**Supplement to the 6th Edition (2017) Florida Building Code, Building**

**Note 1**: Throughout the document, change International Building Code to Florida Building Code, Building; change the International Energy Conservation Code tothe Florida Building Code, Energy Conservation; change the International Existing Building Code to Florida Building Code, Existing Building; change the International Fire code to Florida Fire Prevention Code; change International Fuel Gas Code to Florida Building Code, Fuel Gas; change the International Mechanical Code to Florida Building Code, Mechanical; change the International Plumbing Code to Florida Building Code, Plumbing; change the International Residential Code to Florida Building Code, Residential.

**Chapter 1 SCOPE AND ADMINISTRATION**

Revise as follows:

Add a new section as follows, and renumber current Section 107.2.5 and subsequent sections:

107.2.5 Exterior balcony and elevated walking surfaces. Where balcony or other elevated walking surfaces are exposed to water from direct or blowing rain, snow, or irrigation, and the structural framing is protected by an impervious moisture barrier, the construction documents shall include details for all elements of the impervious moisture barrier system. The construction documents shall include manufacturer's installation instructions.

~~107.2.5~~ 107.2.6 Site plan. *(no change to current section)*

*~~107.2.5.1~~ 107.2.6.1*Design flood elevations. *(no change to current section)*

~~107.2.6~~107.2.7 Structural information *(no change to current section)*

(CA7834)/(ADM77-16)

**[A] 110.1 General.** Construction or work for which a *permit* is required shall be subject to inspection by the *building official* and such construction or work shall remain ~~accessible~~ exposed and ~~exposed~~ provided with access for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the *owner* or the owner's authorized agent to cause the work to remain ~~accessible~~ exposed and ~~exposed~~ provided with access for inspection purposes. Neither the *building official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

(CA7697)/(ADM87-16)

**110.3 Required inspections.** The building official upon notification from the permit holder or his or her agent shall make the following inspections, and shall either release that portion of the construction or shall notify the permit holder or his or her agent of any violations which must be corrected in order to comply with the technical codes. The building official shall determine the timing and sequencing of when inspections occur and what elements are inspected at each inspection.

**Building**

1. Foundation inspection. To be made after trenches are excavated and forms erected and shall at a minimum include the following building components:

• Stem-wall

• Monolithic slab-on-grade

• Piling/pile caps

• Footers/grade beams

1.1. In flood hazard areas, upon placement of the lowest floor, including basement, and prior to further vertical construction, the elevation certification shall be submitted to the authority having jurisdiction.

2. Framing inspection. To be made after the roof, all framing, fireblocking and bracing is in place, all concealing wiring, all pipes, chimneys, ducts and vents are complete and shall at a minimum include the following building components:

• Window/door framing

• Vertical cells/columns

• Lintel/tie beams

• Framing/trusses/bracing/connectors

• Draft stopping/fire blocking

• Curtain wall framing

• Energy insulation

• Accessibility

• Verify rough opening dimensions are within tolerances.

3. Sheathing inspection. To be made either as part of a dry-in inspection or done separately at the request of the contractor after all roof and wall sheathing and fasteners are complete and shall at a minimum include the following building components:

• Roof sheathing

• Wall sheathing

• Sheathing fasteners

• Roof/wall dry-in

4. Exterior wall coverings. Shall at a minimum include the following building components in progress inspections:

•Exterior wall coverings and veneers

•Soffit coverings

5. ~~4.~~ Roofing inspection. Shall at a minimum include the following building components:

• Dry-in

• Insulation

• Roof coverings

• Flashing

6. ~~5.~~Final inspection. To be made after the building is completed and ready for occupancy.

6.1 ~~5.1~~.In flood hazard areas, as part of the final inspection, a final certification of the lowest floor elevation shall be submitted to the authority having jurisdiction.

*(renumber remaining inspection items)*

(CA7647 A1 + Original)

110.3.6 Weather exposed balcony and walking surface waterproofing. Where balcony or other elevated walking surfaces are exposed to water from direct or blowing rain, snow, or irrigation, and the structural framing is protected by an impervious moisture barrier, all elements of the impervious moisture barrier system shall not be concealed until inspected and approved.

~~Exception: Where inspection of the moisture barrier system is included in the special inspections regulated by Chapter 17.~~

*Renumber current sections without changing their content, as follows:*

**[A]~~110.3.6~~110.3.7 Fire- and smoke-resistant penetrations.**

**[A]~~110.3.7~~110.3.8 Energy efficiency inspections.**

**[A]~~110.3.8~~110.3.9 Other inspections.**

**[A]~~110.3.9~~110.3.10 Special inspections.**

**[A]~~110.3.10~~110.3.11 Final inspection.**

**[A] ~~110.3.10.1~~110.3.11.1Flood hazard documentation.**

**~~110.3.11~~110,3,12 Termites.**

**~~110.3.12~~110.3.13 Impact-resistant coverings or systems.**

(CA7838 and ADM87-16 Part I AMPC 1 and 2)

**Chapter 2 DEFINITIONS**

**SECTION 202 DEFINITIONS**

Revise as follows:

**~~AUTOCLAVED AERATED CONCRETE (AAC). AUTOCLAVED AERATED CONCRETE (AAC). Low density cementitious product of calcium silicate hydrates, whose material specifications are defined in ASTM C1386.~~**

(S8361)

**[BS]DRILLEDSHAFT.**A cast-in-place deep foundation element, also referred to as caisson, drilled pier, and bored pile, constructed by drilling a hole (with or without permanent casing or drilling fluid) into soil or rock and filling it with fluid concrete after the drilling equipment is removed.

**Socketed drilled shaft.** A drilled shaft with a permanent pipe or tube casing that extends down to bedrock and an uncased socket drilled into the bedrock

(S7375)/(I-Code)

**EXISTING BUILDING.** A building erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been issued.

**EXISTING STRUCTURE.** A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been issued. ~~For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community’s first flood plain management code, ordinance or standard.~~

(SP7462)/(I-Code)

**CHILDREN'S PLAY STRUCTURE.** A structure composed of one or more components, where the user enters a play environment

(F7518)/(I-Code)

**DWELLING UNIT.** A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

**SLEEPING UNIT.** A ~~room~~ single unit providing rooms or ~~space in which people sleep, which~~ spaces for one or more persons, which can also include permanent provisions for living, eating, sleeping, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

(F7519)

**Exterior Elevated Flooring System.** ~~An elevated flooring system installed over roofing systems or other supporting structures.~~ An assembly installed over a roof assembly  ~~and /~~ or other exterior supporting structure consisting of a walking surface of pedestrian deck panels ~~/~~ or pavers mounted on pedestals using other accessory components, ~~and~~ mechanical fasteners ~~and /~~ or adhesives as required by the manufacturer’s installation instructions for attaching pedestrian deck panels ~~/~~  or pavers to pedestals and other accessory components. Exterior elevated flooring systems may have pedestals attached to the roof or other supporting structure or pedestals installed independently of the roof or supporting structure with the restraint of the pavers at the perimeter and ~~or~~ discontinuous edges. Exterior elevated flooring systems are not part of the roof assembly.

**Attached systems.** Attached systems are those where pedestals are attached to the roof or other supporting structure by mechanical fasteners, adhesives, or both.

**Independent systems.** Independent systems are those where pedestals are not attached to the roof but rest on the roof or other supporting structure.

**Pedestrian Deck Panels~~/~~ ~~and~~ or Pavers.** Pedestrian deck panels ~~/~~ or pavers for ~~the purpose of~~ this section are manufactured from materials such as naturally durable wood, ceramic, stone, or concrete suitable for exterior applications.

**Pedestal.** A fixed or adjustable-height support column composed of a ~~plastic~~ support base, ~~plastic~~ vertical structural element, and a ~~plastic~~ load bearing top cap ~~/~~ surface.

**Accessory Components.** ~~These c~~ Components ~~are~~ used in the installation of pedestals and pedestrian deck panels ~~/~~ or pavers of the exterior elevated flooring system. ~~These~~ Accessory components are made of either plastic, ~~or~~ metal, or other approved materials. ~~These~~ Accessory components may be used to provide lateral bracing of the pedestals, to provide vertical support, for leveling the pedestal~~, and~~ to restrain the pedestrian deck panels ~~/~~ or pavers to the top of the pedestal, or for other system requirements.

(S8357 handout/Commission)

**PRIVATE GARAGE.** A building or portion of a building in which motor vehicles used by the owner or tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

(F7524)/(I-Code)

**SOFT CONTAINED PLAY EQUIPMENT STRUCTURE:** A children's play structure containing one or more components where the user enters a play environment that utilizes pliable materials.

(F7526)/(I – Code)

**OPEN-AIR ASSEMBLY SEATING.** Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure and is open to the atmosphere.

(F7769)/(I-Code)

**SMOKE-PROTECTED ASSEMBLY SEATING.** Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure for a specified design time by means of passive design or by mechanical ventilation.

(F7770) )/(I-Code)

**LOW-ENERGY POWER-OPERATED DOOR.** Swinging, sliding, or folding door which opens automatically upon an action by a pedestrian such as pressing a push plate or waving a hand in front of a sensor. The door closes automatically, and operates with decreased forces and decreased speeds (see “Power-assisted door” and “Power-operated door”).

(F7763) )/(I-Code)

**COMMON PATH OF EGRESS TRAVEL.** That portion of ~~the~~ *exit access* travel distance measured from the most remote point ~~within a story~~ of each room, area or space to that point where the occupants have separate and distinct access to two *exits* or *exit access doorways*.

(F8349/F8005) )/(I-Code)

**[BS] LOWEST FLOOR.** The lowest floor of the lowest enclosed area, including *basement*, but excluding any unfinished or floodresistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612.

(G12-16)

**COMBINED PILE RAFT.** A geotechnical composite construction that combines the bearing effect of both foundation elements, raft and piles, by taking into account interactions between the foundation elements and the subsoil.

(S7409) )/(I-Code)

**CONVENTIONAL LIGHT-FRAME CONSTRUCTION.**

~~A type of construction~~ Construction whose primary structural elements are formed by a system of repetitive wood-framing members. See Section 2308 for conventional light-frame construction provisions. (I-Code)

**LIGHT-FRAME CONSTRUCTION.** ~~A type of construction~~ Construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or cold-formed steel framing members.

(S7841) )/(G2-16)

**~~202 [F] CONTINUOUS GAS DETECTION SYSTEM.~~** ~~A gas detection system where the analytical instrument is maintained in continuous operation and sampling is performed without interruption. Analysis is allowed to be performed on a cyclical basis at intervals not to exceed 30 minutes.~~

**[F] GAS DETECTION SYSTEM.** A system or portion of a combination system that utilizes one or more stationary sensors to detect the presence of a specified gas at a specified concentration and initiate one or more responses required by this code, such as notifying a responsible *person*, activating an alarm signal, or activating or deactivating equipment. A self-contained gas detection and alarm device is not classified as a gas detection system.

(F75-16 AMPC1)

**[BS] LOWEST FLOOR.** The lowest floor of the lowest enclosed area, including *basement*, but excluding any unfinished or floodresistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612.

(G12-16)

**[BS] LOWEST FLOOR.** The lowest floor of the lowest enclosed area, including *basement*, but excluding any unfinished or flood resistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612.

(G12-16)

**~~[A] CHANGE OF OCCUPANCY~~**~~. A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code.~~

**CHANGE OF OCCUPANCY.**A change in the use of a building or a portion of a building which results in:

 1.     A change of occupancy classification,

2.     A change from one group to another group within an occupancy classification, or

Anychange in use within a group for which there is a change in the application of the requirements of thiscode.

(F7689) )/(I-Code)

**~~202 [F] CONTINUOUS GAS DETECTION SYSTEM.~~** ~~A gas detection system where the analytical instrument is maintained in continuous operation and sampling is performed without interruption. Analysis is allowed to be performed on a cyclical basis at intervals not to exceed 30 minutes.~~

**[F] GAS DETECTION SYSTEM.** A system or portion of a combination system that utilizes one or more stationary sensors to detect the presence of a specified gas at a specified concentration and initiate one or more responses required by this code, such as notifying a responsible *person*, activating an alarm signal, or activating or deactivating equipment. A self-contained gas detection and alarm device is not classified as a gas detection system.

**[F] HPM.** See "Hazardous Production Material."

(F75-16 AMPC1)

**PLASTIC COMPOSITE.**A generic designation that refers to wood/-plastic composites, and plastic lumber, and similar materials.

(S8238) )/(I-Code)

**[BS] SUBSTANTIAL STRUCTURAL DAMAGE.**A condition where one or both of the following apply:

1. The vertical elements of the lateral force resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its pre-damage condition.

2. The capacity of any vertical component carrying gravity load, or any group of such components, that ~~supports~~ has a tributary area more than 30 percent of the total area of the structure's floors and roofs has been reduced more than 20 percent from its pre-damage condition and the remaining capacity of such affected elements,with respect to all dead and live loads,is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

(S7513)

**VEGETATIVE ROOF.**An assembly of interacting components designed to waterproof~~and normally~~ ~~insulate~~ a building's top surface that includes, by design, vegetation and related landscape elements.

(S8264) )/(G22-16)

**WIND-BORNE DEBRIS REGION.** Areas within hurricane- prone regions located:

1. Within 1 mile (1.61 km) of the coastal mean high water line where the ultimate design wind speed, Vult, is 130 mph (58 m/s) or greater; or

2. In areas where the ultimate design wind speed, Vult, is 140 mph (63.6 m/s) or greater.

For Risk Category II buildings and other structures and Risk Category III buildings and other structures, except health care facilities, the wind-borne debris region shall be based on Figure 1609.3.(1). For ~~Risk Category IV buildings and structures and~~ Risk Category III health care facilities, the windborne debris region shall be based on Figure 1609.3(2).  For Risk Category IV buildings and other structures, the wind-borne debris region shall be based on Figure 1609.3(3).

(S7233)

**CONVENTIONAL LIGHT-FRAME CONSTRUCTION.**

~~A type of construction~~ Construction whose primary structural elements are formed by a system of repetitive wood-framing members. See Section 2308 for conventional light-frame construction provisions.

**LIGHT-FRAME CONSTRUCTION.** ~~A type of construction~~ Construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or cold-formed steel framing members.

(S7841)/(G2-16)

**Delayed action closers.** Self-closing device that incorporates a delay prior to the initiation of closing. Delayed action closers are mechanical devices with an adjustable delay.

