	15-1.10	Steel studs 0.060" thick, 4" deep or 6" at 16" or 24" centers, with ½" Glass Fiber Reinforced Concrete (GFRC) on the exterior surface. GFRC is attached with flex anchors at 24" on center, with 5" leg welded to studs with two ½"-long flare-bevel welds, and 4" foot attached to the GFRC skin with 5 / 8 " thick GFRC bonding pads that extend 2½" beyond the flex anchor foot on both sides. Interior surface to have two layers of ½" Type X gypsum wallboard. (e) The first layer of wallboard to be attached with 1"-long Type S buglehead screws spaced 24" on center and the second layer is attached with 1 5 / 8 " -long Type S screws spaced at 12" on center. Cavity is to be filled with 5" of 4 pcf (nominal) mineral fiber batts. GFRC has 1½" returns packed with mineral fiber and caulked on the exterior.	-	-	6 ½	-
	15-1.11	Steel studs 0.060" thick, 4" deep or 6" at 16" or 24" centers, respectively, with ½" Glass Fiber Reinforced Concrete (GFRC) on the exterior surface. GFRC is attached with flex anchors at 24" on center, with 5" leg welded to studs with two ½"-long flare-bevel welds, and 4" foot attached to the GFRC skin with 5 / 8 " -thick GFRC bonding pads that extend 2½" beyond the flex anchor foot on both sides. Interior surface to have one layer of 5 / 8 " Type X gypsum wallboard (e) , attached with 1¼"-long Type S buglehead screws spaced 12" on center. Cavity is to be filled with 5" of 4 pcf (nominal) mineral fiber batts. GFRC has 1½" returns packed with mineral fiber and caulked on the exterior.	-	-	-	6 1/8
	15-1.12(q)	2" × 6" wood studs at 16" with double top plates, single bottom plate; interior and exterior sides covered with 5 / 8 " Type X gypsum wallboard, 4' wide, applied horizontally or vertically with vertical joints over studs, and fastened with 2¼" Type S drywall screws, spaced 12" on center. Cavity filled with 5½" mineral wool insulation.	-	-	-	6 ¾
	15-1.13 (q)	2" × 6" wood studs at 16" with double top plates, single bottom plate; interior and exterior sides covered with 5 / 8 " Type X gypsum wallboard, 4' wide, applied horizontally or vertically with vertical joints over studs, and fastened with 2¼" Type S drywall screws, spaced 7" on center. Cavity to be filled with 5½" mineral wool insulation minimum 2.58 pcf (nominal).	-	-	-	6 ¾
	15-1.14 (q)	2" × 4" wood studs at 16" with double top plates, single bottom plate; interior and exterior sides covered with 5 / 8 " Type X gypsum wallboard and sheathing, respectively, 4' wide, applied horizontally or vertically with vertical joints over studs, and fastened with 2¼" Type S drywall screws, spaced 12" on center. Cavity to be filled with 3½" mineral wool insulation.	-	-	-	4 3/4
	15-1.15 (q)	2" × 4" wood studs at 16" with double top plates, single bottom plate; interior sides covered with 5 / 8 " Type X gypsum wallboard, 4' wide, applied horizontally unblocked, and fastened with 2¼" Type S drywall screws, spaced 12" on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound. Exterior covered with 3 / 8 " wood structural panels (oriented strand board), applied vertically, horizontal joints blocked and fastened with 6d common nails (bright)—12" on center in the field, 6" on center panel edges. Cavity to be filled with 3½" mineral wool insulation. Rating established for exposure from interior side only.	-	-	-	4 ½
	15-1.16 (q)	2" × 6" (51 mm x 152 mm) wood studs at 16 " centers with double top plates, single bottom plate; interior side covered with 5/ 8 " Type X gypsum wallboard, 4' wide, applied horizontally or vertically with vertical joints over studs and fastened with 2¼ " Type S drywall screws, spaced 12" on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound, exterior side covered with 7/ 16 " ; wood structural panels (oriented strand board) fastened with 6d common nails (bright) spaced 12" on center in the field and 6" on center along the panel edges. Cavity to be filled with 5½ " mineral wool insulation. Rating established from the gypsum-covered side only.	-	-	-	6 9/16

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE (b) (inches)			
			4 Hour	3 Hour	2 Hour	1 Hour
15. Exterior or interior walls (cont)	15-1.17(q)	2" × 6" wood studs at 24" centers with double top plates, single bottom plate; interior and exterior side covered with two layers of 5 / 8 " Type X gypsum wallboard, 4' wide, applied horizontally with vertical joints over studs. Base layer fastened with 2¼" Type S drywall screws, spaced 24" on center, and face layer fastened with Type S drywall screws, spaced 8" on center, wallboard joints covered with paper tape and joint compound, fastened heads covered with joint compound. Cavity to be filled with 5½" mineral wool insulation.	-	-	7 ¾	-
16. Exterior walls rated for fire resistance from the inside only in accordance with Section 704.5 .	16-1.1 (q)	2" × 4" wood studs at 16" centers with double top plates, single bottom plate; interior side covered with 5 / 8 " Type X gypsum wallboard, 4' wide, applied horizontally unblocked, and fastened with 2¼" Type S drywall screws, spaced 12" on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound. Exterior covered with 3 / 8 " wood structural panels (oriented strand board), applied vertically, horizontal joints blocked and fastened with 6d common nails (bright) — 12" on center in the field, and 6" on center panel edges. Cavity to be filled with 3½" mineral wool insulation. Rating established for exposure from interior side only.	-	-	-	4 1/2

For SI: 1 inch = 25.4 mm, 1 square inch = 645.2 mm ^{2} , 1 cubic foot = 0.0283 m ^{3} .

a. Staples with equivalent holding power and penetration shall be permitted to be used as alternate fasteners to nails for attachment to wood framing.

b. Thickness shown for brick and clay tile are nominal thicknesses unless plastered, in which case thicknesses are net. Thickness shown for concrete masonry and clay masonry is equivalent thickness defined in Section 721.3.1 for concrete masonry and Section 721.4.1.1 for clay masonry. Where all cells are solid grouted or filled with silicone-treated perlite loose-fill insulation; vermiculite loose-fill insulation; or expanded clay, shale or slate lightweight aggregate, the equivalent thickness shall be the thickness of the block or brick using specified dimensions as defined in Chapter 21 . Equivalent thickness may also include the thickness of applied plaster and lath or gypsum wallboard, where specified.

c. For units in which the net cross-sectional area of cored brick in any plane parallel to the surface containing the cores is at least 75 percent of the gross cross-sectional area measured in the same plane.

d. Shall be used for nonbearing purposes only.

e. For all of the construction with gypsum wallboard described in this table, gypsum base for veneer plaster of the same size, thickness and core type shall be permitted to be substituted for gypsum wallboard, provided attachment is identical to that specified for the wallboard, and the joints on the face layer are reinforced and the entire surface is covered with a minimum of 1 / 16 -inch gypsum veneer plaster.

f. The fire-resistance time period for concrete masonry units meeting the equivalent thicknesses required for a 2-hour fire-resistance rating in Item 3, and having a thickness of not less than 7 5 / 8 inches is 4 hours when cores which are not grouted are filled with silicone-treated perlite loose-fill insulation; vermiculite loose-fill insulation; or expanded clay, shale or slate lightweight aggregate, sand or slag having a maximum particle size of 3 / 8 inch.

g. The fire-resistance rating of concrete masonry units composed of a combination of aggregate types or where plaster is applied directly to the concrete masonry shall be determined in accordance with ACI 216.1/TMS 216. Lightweight aggregates shall have a maximum combined density of 65 pounds per cubic foot.

h. See also Note b. The equivalent thickness shall be permitted to include the thickness of cement plaster or 1.5 times the thickness of gypsum plaster applied in accordance with the requirements of Chapter 25 .

i. Concrete walls shall be reinforced with horizontal and vertical temperature reinforcement as required by Chapter 19 .

j. Studs are welded truss wire studs with 0.18 inch (No. 7 B.W. gage) flange wire and 0.18 inch (No. 7 B.W. gage) truss wires.

k. Nailable metal studs consist of two channel studs spot welded back to back with a crimped web forming a nailing groove.

l. Wood structural panels shall be permitted to be installed between the fire protection and the wood studs on either the interior or exterior side of the wood frame assemblies in this table, provided the length of the fasteners used to attach the fire protection are increased by an amount at least equal to the thickness of the wood structural panel.

m. The design stress of studs shall be reduced to 78 percent of allowable F_c with the maximum not greater than 78 percent of the calculated stress with studs having a slenderness ratio l_e / d of 33.

n. For properties of cooler or wallboard nails, see ASTM C 514, ASTM C 547 or ASTM F 1667.

o. Generic fire-resistance ratings (those not designated as PROPRIETARY* in the listing) in the GA 600 shall be accepted as if herein listed.

p. NCMA TEK 5-8, shall be permitted for the design of fire walls.

q. The design stress of studs shall be equal to a maximum of 100 percent of the allowable F_c calculated in accordance with Section 2306 .

TABLE 720.1(3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS (a,q)

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
1. Siliceous aggregate concrete	1-1.1	Slab (no ceiling required). Minimum cover over nonprestressed reinforcement shall not be less than ¾ inch. (b)	7.0	6.2	5.0	3.5	-	-	-	-
2. Carbonate aggregate concrete	2-1.1		6.6	5.7	4.6	3.2	-	-	-	-
3. Sand-lightweight concrete	3-1.1		5.4	4.6	3.8	2.7	-	-	-	-
4. Lightweight concrete	4-1.1		5.1	4.4	3.6	-2.5	-	-	-	-
5. Reinforced concrete	5-1.1	Slab with suspended ceiling of vermiculite gypsum plaster over metal lath attached to ¾" cold-rolled channels spaced 12" on center. Ceiling located 6" minimum below joists.	3	2	-	-	1	¾	-	-
	5-2.1	3 / 8 " Type X gypsum wallboard (c) attached to 0.018 inch (No. 25 carbon sheet steel gage) by 7 / 8 " deep by 2 5 / 8 " hat-shaped galvanized steel channels with 1"-long No. 6 screws. The channels are spaced 24" on center, span 35" and are supported along their length at 35" intervals by 0.033-inch (No. 21 galvanized sheet gage) galvanized steel flat strap hangers having formed edges that engage the lips of the channel. The strap hangers are attached to the side of the concrete joists with 5 / 32 " by 1¼" long power-driven fasteners. The wallboard is installed with the long dimension perpendicular to the channels. All end joints occur on channels and supplementary channels are installed parallel to the main channels, 12" each side, at end joint occurrences. The finished ceiling is located approximately 12" below the soffit of the floor slab.	--	-	2 1/2	-	-	-	5/8	-
6. Steel joists constructed with a poured reinforced concrete slab on metal lath forms or steel form units (d, e)	6-1.1	Gypsum plaster on metal lath attached to the bottom cord with single No. 16 gage or doubled No. 18 gage wire ties spaced 6" on center. Plaster mixed 1:2 for scratch coat, 1:3 for brown coat, by weight, gypsum-to-sand aggregate for 2-hour system. For 3-hour system plaster is neat.	-	-	2 ½	2 ¼	-	-	¾	5/8
	6-2.1	Vermiculite gypsum plaster on metal lath attached to the bottom chord with single No.16 gage or doubled 0.049-inch (No. 18 B.W. gage) wire ties 6" on center.	-	2	-	-	-	5/8	-	-
	6-3.1	Cement plaster over metal lath attached to the bottom chord of joists with single No. 16 gage or doubled 0.049-inch (No. 18 B.W. gage) wire ties spaced 6" on center. Plaster mixed 1:2 for scratch coat, 1:3 for brown coat for 1-hour system and 1:1 for scratch coat, 1:1 ½ for brown coat for 2-hour system, by weight, cement to sand.	-	-	-	2	-	-	-	5/8 (f)
	6-4.1	Ceiling of 5 / 8 " Type X wallboard (c) attached to 7 / 8 " deep by 2 5 / 8 " by 0.021 inch (No. 25 carbon sheet steel gage) hat-shaped furring channels 12" on center with 1" long No. 6 wallboard screws at 8" on center. Channels wire tied to bottom chord of joists with doubled 0.049 inch (No. 18 B.W. gage) wire or suspended below joists on wire hangers. (g)	-	-	2 1/2	-	-	-	5/8	-

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
6. Steel joists constructed with a poured reinforced concrete slab on metal lath forms or steel form units (d, e) (cont)	6-5.1	Wood-fibered gypsum plaster mixed 1:1 by weight gypsum to sand aggregate applied over metal lath. Lath tied 6" on center to ¾" channels spaced 13½" on center. Channels secured to joists at each intersection with two strands of 0.049 inch (No. 18 B.W. gage) galvanized wire.	-	-	2 ½	-	-	-	¾	-
7. Reinforced concrete slabs and joists with hollow clay tile fillers laid end to end in rows 2½ " or more apart; reinforcement placed between rows and concrete cast around and over tile.	7-1.1	5 / 8" gypsum plaster on bottom of floor or roof construction.	-	-	8 (h)	-	-	-	5/8	-
	7-1.2	None	-	-	-	5 ½ (i)	-	-	-	-
8. Steel joists constructed with a reinforced concrete slab on top poured on a ½" deep steel deck. (e)	8-1.1	Vermiculite gypsum plaster on metal lath attached to ¾" cold-rolled channels with 0.049" (No. 18 B.W. gage) wire ties spaced 6" on center.	2 ½ (j)	-	-	-	3/4	-	-	-
9. 3" deep cellular steel deck with concrete slab on top. Slab thickness measured to top.	9-1.1	Suspended ceiling of vermiculite gypsum plaster base coat and vermiculite acoustical plaster on metal lath attached at 6" intervals to ¾" cold-rolled channels spaced 12" on center and secured to 1½" cold-rolled channels spaced 36" on center with 0.065" (No. 16 B.W. gage) wire. 1½" channels supported by No. 8 gage wire hangers at 36" on center. Beams within envelope and with a 2½" airspace between beam soffit and lath have a 4-hour rating.	2 ½	-	-	-	1 1/8 (k))	-	-	-
10. 1½"-deep steel roof deck on steel framing. Insulation board, 30 pcf density, composed of wood fibers with cement binders of thickness shown bonded to deck with unified asphalt adhesive. Covered with a Class A or B roof covering.	10-1.1	Ceiling of gypsum plaster on metal lath. Lath attached to ¾" furring channels with 0.049" (No. 18 B.W. gage) wire ties spaced 6" on center. ¾" channel saddle tied to 2" channels with doubled 0.065" (No. 16 B.W. gage) wire ties. 2" channels spaced 36" on center suspended 2" below steel framing and saddle-tied with 0.165" (No. 8 B.W. gage) wire. Plaster mixed 1:2 by weight, gypsum-to-sand aggregate.	-	-	1 7/8	1	-	-	¾ (l)	¾ (l)
11. 1 ½"-deep steel roof deck on steel-framing wood fiber insulation board, 17.5 pcf density on top applied over a 15-lb asphalt- saturated felt. Class A or B roof covering.	11-1.1	Ceiling of gypsum plaster on metal lath. Lath attached to ¾" furring channels with 0.049" (No. 18 B.W. gage) wire ties spaced 6" on center. ¾" channels saddle tied to 2" channels with doubled 0.065" (No. 16 B.W. gage) wire ties. 2" channels spaced 36" on center suspended 2" below steel framing and saddle tied with 0.165" (No. 8 B.W. gage) wire. Plaster mixed 1:2 for scratch coat and 1:3 for brown coat, by weight, gypsum-to-sand aggregate for 1-hour system. For 2-hour system, plaster mix is 1:2 by weight, gypsum-to-sand aggregate.	-	-	1 1/2	1	-	-	7/8 (g)	¾ (l)