(F8226)/(I-Code)

**FENESTRATION.** ~~Skylights~~ Products classified as either vertical fenestration or skylights and sloped glazing, installed in such a manner as to preserve the weather resistant barrier of the wall

or roof ~~windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block and~~ ~~combination opaque/glazed doors~~ in which they are installed. Fenestration includes products with glass ~~and nonglass glazing~~ or other transparent or translucent materials.

**FENESTRATION, VERTICAL.** Windows that are fixed or movable, opaque doors, glazed doors, glazed block and combination opaque and glazed doors installed in a wall at less than 15 degrees from vertical.

(S7520 G1+G2)/(I-Code)

**VAPOR PERMEABLE ~~MEMBRANE~~.** The property of having a moisture vapor permeance rating of 5 perms (2.9 × 1010 kg/Pa x s x m2) or greater ~~,~~  when tested in accordance with ~~the desiccant method~~ using Procedure A or Procedure B of ASTM E96. A vapor permeable material permits the passage of moisture vapor.

(S7606 A1 Only)

**Chapter 3 USE AND OCCUPANCY CLASSIFICATION**

Revise as follows:

**~~GENERAL~~SCOPE**

**301.1 ~~Scope.~~General.** The provisions of this chapter shall control the classification of all buildings and structures as to ~~use~~ occupancy and use.  Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants and adjacent properties.

(F7464 G1)/(I – Code)

**SECTION 302**

**OCCUPANCY CLASSIFICATION AND USE DESIGNATION**

**302.1 Occupancy classification.  ~~General.~~** ~~Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section.~~ Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof. Structures shall be classified into one or more of the occupancy groups listed in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure. An area, ~~A~~ room or space that is intended to be occupied at different times for different purposes shall comply with all ~~of the~~ applicable requirements ~~that are applicable to each of the purposes for which the room or space will be occupied~~ associated with such potential multi-purpose. Structures ~~with~~ containing multiple occupancy groups ~~occupancies or uses~~ shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically ~~provided for in this code~~ listed in this section such structure shall be classified in the ~~group that the~~ occupancy most nearly resembles, ~~according to~~ based on the fire safety and relative hazard ~~involved~~. Occupied roofs shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved and shall comply with Section 503.1.4.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 andA-5.

2. Business (see Section 304): Group B.

3. Educational (see Section 305): Group E.

4. Factory and industrial (see Section 306): Groups F-1 and F-2.

5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.

6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.

7. Mercantile (see Section 309): Group M.

8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.

9. Storage (see Section 311): Groups S-1 and S-2.

10. Utility and Miscellaneous (see Section 312): Group U.

**302.2 Use designation.** Occupancy groups contain subordinate uses having similar hazards and risks to building occupants. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in ~~this~~ section302.1. Certain uses require specific limitations and controls in accordance with the provisions of Chapter 4 and elsewhere in this code.

(F7464 G1/F8173/F7133)/(I-Code)/(G24-15)

**307.1.1 Uses other than Group H.** An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1.     Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *Florida Fire Prevention Code*.

2.     Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *Florida Fire Prevention Code*.

3.     Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.

4.     Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* constructed in accordance with Section 707 or 1hour *horizontal assemblies* constructed in accordance with Section 711, or both.

5.     Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).

6.     Liquor stores and distributors without bulk storage.

7.     Refrigeration systems.

8.     The storage or utilization of materials for agricultural purposes on the premises.

9.     Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and *ventilation* is provided in accordance with the *Florida Building Code, Mechanical*.

10. Corrosive personal or household products in their original packaging used in retail display.

11. Commonly used corrosive building materials.

12. Buildings and structures occupied for aerosol product storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *Florida Fire Prevention Code*.

13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.

14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *Florida Fire Prevention Code*.

15. Mercantile occupancies offering for retail sale sparklers, novelties and trick noisemakers as defined at Section 791.01, *Florida Statutes*, and that are not defined as fireworks by Chapter 791, *Florida Statutes*. Storage of sparklers and other novelties or trick noisemakers as defined in Chapter 791, *Florida Statutes*, within mercantile occupancies shall be in accordance with Section 791.055, *Florida Statutes*.

**[F] 307.2 Definitions.** The following terms are defined in Chapter 2:

**AEROSOL PRODUCT**

**Level 1 aerosol products.**

**Level 2 aerosol products.**

**Level 3 aerosol products.**

**AEROSOL CONTAINER.**

**BALED COTTON.**

**BALED COTTON, DENSELY PACKED.**

**BARRICADE.**

**Artificial barricade.**

**Natural barricade.**

**BOILING POINT.**

**CLOSED SYSTEM.**

**COMBUSTIBLE DUST.**

**COMBUSTIBLE FIBERS.**

**COMBUSTIBLE LIQUID.**

**Class II.**

**Class IIIA.**

**Class IIIB.**

**COMPRESSED GAS.**

**CONTROL AREA.**

**CORROSIVE.**

**CRYOGENIC FLUID.**

**DAY BOX.**

**DEFLAGRATION.**

**DETONATION.**

**DISPENSING.**

**EXPLOSION.**

**EXPLOSIVE.**

**High explosive.**

**Low explosive.**

**Mass-detonating explosives.**

**UN/DOTn Class 1 explosives.**

**Division 1.1.**

**Division 1.2.**

**Division 1.3.**

**Division 1.4.**

**Division 1.5.**

**Division 1.6.**

**FIREWORKS.**

**Fireworks, 1.3G.**

**Fireworks, 1.4G.**

**FLAMMABLE GAS.**

**FLAMMABLE LIQUEFIED GAS.**

**FLAMMABLE LIQUID.**

**Class IA.**

**Class IB.**

**Class IC.**

**FLAMMABLE MATERIAL.**

**FLAMMABLE SOLID.**

**FLASH POINT.**

**HANDLING.**

**HAZARDOUS MATERIALS.**

**HEALTH HAZARD.**

**HIGHLY TOXIC.**

**INCOMPATIBLE MATERIALS.**

**INERT GAS.**

**OPEN SYSTEM.**

**OPERATING BUILDING.**

**ORGANIC PEROXIDE.**

**Class I.**

**Class II.**

**Class III.**

**Class IV.**

**Class V.**

**Unclassified detonable.**

**OXIDIZER.**

**Class 4.**

**Class 3.**

**Class 2.**

**Class 1.**

**OXIDIZING GAS.**

**PHYSICAL HAZARD.**

**PYROPHORIC.**

**PYROTECHNIC COMPOSITION.**

**TOXIC.**

**UNSTABLE (REACTIVE) MATERIAL.**

**Class 4.**

**Class 3.**

**Class 2.**

**Class 1.**

**WATER-REACTIVE MATERIAL.**

**Class 3.**

**Class 2.**

**Class 1.**

(F7473)/(I-Code)

[F] 307.1.1 Uses other than Group H. An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the Florida Fire Prevention Code.

2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the Florida Fire Prevention Code.

3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.

4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment listed by an approved testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour fire barriers constructed in accordance with Section 707 or 1-hour horizontal assemblies constructed in accordance with Section 711, or both.

5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).

6. Liquor stores and distributors without bulk storage.

7. Refrigeration systems.

8. The storage or utilization of materials for agricultural purposes on the premises.

9. Stationary storage battery systems installed in accordance with the Florida Fire Prevention Code.

~~9. Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with the Florida Building Code, Mechanical.~~

10. Corrosive personal or household products in their original packaging used in retail display.

11. Commonly used corrosive building materials

12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the Florida Fire Prevention Code.

13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per control area in Group M or S occupancies complying with Section 414.2.5.

14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the Florida Fire Prevention Code.

15. Mercantile occupancies offering for retail sale sparklers, novelties and trick noisemakers as defined at Section 791.01, Florida Statutes, and that are not defined as fireworks by Chapter 791, Florida Statutes. Storage of sparklers and other novelties or trick noisemakers as defined in Chapter 791, Florida Statutes, within mercantile occupancies shall be in accordance with Section 791.055, Florida Statutes.

16. Stationary fuel cell power systems installed in accordance with the Florida Fire Prevention Code.

17. Capacitor energy storage systems in accordance with the Florida Fire Prevention Code.

(F7372)/(I-Code)

**310.4 Residential Group R-2.**

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

Apartment houses

*Boarding houses* (nontransient) ~~with more than 16 occupants~~

*Congregate living facilities* (nontransient) with more than 16 occupants

Convents

*Dormitories*

Fraternities and sororities

Hotels (nontransient)

*Live/work units*

Monasteries

Motels (nontransient)

Vacation timeshare properties

(F7557)/(I-Code)

**310.5 Residential Group R-3.**

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

Buildings that do not contain more than two *dwelling units*

*Boarding houses* (nontransient) with 16 or fewer occupants

*Boarding houses* (*transient*) with 10 or fewer occupants

Care facilities that provide accommodations for five or fewer persons receiving care

*Congregate living facilities* (nontransient) with 16 or fewer occupants

*Congregate living facilities* (*transient*) with 10 or fewer occupants

*Owner occupied Lodging houses* with five or fewer *guest rooms and 10 or fewer occupants*

(F7559)

**310.5.2 Lodging houses.**

Owner-occupied *lodging houses* with five or fewer *guest rooms* and 10 or fewer occupants shall be permitted to be constructed in accordance with the *Florida Building Code, Residential*.

(F7560) /(I – Code)

**311.1.1 Accessory storage spaces.** A room or space used for storage purposes that is ~~less than 100 square feet (9.3 m2) in area and~~ accessory to another occupancy shall be classified as part of that occupancy. ~~The aggregate area of such rooms or spaces shall not exceed the allowable area limits of Section 508.2.~~

(F7561) /(I – Code)

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

~~Aerosols~~ Aerosol products, Levels 2 and 3

Aircraft hangar (storage and repair)

Bags: cloth, burlap and paper

Bamboos and rattan

Baskets

Belting: canvas and leather

Books and paper in rolls or packs

Boots and shoes

Buttons, including cloth covered, pearl or bone

Cardboard and cardboard boxes

Clothing, woolen wearing apparel

Cordage

Dry boat storage (indoor)

Furniture

Furs

Glues, mucilage, pastes and size Grains

Horns and combs, other than celluloid Leather

Linoleum Lumber

Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.8)

Photo engravings

Resilient flooring

Silks

Soaps Sugar

Tires, bulk storage of

Tobacco, cigars, cigarettes and snuff Upholstery and mattresses

Wax candles

(F7474)/(F363-16)

**312.1 General.** Buildings and structures of an accessory character and miscellaneous structures 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:

Agricultural buildings

Aircraft hangars, accessory to a one or two-family residence (see Section 412.5)

Barns

Carports

Communication equipment structures with a *gross floor area* of less than 1,500 square feet Fences more than 6 feet (1829 mm) in height

Grain silos, accessory to a residential occupancy

Greenhouses

Livestock shelters

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

(F7564) /(I – Code)

**Chapter 4 SPECIAL DETAILED REQUIREMENTS BASED**

**ON USE AND OCCUPANCY**

Revise as follows:

**CHAPTER 4**

**SPECIAL DETAILED REQUIREMENTS BASED ON ~~USE~~ OCCUPANCY AND ~~OCCUPANCY~~ USE**

**401.1 Detailed ~~use~~ occupancy and ~~occupancy~~ use requirements.** In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the ~~special uses~~ occupancies and ~~occupancies~~ uses described herein.

 (F7562) /(I – Code)

**402.8.6.1 Exit passageways.** Where *exit passageways* provide a secondary *means of egress* from a tenant space~~, doorways to~~ the *~~exit passageway~~* exit passageways shall be ~~protected by 1-hour~~ *~~fire door assemblies~~* ~~that are self- or automatic-closing by smoke detection~~ constructed in accordance with Section ~~716.5.9.3~~1024.

(F7565/F74-15)

**[F] 403.4.8.3 Standby power loads.** The following are classified as standby power loads:

1. ~~Power and lighting for the~~ *~~fire command center~~* ~~required by Section 403.4.6.~~

2. *Ventilation* and automatic fire detection equipment for *smokeproof enclosures*.

3. Elevators.

4. Where elevators are provided in a *high-rise building* for *accessible means of egress*, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1009.4, 3007 or 3008, as applicable.

**[F] 403.4.8.4 Emergency power loads.** The following are classified as emergency power loads:

1. Exit signs and *means of egress* illumination required by Chapter 10.

2. Elevator car lighting.

3. *Emergency voice/alarm communications systems*.

4. Automatic fire detection systems.

5. *Fire alarm* systems.

6. Electrically powered fire pumps.

7. Power and lighting for the *fire command center* required by Section 403.4.6.

(G27-16)

**405.4.2 Smoke barrier penetration.** The compartments shall be separated from each other by a *smoke barrier* in accordance with Section 709. Penetrations between the two compartments shall be limited to plumbing and electrical piping and conduit that are firestopped in accordance with Section 714. Doorways shall be protected by *fire door assemblies that comply with Section 716 and shall be* ~~that are~~ automatic- closing by smoke detection in accordance with Section 716.5.9.3 and are installed in accordance with NFPA 105 and Section 716.5.3. Where provided, each compartment shall have an air supply and an exhaust system independent of the other compartments.

**405.4.3 Elevators.** Where elevators are provided, each compartment shall have direct access to an elevator. Where an elevator serves more than one compartment, an elevator lobby shall be provided and shall be separated from each compartment by a s*moke barrier* in accordance with Section 709. ~~Doors~~ Doorways in the smoke barrier shall be ~~gasketed~~ protected by fire door assemblies that comply with Section 716, ~~have a drop sill~~ shall comply with the smoke and draft control assembly requirements of Section 716.5.3 with the UL 1784 test conducted without an artificial bottom seal, and shall be automatic- closing by smoke detection in accordance with Section 716.5.9.3.

(F74-15)

[F**] 405.8 Standby and emergency power.** A standby power system complying with Section 2702 shall be provided for the standby power loads specified in Section 405.8.1. An emergency power system complying with Section 2702 shall be provided for the emergency power loads specified in Section 405.8.2.

[F] 405.8.1 Standby power loads. The following loads are classified as standby power loads:

1. Smoke control system.

2. Ventilation and automatic fire detection equipment for smokeproof enclosures.

~~3. Fire pumps.~~

~~4.~~ 3. Elevators, as required in Section 3003.

**[F] 405.8.2 Emergency power loads.** The following loads are classified as emergency power loads:

1. Emergency voice/alarm communications systems.

2. Fire alarm systems.

3. Automatic fire detection systems.

4. Elevator car lighting.

5. Means of egress and exit sign illumination as required by Chapter 10.

6. Fire pumps.

(F7368) /(I – Code)

**406.1 General.** ~~Motor-vehicle-related~~ All motor-vehicle-related occupancies shall comply with Section 406.1. Private garages and carports shall also comply with Section 406.3. Open public parking garages shall also comply with Sections ~~406.1 through~~ 406.4 and 406.5. Enclosed public parking garages shall also comply with Sections 406.4 and 406.6. Motor fuel-dispensing facilities shall also comply with Section 406.7. Repair garages shall also comply with Section 406.8.