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
12. 1½" deep steel roof deck on steel-framing insulation of rigid board consisting of expanded perlite and fibers impregnated with integral asphalt waterproofing; density 9 to 12 pcf secured to metal roof deck by ½" wide ribbons of waterproof, cold-process liquid adhesive spaced 6" apart. Steel joist or light steel construction with metal roof deck, insulation, and Class A or B built-up roof covering. (e)	12-1.1	Gypsum-vermiculite plaster on metal lath wire tied at 6" intervals to ¾" furring channels spaced 12" on center and wire tied to 2" runner channels spaced 32" on center. Runners wire tied to bottom chord of steel joists.	-	-	1	-	-	-	7/8	-
13. Double wood floor over wood joists spaced 16" on center. (m,n)	13-1.1	Gypsum plaster over 3 / 8 "Type X gypsum lath. Lath initially applied with not less than four 1 1 / 8 " by No. 13 gage by 19 / 64 " head plasterboard blued nails per bearing. Continuous stripping over lath along all joist lines. Stripping consists of 3" wide strips of metal lath attached by 1½" by No. 11 gage by ½" head roofing nails spaced 6" on center. Alternate stripping consists of 3" wide 0.049" diameter wire stripping weighing 1 pound per square yard and attached by No.16 gage by 1½" by ¾" crown width staples, spaced 4" on center. Where alternate stripping is used, the lath nailing may consist of two nails at each end and one nail at each intermediate bearing. Plaster mixed 1:2 by weight, gypsum-to-sand aggregate.	-	-	-	-	-	-	-	7/8
	13-1.2	Cement or gypsum plaster on metal lath. Lath fastened with 1½" by No. 11 gage by 7 / 16 " head barbed shank roofing nails spaced 5" on center. Plaster mixed 1:2 for scratch coat and 1:3 for brown coat, by weight, cement to sand aggregate.	-	-	-	-	-	-	-	5/8
	13-1.3	Perlite or vermiculite gypsum plaster on metal lath secured to joists with 1½" by No. 11 gage by 7 / 16 " head barbed shank roofing nails spaced 5" on center.	-	-	-	-	-	-	-	5/8
	13-1.4	½" Type X gypsum wallboard (c) nailed to joists with 5d cooler (o) or wallboard (o) nails at 6" on center. End joints of wallboard centered on joists.	-	-	-	-	-	-	-	1/2
14. Plywood stressed skin panels consisting of 5 / 8 " -thick interior C-D (exterior glue) top stressed skin on 2" × 6" nominal (minimum) stringers. Adjacent panel edges joined with 8d common wire nails spaced 6" on center. Stringers spaced 12" maximum on center.	14-1.1	½"-thick wood fiberboard weighing 15 to 18 pounds per cubic foot installed with long dimension parallel to stringers or 3 / 8 " C-D (exterior glue) plywood glued and/or nailed to stringers. Nailing to be with 5d cooler o or wallboard o nails at 12" on center. Second layer of ½" Type X gypsum wallboard (c) applied with long dimension perpendicular to joists and attached with 8d cooler (o) or wallboard (o) nails at 6" on center at end joints and 8" on center elsewhere. Wallboard joints staggered with respect to fiberboard joints.	-	-	-	-	-	-	-	1

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
15. Vermiculite concrete slab proportioned 1:4 (portland cement to vermiculite aggregate) on a 1½"-deep steel deck supported on individually protected steel framing. Maximum span of deck 6¢-10" where deck is less than 0.019 inch (No. 26 carbon steel sheet gage) or greater. Slab reinforced with 4" × 8" 0.109/0.083" (No. 12 / 14 B.W. gage) welded wire mesh.	15-1.1	None	-	-	-	3 (j)	-	-	-	-
16. Perlite concrete slab proportioned 1:6 (portland cement to perlite aggregate) on a 1¼"-deep steel deck supported on individually protected steel framing. Slab reinforced with 4" × 8" 0.109/0.083" (No. 12 / 14 B.W. gage) welded wire mesh.	16-1.1	None	-	-	-	3 ½ (j)	-	-	-	-
17. Perlite concrete slab proportioned 1:6 (portland cement to perlite aggregate) on a 9 / 16 " -deep steel deck supported by steel joists 4" on center. Class A or B roof covering on top.	17-1.1	Perlite gypsum plaster on metal lath wire tied to ¾" furring channels attached with 0.065-inch (No. 16 B.W. gage) wire ties to lower chord of joists.	-	2 (p)	2 (p)	-	-	7/8	¾	-
18. Perlite concrete slab proportioned 1:6 (portland cement to perlite aggregate) on 1¼"-deep steel deck supported on individually protected steel framing. Maximum span of deck 6'-10" where deck is less than 0.019" (No. 26 carbon sheet steel gage) and 8'-0" where deck is 0.019" (No. 26 carbon sheet steel gage) or greater. Slab reinforced with 0.042" (No. 19 B.W. gage) hexagonal wire mesh. Class A or B roof covering on top.	18-1.1	None	-	2 ¼ (p)	2 ¼ (p)	-	-	-	-	-
19. Floor and beam construction consisting of 3"-deep cellular steel floor unit mounted on steel members with 1:4 (proportion of portland cement to perlite aggregate) perlite-concrete floor slab on	19-1.1	Suspended envelope ceiling of perlite gypsum plaster on metal lath attached to ¾" cold-rolled channels, secured to 1½" cold-rolled channels spaced 42" on center supported by 0.203 inch (No. 6 B.W. gage) wire 36" on center. Beams in envelope with 3" minimum airspace between beam soffit and lath have a 4-hour rating.	2 (p)	-	-	-	1 (l)	-	-	-

top.										

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
20. Perlite concrete proportioned 1:6 (portland cement to perlite aggregate) poured to 1 / 8 " -inch thickness above top of corrugations of 1 5 / 16 " -deep galvanized steel deck maximum span 8'-0" for 0.024-inch (No. 24 galvanized sheet gage) or 6' 0" for 0.019-inch (No. 26 galvanized sheet gage) with deck supported by individually protected steel framing. Approved polystyrene foam plastic insulation board having a flame spread not exceeding 75 (1" to 4" thickness) with vent holes that approximate 3 percent of the board surface area placed on top of perlite slurry. A 2' by 4' insulation board contains six 2¾" diameter holes. Board covered with 2¼" minimum perlite concrete slab. Slab reinforced with mesh consisting of 0.042 inch (No. 19 B.W. gage) galvanized steel wire twisted together to form 2" hexagons with straight 0.065 inch (No. 16 B.W. gage) galvanized steel wire woven into mesh and spaced 3". Alternate slab reinforcement shall be permitted to consist of 4" × 8", 0.109/0.238-inch (No. 12/4 B.W. gage), or 2" × 2", 0.083/0.083-inch (No. 14/14 B.W. gage) welded wire fabric. Class A or B roof covering on top.	20-1.1	None	-	-	Varies	-	-	-	-	-
21. Wood joists, floor trusses and flat or pitched roof trusses spaced a maximum 24" o.c. with ½" wood structural panels with exterior glue applied at right angles to top of joist or top chord of trusses with 8d nails. The wood structural panel thickness shall not be less than nominal ½" less than required by Chapter 23	21-1.1	Base layer 5 / 8 " Type X gypsum wallboard applied at right angles to joist or truss 24" o.c. with 1¼" Type S or Type W drywall screws 24" o.c. Face layer 5 / 8 " Type X gypsum wallboard or veneer base applied at right angles to joist or truss through base layer with 1 7 / 8 " Type S or Type W drywall screws 12" o.c. at joints and intermediate joist or truss. Face layer Type G drywall screws placed 2" back on either side of face layer end joints, 12" o.c.	-	-	-	Varies	-	-	-	1 1/4

FLOOR OR ROOF CONSTRUCTION	ITEM #	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hour	3 hour	2 hour	1 hour	4 hour	3 hour	2 hour	1 hour
22. Steel joists, floor trusses and flat or pitched roof trusses spaced a maximum 24" o.c. with ½" wood structural panels with exterior glue applied at right angles to top of joist or top chord of trusses with No. 8 screws. The wood structural panel thickness shall not be less than nominal ½" nor less than required by Chapter 22.	22-1.1	Base layer 5 / 8 " Type X gypsum board applied at right angles to steel framing 24" on center with 1" Type S drywall screws spaced 24" on center. Face layer 5 / 8 " Type X gypsum board applied at right angles to steel framing attached through base layer with 1 5 / 8 " Type S drywall screws 12" on center at end joints and intermediate joints and 1½" Type G drywall screws 12 inches on center placed 2" back on either side of face layer end joints. Joints of the face layer are offset 24" from the joints of the base layer.	-	-	-	Varies	-	-	-	1 1/4
23. Wood I-joist (minimum joist depth 9¾" with a minimum flange depth of 1 5/ 16 " and a minimum flange cross- sectional area of 2.3 square inches) at 24" o.c. spacing with 1 4 (nominal) wood furring strip spacer applied parallel to and covering the bottom of the bottom flange of each member, tacked in place. 2" mineral fiber insulation, 3.5 pcf (nominal) installed adjacent to the bottom flange of the I-joist and supported by the 1 × 4 furring strip spacer.	23-1.1	½" deep single leg resilient channel 16" on center (channels doubled at wallboard end joints), placed perpendicular to the furring strip and joist and attached to each joist by 1 7 / 8 " Type S drywall screws. 5 / 8 " Type C gypsum wallboard applied perpendicular to the channel with end joints staggered at least 4' and fastened with 1 1 / 8 " Type S drywall screws spaced 7" on center. Wallboard joints to be taped and covered with joint compound.	-	-	-	Varies	-	-	-	-

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 cubic foot = 0.0283 m 3 ,
1 pound per square inch = 6.895 kPa = 1 pound per lineal foot = 1.4882 kg/m.

a. Staples with equivalent holding power and penetration shall be permitted to be used as alternate fasteners to nails for attachment to wood framing.

b. When the slab is in an unrestrained condition, minimum reinforcement cover shall not be less than 1 5 / 8 inches for 4-hour (siliceous aggregate only); 1¼ inches for 4- and 3-hour; 1 inch for 2-hour (siliceous aggregate only); and ¾ inch for all other restrained and unrestrained conditions.

c. For all of the construction with gypsum wallboard described in this table, gypsum base for veneer plaster of the same size, thickness and core type shall be permitted to be substituted for gypsum wallboard, provided attachment is identical to that specified for the wallboard, and the joints on the face layer are reinforced and the entire surface is covered with a minimum of 1 / 16 -inch gypsum veneer plaster.

d. Slab thickness over steel joists measured at the joists for metal lath form and at the top of the form for steel form units.

e. (a) The maximum allowable stress level for H-Series joists shall not exceed 22,000 psi.
(b) The allowable stress for K-Series joists shall not exceed 26,000 psi, the nominal depth of such joist shall not be less than 10 inches and the nominal joist weight shall not be less than 5 pounds per lineal foot.

f. Cement plaster with 15 pounds of hydrated lime and 3 pounds of approved additives or admixtures per bag of cement.

g. Gypsum wallboard ceilings attached to steel framing shall be permitted to be suspended with 1½-inch cold-formed carrying channels spaced 48 inches on center, which are suspended with No. 8 SWG galvanized wire hangers spaced 48 inches on center. Cross-furring channels are tied to the carrying channels with No. 18 SWG galvanized wire hangers spaced 48 inches on center. Cross-furring channels are tied to the carrying channels with No. 18 SWG galvanized wire (double strand) and spaced as required for direct attachment to the framing. This alternative is also applicable to those steel framing assemblies recognized under Note q.

h. Six-inch hollow clay tile with 2-inch concrete slab above.

i. Four-inch hollow clay tile with 1½-inch concrete slab above.

j. Thickness measured to bottom of steel form units.

k. Five-eighths inch of vermiculite gypsum plaster plus ½ inch of approved vermiculite acoustical plastic.

l. Furring channels spaced 12 inches on center.

m. Double wood floor shall be permitted to be either of the following:

(a) Subfloor of 1-inch nominal boarding, a layer of asbestos paper weighing not less than 14 pounds per 100 square feet and a layer of 1-inch nominal tongue-and-groove finished flooring; or
(b) Subfloor of 1-inch nominal tongue-and-groove boarding or 15 / 32 -inch wood structural panels with exterior glue and a layer of 1-inch nominal tongue-and-groove finished flooring or 19 / 32 -inch wood structural panel finish flooring or a layer of Type I Grade M-1 particleboard not less than 5 / 8 -inch thick.
n. The ceiling shall be permitted to be omitted over unusable space, and flooring shall be permitted to be omitted where unusable space occurs above.
o. For properties of cooler or wallboard nails, see ASTM C 514, ASTM C 547 or ASTM F 1667.
p. Thickness measured on top of steel deck unit.
q. Generic fire-resistance ratings (those not designated as PROPRIETARY* in the listing) in the GA 600 shall be accepted as if herein listed.

CHAPTER 8: INTERIOR FINISHES

801 GENERAL

801.1 Scope.

*Governs the use of materials used as interior finishes, trim and decorative materials.

803 WALL AND CEILING FINISHES

803.1 General

*Intent is to control the rapidity of fire development and spread in a building due to finishes applied to walls, ceilings, and floors.

*Classifies interior finishes in Classes A, B, C.

SECTION 803 WALL AND CEILING FINISHES

803.1 General. *Interior wall and ceiling finishes shall be classified in accordance with ASTM E 84. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed index.*

Class A: Flame spread index 0-25; Smoke-developed index 0-450.

Class B: Flame spread index 26-75; Smoke-developed index 0-450.

Class C: Flame spread index 76-200; Smoke-developed index 0-450.

***Exception**: Materials, other than textiles, tested in accordance with Section 803.2.*

TABLE 803.5:
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY [k]

GROUP	SPRINKLERED [l]			UNSPRINKLERED		
	Vertical exits and exit passageways [a, b]	Exit access corridors and other exitways	Rooms and enclosed spaces [c]	Vertical exits and exit passageways [a, b]	Exit access corridors and other exitways	Rooms and enclosed spaces [c]
A-1 and A-2	B	B	C	A	A [d]	B [e]
A-3 [f], A-4, A-5	B	B	C	A	A [d]	C
B, D, F, M, R-1, R-4	B	C	C	A	B	C
F	C	C	C	B	C	C
H	B	B	C [g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B [h, i]	A	A	B
I-3	A	A(j)	C	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m2.

[a] Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.3.1.

[b] In vertical exits of buildings less than three stories in height of other than Group I-3, Class B interior finish for unsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted.

[c] Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed paces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

[d] Lobby areas in A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

[e] Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

[f] For churches and places of worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

[g] Class B material required where building exceeds two stories.

[h] Class C interior finish materials shall be permitted in administrative spaces.

[i] Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

[j] Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in exit access corridors.

[k] Finish materials as provided for in other sections of this code.

[i] Applies when the vertical exits, exit passageways, exit access corridors or exitways, or rooms and spaces are protected by a sprinkler system installed in accordance with Section 903.3.1.1 or Section 903.3.1.2.

Chapter 9: Fire Protection Systems

903 AUTOMATIC SPRINKLER SYSTEMS

903.2.1.2 Group A-2.

An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 sq ft.
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than the level of exit discharge.
4. Nightclubs or similar usage when occupant load is 100 or more.

Chapter 9: Fire Protection Systems (cont)

903 AUTOMATIC SPRINKLER SYSTEMS

903.6 Buildings three stories or more in height.

903.6.1 Any building which is of three stories or more in height shall be equipped with an approved automatic sprinkler system installed in accordance with §903.1.

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

903.6 Buildings three stories or more in height.

903.6.1 *Any building which is of three stories or more in height shall be equipped with an approved automatic sprinkler system installed in accordance with §903.1.*

Exceptions:

1. *Single-family and two-family dwellings.*
2. *A stand-alone parking garage constructed with noncombustible materials, the design of which is such that all levels of the garage are uniformly open to the atmosphere on all sides with the percentages of openings equal to or greater than those specified in Section 406.3. Such garages shall be separated from any other structure by not less than 20 ft (6096 mm). A stand-alone parking garage is one that is solely for the parking of vehicles and does not have any other occupancy group in the building.*

(continued)

Chapter 9: Fire Protection Systems (cont)

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

903.6 Buildings three stories or more in height.

Exceptions : (cont)

3. Telecommunication spaces located within telecommunication buildings, if the spaces are equipped to meet an equivalent fire- prevention standard approved by both the Florida Building Commission and the State Fire Marshal.