406.1.1 **Automatic garage door openers and vehicular gates.** Where provided, automatic garage door openers shall be listed and labeled in accordance with UL 325. Where provided, automatic vehicular gates shall comply with Section 3110.

406.1.2 **Clear height** The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Canopies under which fuels are dispensed shall have a clear height in accordance with Section 406.7.2.

**Exception:** A lower clear height is permitted for a parking tier in mechanical-access open parking garages where approved by the building official.

406.1.3 **Accessible parking spaces.** Where parking is provided, accessible parking spaces shall be provided in accordance with Section 1106.

406.1.4 **Floor surfaces.** Floor surfaces shall be of concrete or similar approved noncombustible and nonabsorbent materials. The area of floor used for the parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. The surface of vehicle fueling pads in motor fuel-dispensing facilities shall be in accordance with Section 406.7.1.

**Exceptions:**

1. Asphalt parking surfaces shall be permitted at ground level for public parking garages and private carports.

2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.

3. Slip-resistant, nonabsorbent, interior floor finishes having a critical radiant flux not more than 0.45 W/cm2, as determined by NFPA 253, shall be permitted in repair garages.

406.1.5 **Sleeping rooms.** Openings between a motor vehicle-related occupancy and a room used for sleeping purposes shall not be permitted.

406.1.6 **Fuel dispensing.** The dispensing of fuel shall only be permitted in motor fuel dispensing facilities in accordance with Section 406.7.

406.1.7 **Electric vehicle charging stations.** Electric vehicle charging stations shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594. Accessibility to electric vehicle charging stations shall be provided in accordance with Chapter 11.

406.1.8 **Mixed occupancies and separation.** Mixed uses shall be allowed in the same building as public parking garages and repair garages in accordance with 508.1. Mixed uses in the same building as an open parking garage are subject to Sections 402.4.2.3, 406.5.11, 508.1, 510.3, 510.4 and 510.7.

406.1.9 **Equipment and appliances.** Equipment and appliances shall be installed in accordance with Sections 406.1.9.1 through 406.1.9.3 and the *International Mechanical Code, International Fuel Gas Cod*e and NFPA 70.

406.1.9.1 **Elevation of ignition sources.** Equipment and appliances having an ignition source and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the equipment or appliance rests. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

**406.1.9.1.1 Parking garages.** Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation, except that a single door is permitted where the sources of ignition in the appliance are elevated in accordance with Section 406.1.9.

**Exception:** This section shall not apply to appliance installations complying with Sections 406.1.9.2 or 406.1.9.3.

406.1.9.2 **Public garages.** Appliances located in public garages, motor fueling-dispensing facilities, repair garages or other areas frequented by motor vehicles, shall be installed not less than 8 feet (2438 mm) above the floor. Where motor vehicles are capable of passing under an appliance, the appliance shall be installed at the clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.

**Exception:** The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 406.1.9.1 and NFPA 30A.

406.1.9.3 **Private garages.** Appliances located in private garages and carports shall be installed with a minimum clearance of 6 feet (1829 mm) above the floor.

**Exception:** The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 406.1.9.1.

**406.3 Private garages and carports.** Private garages and carports shall comply with Sections ~~406.3.1 through 406.3.6.~~406.1 and 406.3.

**406.3.1 Classification.** Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than 1,000 square feet (93 m2) in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-

hour *fire barriers* in accordance with Section 707, or 1-hour *horizontal assemblies* in accordance with Section 711, or both.

***Delete without substitution:***

**406.3.2 ~~Clear height.~~** ~~In private garages and carports, the clear height in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van- accessible parking shall comply with Section 1106.5.~~

**~~406.3.4~~ 406.3.2 Separation.** For other than private garages adjacent to dwelling units, the separation of private garages from other occupancies shall comply with Section 508. Separation of private garages from *dwelling units* shall comply with Sections ~~406.3.4.1 through 406.3.4.3.~~ 406.3.2.1 and 406.3.2.2.

**~~406.3.4.1~~ 406.3.2.1 Dwelling unit separation.** The private garage shall be separated from the *dwelling unit* and its *attic* area by means of gypsum board, not less than 1 /2 inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5 /8- inch (15.9 mm) Type X gypsum board or equivalent and 1 /2-inch (12.7 mm) gypsum board applied to structures supporting the separation from habitable rooms above the garage. Door openings between a private garage and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 13 /8 inches (34.9 mm) in thickness, or doors in compliance with Section 716.5.3 with a fire protection rating of not less than 20 minutes. Doors shall

be *self-closing* and self-latching.

**~~406.3.4.3~~ 406.3.2.2 Ducts.** Ducts in a private garage and ducts penetrating the walls or ceilings separating the *dwelling unit* from the garage, including its *attic* area, shall be constructed of sheet steel of not less than 0.019 inch (0.48 mm) in thickness and shall have no openings into the garage.

**~~406.3.5~~ 406.3.3 Carports.** Carports shall be open on at least two sides. ~~Carport floor surfaces shall be of an approved noncombustible material.~~ Carports not open on at least two sides shall be considered a garage and shall comply with the requirements for private garages.

**Exception:**~~Asphalt surfaces shall be permitted at ground level in carports.~~

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

***Delete without substitution:***

**~~406.3.3 Garage floor surfaces.~~** ~~Garage floor surfaces shall be of approved noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

**~~406.3.5.1~~ 406.3.3.1 Carport separation.** *No change to text.*

***Delete without substitution:***

**~~406.3.4.2 Openings prohibited.~~** ~~Openings from a private garage directly into a room used for sleeping purposes shall not be permitted.~~

**~~406.3.6 Automatic garage door openers.~~** ~~Automatic garage door openers, where provided, shall be listed in accordance with UL 325.~~

**406.4 Public parking garages.** Parking garages, other than *private garages*, shall be classified as public parking garages and shall comply with the provisions of ~~Sections 406.4.2 through 406.4.8~~ Section 406.1,

Section 406.4 and shall be classified as either an *open parking garage* or an enclosed parking

garage. *Open parking garages* shall also comply with Section 406.5. Enclosed parking garages shall also comply with Section 406.6. See Section 510 for special provisions for parking garages.

***Delete without substitution:***

**406.4.1 ~~Clear height.~~** ~~The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.~~

**~~406.4.2~~ 406.4.1 Guards.** Guards shall be provided in accordance with Section 1015. Guards serving as *vehicle barriers* shall comply with Sections ~~406.4.3~~ 406.4.2 and 1015.

**~~406.4.3~~ 406.4.2 Vehicle barriers.** *Vehicle barriers* not less than 2 feet 9 inches (835 mm) in height shall be placed where the vertical distance from the floor of a drive lane or parking space to the ground or surface directly below is greater than 1 foot (305 mm). *Vehicle barriers* shall comply with the loading requirements of Section 1607.8.3.

**Exception:** *Vehicle barriers* are not required in vehicle storage compartments in a mechanical access parking garage.

**~~406.4.4~~ 406.4.3 Ramps.** Vehicle ramps shall not be considered as required *exits* unless pedestrian facilities are provided. Vehicle ramps that are utilized for vertical circulation as well as for parking shall not exceed a slope of 1:15 (6.67 percent).

**Delete without substitution:**

**406.4.5 ~~Floor surface.~~** ~~Parking surfaces shall be of concrete or similar noncombustible and nonabsorbent materials.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the~~ ~~movement of liquids to a drain or toward the main vehicle entry doorway.~~

**~~Exceptions:~~**

~~1. Asphalt parking surfaces shall be permitted at ground level.~~

~~2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.~~

**406.4.6 ~~Mixed occupancy separation.~~** ~~Parking garages shall be separated from other occupancies in accordance with Section 508.1.~~

**406.4.7 ~~Special hazards.~~** ~~Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation.~~

**~~Exception:~~** ~~A single door shall be allowed provided the sources of ignition in the appliance are not~~ ~~less than 18 inches (457 mm) above the floor.~~

**406.4.8 ~~Attached to rooms.~~** ~~Openings from a parking garage directly into a room used for sleeping purposes shall not be permitted.~~

**406.5 Open parking garages.** *Open parking garages* shall comply with Sections ~~406.5.1 through 406.5.11.~~ 406.1, 406.4 and 406.5.

**406.5.4.1 Single use.** Where the *open parking garage* is used exclusively for the parking or storage of private motor vehicles, with no other uses in the building, the area and height shall be permitted to comply with Table 406.5.4, along with increases allowed by Section 406.5.5.

**Exception:** The grade-level tier is permitted to contain an office, waiting and toilet rooms having a total combined area of not more than 1,000 square feet (93 m2). Such area need not be separated from the *open parking garage*.

In *open parking garages* having a spiral or sloping floor, the horizontal projection of the structure at any cross section shall not exceed the allowable area per parking tier. In the case of an *open parking*

*garage* having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of height, or portion thereof, shall be considered a tier.

The clear height of a parking tier shall be not less than 7 feet (2134 mm), except that a lower clear height is permitted in mechanical-access ~~open parking garages where approved by the building official.~~

**406.6 Enclosed parking garages.** Enclosed parking garages shall comply with Sections ~~406.6.1 through 406.6.3.~~ 406.1, 406.4 and 406.6.

**406.7 Motor fuel-dispensing facilities.** Motor fuel-dispensing facilities shall comply with the *International Fire Code* and Sections ~~406.7.1~~ 406.1 and ~~406.7.2~~ 406.7.

**406.8 Repair garages.** Repair garages shall be constructed in accordance with the *International Fire Code* and Sections ~~406.8.1 through 406.8.6~~ 406.1 and 406.8. This occupancy shall not include motor fuel-dispensing facilities, as regulated in Section 406.7.

***Delete without substitution:***

~~406.8.1~~ **~~Mixed uses.~~** ~~Mixed uses shall be allowed in the same building as a repair garage subject to the provisions of Section 508.1.~~

~~406.8.2~~ **406.8.1 Ventilation.** Repair garages shall be mechanically ventilated in accordance with the *International Mechanical Code*. The *ventilation* system shall be controlled at the entrance to the garage.

***Delete without substitution:***

~~406.8.3~~ **~~Floor surface.~~** ~~Repair garage floors shall be of concrete or similar noncombustible and nonabsorbent materials.~~

**~~Exception:~~** ~~Slip-resistant, nonabsorbent, interior floor finishes having a critical radiant flux not more~~ ~~than 0.45 W/cm~~~~2~~~~, as determined by NFPA 253, shall be permitted.~~

~~406.8.4~~ **~~Heating equipment.~~** ~~Heating equipment shall be installed in accordance with the International Mechanical Code.~~

**406.1.7 Electric vehicle charging stations.** ~~Electric~~ Where provided, electric vehicle charging stations shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594. Accessibility to electric vehicle charging stations shall be provided in accordance with Chapter 11.

(G95-15 AM)

**406.7.2 Canopies**

Canopies under which fuels are dispensed shall have a clear, unobstructed height of not less than 13 feet 6 inches (4115 mm) to the lowest projecting element in the vehicle drive-through area. Canopies and their supports over pumps shall be of noncombustible materials, *fire-retardant-treated wood* complying with Chapter 23, ~~wood of Type IV sizes~~ heavy timber complying with Section 2304.11 or of construction providing 1-hour *fire resistance*. Combustible materials used in or on a *canopy* shall comply with one of the following:

1.Shielded from the pumps by a noncombustible element of the *canopy*, or ~~wood of Type IV sizes~~ heavy timber complying with Section 2304.11;

2.Plastics covered by aluminum facing having a thickness of not less than 0.010 inch (0.30 mm) or corrosion-resistant steel having a base metal thickness of not less than 0.016 inch (0.41 mm). The plastic shall have a *flame spread index* of 25 or less and a smoke developed index of 450 or less when tested in the form intended for use in accordance with ASTM E84 or UL 723 and a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929; or

3.Panels constructed of light-transmitting plastic materials shall be permitted to be installed in *canopies* erected over motor vehicle fuel-dispensing station fuel dispensers, provided the panels are located not less than 10 feet (3048 mm) from any building on the same *lot* and face *yards* or streets not less than 40 feet (12 192 mm) in width on the other sides. The aggregate areas of plastics shall be not greater than 1,000 square feet (93 m2). The maximum area of any individual panel shall be not greater than 100 square feet (9.3 m2).

(F7826)/(I – Code)

**406.8.3 Floor surface.**

Repair garage floors shall be of concrete or similar noncombustible and nonabsorbent materials.

**Exception:** Slip-resistant, nonabsorbent, *interior floor finishes* having a critical radiant flux not more than 0.45 W/cm2, as determined by ASTM E648 or NFPA 253, shall be permitted.

(F7511)

**[F] 406.8.5 Gas detection system.** Repair garages used for ~~the~~ repair of vehicles fueled by nonodorized gases ~~such as~~, including but not limited to hydrogen and nonodorized LNG, shall be provided with a ~~flammable~~ gas detection system that complies with Section 916. The gas detection system shall be designed to detect leakage of nonodorized gaseous fuel. Where lubrication or chassis service pits are provided in garages used for repairing nonodorized LNG-fueled vehicles, gas sensors shall be provided in such pits.

**[F] ~~406.8.5.2~~ 406.8.5.1 ~~Operation~~ System activation.** Activation of ~~the~~ a gas detection ~~system~~ alarm shall result in all of the following:

~~1.Initiation of distinct audible and visual alarm signals in the repair garage.~~

1. Initiation of local audible and visible alarms in approved locations.

~~2.~~Deactivation of ~~all~~ heating systems located in the repair garage.

~~3.~~Activation of the mechanical ~~ventilation~~ ventilation system, where the ventilation system is interlocked with gas detection.

**[F] ~~406.8.5.3~~ 406.8.5.2 Failure of the gas detection system.** Failure of the *gas detection system* shall ~~result in the deactivation of~~ automatically deactivate the heating system, ~~activation of~~ activate the mechanical ventilation system where the system is interlocked with the *gas detection system*, and cause a trouble signal to sound ~~in~~ at an approved location.