4. Telecommunications spaces within telecommunication buildings, if the telecommunications space is equipped with:

1. Air sampling smoke detection.

2. Remote, proprietary or central station fire alarm monitoring.

3. Automatic smoke exhaust system.

4. One hour fire resistance wall separating the telecommunications space from the adjacent areas on the same floor.

5. Two-hour floor/ceiling assembly separating the telecommunications space from adjacent floors.

6. All other portions ancillary to the telecommunications equipment area shall be provided with fire sprinkler protection.

7. Sprinkler systems installed solely as a requirement of S.903.6 may be a NFPA13R or NFPA13E system in accordance with their scopes.

(continued)

Chapter 9: Fire Protection Systems (cont)

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

903.6 Buildings three stories or more in height.

Exceptions : (cont)

5. Sprinkler systems installed solely as a requirement of Section 903.6 may be a NFPA 13R or NFPA 13D system in accordance with their scopes.

Chapter 9: Fire Protection Systems (cont)

905 STAND PIPE SYSTEMS

905.3.1 Building height

*Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet below the highest level of fire department vehicle access. High-rise buildings shall be protected throughout by a Class I standpipe system.

*Added Exception number 5.

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 905 STANDPIPE SYSTEMS

[F] 905.3 Required installations. *Standpipe systems shall be installed where required by Sections 905.1 and 905.3.1 through 905.3.6 and in the locations indicated in Sections 905.4, 905.5 and 905.6. Standpipe systems are permitted to be combined with automatic sprinkler systems.*

Exception: *Standpipe systems are not required in Group R-3 occupancies as applicable in Section 101.2*

(continued)

Chapter 9: Fire Protection Systems (cont)

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION 905 STANDPIPE SYSTEMS

(continued)

[F] 905.3.1 Building height. *Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet below the highest level of fire department vehicle access. High-rise buildings shall be protected throughout by a Class I standpipe system.*

Exceptions:

1. Class I standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

2. Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet above the lowest level of fire department vehicle access.

3. Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.

4. Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.

5. In buildings less than 75 feet in height which are protected throughout with an approved and maintained fire sprinkler system, a manual wet standpipe, as defined in the National Fire Protection Association Standard 14, Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems, shall be allowed.

CHAPTER 10: MEANS OF EGRESS

CHAPTER 10 MEANS OF EGRESS
SECTION 1001 ADMINISTRATION

1001.1 General. Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof.

[F] 1001.3 Maintenance. Means of egress shall be maintained in accordance with the *Florida Fire Prevention Code*.

1001.4 Alterations. A building shall not hereafter be altered to reduce the capacity of the means of egress to less than required by this chapter nor shall any change of occupancy be made in any building unless such building conforms with the requirements of this chapter.

Exception: Existing stairs shall be permitted to remain in use provided they comply with the requirements of the building code in effect at the time of original construction.

(continued)

CHAPTER 10 MEANS OF EGRESS
SECTION 1001 ADMINISTRATION

(continued)

1001.5 Where approved by the building official, existing stairs shall be permitted to be rebuilt in accordance with the dimensional criteria of the building code in effect at the time of original construction provided:

1. Handrails shall comply with Section 1009.11 and,
2. Guardrails shall comply with Section 1012, and,
3. The elevation of the floor surfaces on both sides of the door shall comply with Section 1008.1.4.

CHAPTER 10: MEANS OF EGRESS (cont)

1003 GENERAL MEANS OF EGRESS

1003.2 Ceiling height.

The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

The following sections were revised for consistency with FFPC:

1003.3.3 Horizontal projections.

1003.4 Floor surface.

Walking surfaces shall be slip resistant

CHAPTER 10 MEANS OF EGRESS

1003 General Means of Egress

1003.2 Ceiling height. *The means of egress shall have a ceiling height of not less than 7 feet 6 inches.*

Exceptions:

1. *Sloped ceilings in accordance with Section 1208.2.*
2. *Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2.*

(continued)

CHAPTER 10: MEANS OF EGRESS (cont)

CHAPTER 10 MEANS OF EGRESS

1003 General Means of Egress

(continued)

3. *Allowable projections in accordance with Section 1003.3.*
4. *Stair headroom in accordance with Section 1009.2.*
5. *Door height in accordance with Section 1008.1.1.*

1003.3.3 Horizontal projections. *Elements cannot project over a walking surface more than four inches when they are located between 27 and 80 inches above the floor. Handrails can project up to four and a half inches from the wall.*

1003.4 Floor surface. *Walking surfaces shall be slip resistant under foreseeable conditions. The walking surface of each element in the means of egress shall be uniformly slip resistant along the natural path of travel.*

(See related tables on following pages)

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

OCCUPANCY	FLOOR AREA IN SQ FT PER OCCUPANT
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc)	11 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats	
Concentrated (chairs only – not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross
Courtrooms – other than fixed seating areas	40 net
Daycare	20 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Exercise rooms with equipment	50 gross
Exercise rooms without equipment	15 gross
H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mercantile	
Areas on other floors	60 gross
Basement and grade floor areas	30 gross
Multiple street floors – each (Footnote 1)	40 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Swimming pool deck	30 gross
Swimming pool water surface	50 gross
Stages and platforms	15 net
Accessory storage areas, mechanical equipment room	300 gross
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m^2

Footnote 1: For the purpose of determining occupant load in mercantile occupancies where, due to differences in grade of streets on different sides, two or more floors directly accessible from streets exist, each such floor shall be considered a street floor. The occupant load factor shall be one person for each 40 ft (3.7 m_2) of gross floor area of sales space.

Footnote 2: For any food court or other assembly use areas located in the mall that are not included as a portion of the gross leasable area of the mall buildings, the occupant load is calculated based on the occupant load factor for that use as specified in Table 1004.1.2. The remaining mall area is not required to be assigned an occupant load.

TABLE 1005.1:
EGRESS WIDTH PER OCCUPANT SERVED

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM [a]	
	Stairways (inches/occupant)	Other egress components (inches/occupant)	Stairways (inches/occupant)	Other egress components (inches/occupant)
Occupancies other than those listed below	0.3	0.2	0.3	0.2
Hazardous: H-1, H-2, H-3 and H-4	0.7	0.4	0.7	0.4
Health care	0.6	0.5	0.3	0.2
Institutional: I-2	NA	NA	0.3	0.2

For SI: 1 inch = 25.4 mm. NA = Not applicable.

[a] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

CHAPTER 10: MEANS OF EGRESS (cont)

1003 GENERAL MEANS OF EGRESS

1003.5 Elevation change.

*Minimum tread depth of such stair shall be 13 inches when elevation change does not exceed 21 inches

***1003.5.3 Accessibility.**

*See §11-4.3.8.

Table 1004.3.2.1: Corridor Fire-Resistance Rating

1006 MEANS OF EGRESS ILLUMINATION AND SIGNS

***New section** (See Table 1006 on page after next)

CHAPTER 10 MEANS OF EGRESS

1003 GENERAL MEANS OF EGRESS

1003.5 Elevation change. *Change in level in means of egress shall be either by a ramp or a stair. The presence and location of ramped walkways shall be readily apparent.*

1003.5.1 *Where a change in level means of egress not exceeding 21 inches (533 mm) is achieved by a stair, the minimum tread depth of such stair shall be 13 inches (330 mm) and the presence and location of each step shall be readily apparent.*

(continued)

CHAPTER 10: MEANS OF EGRESS (cont)

CHAPTER 10 MEANS OF EGRESS

1003 GENERAL MEANS OF EGRESS

(continued)

Exception: *Within dwelling level.*

1003.5.2 *Where change in elevation of 12 inches (305 mm) or less occurs in exit access corridors, exits and exit discharge, ramps complying with Section 1010 shall be provided.*

Exception: *Within dwelling level.*

1003.5.3 Accessibility. *For accessibility provisions related to changes in levels, see §11-4.3.8.*

TABLE 1006: EMERGENCY LIGHTING REQUIREMENTS

OCCUPANCY	CONDITIONS	EXCEPTIONS
Assembly		Private party tents < 1200 sq ft
Educational	For interior stairs and corridors, normally occupied spaces, flexible and open-plan area, interior or windowless portions, shops, and labs	Exempted from administrative areas, general classrooms, mechanical rooms, and storage rooms
Group I-1 and I-2	If using life-support systems, supply the required power from life safety branch of electricals as required by NFPA 99	None
Outpatient clinics, ambulatory	If using life-support systems for other than emergency purposes, supply the required power essentials electrical system as required by NFPA 99	None
Group I-3	None	None
Hotels and dormitories	> 25 rooms	All rooms direct to grade
Apartment buildings	> 12 units or > 3 stories	All apartments direct to grade
R-4, Large facilities	> 25 rooms	All rooms direct to grade
Mercantile	> 1 story >3000 sq ft gross sales area and malls	None
Business	> 2 stories above LED, or ≥ 50 people above or below LED, or ≥ 300 people total	None
Industrial	None	When approved by the building official, special purpose without routine occupancy, or daylight operations with windows
Storage	None	When approved by the building official, not normally occupied, or daylight operations with windows
Daycare centers	For interior stairs and corridors, normally occupied spaces, flexible and open-plan area, interior or windowless portions, shops, and labs	Exempted from administrative areas, general classrooms, mechanical rooms, and storage rooms

CHAPTER 10: MEANS OF EGRESS (cont)

1008 DOORS, GATES AND TURNSTILES

***1008.1.3.6.** The temporary installation or closure of storm shutters, panels in Group R

***1008.1.8.2 Hardware height.** Releasing mechanism for any latch shall be located at least 34 inches and not more than 48 inches above the finished floor.

CHAPTER 10 MEANS OF EGRESS

SECTION 1008 DOORS, GATES AND TURNSTILES

***1008.1.3.6** The temporary installation or closure of storm shutters, panels, and other approved hurricane protection devices shall be permitted on emergency escape and rescue openings in Group R occupancies during the threat of a storm. Such devices shall not be required to comply with the operational constraints of Section 1025.4. While such protection is provided, at least one means of escape from the dwelling or dwelling unit shall be provided. The means of escape shall be within the first floor of the dwelling or dwelling unit and shall not be located within a garage. Occupants in any part of the dwelling or dwelling unit shall be able to access the means of escape without passing through a lockable door not under their control.*

(continued)

CHAPTER 10: MEANS OF EGRESS (cont)

CHAPTER 10 MEANS OF EGRESS

SECTION 1008

DOORS, GATES AND TURNSTILES

(continued)

1008.1.8.2 Hardware height. *A latch or other fastening device on a door shall be provided with a releasing device having an obvious method of operation under all lighting conditions. The releasing mechanism for any latch shall be located at least 34 inches and not more than 48 inches above the finished floor. Doors shall be openable with not more than one releasing operation.*

Exception: *Egress doors from individual living units and guest rooms of residential occupancies shall be permitted to be provided with devices that require not more than 1 additional releasing operation if such device is operable from the inside without the use of a key or tool and is mounted at a height not more than 48 in. above the finished floor.*

CHAPTER 10: MEANS OF EGRESS (cont)

1009 STAIRWAYS AND HANDRAILS

***1009.5.3 Stair identification.**

***1009.9 Spiral stairways.**

1010 RAMPS

***Table 1015.1: Exit Access Travel Distance**

Other changes including special requirements for certain occupancies.

CHAPTER 10 MEANS OF EGRESS

SECTION 1009 STAIRWAYS AND HANDRAILS

1009.5.3 Stair identification. *An approved sign shall be located at each floor level landing in all enclosed stairways of buildings four or more stories in height. The sign shall indicate the floor level and the availability of roof access from that stairway and an identification of the stairway. The sign shall also state the floor level of and direction to exit discharge. The sign shall be located approximately 5 ft above the floor landing in a position which is readily visible when the door is in the open or closed position. The floor level designation shall also be tactile in accordance with Chapter 11.*

1009.9 Spiral stairways. *Where permitted by this section or in specific occupancies in accordance with Sections 1024 and 1026 through 1033, spiral stairs complying with this section shall be permitted as a component in a means of egress.*

(continued)

CHAPTER 10: MEANS OF EGRESS (cont)

CHAPTER 10 MEANS OF EGRESS

SECTION 1009 STAIRWAYS AND HANDRAILS

(continued)

1009.9.1 *Spiral stairs complying with the following shall be permitted:*

1. Riser heights shall not exceed 7 in.

2. The stairway shall have a tread depth of not less than 11 in. for a portion of the stairway width sufficient to provide the egress capacity for the occupant load served in accordance with 1004.1.

3. At the outer side of the stairway, an additional 10½ in. of width shall be provided clear to the other handrail, and this width shall not be included as part of the required egress capacity.

4. Handrails complying with 1009.11 shall be provided on both sides of the spiral stairway.

5. The inner handrail shall be located within 24 in. measured horizontally, of the point where a tread depth not less than 11 in. is provided.

6. The turn of the stairway shall be such that descending users have the outer handrail at their right side.

(see following group of tables related to egress)

TABLE 1014.1:
SPACES WITH ONE MEANS OF EGRESS

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, D, E, F, M, U	50
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, R	10
S	30

TABLE 1015.1:
EXIT ACCESS TRAVEL DISTANCE [a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (ft)	WITH SPRINKLER SYSTEM (ft)
A, E	150	200 [b]
B	200	300 [c]
I-1	Not permitted	250 [c]
I-2	Not permitted	200 [c]
I-3	150	200 [c]
D	150	200 [c]
M	150	250 [c]
R	175	250 [b]
S-2	Unlimited	Unlimited
S-1, F-1, F-2	200	250 [c]
F-3	300	400 [c]
H-1	Not permitted	75 [c]
H-2, H-3, H-4, H-5	Not permitted	100 [c]

For SI: 1 foot = 304.8 mm.

[a] See the following sections for modifications to exit access travel distance requirements:

- Section 402: For the distance limitation in malls.
- Section 404: For the distance limitation through an atrium space.
- Section 1015.2: For increased limitation in Groups F-1 and S-1.
- Section 1024.7: For increased limitation in assembly seating.
- Section 1024.7: For increased limitation for assembly open-air seating.
- Section 1018.2: For buildings with one exit.
- Chapter 31: For the limitation in temporary structures.

[b] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where sprinkler systems according to Section 903.3.1.2 are permitted.

[c] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

TABLE 1016.1:
CORRIDOR FIRE-RESISTANCE RATING

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

[a] For requirements for occupancies in Group I-2, see Section 407.3.

[b] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

[c] In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903, corridor walls shall not be required to be rated, provided that such walls form smoke partitions in accordance with the *Florida Fire Prevention Code*.

TABLE 1018.1:
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD	MINIMUM NUMBER OF EXITS
1–500	2
501–1,000	3
More than 1,000	4

TABLE 1018.2:
BUILDINGS WITH ONE EXIT

OCCUPANCY	MAXIMUM HEIGHT OF BUILDING ABOVE GRADE PLANE	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
A, B [d], D, E, F, M, U	1 story	50 occupants and 75 feet travel distance
H-2, H-3	1 story	3 occupants and 25 feet travel distance
H-4, H-5, I, R	1 story	10 occupants and 75 feet travel distance
S [a]	1 story	30 occupants and 100 feet travel distance
B [b], F, M, S [a]	2 stories	30 occupants and 75 feet travel distance
R-2	2 stories [c]	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.

[a] For the required number of exits for open parking structures, see Section 1018.1.1.

[b] For the required number of exits for air traffic control towers, see Section 412.1.

[c] Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1025 shall have a maximum height of three stories above grade.

[d] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 with an occupancy in Group B shall have a maximum travel distance of 100 feet.