**Delete without substitution:**

**~~[F] 406.8.5.1 System design.~~** ~~The flammable gas detection system shall be listed or approved and shall be calibrated to the types of fuels or gases used by vehicles to be repaired. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection shall be provided in lubrication or chassis service pits of repair garages used for repairing nonodorized LNG-fueled vehicles.~~

**~~[F] 406.8.5.1.1 Gas detection system components.~~** ~~Gas detection system control units shall~~

~~be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in~~ ~~accordance with UL 2075 for use with the gases and vapors being detected.~~

(F75-16 AMPC1)

**407.3.1 Corridor doors.** *Corridor* doors, other than those in a wall required to be rated by Section 509.4 or for the enclosure of a vertical opening or an *exit*, shall not have a required *fire protection rating* and shall not be required to be equipped with *self-closing* or automatic-closing devices, but shall provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching. Roller latches are not permitted. Other doors shall conform to Section ~~716.5~~ 716.

**408.3.8 Interior exit stairway and ramp construction.** One *interior exit stairway* or *ramp* in each building shall be permitted to have glazing installed in doors and interior walls at each landing level providing access to the *interior exit stairway or ramp*, provided that the following conditions are met:

1. The *interior exit stairway or ramp* shall not serve more than four floor levels.

*2. Exit* doors shall be not less than 3 /4 -hour *fire door assemblies* complying with Section ~~716.5~~716

3. The total area of glazing at each floor level shall not exceed 5,000 square inches (3.2 m2) and individual panels of glazing shall not exceed 1,296 square inches (0.84 m2).

4. The glazing shall be protected on both sides by an *automatic sprinkler system*. The sprinkler system shall be designed to wet completely the entire surface of any glazing affected by fire when actuated.

5.The glazing shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler system operates.

6. Obstructions, such as curtain rods, drapery traverse rods, curtains, drapes or similar materials shall not be installed between the automatic sprinklers and the glazing.

**410.3.5 Proscenium curtain.** Where a proscenium wall is required to have a *fire-resistance rating*,

the *stage* opening shall be provided with a fire curtain complying with NFPA 80, horizontal sliding doors complying with Section ~~716.5.2~~716 having a fire protection rating of at least 1 hour, or an *approved* water curtain complying with Section 903.3.1.1 or, in facilities not utilizing the provisions of smoke-protected assembly seating in accordance with Section 1029.6.2, a smoke control system complying with Section 909 or natural *ventilation* designed to maintain the smoke level not less than 6 feet (1829 mm) above the floor of the *means of egress*.

(F74-15)

**412.3 Airport traffic control towers.** The provisions of Sections 412.3.1 through 412.3.8 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.

2. Electrical and mechanical equipment rooms.

3. Airport terminal radar and electronics rooms.

4. Office spaces incidental to the tower operation.

5. Lounges for employees, including sanitary facilities.

**Add new text as follows:**

**412.3.1 Construction.** The construction of airport traffic control towers shall comply with the provisions of Sections 412.3.1.1 through 412.3.1.3.

**Revise as follows:**

~~412.3.1~~ **412.3.1.1 Type of construction.** Airport traffic control towers shall be constructed to comply with the height limitations of Table ~~412.3.1~~ 412.3.1.1.

**TABLE ~~412.3.1~~ 412.3.1.1**

**HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS**

|  |  |
| --- | --- |
| **TYPE OF CONSTRUCTION** | **HEIGHT**a **(feet)** |
| IA | Unlimited |
| IB | 240 |
| IIA | 100 |
| IIB | 85 |
| IIIA | 65 |

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m2.

a. Height to be measured from grade plane to cab floor.

**Add new text as follows:**

**412.3.1.2 Structural integrity of interior exit stairways and elevator hoistway**

**enclosures.** Enclosures for interior exit stairways and elevator hoistway enclosures shall comply with Section 403.2.3.

412.3.1.3 **Sprayed fire-resistant materials (SFRM).** The bond strength of the SFRM installed in airport traffic control towers shall be in accordance with Section 403.2.~~412.3.2~~ **Means of egress and evacuation.** The means of egress in airport traffic control towers shall comply with Sections 412.3.2.1 through 412.3.2.3.

**Revise as follows:**

~~412.3.2~~ **412.3.2.1 Stairways.** Stairways in airport traffic control towers shall be in accordance with Section 1011. ~~Stairways~~ Exit stairways shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20.

**Exception:** Stairways in airport traffic control towers are not required to comply with Section 1011.12.

*~~412.3.3~~* **412.3.2.2 Exit access.** *No change to text.*

*~~412.3.4~~* **412.3.2.3 Number of exits.** *No change to text.*

**~~412.3.4.1~~ 412.3.2.3.1 Interior finish.** *No change to text.*

**Add new text as follows:**

412.3.3 **Emergency Systems.** The detection, alarm and emergency systems of airport traffic control towers shall comply with Sections 412.3.3.1 through 412.3.3.3.

**[F] ~~412.3.5~~ 412.3.3.1 Automatic ~~fire~~ smoke detection systems.** Airport traffic control towers shall be provided with an automatic ~~fire~~ smoke detection system installed in accordance with Section ~~907.2~~ 907.2.22.

**Add new text as follows:**

412.3.3.2 **Fire command center.** The fire command center of an airport control tower shall comply with Section 911.

**Exceptions:**

1. Location. The fire command center is permitted to be located in the airport control tower or an adjacent contiguous building where building functions are interdependent.

2. Size. The room shall be not less than 150 square feet (14 m2) in area with a minimum dimension of 10 feet (3048 mm).

3. Required features. The following features shall not be required in an airport traffic control tower fire command center.

3.1. Emergency voice/alarm control unit.

3.2. Public address system.

3.3. Status indicators and controls for the air distributions centers.

3.4. Generator supervision devices, manual start and transfer features.

3.5. Elevator emergency or standby power switches where emergency or standby power is provided.

412.3.3.3 **Smoke removal** Smoke removal in airport traffic control towers shall be provided in accordance with Section 403.4.7.

**Revise as follows:**

**~~412.3.6~~ 412.3.4 Automatic sprinkler system.** *No change to text.*

**Add new text as follows:**

**412.3.4.1 Fire pump room.** Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour fire barriers constructed in accordance with Section 707 or 2-hour horizontal assemblies constructed in accordance with Section 711, or both.

**Exception:** Separation is not required for fire pumps physically separated in accordance with NFPA 20.

**~~412.3.7~~ 412.3.5 ~~Elevator protection~~ Protection of elevator wiring and cables.** ~~Wires or~~

~~Wiring and~~ cables ~~that provide normal or standby power,~~ serving elevators in airport traffic control ~~signals,~~ ~~communication with the car, lighting, heating, air conditioning, ventilation and fire detecting systems to~~ ~~elevators~~ towers shall be protected ~~by construction having a fire-resistance rating of not less than 1 hour,~~ ~~or shall be circuit integrity cable having a fireresistance rating of not less than 1 hour~~ in accordance with Section 3007.8.1.

**~~412.3.7.1~~ 412.3.5.1 Elevators for occupant evacuation.** *No change to text.*

**~~412.3.8~~ 412.3.6 Accessibility.** Airport traffic control towers ~~need not~~ shall be ~~accessible~~ accessible except as specified in ~~the provisions of Chapter 11~~ Section 1104.4.

**:**

**BS] 412.2.1.2 Structural integrity of interior exit stairways and elevator hoistway enclosures.** Enclosures

for interior exit stairways and elevator hoistway enclosures shall comply with Section 403.2.3 in airport traffic control towers where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

**412.2.1.3 Sprayed fire-resistant materials (SFRM).** The bond strength of the SFRM installed in airport traffic control towers shall be in accordance with Section 403.2.4 where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

**[F] 412.2.3.2 Fire command center.** A fire command center shall be provided in airport traffic control towers where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access. The fire command center shall comply with Section 911.

**Exceptions:**

1.The fire command center shall be located in the airport control tower or an adjacent contiguous building where building functions are interdependent.

2.The room shall be not less than 150 square feet (14 m2) in area with a minimum dimension of 10 feet (3048 mm).

3.The following features shall not be required in an airport traffic control tower fire command center.

3.1. Emergency voice/alarm control unit.

3.2. Public address system.

3.3.Status indicators and controls for the air distributions centers.

3.4. Generator supervision devices, manual start and transfer features.

3.5. Elevator emergency or standby power switches where emergency or standby power is provided.

(G115-15 AMPC1)

412.3.7 **Elevator protection.** Wires or cables that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators shall be protected by ~~construction having~~one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour~~, or~~.

2. Electrical circuit protective systems shall ~~circuit integrity cable having~~ have a ~~fireresistance~~ *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 1 hour.

(G117-15 AMPC1) (See 913.2.2)

[F] 412.6.3 **Operations**. Only those flammable liquids necessary for painting operations shall be permitted in quantities less than the maximum allowable quantities per *control area* in Table 307.1(1). Spray equipment cleaning operations exceeding the maximum allowable quantities per *control area* in Table 307.1(1) shall be conducted in a liquid use, dispensing and mixing room.

[F] 412.6.4 **Storage**. Storage of flammable or combustible liquids exceeding the maximum allowable quantities per *control area* in Table 307.1(1) shall be in a liquid storage room.

(F7390) /(I – Code)

**[F] 414.1.2.1 ~~Aerosols~~ Aerosol Products.** *No change to text.*

(F7476 G1) /(I – Code)/(F363-16)

**[F]414.2.4 Fire-resistance-rating requirements.**

The required *fire-resistance rating* for *fire barriers*shall be in accordance with Table 414.2.2. The floor assembly of the *control area*and the construction supporting the floor of the *control area* shall have a *fire-resistance rating* of not less than 2 hours.

**Exception:** The floor assembly of the *control area* and the construction supporting the floor of the *control area* are allowed to be 1-hour fire-resistance rated in buildings of Types IIA, IIIA, IV and VA construction, provided that both of the following conditions exist:

1.The building is equipped throughout with an *automatic sprinkler system*in accordance with Section 903.3.1.1; and

2.The building is three or fewer *stories above grade plane*.

 (F7992) /(I – Code)

**[F] 415.2 Definitions.** The following terms are defined in Chapter 2:

**CONTINUOUS GAS DETECTION SYSTEM. DETACHED BUILDING.**

**EMERGENCY CONTROL STATION. EXHAUSTED ENCLOSURE. FABRICATION AREA. FLAMMABLE VAPORS OR FUMES. GAS CABINET.**

**GAS DETECTION SYSTEM. GASROOM.**

**HAZARDOUS PRODUCTION MATERIAL (HPM). HPM.**

**HPM FLAMMABLE LIQUID. HPM ROOM.**

**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH). LIQUID.**

**LIQUID STORAGE ROOM.**

**LIQUID USE, DISPENSING AND MIXING ROOM. LOWER FLAMMABLE LIMIT (LFL).**

**NORMAL TEMPERATURE AND PRESSURE (NTP). PHYSIOLOGICAL WARNING THRESHOLD LEVEL. SERVICE CORRIDOR.**

**SOLID.**

**STORAGE, HAZARDOUS MATERIALS. USE (MATERIAL).**

**WORKSTATION.**

**[F] 415.5.3 Supervision.** Emergency alarm systems required by Section 415.5.1 or 415.5.2 shall be electrically supervised and monitored by an approved central, proprietary or remote station service or shall initiate an audible and visual signal at a constantly attended on-site location.

**[F] 415.5.4 Emergency alarm systems.** *Emergency alarm systems* required by Section 415.5.1 or 415.5.2 shall be provided with emergency or standby power in accordance with Section 2702.2.

(F75-16 AMPC1)

**[F] 415.11.7 ~~Continuous gas~~ Gas detection systems.** A ~~continuous gas detection system~~ gas detection system complying with Section 916 shall be provided for HPM gases where the physiological warning threshold level of the gas is at a higher level than the accepted permissible exposure limit (PEL) for the gas and for flammable gases in accordance with Sections 415.11.7.1 ~~and~~ through 415.11.7.2.

**[F] 415.11.7.1 Where required.** A ~~continuous~~ *gas detection system* shall be provided in the areas identified in Sections 415.11.7.1.1 through 415.11.7.1.4.

**[F] 415.11.7.1.1 Fabrication areas.** A ~~continuous~~ *gas detection system* shall be provided in *fabrication areas* where HPM gas is used in the *fabrication area*.

**[F] 415.11.7.1.2 HPM rooms.** A ~~continuous~~ *gas detection system* shall be provided in HPM rooms where HPM gas is used in the room.

**[F] 415.11.7.1.3 Gas cabinets, exhausted enclosures and gas rooms.** A ~~continuous~~ *gas detection system* shall be provided in gas cabinets and exhausted enclosures for HPM gas. A ~~continuous~~ *gas detection system* shall be provided in gas rooms where HPM gases are not located in gas cabinets or exhausted enclosures.

**[F] 415.11.7.1.4 Corridors.** Where HPM gases are transported in piping placed within the space defined by the walls of a *corridor* and the floor or roof above the *corridor*, a ~~continuous~~ *gas detection system* shall be provided where piping is located and in the *corridor*.

**Exception:** A ~~continuous~~ *gas detection system* is not required for occasional transverse crossings of the *corridors* by supply piping that is enclosed in a ferrous pipe or tube for the width of the *corridor*.

**[F] 415.11.7.2 Gas detection system operation.** The ~~continuous~~ *gas detection system* shall be capable of monitoring the room, area or equipment in which the HPM gas is located at or below all the following gas concentrations:

1. Immediately dangerous to life and health (IDLH) values where the monitoring point is within an exhausted enclosure, ventilated enclosure or gas cabinet.

2. Permissible exposure limit (PEL) levels where the monitoring point is in an area outside an exhausted enclosure, ventilated enclosure or gas cabinet.

3. For flammable gases, the monitoring detection threshold level shall be vapor concentrations in excess of 25 percent of the lower flammable limit (LFL) where the monitoring is within or outside an exhausted enclosure, ventilated enclosure or gas cabinet.

4. Except as noted in this section, monitoring for highly toxic and toxic gases shall also comply with Chapter 60 of the *International Fire Code*.

**[F] 415.11.9.3 Signals.** The *emergency control station* shall receive signals from emergency equipment and alarm and detection systems. Such emergency equipment and alarm and detection systems shall include, but not be limited to, the following where such equipment or systems are required to be provided either in this chapter or elsewhere in this code:

1. *Automatic sprinkler system* alarm and monitoring systems.

2. Manual *fire alarm* systems.

*3. Emergency alarm systems.*

*4.* ~~Continuous gas~~ *Gas detection systems.*

5. Smoke detection systems.

6. Emergency power system.

7. Automatic detection and alarm systems for pyrophoric liquids and Class 3 water-reactive liquids required in Section 2705.2.3.4 of the *International Fire Code*.

8. Exhaust *ventilation* flow alarm devices for pyrophoric liquids and Class 3 water-reactive liquids cabinet exhaust *ventilation* systems required in Section 2705.2.3.4 of the *International Fire Code*.

(F75-16 AMPC1)

**Add new text as follows:**

420.7 **Assisted living housing units.** In Group I-1 occupancies, where a fire resistance corridor is provided, in areas where assisted living residents are housed, shared living spaces, group meeting or multipurpose therapeutic spaces open to the corridor shall be in accordance with all of the following criteria:

1. The walls and ceilings of the space are constructed as required for corridors.

2. The spaces are not occupied as resident sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.

3. The open space is protected by an automatic fire detection system installed in accordance with Section 907.

4. In Group I-1, Condition 1, the corridors onto which the spaces open are protected by an automatic fire detection system installed in accordance with Section 907, or the spaces are equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.

5. In Group I-1, Condition 2, the corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.

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

(G120-15)

**F] 421.6 Gas detection system.** Hydrogen fuel gas rooms shall be provided with ~~an approved flammable gas detection system in accordance~~ a *gas detection system* that complies with Sections 916, and Sections 421.6.1 through ~~421.6.4~~421.6.2.

**[F] ~~421.6.3~~ 421.6.1 ~~Operation~~ System activation.** Activation of ~~the~~ a gas detection ~~system~~ alarm shall result in ~~all~~ both of the following:

1. Initiation of distinct audible and ~~visual~~ visible alarm signals both inside and outside of the hydrogen fuel gas room.

2. ~~Activation~~ Automatic activation of the mechanical exhaust ventilation system.

**Delete without substitution:**

**~~[F] 421.6.1 System design.~~** ~~The flammable gas detection system shall be listed for use with hydrogen and any other flammable gases used in the hydrogen fuel gas room. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammability limit (LFL) for the gas or mixtures present at their anticipated temperature and pressure.~~

**~~[F] 421.6.4~~ 421.6.2 Failure of the gas detection system.** Failure of the ~~gas detection system~~ *gas detection system* shall ~~result in activation of~~ automatically activate the mechanical exhaust ventilation system, ~~cessation of~~ stop hydrogen generation, and ~~the sounding of~~ cause a trouble signal ~~in~~to sound at an approved location.

**Delete without substitution:**

~~[F]~~ **~~421.6.2 Gas detection system components.~~** ~~Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.~~

(F75-16 AMPC1)

Add as follows:

422.6 Electrical systems.  In ambulatory care facilities, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

(E7362)/(F355-16)

**423.1 General.**

In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500. Buildings or structures that are also designated as emergency shelters shall also comply with Table 1604.5 as Risk Category IV structures.

(S7612) /(I – Code)

**423.1.1 Scope.** This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as safe rooms within buildings for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes during the storm. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters. Design of facilities for use as emergency shelters after the storm are outside the scope of ICC 500 and shall comply with Table 1604.5 as a Risk Category IV Structure.

(S7613) /(I – Code)

**423.2 Definitions.** The following terms are defined in Chapter 2:

**STORM SHELTER.**

**Community storm shelter**

**Residential storm shelter.**

Shelters built for protection during wind storms in accordance with ICC500-14 are not emergency shelters that are required to be designed as Risk Category IV structures in accordance with Section 1604.5.

(S7614)

**423.3 Critical emergency operations.**

In areas where the shelter design wind speed for tornados in accordance with Figure 304.2(1) of ICC 500 is 250 MPH, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall comply with Table 1604.5 as a Risk Category IV structure and shall be provided with ~~have~~ a storm shelter constructed in accordance with ICC 500.

**~~Exception:~~** ~~Buildings meeting the requirements for shelter design in ICC 500.~~

(S7615) /(I – Code)

424.2 Materials. Children's play structures shall be constructed of noncombustible materials or of combustible materials that

comply with the following:

1. Fire-retardant-treated wood complying with Section 2303.2.

2. Light-transmitting plastics complying with Section 2606.

3. Foam plastics (including the pipe foam used in soft-contained play equipment structures) having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source.

4. Aluminum composite material (ACM) meeting the requirements of Class A interior finish in accordance with

Chapter 8 when tested as an assembly in the maximum thickness intended for use.

5. Textiles and films complying with the fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

6. Plastic materials used to construct rigid components of soft-contained play equipment structures (such as tubes, windows, panels, junction boxes, pipes, slides and decks) exhibiting a peak rate of heat release not exceeding 400 kW/ m2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m2 in the horizontal orientation at a thickness of 6 mm.

7. Ball pool balls, used in soft-contained play equipment structures, having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source. The minimum specimen test size shall be 36 inches by 36 inches (914 mm by 914 mm) by an average of 21 inches (533 mm) deep, and the balls shall be held in a box constructed of galvanized steel poultry netting wire mesh.

8. Foam plastics shall be covered by a fabric, coating or film meeting the fire propagation performance criteria

contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

9. The floor covering placed under the children's play structure shall exhibit a Class I interior floor finish

classification, as described in Section 804, when tested in accordance with ASTM E648 or NFPA 253.

(F7546) /(I – Code)

**SECTION 449 HOSPITALS**

Revise as follows:

449.2.2 The Guidelines for Design and Construction of Hospitals ~~and Outpatient Facilities~~ (*The Guidelines*), as referenced in Chapter 35 of this code.

(SP7804)

**449.3.1 Critical care units.** Reference The Guidelines for other requirements.

449.3.1.1 Sliding doors used for access to critical care rooms may be either manual or power operated and if located on an exit access corridor shall be smoke resistive and equipped with latching hardware or other mechanism that prevents the door from rebounding to a partially open position if the door is forcefully closed.

449.3.1.2 A sliding door used for access to an isolation room shall be equipped with an automatic closer and latching hardware.

449.3.4.10 A sliding door used for access to an airborne infection isolation room or a protective environment room shall be equipped with an automatic closer and latching hardware or other mechanism that prevents the door from rebounding to a partially open position if the door is forcefully closed.

(SP7807-R1)

**449.3.3 Mobile/Transportable Medical Units~~testing and treatment facilities~~.** Reference *The Guidelines* for other requirements.

**449.3.3.1** In addition to any other state of Florida required permits, mobile ~~facilities~~ and transportable units shall be approved in advance by the Agency for Health Care Administration (Agency) before they may be utilized for patient services. Except as approved by the Agency, use of these units shall be limited to 6 months during a 12 month period. Usage may include temporary facilities during repair/replacement of equipment or intermittent use as needed in underserved communities or due to seasonal fluctuation.

449.3.3.2 The mobile facility shall comply with the applicable requirements of the Florida Building Code, Building, The Guidelines, including Part 1 General and Part 2 Chapter 2.8 ~~Part 3 Outpatient Facilities, Chapter 3.13 Specific Requirements for Mobile, Transportable, and Relocatable Units,~~ Specific Requirements for Mobile/Transportable Medical Units. ~~and with Section 449 of this code for the type of service to be provided.~~

~~449.3.3.3 Mobile or transportable units that are limited to providing noninvasive, diagnostic and treatment services without the use of anesthetics shall not be required to comply with other sections of The Guidelines as described in The Guidelines, Part 3 Outpatient Facilities, Chapters 3.13 -8.2.1.2.~~

~~449.3.3.4Electrical connection to the hospital electrical system shall be permitted only when the mobile facility complies with appropriate requirements of the Florida Building Code, Building.~~

~~449.3.3.5When units provide critical care procedures, there shall be a “code blue” code call station in the unit connected to an attended location to summon assistance from the hospital emergency resuscitation response team.~~

(SP8242 A3 only)

449.3.4.1 Each patient sleeping room, except for special nursing care units or rooms, newborn nurseries, and neonatal intensive care units or rooms, shall have a window(s) with a view, visible from the patient’s bed, to the exterior of the building or to an atrium that is visually open to the exterior of the building. The clear opening of the patient room window’s width and height shall have a minimum of 20 feet (6.10 m) unobstructed vista to any permanent structure or equipment, and a minimum of 15 feet (4.57m) unobstructed vista to any vehicular parking area or to the property line measured horizontally from the plane of the window. The sill height of the window(s) shall be a maximum of 36 inches (.914m).   Special nursing care units or rooms shall have a window(s) as required by this section and the Guidelines, except the sill height shall be a maximum of 60 inches (1.524 m).

449.3.4.2  Ceilings in patient care areas or rooms with ceiling-mounted surgical light fixtures, tracks, rails, or pipes and in the centralized kitchen~~s~~ shall be a minimum height of 9 feet (2.7 m).

~~449.3.4.3 A pair of doors opening to a room or closet that is located on an exit access corridor shall be equipped with automatic positive latching for both the active and inactive door leaf and shall be equipped with rabbets, bevels, or an astragal at the meeting edges of the doors. The inactive door leaf shall be equipped with either an automatic or semiautomatic flush bolt to provide positive latching.~~ Where a pair of double~~the~~doors, opening to a room or closet, are located on the exit access corridor and are not required to be equipped with closers, a door coordinator is not required.

(SP7644)

449.3.4.10 The use of fire shutters to meet the requirements of opening protection required by other sections of this codes shall not be permitted.

449.3.4.11 Shutters in openings of smoke partitions to rooms and areas that are permitted to be open to other areas in accordance with section 407 shall be permitted without automatic closing of the shutter.

(SP7643)

**449.3.10** Where a fire pump is required by another section of this code, a new electric motor-driven fire pump~~, except for a replacement fire pump, that is electric motor-driven~~ shall be connected to the Emergency Power Supply System (EPSS) of the hospital. Where connection to existing EPSS equipment is technically infeasible, replacement fire pumps shall be exempt from this requirement. A fire pump~~(s)~~ that is not electric motor-driven shall meet the requirements of NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, alternative power.

(SP8246)

**449.3.11.10** The circuitry of all receptacles required by The Guidelines and NFPA 99 in critical care areas, in all emergency treatment rooms or areas, and other areas including ~~angiographic laboratories, cardiac catheterization laboratories~~ Class II and Class III imagining rooms, coronary care units, human physiology laboratories, ~~intensive~~ critical care units and phase I postoperative recovery rooms, shall be provided as follows:

(SP8254)

449.3.12.2 In all inpatient care rooms, spaces and areas, including sleeping, treatment, diagnostic, and therapeutic, the private operating mode as permitted and described in NFPA 72, National Fire Alarm and Signaling Code, shall be required. Only the attendants and other personnel required to evacuate occupants from a zone, area, room, floor, or building shall be required to be notified. Audible and visual notification devices shall only be permitted to be located at the care providers’ stations, the soiled workroom, soiled holding room, clean workroom, staff lounge, medication preparation room, and nurse or supervisor’s office, and other staff rooms or areas as determined by the governing body of the facility.

~~450.3.12.3~~ ~~449.3.12.3 The disconnecting device or circuit breaker for the fire alarm control unit shall be clearly identified and secured from unauthorized operation.~~

(SP7803 A7 only)

**449.3.13 Nurse call system.** Reference The Guidelines for other requirements. The requirements for nurse call systems as described in NFPA 99 shall not apply.

449.3.13.1 In addition to the requirements of radiofrequency systems described in The Guidelines, wireless type nurse call systems shall be permitted if they have been tested and approved by a national recognized testing laboratory (NRTL) to meet the requirements of UL 1069, 7th edition, Section 49, Wireless Systems published October 12, 2007 as referenced in Chapter 35 of this code.

449.3.13.2 In addition to the areas required by The Guidelines, an emergency resuscitation alarm (CodeBlue) calling station shall be provided for staff use in each operating and cesarean delivery room.

449.3.13.3 An emergency staff assistance station shall be located within each psychiatric seclusion room and shall be of hands-free operation.

449.3.14.4 There shall be illumination of the means of egress in accordance with NFPA 101 and designed for automatic dusk-to-dawn operation. Such illumination shall continue to the public way or to a safe area(s) located at a minimum of 30 feet (9.144 m) from the building and large enough to accommodate the required occupant load of the exit discharge.

(SP7686 A4)

~~449.3.14.8 The generator remote manual stop (sometimes called the “generator emergency stop”) shall beswitchable and tamper resistant. It shall be located outside the housing of the generator, adjacent to the opening of the generator enclosure or to the door to the generator room, and viewable from the generator location.~~

(SP7641)

**SECTION 450 NURSING HOMES**

Revise as follows:

450.3.5.13 The use of fire shutters to meet the requirements of opening protection required by othersections of this codes shall not be permitted.

450.3.5.14 Shutters in openings of smoke partitions to rooms and areas that are permitted to be open to other areas in accordance with section 407 shall be permitted without automatic closing of the shutter.

(SP7955)

**450.3.14 Electrical requirements.** See The Guidelines for additional requirements.

450.3.14.1 All material, including equipment, conductors, controls, and signaling devices, shall be installed

to provide a complete electrical system with the necessary characteristics and capacity to supply the electrical facility requirements as shown in the specifications and as indicated on the plans. All materials and equipment shall be listed as complying with applicable standards of Underwriter’s Laboratories, Inc., or other nationally recognized testing facilities. Field labeling of equipment and materials will be permitted only when provided by a nationally recognized testing laboratory (NRTL) that has been certified by the Occupational Safety and Health Administration (OSHA) for that referenced standard.

450.3.14.2 Nonmetallic sheathed cable or similar systems are not permitted for power and lighting wiring in any facility.

450.3.14.~~2~~3 For purposes of electrical requirements, a resident room, a resident therapy area or an examination room that is not equipped with a piped medical gas or vacuum system shall be reviewed as a basic care room or space as defined in NFPA 99 Health Care Facilities Code. A resident room, a resident therapy area or an examination room that is equipped with a piped medical gas or vacuum system shall be reviewed as a general care room or space as defined in NFPA 99 Health Care Facilities Code, and Chapter 27, Electrical Systems, of this code.

450.3.14.4 There shall be at least one duplex receptacle located at the head of the resident bed connected to the critical branch of the essential electrical system.

 450.3.14.~~3~~5 Panels may be located in spaces subject to storage and shall have the clear working space in accordance with Chapter 27, permanently marked “ELECTRICAL—NOT FOR STORAGE” with a line outlining the required clear working space on the floor and wall.

 450.3.14.~~4~~6 Panel boards shall not be located in an exit access corridor or in an unenclosed space or area that is open to an exit access corridor. Panel boards may be located inside of a room or closet that opens into an exit access corridor only when the room or closet is separated from the exit access corridor by a partition and door that comply with this code.