TABLE 1024.6.2:
WIDTH OF AISLES FOR SMOKE-PROTECTED ASSEMBLY

TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY OCCUPANCY	INCHES OF CLEAR WIDTH PER SEAT SERVED			
	Stairs & aisle steps with handrails within 30 inches	Stairs & aisle steps without handrails within 30 inches	Passageways, doorways and ramps not steeper than 1-in-10 slope	Ramps steeper than 1-in-10 slope
≥ 5,000	0.200	0.250	0.150	0.165
10,000	0.130	0.163	0.100	0.110
15,000	0.096	0.120	0.070	0.077
20,000	0.076	0.095	0.056	0.062
≤ 25,000	0.060	0.075	0.044	0.048

For SI: 1 inch = 25.4 mm

CHAPTER 12: INTERIOR ENVIRONMENT and CHAPTER 13: ENERGY EFFICIENCY

CHAPTER 12 INTERIOR ENVIRONMENT

SECTION 1201 GENERAL

1201.1 Scope. The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodent proofing associated with the interior spaces of buildings.

CHAPTER 13 ENERGY EFFICIENCY

*Changes are presented in the 2004 *Florida Building Code, Mechanical/Energy*

*Sub-chapter 4 was revised for consistency with 1999 ASHRAE 90.1

CHAPTER 14: EXTERIOR WALLS

1401 GENERAL

1401.1 Scope.

*Minimum requirements for exterior walls, exterior wall coverings, exterior wall openings, exterior windows and doors, architectural trim, balconies and bay windows

*Vapor Retarder (1403.3)

*Includes minimum fire separation for combustible veneers

*Metal composite materials (MCM) section

CHAPTER 14 EXTERIOR WALLS

SECTION 1401 GENERAL

1401.1 Scope. *The provisions of this chapter shall establish the minimum requirements for exterior walls, exterior wall coverings, exterior wall openings, exterior windows and doors, architectural trim, balconies and bay windows.*

Exception*: Buildings and structures located within the High Velocity Hurricane Zone shall comply with the provisions of Sections 1403.8 and 1408*

Chapter 15: Roof Assemblies and Rooftop Structures

Overview

Prescriptive requirements expanded to 110 mph for section 1507.2.7 and 1507.2.8.

1503.4.2 Scupper.

See complete text of 1503.4.2 below

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1503 WEATHER PROTECTION

1503.4.2 Scupper. *Where required for roof drainage, a scupper shall be placed level with the roof surface in a wall or parapet. The scupper shall be located as determined by the slope and the contributing area of the roof. The exterior facing or lining of a scupper, if metal, shall be the same as flashing material required by Sections 1503 through 1510 for the particular type of covering specified for the building. For other type materials, follow manufacturer's specifications.*

CHAPTER 16: STRUCTURAL DESIGN

* Wind Loading Requirements updated
* ASCE 7-98 minimum
* 1606.2 Simplified provisions retained
* Definitions consistent with 2001 *Florida Building Code*

CHAPTER 16 STRUCTURAL DESIGN

SECTION 1601 GENERAL

1601.1 Scope. *The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.*

Exception: *Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of Sections 1612 through 1626.*

CHAPTER 17: STRUCTURAL TESTS & SPECIAL INSPECTIONS

*Expands testing protocol for exterior windows and doors

CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS

SECTION 1701 GENERAL

1701.1 Scope. *The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.*

CHAPTER 18: SOILS & FOUNDATIONS

CHAPTER 18 SOILS & FOUNDATIONS

*Prescriptive

*1806 Retaining Walls

*1816 Termite protection

CHAPTER 18 SOILS AND FOUNDATIONS

SECTION 1801 GENERAL

1801.1 Scope. *The provisions of this chapter shall apply to building and foundation systems in those areas not subject to scour or water pressure by wind and wave action. Buildings and foundations subject to such scour or water pressure loads shall be designed in accordance with Chapter 16.*

Exception: *Buildings and structures located within the High Velocity Hurricane Zone shall comply with the provisions of Sections 1816 through 1834.*

CHAPTER 19: CONCRETE

CHAPTER 19 CONCRETE

*1911.2 Joints.

*1917 Lightweight Insulation Concrete Fill

*1918 Special Wind Provisions for Concrete

CHAPTER 19 CONCRETE

SECTION 1901 GENERAL

1901.1 Scope. *The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in structures.*

Exception: *Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of S. 1917 and 1919 through 1929.*

 Italics are used for text within Sections 1902 through 1908 of the Florida Building Code to indicate provisions that differ from ACI 318.

CHAPTER 20: LIGHT METAL ALLOYS

2002 STRUCTURAL ALUMINUM

2002.2 Structural aluminum construction.

The design, fabrication and assembly of structural aluminum for buildingsor structures shall conform to AAASM 35 and Specifications for Aluminum Structures, Aluminum Design Manual, Part 1-A and 1-B, of the Aluminum Association. The use of aluminum alloys not listed in the manual shall be permitted provided their standard of performance is not less than those required in the manual and the performance is substantiated to the satisfaction of the building official.

2002.3 Screen enclosures.

CHAPTER 20 LIGHT METAL ALLOYS

2002 STRUCTURAL ALUMINUM

2002.2 Structural aluminum construction. *The design, fabrication and assembly of structural aluminum for buildings or structures shall conform to AAASM 35 and Specifications for Aluminum Structures, Aluminum Design Manual, Part 1-A and 1-B, of the Aluminum Association. The use of aluminum alloys not listed in the manual shall be permitted provided their standard of performance is not less than those required in the manual and the performance is substantiated to the satisfaction of the building official.*

(continued)

CHAPTER 20: LIGHT METAL ALLOYS (cont)

CHAPTER 20 LIGHT METAL ALLOYS

2002 STRUCTURAL ALUMINUM

(continued)

2002.3 Screen enclosures.

2002.3.1 *Actual wall thickness of extruded aluminum members shall be not less than 0.040 inch.*

2002.3.2 *Screen density shall be a maximum of 20 x 20 mesh.*

2002.3.3 *Vinyl and acrylic panels shall be removable. Removable panels shall be identified as removable by a decal. The identification decal shall essentially state "Removable panel SHALL be removed when wind speeds exceed 75 mph (34 m/s)". Decals shall be placed such that the decal is visible when the panel is installed.*

CHAPTER 21: MASONRY
CHAPTER 22: STEEL

CHAPTER 21 MASONRY

*Empirical design to 100 mph

*Definitions of adobe construction added

*Termite inspection provisions added

CHAPTER 22 STEEL

* References AISI-NASPEC

CHAPTER 23: WOOD
CHAPTER 24: GLASS & GLAZING

CHAPTER 23 WOOD

*Prescriptive limited to 100 mph—see table footnotes

CHAPTER 24 GLASS AND GLAZING

*ASTM E1300

*Wired/patterned and sandblasted glass

CHAPTER 25: GYPSUM BOARD & PLASTER
CHAPTER 26: PLASTICS
CHAPTER 27: ELECTRICAL

CHAPTER 25 GYPSUM BOARD & PLASTER

*Provisions for stucco and interior and exterior plaster

*Gypsum board in showers and water closets

CHAPTER 26 PLASTICS

*Similar as 2001 Florida Building Code

CHAPTER 27 ELECTRICAL

*NFPA 70 except Article 80

CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS

3001 GENERAL

3001.1 Scope.

This chapter governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.

Note:

Other administrative and programmatic provisions may apply. See the Department of Business and Professional Regulation [DBPR] Chapter 399, Florida Statutes, and 61C-5, Florida Administrative Code. The regulation and enforcement of the following sections of the adopted codes, and their addenda, are preempted to the Bureau of Elevator Safety of the Department of Business and Professional Regulation: ASME A 17.1, Part 8, ASME A17.3, Sections 1.2, 1.5, ASME A 18.1, Part 10.

CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001 GENERAL

3001.1 Scope. *This chapter governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.*

(continued)

CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS (cont)

CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001 GENERAL

(continued)

Note: *Other administrative and programmatic provisions may apply. See the Department of Business and Professional Regulation [DBPR] Chapter 399, Florida Statutes, and 61C-5, Florida Administrative Code. The regulation and enforcement of the following sections of the adopted codes, and their addenda, are preempted to the Bureau of Elevator Safety of the Department of Business and Professional regulation: ASME A 17.1, Part 8; ASME A 17.3, Sections 1.2, 1.5, ASME A 18.1, Part 10.*

CHAPTER 31: SPECIAL CONSTRUCTION

Awning

Any rigid or movable (retractable) roof-like structure, cantilevered, or otherwise entirely supported from a building. An awning is comprised of a lightweight rigid or removable skeleton structure over which an approved cover is attached.