 450.3.14.~~5~~7There shall be documentation for equipotential grounding in ~~all~~ areas defined as patient care areas., b~~uilding service ground electrode systems, lightning protection ground terminals and special systems such as fire alarm, nurse call, paging, generator, emergency power and breaker~~ coordination.

(SP7953)

450.3.16.2  In all resident care rooms, spaces and areas, including sleeping, treatment, diagnostic, and therapeutic, the private operating mode as permitted and described in NFPA 72, National Fire Alarm and Signaling Code, shall be required. Only the attendants and other personnel required to evacuate occupants from a zone, area, room, floor, or building shall be required to be notified. Audible and visual notification devices shall only be permitted to be located at the care providers’ stations, the soiled workroom, soiled holding room, clean workroom, staff lounge, medication preparation room, ~~and~~ nurse or supervisor’s office, and other staff rooms or areas as determined by the governing body of the facility.

~~450.3.16.3 The disconnecting device or circuit breaker for the fire alarm control unit shall be clearly identified and secured from unauthorized operation.~~

(SP7954-R1)

**450.3.17 Nurse call systems.** Reference The Guidelines for other requirements.Nurse call systems as described in NFPA 99 shall not apply.

450.3.17.1 Wired- or wireless-type nurse call systems shall be permitted if they have been tested and approved by a national recognized testing laboratory (NRTL) to meet the requirements of UL 1069, 7th edition, published October 12, 2007, as referenced in Chapter 35 of this code. All wireless systems shall have been tested and approved by a nationally recognized testing laboratory (NRTL) to meet the requirements of Section 49, Wireless Systems of UL 1069, 7th edition as referenced in Chapter 35 of this code. All nurse call systems whether wired or wireless shall have electronically supervised visual and audible annunciation in accordance with the supervision criteria of UL 1069, 7th edition for nurse call systems and tested and approved by a nationally recognized testing laboratory (NRTL) to meet those requirements.

450.3.17.~~1~~2 A nurse call system shall be provided that will register a call from a call button from each resident bed to the related staff work area(s) by activating a visual signal at the resident room door or wireless pager and activating a visual and audible signal in the clean utility, soiled utility, nourishment station, medication prep or mobile nurse station receiver and the master station of the resident. If a mobile nurse station receiver is utilized to receive the resident call, it will be worn by all staff who are assigned to the resident unit and shall identify the specific resident and or room from which the call was placed.

450.3.17.3 Audible signals may be temporarily silenced, provided subsequent calls automatically reactivate the audible signal. In rooms containing two or more calling stations, indicating lights shall be provided for each calling station. In multi corridor nursing units, corridor zone lights shall be installed at corridor intersections in the vicinity of staff work areas.

450.3.17.~~2~~4An emergency calling station of the pull cord-type shall be provided and shall be conveniently located for resident use at each exam room (if provided), resident toilet, bath or shower room but not inside of the shower unless the nurse call device is listed for wet locations. The call signal shall be the highest priority and shall be cancelled only at the emergency calling station. The emergency calling station shall activate distinctive audible and visual signals immediately at the resident room door or wireless pager, and activate a visual and audible signal in the clean utility, soiled utility, nourishment station, medication prep or mobile nurse station receiver and the master station of the resident unit. If a mobile nurse station receiver is utilized to receive the resident call, it will be worn by all staff who are assigned to the resident unit and shall identify the specific resident and or room from which the call was placed.

~~450.3.17.3 The nurse call master station shall be located inside the resident unit at a staff administrative area and shall not block any incoming resident calls. The master station control settings shall not prevent the activation of the incoming audible and visual signals. In wireless systems, all orphaned calls to mobile nurse station receivers will register at the nurse call master station.~~

450.3.17.~~4~~5Activation of an emergency call shall not cancel a normal call from the same room.

~~450.3.17.5 A corridor dome light shall be located directly outside of any resident care area that is~~

~~equipped with a wired nurse call system.~~

(SP8244)

**450.3.18 Essential electrical system.**

450.3.18.1 A Type 1 essential electrical system shall be provided in all new nursing homes as described in NFPA 99, Health Care Facilities Code. The emergency power for this system shall meet the requirements of a Level 1, Type 10, Class ~~4872~~ 54 generator as described in NFPA 110, Standard for Emergency and Standby Power Systems.

450.3.18.2 In new facility construction, the normal main service equipment shall be separated from the emergency distribution equipment by locating it in a separate room. Transfer switches shall be considered emergency distribution equipment for this purpose.

450.3.18.3 There shall be a generator remote alarm annunciator in accordance with the requirements of NFPA 110 located at a designated on-site 24-hour staffed location.

~~450.3.18.4 There shall be illumination of the means of egress in accordance with NFPA 101 and designed for automatic dusk-to-dawn operation. Such illumination shall continue to the public way or to a safe area(s) located at a minimum of 30 feet (9.144 m) from the building and large enough to accommodate the required occupant load of the exit discharge.~~

450.3.18.~~5 4~~A minimum of one elevator per bank serving any ~~patient~~resident use floor shall be connected to the equipment branch of the essential electric system and arranged for manual or automatic operation during loss of normal power.

450.3.18.~~6~~5 If a day tank is provided, it shall be equipped with a dedicated low-level fuel alarm and a manual pump. The alarm shall be located at the generator remote alarm annunciator as described in Section 450.3.18.3

~~450.3.18.7 The generator remote manual stop (sometimes called the “generator emergency stop”) shall betamper resistant. It shall be located outside of the housing of the generator, adjacent to the opening of the generator enclosure or to the door to the generator room, and viewable from the generator.~~

(SP8223-R1)

**450.3.18.1**  A Type 1 essential electrical system shall be provided in all new nursing homes as described in NFPA 99, *Health Care Facilities Code*. The emergency power for this system shall meet the requirements of a Level 1, Type 10, Class ~~48~~ 54 generator as described in NFPA 110, Standard for Emergency and Standby Power Systems.

(SP8210)

**450.4.1.3 DURING AND IMMEDIATELY FOLLOWING.**

A period of ~~72~~ 96 hours following the loss of normal support utilities to the facility that are necessary to support the health, safety, and welfare of the residents and staff. These support utilities include but are not limited to normal electrical power, potable water supply, sewer, and telecommunications.

(SP8212 A1 only)

**450.4.2.6.2** As determined by the governing body of the facility, occupied resident areas shall be supplied with temperature and humidity control during and immediately following ~~a disaster~~ loss of normal utilities. At a minimum, these areas shall be maintained at a dry-bulb temperature at or below 81 °F (27.2 °C). Vulnerable components of new mechanical equipment necessary to maintain safe indoor air temperature shall be protected from horizontal impact in accordance with Section 450.4.2.5.4 and shall be connected to the facilities essential electrical system described in Section 450.3.18.1 or connected to the optional standby generator described in 450.4.2.9.6.

(SP8198)

**450.4.2.9.2** The emergency power supply (EPS) shall be fueled by ~~a~~ fuel ~~supply~~ stored on-site. The fuel supply shall be sized to fuel the generator for 100-percent load for ~~64~~ 72 hours or for ~~72~~ 96 hours of actual demand load of the occupied ~~patient~~ resident area(s) and ~~patient~~ resident support area(s) and ~~patient~~ resident support utilities during and immediately following a disaster, whichever is greater. Where used to meet the requirements of Section 450.4.2.6.2, the fuel calculation must include the cooling demand

(SP8216)

**450.4.2.9.6** A new facility shall be equipped with either a permanent on-site optional stand-by ~~generator~~system to operate at least the nonessential loads of the electrical system or the entire normal branch of the electrical system, for a period of 96 hours for the demand load of the generator ~~or there shall be a permanently installed predesigned electrical service entry for the electrical system that will allow a quick connection to a temporary electrical generator to operate at least the nonessential loads of the electrical system or the entire normal branch of the electrical system~~. ~~This quick connection shall be installed inside of a permanent metal enclosure rated for this purpose and may be located on the exterior of the building~~.

Exception: An optional stand-by system shall not be required where the essential electrical system provided in accordance with Section 450.3.18.1 is designed to operate the facility's entire electrical system and sufficient onsite fuel storage is provided to maintain resident occupied areas for a minimum of 96 hours for the demand load on the system.

450.4.2.9.6.1 The fuel for this generator may be natural gas, diesel, or propane. Gasoline shall not be permitted as a fuel source. Onsite fuel reserves shall not be required for the optional stand-by system if the generator is fueled by piped natural gas.

450.4.2.9.6.2 The generator, panel boards, switchgear, fuel lines, and other vulnerable system components shall be protected from debris impact in accordance with Section 450.4.2.5.4.

450.4.2.9.6.3 The system shall be protected from flooding in accordance with Section 450.2.2.1.

450.4.2.9.6.4 This system shall meet the requirements of NFPA 70 Article 702 and it shall be tested and maintained in accordance with the manufacturer’s instructions.

450.4.2.9.6.5 See 59A-4.1265 Emergency Environmental Control for Nursing Homes, F.A.C. for additional operational requirements.

(SP8221 A1 only)

**SECTION 451 AMBULATORY SURGICAL CENTERS**

Revise as follows:

451.2.2 The Guidelines for Design and Construction of ~~Hospitals and~~ Outpatient Facilities (The Guidelines), including Part I General, and Part 2 Outpatient Facility Types, Chapter~~3~~2.7 Specific Requirements For Outpatient ~~Surgical~~Surgery Facilities as reference in Chapter 35 of this code.

(SP7636)

**451.3 Additional physical plant requirements for ambulatory surgical centers.**

451.3.1 In addition to the codes and standards referenced in Section 451.2 of this code, the minimum standards of construction and specified minimum essential facilities described in Section 451.3 of this code shall apply to all ambulatory surgical centers as described in Section 451.1 of this code~~.~~ and to all new additions, alterations or renovations to existing ambulatory surgical center on the effective date of the code.

451.3~~.~~.2 ~~Reserved.~~Outpatient Operating Room. All ambulatory surgical centers shall have at least one operating room that has a minimum clear floor area of 270 square feet (25.08 square meters) as described in The Guidelines. Only this size or larger operating room(s) shall be listed as an operating room(s) for purposes of licensure.

 451.3.2.1 If provided, smaller operating rooms, and all procedure, examination, or treatment rooms shall meet the requirements for these rooms as described in The Guidelines.

451.3.2.2 In lieu of audible alarm signals, visible alarm-indicating appliances shall be permitted to be used in critical care areas such as the operating room suite and the phase I recovery suite.

(SP7210-R1)

451.3.3 Recovery area. Reference The Guidelines for other requirements.

451.3.3.1 Only the Phase I post-anesthesia recovery positions, as described in The Guidelines, will be listed as recovery positions for purposes of licensure.

(SP7633)

~~451.3.13.10 The generator remote manual stop (sometimes called the “generator emergency stop”) shall be~~

~~switchable and tamper resistant. It shall be located outside of and away from the housing of the generator, and if the generator is located inside an enclosure or room, it shall be located adjacent to the opening of the generator enclosure or to the door of the generator room and shall be viewable from the generator location.~~

(SP7634)

451.3.15 Medical gas. ~~If t~~There shall be is a piped medical gas installation in the licensed operating room of the ASC, ~~it~~ that shall comply with the requirements of NFPA 99 Health Care Facilities Code for a Category 1 piped gas and vaccum system.

(SP7635)

**SECTION 453 STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES**

Revise as follows:

**453.5.5.1 “Exterior courtyard”** is a courtyard which is not roofed, has a minimum width of 40 feet (1219 mm), and

~~a.~~ has an opening a minimum width of 40 feet (1219 mm), with no obstructions or fencing, on at least one end~~, or~~

~~b. has fences between the buildings for security purposes, and the required exiting capacity of the courtyard is provided for by means of doors or gates from the courtyard~~.

An exterior courtyard may be considered exterior space and used for exiting of adjacent spaces. For an exterior courtyard with an opening between 40 feet (1219 mm) and 60 feet wide (18 288 mm), the building walls and wall openings must meet the requirements of *Florida Building Code, Building* Tables 601 and 602 and the maximum travel distance to the courtyard opening/exit shall not exceed 150 feet (45 720 mm) from any point within the courtyard. If the minimum courtyard width exceeds 60 feet (18 288 mm), the travel distance to a courtyard opening/exit may exceed 150 feet (945 720 mm).

(SP7708)

**453.5.5.2 “Enclosed courtyard”** is a courtyard which is not roofed by more than 50 percent of the courtyard area and which is substantially surrounded by a building(s) on two sides or more, has a minimum width of 40 feet (1219 mm) and each opening to the exterior is less than 40 feet (1219 mm) in width. The courtyard area shall be calculated for maximum occupancy as an assembly space and the number and size of remotely located exits shall be calculated for the maximum possible load. The maximum possible load is the greater of the calculated capacity of the courtyard or the load imposed by the surrounding spaces. An enclosed courtyard may be used as a component of exit access provided that the walls and wall openings meet the requirements of Florida Building Code, Building Tables 601 and 602 and the maximum travel to the exit discharge does not exceed 150 feet (45 720 mm) from any point within the enclosed courtyard. If the minimum courtyard width exceeds 60 feet (18 288 mm), the travel distance to a courtyard opening/exit may exceed 150 feet (945 720 mm). An enclosed courtyard cannot serve as the exterior for exiting or for emergency rescue openings.

(SP7712)

**453.7.3 Location of fire extinguishers and blankets.** Fire extinguishers may be located inside student-occupied spaces provided they are placed adjacent to the primary exit door, and the room door remains unlocked when the facility is occupied, and a permanently affixed sign, with a red background and white letters, reading “FIRE EXTINGUISHER INSIDE” is placed on the outside adjacent to the door. Fire extinguisher cabinets shall not be locked. Fire blankets shall be located in each laboratory and each shop where a fire hazard may exist. Fire extinguishers and fire blankets shall be readily accessible and suitable for the hazard present and shall not be obstructed or obscured from view. Extinguishers and blankets shall be on hangers or brackets, shelves, or cabinets so that the top of the extinguisher or blanket is not more than ~~54~~ 48 inches (~~1318~~ 1220 mm) above finish floor (AFF) and complies with state and federal accessibility requirements. All extinguishers shall be installed and maintained in accordance with NFPA. Extinguishers shall remain fully charged and operable at all times and have a current tag to indicate compliance.

(SP7717)

**453.8.8 Safe school design.** School boards ~~should~~ shall design educational facilities and sites including pre-K through 12, vocational and Florida colleges to enhance security and reduce vandalism through the use of “safe school design” principles. Safe school design strategies are available from the Florida Department of Education, Office of Educational Facilities in a publication titled Florida Safe School Design Guidelines and include but are not limited to the following:

(SP7721)

**453.10.2.4 Vertical drops.** Walls, railings, or other physical barriers which are at least a minimum 12 inches (305 mm) in height, shall define and protect any vertical drop between joining or abutting surfaces of more than 6 inches (152 mm) but less than 18 inches (457 mm) in height. Any vertical drop of 18 inches (457 mm) or more shall be protected by a wall or guardrail a minimum of 42 inches (1067 mm) in height.

**Exceptions:**

1.  Guards are not required for the locations described in the exception to Section 1015.2.

2.  In assembly seating where guards in accordance with Section 1029.16.3 are permitted and provided.

(SP7728)

**453.10.3.7 Shielding.** Exterior lighting shall be shielded from adjacent properties for all exterior lighting equipment as described in Sections 453.10.3.7.1 and 453.10.3.7.2.

**Exception:** Lighting used for the following exterior applications is exempt where equipped with a control device independent of the control of the nonexempt lighting:

1. Specialized signal, directional, and marker lighting associated with transportation.

2. Advertising signage or directional signage.

3. Lighting integral to equipment or instrumentation and installed by its manufacturer.

4. Theatrical purposes, including performance, stage, film production, and video production.

5. Temporary lighting.

6. Roadway lighting required by governmental authorities.

7. Lighting used to highlight features of public monuments and registered landmark structures.

8. Lighting classified for and used in hazardous areas.

9. Lighting for swimming pools, spas and water features.

10. Lighting for the national flag in light pollution zones B, C and D.

453.10.3.7.1 **Lighting Pollution Zones.** The light pollution zone for the building site shall be determined from Table 453.10.3.7(1) unless otherwise specified by the jurisdiction.

**Table 453.10.3.7(1)**

**LIGHT POLLUTION ZONES**

|  |  |
| --- | --- |
| **LIGHT POLLUTION**  **ZONE** | **DESCRIPTION** |
| A | Rural and low-density residential areas such as, but not limited to: agricultural districts, one- and two- family residential communities, business parks, rural town centers, commercial or industrial areas with  limited nighttime activity and the developed areas within parks and  open space preserves. |
| **B** | Light commercial business districts and high-density or mixed-use residential districts such as, but not limited to: neighborhood business districts, light industrial areas with moderate nighttime activity, multifamily residential uses, institutional residential uses, hospitals, hotels, motels, churches, schools and neighborhood recreation  facilities. |
| **C** | High-density commercial business districts, and heavy industrial or manufacturing areas such as, but not limited to: business districts in large cities, commercial corridors, high- density suburban commercial areas, town center mixed-use areas, industrial uses and shipping and rail yards with high nighttime activity, high-use recreation facilities, regional shopping malls, car dealerships, gas  stations, and other exterior retail areas with high nighttime activity. |
| **D** | Areas such as, but not limited to: high-density entertainment districts and heavy industrial areas, where  approved by the code official. |

453.10.3.7.2 **Light trespass.** Exterior luminaires shall not exceed the applicable backlight ratings specified in Table 453.10.3.7(2).

**Table 453.10.3.7(2)**

**MAXIMUM ALLOWABLE BACKLIGHT RATINGS a, b, c**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **HORIZONTAL DISTANCE TO LIGHTING BOUNDARY (HLB)** | **LIGHT POLUTION ZONE (LPZ)** | | | |
| **A** | **B** | **C** | **D** |
| HLB > 2hm | B3 | B4 | B5 | B5 |
| hm < HLB = 2 hm | B2 | B3 | B4 | B4 |
| 0.5 hm = HLB = hm | B1 | B2 | B3 | B3 |
| HLB < 0.5 hm | B0 | B0 | B1 | B2 |

hm = Mounting Height: The distance above finished grade at which a luminaire is mounted, measured to the midpoint of the luminaire.

a. Backlight (B) ratings are defined by ANSI/IESNA TM-15-11 Addendum A.

b. Luminaires located two mounting heights or less from the *lighting boundary* shall be installed with backlight towards the nearest *lighting boundary,* unless lighting a roadway, bikeway or walkway that intersects a public roadway.

c. The rating shall be determined by the actual photometric geometry in the specified mounting orientation.

(SP7729 A7 only)

**~~453.10.5.4~~** ~~Playgrounds shall be evenly graded and sloped to provide surface drainage.~~

(SP7733)

**~~453.10.9 Transmission line right-of-way.~~** ~~Buildings, play areas, and common use areas shall not be located within a high-voltage power transmission line right-of-way.~~

(SP7733)

453.17.8 ~~Ground fault interrupter (GFI) receptacles~~. Ground-Fault Circuit-Interrupter Protection for Personnel (GFCI). GFCI protection of receptacles shall be ~~installed as required by~~ provided in accordance with NFPA 70, National Electrical Code~~of Chapter 27~~ and in the following locations:

1. All elementary special needs, prekindergarten, and kindergarten classroom receptacles.

2. All building entry vestibule receptacles.

3. All mechanical, boiler and electrical room receptacles.

(SP7220)

**453.18.1.6 ~~Interior~~ Enclosed courtyards.** The ~~interior~~ enclosed courtyard area at 15 gross square feet (1.4 m2) per person. Raised, dedicated landscape areas may be deducted.

(SP8017)

**453.19.7 Fire alarm.** Fire alarm pull stations shall be located within 200 feet (60 960 mm) of any shade or green house. Fire alarm ~~horns~~ notification appliances mounted on a permanent building must be audible inside the shade/green house.

(SP8022)

**453.25.1.1 Enhanced hurricane protection areas (EHPA).** The EHPA areas shall provide emergency shelter and protection for people for a minimum period of ~~up to 8~~ 24 hours during a hurricane.

(SP8029)

**453.25.3.1 Excluded spaces.** Spaces such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms and labs, attic and crawl spaces shall ~~not be used as EHPAs~~ be excluded from EHPA capacity calculations.

(SP8037)

**453.25.3.2 Capacity.** Fifty percent of the net square feet of a designated educational facility shall be constructed as EHPAs. The net square feet shall be determined by subtracting from the gross square feet those spaces, such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms, attic and crawl spaces that shall ~~not be used as EHPAs~~ be excluded from EHPA capacity calculations. The board, with concurrence of the applicable local emergency management agency or DEM, may adjust this requirement if it is determined to be in its best interest. The capacity of an EHPA shall be calculated at 20 square feet (1.86 m2) per occupant (adults and children five years or older). The capacity of a Special Needs EHPA shall be calculated at 60 square feet (5.57 m2) per occupant (adults and children five years or older).

(SP8039)

**453.25.4.1 Enclosure classifications.** Enclosure classifications for EHPAs shall be determined in accordance with ASCE ~~7-10~~ 7, Section 26.2.

(SP8058)

**453.25.5.2 Optional standby systems.** Additional nonlife safety systems, as defined by Chapter 27 and NFPA 70 Article 702 (Optional Standby systems), may be supplied power, if available, by the standby emergency power system. These systems shall be connected to the standby emergency power system via an electrical subpanel to the standby electrical power system’s main electrical panel. This will allow selective or total load shedding of power if required. The fire alarm, emergency lighting and illuminated exit signs throughout the entire campus shall receive first priority to power provided by the standby emergency power system per Chapter 27 and NFPA 70 Article 700. The systems listed are not all encompassing but are in order of priority.

(SP8065)

**~~453.25.6.3~~** ~~EHPAs shall be inspected and recertified for compliance with the structural requirements of this section every five years by a Florida-registered professional engineer skilled in structural design. If any structural system, as specified in this section, is damaged or replaced, the recertification shall be obtained prior to the beginning of the next hurricane season.~~

(SP8068)

**453.27.5.2 Covered walks and technology.** New relocatables and “modular schools” acquired by a board which are intended for long term use, shall be connected from exit door to the core facilities by accessible covered walkways, and shall contain wiring and computer technologies which connect to the facility’s technology, communications and fire alarms infrastructure.

**Exceptions:**

          1.   Covered walks and public address systems are not required for Florida college facilities.

          2.   Temporary relocatables constructed after the date of this standard shall meet all construction requirements of this code, except that covered walks may be installed. The term “temporary relocatable” means relocatables which are used for less than ~~3~~ 4 years to provide temporary housing while permanent replacement classrooms and related facilities are under construction, renovation or remodeling. The term “temporary relocatable” does not apply to relocatables which have been located on a school site for more than ~~2~~ 3 years and used for classrooms or for student occupancy, where there is no identifiable permanent facility which is under construction, being remodeled, or renovated to house the students.

(SP8071)

**453.27.7 Fire-retardant-treated wood (FRTW).** Only FRTW which does not contain ammonium phosphates, sulfates, or halides may be used in the roof structure of Type II construction ancillary facilities, as authorized by other sections of the Florida Building Code. FRTW shall comply with the specific requirements found elsewhere in these public educational facilities requirements. Contractors shall provide evidence of compliance to inspectors. Inspection access panels shall be provided to facilitate initial and annual inspections for general condition assessment of FRTW and connectors.

(SP8078)

**SECTION 454 SWIMMING POOLS AND BATHING PLACES (PUBLIC AND PRIVATE)**

Revise as follows:

**454.1 Public swimming pools and bathing places.**

**“Offset”**means set back into the deck from the normal pool wall perimeter (three sides must be surrounded by pool deck).

(SW8341 A1 only)

**"Collector tank"**means a reservoir, with a minimum of 2.25 square feet (0.2 m2) water surface area, that is vented **by piping** and/or open to the atmosphere, from which the recirculation or feature pump takes suction, which receives the gravity flow from the main drain line and surface overflow system or feature water source line, and that is cleanable.  The vent shall measure a minimum of 12.56 square inches in area and shall be equipped with a screen**, or equivalent device,** to prohibit entry by animals.  Vent shall be designed to minimize rain water entry into the tank.  Tanks with vented lids shall not be required to be equipped with a separate vent. Tanks shall be constructed of concrete or other impervious and structurally rigid material, **with adequate manway access,** shall be watertight, free from structural cracks and shall have a nontoxic smooth **~~and slip-resistant~~** finish.

(SW7851 A2 only/SW8341 A1 only)

A **“public swimming pool”** or **“public pool”** means a single watertight structure of concrete, masonry, or other approved materials which is located either indoors or outdoors, used for bathing or swimming by humans, and filled with a filtered and disinfected water supply, together with buildings, appurtenances, and equipment used in connection there-with…..No change to the remaining text.

(SW7896)

“Plunge pool”means the receiving body of water located at the terminus of a recreational water slide~~.~~ and is dedicated solely for that purpose.  Conventional public swimming pools that are not **~~defined~~ dedicated** as plunge pools that include a **recreational** water slide as part of the design shall meet the requirements of Section 454.1.9.2 with the exception of Sections 454.1.9.2.1.6.1, 454.1.9.2.3, and **a portion of** 454.1.9.2.6.2., **which are deemed optional only for conventional pool recreational slides**.

(SW7894 A1 only)

**454.1.1.1 Sizing**

The bathing load for conventional swimming pools, wading pools, interactive water features, water activity pools ~~less than 24 inches (610 mm) deep~~ and special purpose pools shall be computed either on the basis of one person per 5 gpm (0.32 L/s) of recirculation flow, or one person per each 20 square feet (0.9 m2) of surface area, whichever is less. The bathing load for spa type pools shall be based on one person per each 10 square feet (0.9 m2) of surface area. ~~The filtration system for swimming pools shall be capable of meeting all other requirements~~ ~~of these rules while providing a flow rate of at least 1 gpm (0.06 L/s) for each living unit at transient facilities~~ and 3/4 gpm (0.04 L/s) at nontransient facilities.The pools provided at a transient facility shall be able to accommodate one bather per five living units, while the bathing load at a non-transient facility shall be at least one bather per seven living units. Recreational vehicle sites, campsites and boat slips designated for live-aboards shall be considered a transient living unit. For properties with multiple pools, this requirement includes the cumulative total ~~gpm~~ bathing load of all swimming pools, ~~excluding~~ spas, wading pools and interactive water features. All other types of projects shall be sized according to the anticipated bathing load and proposed uses, ~~For the purpose of determining minimum pool size only, the pool turnover period used cannot be less than~~ ~~3 hours.~~ except pools serving non-transient residential developments of 1,000 units or more can be sized based on 2.5 hours.

(SW7259 A1 only/ SW8131)

**454.1.2.1 Pool structure.**

Pools shall be constructed of concrete or other impervious and structurally rigid material. All pools shall be watertight, free from structural cracks and shall have a nontoxic smooth and slip resistant finish. All materials shall be installed in accordance with manufacturer’s specifications unless such specifications violate Chapter 64E-9, Florida Administrative Code, rule requirements or the approval criteria of NSF/ANSI Standard 50 or NSF/ANSI Standard 60.

(a) Floors and walls shall be white or pastel in color and shall have the characteristics of reflecting rather than absorbing light. Tile used in less than 5 feet (1524 mm) of water must be slip resistant. A minimum 4-inch (102 mm) tile line, each tile a minimum size of 1 inch (25 mm) on all sides, shall be installed at the water line, but shall not exceed 12 inches (305 mm) in height if a dark color is used. Gutter-type pools may substitute 2-inch (51 mm) tile, each a minimum size of 1 inch (25 mm) on all sides, along the pool wall edge of the gutter lip.

(b) One-inch (25 mm) square tile may be used if the manufacturer has specified the adhesive for  use underwater to adhere the type of tile used [vitreous (glass) or ceramic]. Tiles shall not have sharp edges exposed that could cause bather injury.

(c) Grout line is allowed to be included when meeting the 1 inch square tile requirements, if the tile is sold and distributed as nominal or trade size tile.

(SW7801)

454.1.2.2.2

All pool walls …….Offset steps, spa coves, spa pools and wading pools are exempt from this clearance requirement. ……This radius shall be continued through the top of the gutter edge; chamfering is allowed~~,~~.  P~~p~~ool coping shall not overhang into the pool more than 1 ½ inches (38 mm).

(SW7901)

**454.1.2.3.5 Rules and regulations signage.** Rules and regulations for bathers shall be installed in minimum 1-inch (25.4 mm ) letters which must be legible from the pool deck, and shall contain the following:

1. No food ~~or beverages~~ in the pool ~~or on pool wet deck~~. or on pool wet deck.

Commercially bottled water in plastic bottles are allowed on the pool wet deck for pool patron hydration.