Canopy

Any fixed roof-like structure, not movable like an awning, and which is cantilevered in whole or in part self-supporting, but having no side walls or curtains other than valances not more than 18 inches (457 mm) deep. Lean-to canopies, fixed umbrellas and similar structures are included in this classification. Structures having side walls or valances more than 18 inches (457 mm) deep shall be classified as a tent as set forth herein.

CHAPTER 31: SPECIAL CONSTRUCTION (cont)

3105 AWNINGS AND CANOPIES

3105.1 Fabric Awnings and Fabric covered Frames.

*Fabric must be flame resistance as per NFPA 701 except for R3.

*Design of frame as per Ch. 16.

*Wind design load for quick removal/breakaway fabric at wind 75 mph (90 mph and I: .77).

*Wind design load for permanent fabric—Ch. 16/ I: 0.77.

CHAPTER 31 SPECIAL CONSTRUCTION

SECTION 3105 Awnings and Canopies

3105.1 Fabric Awnings and Fabric Covered Frames. *Fabric awnings and fabric covered frames shall comply with the provisions of 3105 as applicable.*

3105.4 Design.

3105.4.1 *Design of the framing members shall not be based on removal or repositioning of parts, or the whole, during periods of 75 mph wind velocity.*

(continued)

CHAPTER 31: SPECIAL CONSTRUCTION (cont)

CHAPTER 31 SPECIAL CONSTRUCTION

SECTION 3105 Awnings and Canopies

(continued)

3105.4.2 *Design of the structural framing members shall be based on rational analysis, using the applicable wind loads of Chapter 16 as shown below:*

3105.4.2.1 *The wind design loads for any fabric or membrane covered structure designed with a quick removal or breakaway membrane or fabric at wind velocities of 75 m.p.h., shall be based on the following criteria:*

1. *Minimum wind velocity of 3 sec wind gust 90 m.p.h.*
2. *Importance factor based on low hazard to human life of 0.77*
3. *Exposure Category B for or C as defined in Chapter 16.*

3105.4.2.2 *The wind design loads for any fabric or membrane covered structure designed with a permanent or non-removable fabric or membrane, shall be based on the following criteria:*

1. *Minimum wind velocity as required in chapter 16*
2. *Importance factor based on low hazard to human life of 0.77.*
3. *Exposure Category B or C as defined in Chapter 16*

CHAPTER 31: SPECIAL CONSTRUCTION (cont)

3105.5 Rigid Awnings and Canopy Shutters

3105.5.1 Loads

Rigid awnings and canopy shutters shall be designed to resist the loads set forth in Chapter 16 of this Code except that structures or parts thereof which are intended to be removed or repositioned during periods of high wind velocity shall be designed in their open or extended position to design pressures based on a basic wind speed of minimum 90 mph, 3-second wind gust with applicable shape factors and to resist not less than 10 psf (478 Pa) roof live load.

1. Daycare center storage rooms are exempted from the emergency lighting requirements in Ch. 10 of the *2004 Florida Building Code.*

    a. True
    b. False

2. According to Ch. 1 of the *2004 Florida Building Code*, _____ of an existing manufactured building does not constitute an alteration.

    a. demolition
    b. renovation
    c. relocation
    d. reinforcement

3. According to Ch. 20 of the *2004 Florida Building Code*, actual wall thickness of extruded aluminum members shall not be less than _____ .

    a. .040”
    b. .025”
    c. .050”
    d. .020”

4. According to Ch. 5 of the *2004 Florida Building Code*, which if the choices below is incorrect? The area of a one-story Group E building of Type II, IIIA or IV construction shall not be limited when:

    a. building is surrounded and adjoined by public ways or yards not less than 60” wide.
    b. classrooms have at least 1 mean of egress.
    c. building has an automatic sprinkler throughout.
    d. building is provided with smoke barriers with a minimum 1-hour fire resistance rating dividing the building into areas no more than 30,000 sq. ft. in floor area.

5. According to Ch. 4 of the *2004 Florida Building Code*, public pools must be surrounded by a fence at least _____ high.

    a. 48”
    b. 36”
    c. 60”
    d. 42”

6. According to Ch. 7 of the *2004 Florida Building Code*, Section 720.1, the thickness of a floor or roof slab given floor or roof construction as a vermiculite concrete slab proportioned 1:4 (portland cement to vermiculite aggregate) on a 1½"-deep steel deck supported on individually protected steel framing is measured to the _____ of steelform units.

    a. top
    b. center
    c. three-quarter mark
    d. bottom

7. According to Ch. 10 of the *2004 Florida Building Code*, the maximum occupant load for a single exit in a Group H-1 building is _____.

    a. 3
    b. 10
    c. 50
    d. 30

8. According to Ch. 7 of the *2004 Florida Building Code*, the maximum percentage of unprotected and protected exterior wall openings of Group R-3 occupancies shall be _____ .

    a. 45%
    b. 25%
    c. 75%

d. 15%

9. Which of the options below is incorrect? According to Ch. 3 of the *2004 Florida Building Code*, doors in incidental use areas can _____.

a. have air transfer openings.
b. be self-closing upon detection of smoke.
c. be automatic
d. not have undercut in excess of the clearance permitted in accordance with NFPA 80.

10. According to Ch. 3 of the *2004 Florida Building Code*, the total area of combined accessory use areas cannot exceed _____ of the area in which they are located and the limitation of Table 503.

a. 5%
b. 25%
c. 15%
d. 10%

11. According to Ch. 15 of the *2004 Florida Building Code*, and specifically Sections 1507.2.7 and 1507.2.8 prescriptive requirements for roof assemblies and rooftop structures are expanded to _____.

a. 115 mph
b. 110 mph
c. 105 mph
d. 120 mph

12. Which of the following options is incorrect? According to Ch. 9 of the *2004 Florida Building Code*, an automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exist:

a. The fire area is located on a floor other than the level of exist discharge
b. The fire area exceeds 5000 sq. ft.
c. Nightclubs or similar usage when occupant load is 200 or more.
d. The fire area has an occupant load of 300 or more.

13. According to Ch. 5 of the *2004 Florida Building Code*, the height of Type I-B in Group B, M and R occupancies shall not be limited provided the fire resistance of all columns shall be not less than _____ hours.

a. 3
b. 2
c. 4
d. 5

14. According to Ch. 6 of the *2004 Florida Building Code*, in Type III construction, fire retardant wood framing is permitted witin exterior wall assemblies of a _____ -hour rating or less.

a. 4
b. 1
c. 2
d. 3

15. According to Ch. 7 of the *2004 Florida Building Code*, when flanges of steel beams are being insulated with sand-lightweight aggregate concrete the minimum thickness of insulating material for the following fire resistance period of 3 hours is _____.

a. 2”
b. 1-1/2”
c. 1-5/8”
d. 1”

16. According to Ch. 3 of the *2004 Florida Building Code*, an incinerator room requires fire separation of _____ hours in addition to an automatic sprinkler system.

a. 2
b. 1
c. 3
d. 0

17. According to Ch. 9 of the *2004 Florida Building Code*, high rise buildings shall be protected throughout by _____ standpipe system.

a. Class II
b. No
c. Class III
d. Class I

18. According to Ch. 10 of the *2004 Florida Building Code*, in stairways, a sign indicating floor level shall be located approximately _____ feet above the floor landing.

a. 1-1/2
b. 4
c. 5
d. 3

19. According to Ch. 6 of the *2004 Florida Building Code*, Table 602 addresses exterior wall fire resistance based upon setbacks to property lines ranging from less than 5 feet to greater than _____ feet.

a. 30
b. 100
c. 50
d. 75

20. According to Ch. 9 of the *2004 Florida Building Code*, not including exceptions, any building which is of _____ or more in height shall be equipped with an approved automatic sprinkler system.

a. 1 story
b. 3 stories
c. 2 stories
d. 5 stories