2. No glass or animals in the fenced pool area (or 50 feet (15 240 mm) from unfenced pool).

3. Bathing load: \_\_\_ persons.

4. Pool hours: \_\_ a.m. to \_\_ p.m.

5. Shower before entering.

6. Pools of 200 square feet (18.58 m2) in area or greater without an approved diving well configuration shall have “NO DIVING”, in 4 inch (102 mm) letters included with the above listed pool rules.

7. Do not swallow the pool water. This statement shall be added to signs at pools that conduct alterations as that term is defined.

8. If the pool includes a sun shelf, “WARNING: DROP OFF AT SUN SHELF EDGE IS \_×\_ FEET DEEP” in 4-inch (102 mm) letters.

9. If the pool includes a sun shelf, “DO NOT PLACE FURNITURE IN POOL.”

10. By January 1, 2022, all pools shall add: "POOL MAXIMUM DEPTH: \_x\_ FEET," in 2" (51 mm) letters with the above listed pool rules

(SW7180/ SW8365 A2 only/SW7217)

**454.1.2.8.1 Sun shelf dimensional requirements.**Sun shelf areas must be a minimum of 20 inches (508 mm) wide and provide a minimum of 10 square feet (0.93 m2) of horizontal surface adjoining on the edge of the pool (three sides of shelf must be surrounded by pool deck) over a distance of not less than 3 feet (914 mm). The sun shelf edge that adjoins the pool edge must be continuous.  The sun shelf floor shall be horizontal or shall a have uniform slope from a zero depth entry, and its maximum depth shall be between 8 inches (203 mm) to 12 inches (254 mm) below the water surface. In pools utilizing automatic recessed surface skimmers, there shall be at least one skimmer in each sun shelf area.

(SW8341 A1 only/SW7903)

**454.1.3.1.2**

Pool wet decks shall be uniformly sloped ~~at a minimum of 2 percent to a maximum of 4 percent~~ away from the pool or to deck drains to prevent standing water. The minimum slope for the wet deck is 2 percent, but in the portions of the deck intended to be accessible to disabled persons, it may be one percent less than the maximum allowable cross slope given by the most recent edition ADA Standards for Accessible Design.  The maximum slope is 4 percent.  A minimum of 1 percent deck slope is allowable for paver-type decks. Textured deck finishes that provide pitting and crevices of more than 3/16 inch (4.8 mm) deep that accumulate soil are prohibited. If settling or weathering occurs that would cause standing water, the original slopes shall be restored or corrective drains installed. When a curb is provided, the deck shall not be more than 10 inches (254 mm) below the top of the curb.

Deck**~~s~~ level perimeter overflow systems** may be sloped at a maximum of 4% towards trench or slot drains for a maximum distance of 18 inches where deck**~~-~~**level perimeter overflow systems are utilized. **These must be slip resistant.  This distance is not applicable to zero depth entries in section 454.1.9.6.2.**  Wet deck area in accordance with 454.1.3.1.3 shall be provided beyond the trench grate or slot **drain**.

When a perimeter overflowing edge is provided, up to 40 percent of the deck may be lowered. Lowered portions of deck shall be at least 10 in (254 mm) but not more than 36 inches (9144 mm) below the pool water level. Lowered portions of deck shall not be more than 60 feet (18 288mm) long, and shall adjoin the rest of the deck via stairs or ramps at both ends.

(SW7190-R1/SW7905/SW7906A1/SW7177 A1 only)

**454.1.3.1.6**Twenty percent of the deck along the pool perimeter may be obstructed as long as any one obstruction does not exceed 10 percent of the pool perimeter or 20 feet (6096 mm), whichever is less, in any one area where water depth is 5 feet (1524 mm) or less. No lowered portion of the deck may be obstructed.  Obstructions shall have a wet deck area behind or through them, with the near edge of the walk within 15 feet (4572 mm) of the water except approved slide obstructions shall have the near edge of the walk within 35 feet (10 668 mm) of the water. These obstructions must be protected by a barrier or must be designed to discourage patron access. Obstructions shall not include pool exit points. When an obstruction exists in multiple areas around the pool, the minimum distance between obstructions shall be 4 feet (1219 mm).

(SW7177 A1 only)

**454.1.3.1.9**

All public pools shall be surrounded ………

Doored access points from public rooms such as lobbies or club houses need not be through gates if the door(s) meet the same self-closing, self-latching requirements as a gate. Operable parts used for opening doors at these access points shall be 45 inches (114 mm) minimum to 48 inches (122 mm) maximum above the finish floor or ground. Gates shall open outward away from the pool area…No change to the remaining text.

(SW7935)

**454.1.4.2.1 Outdoor pool lighting.** Lighting shall provide a minimum of 3 footcandles (30 lux) of illumination at the pool water surface and the pool wet deck surface. Underwater lighting shall be a minimum of 1/2 watt incandescent equivalent, or 10 lumens, per square foot of pool water surface area.

**454.1.4.2.2 Indoor pool lighting.** Lighting shall provide a minimum of 10 foot candles (100 lux) of illumination at the pool water surface and the pool wet deck surface. Underwater lighting shall be a minimum of 8/10 watt  incandescent equivalent, or 15 lumens, per square foot of pool surface area

(SW7176)

**454.1.4.2.5**

Underwater lighting, or lighting that may be exposed nozzle-directed pool water, shall not exceed 30 volts DC or 15 volts AC. Such lights shall be installed in accordance with manufacturer’s specifications, and be approved for such use by UL or NSF.

...

(SW7174-R1)

**454.1.5.5 Access.**The opening to an equipment room or area shall be a minimum 3 feet by 6 feet (914 mm by 1829 mm) and shall provide easy access to the equipment. Below grade collector tank(s) must have adequate access for cleaning, maintenance, and inspection.

(SW8341 A1 only)

Revise table to add Note 1

**TABLE 454.1.6.1**

**PUBLIC SWIMMING POOL—REQUIRED FIXTURE COUNT**

**(No change to the Table)**

**Note:**

1 Square Footage of Interactive water features are required to be included when calculating the “size of pool”  for  the purposes of determining  the type and number of fixtures for the sanitary facilities. For those facilities with an Interactive Water Feature in addition to the pool, causing the combined pool size square-footage to exceed the threshold required category fixture count, a unisex restroom may be installed to satisfy the fixture requirement for every additional 1,250 square feet or fraction thereof.  The IWF feature flow for one unisex restroom shall not exceed 100 gpm, nor shall bathing load exceed 20 patrons.

(SW7798 A5 only + Commission DOH handout)

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| --- |
|  |
|  |

**454.1.6.1 Sanitary facilities.** Swimming pools with a bathing load of 20 persons or less may utilize a unisex

restroom. Pools with bathing loads of 40 persons or less may utilize two unisex restrooms or meet the requirements of Table 454.1.6.1. Unisex restrooms shall meet all the requirements for materials, drainage and signage as indicated in Sections 454.1.6.1.1 through 454.1.6.1.4. Each shall include a water closet,

 a diaper change table, a urinal and a lavatory.  Pools with a bathing load larger than 40 persons shall provide separate sanitary facilities labeled for each sex. The entry doors of all restrooms shall be located within a 200-foot (60 960 mm) walking distance of the nearest water’s edge of each pool served by the facilities.

**Exception:** Where a swimming pool serves only a designated group of residential dwelling units including hotel rooms and not the general public, poolside sanitary facilities are not required if all living units are within a 200-foot (60 960 mm) horizontal radius of the nearest water’s edge, are not over three stories in height unless serviced by an elevator, and are each equipped with private sanitary facilities.

(SW8168)

**454.1.6.1.3 Sanitary Facility floors.**

Floors of sanitary facilities shall be constructed of concrete or other nonabsorbent materials, shall have a smooth, slip-resistant finish, and shall slope to floor drains~~.~~ which must be installed within the facility. ..No change to the remaining text.

(SW7907)

**454.1.6.5.3.2.3 Equalizers.**

~~Recessed automatic surface skimmers shall be installed with an equalizer valve and an equalizer line when the skimmer piping system is connected directly to pump suction.~~ If installed, an ~~the~~ equalizer valve shall be a spring-loaded vertical check valve which will not allow direct suction on the equalizer line. Float valves are prohibited. The equalizer line inlet shall be installed at least 1 foot (305 mm) below the normal pool water level and the equalizer line inlet shall be protected by an ASME/ANSI A112.19.8 compliant cover/grate. The equalizer line shall be sized to handle the expected flow with a 2-inch (51 mm) minimum line size. Where an equalizer valve is not installed, the skimmer port may be plugged.

(SW7908)

**454.1.6.5.5.1 Filter capacities.**

The maximum filtration rate in gallons per minute per square foot of filter area shall be: 15 [20 if so approved using the procedure stated in Section 454.1.6.5.1 for high rate sand filters, 3 for rapid sand filters, 0.375 for pleated cartridge filters and 2 for Diatomaceous Earth (D.E.) or regenerative media type filters].

(SW7910)

**454.1.6.5.9.6**

The flow rate through each inlet shall not exceed 20 gpm (1 L/s)~~.~~ except for inlets designed for higher flows as specified by the manufacturer.

(SW7911)

**454.1.6.5.10.1**

If ~~T~~the depth at the outlet ~~shall not~~ deviates more than 3 inches (76 mm) from the side wall~~.~~, that depth shall be identified on depth markers in addition to the markers normally required for the sidewall depth. Markers for the depth at the drains shall be in accordance with 454.1.2.3 with the following words added: “AT CENTER” for circular areas and “AT DEEP POINT” for other pool shapes.

(SW8240)

**454.1.6.5.12 Cleaning system.**

A portable, robotic, or plumbed in vacuum cleaning system shall be provided. All vacuum pumps shall be equipped with hair and lint strainers. When the system is plumbed in, the vacuum fittings shall be located to allow cleaning the pool with a 50-foot (15 240 mm) maximum length of hose. Vacuum fittings shall be ~~mounted no more than 15 inches (381 mm) below the water level, flush with the pool walls, and shall be provided with a spring-loaded safety cover which shall be in place at all times when the pool is not being vacuumed~~ located remotely in  the pool deck. Remote vacuum assemblies shall be installed with an equalizer valve and an equalizer line when the vacuum piping system is connected directly to pump suction and the suction line shall be protected with a threaded plug when not in use. The equalizer valve shall be a spring-loaded vertical check valve which will not allow direct suction on the equalizer line. Float valves are prohibited. The equalizer line inlet shall be installed at least 1 foot (305 mm) below the normal pool water level and the equalizer line inlet shall be protected by an ANSI/APSP-16 compliant cover/grate. The equalizer line shall be sized to handle the expected flow with a 2-inch (51 mm) minimum line size.  The provision of a filtered, chemically-treated water supply to the equalizer piping shall be provided to assist in preventing algae from forming within the equalizer piping arrangement. Bag-type cleaners, which operate as ejectors on potable water supply pressure, shall be protected by a vacuum breaker. Cleaning devices shall not be used while the pool is open to bathers.

(SW7656-R1)

**454.1.6.5.16.6**

Revise item 5 as follows:

5. The UV equipment shall not be located in a side stream flow and shall be located to treat all water returning to the pool or water features. Any treatment chemicals shall be injected downstream of the UV equipment.

(SW7912)

**454.1.7.7 Wading pool decks.**

When within 50 feet of ~~adjacent to~~ swimming pools, wading pools shall be separated from the swimming pool by a effective barrier or a fence of a minimum of 48 inches (1219 mm) in height with self-latching and self-closing gates. When adjacent to areas less than 1 foot (305 mm) deep of zero depth entry pools, the fence or effective barrier is required if the water edges are less than 40 feet (12 192 mm) apart. Where the walking distance is at least 50 feet (15240 mm) between the wading pool and all other pools, fencing requirements should be carefully considered by the applicant to control usage, but are not required by rule.  Effective Barriers that are designed to define the walking path shall be subject to review and approval by the Department.

(SW7914 A1+G4)

**454.1.7.8 Lighting.**

Wading pools are exempt from underwater lighting requirements but shall have lighting installed for night use of 10 foot candles (100 lux) if indoors or ~~6~~3 footcandles (~~60~~30 lux) for outdoor night use. Such illumination shall be provided over the pool water surface and the pool deck surface.  ~~If the maximum depth of the wading pool is two inches (51 mm) or less, the outdoor, night use lighting requirement is reduced to 1 footcandle (10 lux).~~

...

**454.1.9.2.1.1 ~~Plunge pool water depth~~ Adequate space at terminus**

The design engineer must demonstrate to the jurisdictional building department’s satisfaction that the water depth, clear area, distance between adjacent slides, floor slope, rope line placement, and pool floor surface finish are all adequate to prevent injury or harm to riders or other users of the pool, making reference to ASTM F2376 Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems, as appropriate. ~~The minimum plunge pool operating water depth at the slide flume terminus shall be 3 feet (914 mm). This depth shall be maintained for a minimum distance of 10 feet (3048 mm) in front of the slide terminus from which point the plunge pool floor may have a constant upward slope to allow a minimum water depth of 2 feet (51 mm) at the base of the steps. The floor slope shall not exceed 1 in 10. The plunge pool water depth shall be commensurate with safety and the ease of exit from the plunge pool.~~

**454.1.9.2.1.2 Reserved ~~Plunge pool dimension.~~**

~~The plunge pool dimension between any slide flume exit or terminus and the opposite side of the plunge pool shall be a minimum of 20 feet (6096 mm) excluding steps.~~

**454.1.9.2.1.3 Slide flume terminus.**

**~~454.1.9.2.1.3.1~~**

The slide flume terminus shall be designed by the design engineer who can demonstrate to the jurisdictional building department’s satisfaction that riders will be adequately slowed prior to discharge so as to prevent injury or harm to the rider upon impact with the plunge pool water. The design engineer must document the designed, safe location of the terminus relative to the plane of the pool wall and to the water level.~~The slide terminus shall be flush with the pool wall and located at or below the pool water level.~~

**~~454.1.9.2.1.3.2~~**

~~The minimum distance between any plunge pool side wall and the outer edge of any slide terminus shall be 5 feet (1524 mm). The minimum distance between adjacent slide flumes shall be 6 feet (18 288 mm).~~

**~~454.1.9.2.1.3.3~~**

~~A minimum length of slide flume of 10 feet (3048 mm) shall be perpendicular to the plunge pool wall at the exit end of the flumes.~~

(SW7175 A2+Original)

**454.1.9.2.1.6.2 Slopes.**

All plunge pool decks shall slope to the plunge pool or pump reservoir or to deck drains which discharge to waste, or other acceptable means. All slopes shall be between 2- and 4-percent grade~~.~~ except for paver-type decks where a minimum of 1 percent grade is allowed.

(SW7916)

**454.1.9.2.1.7 Plunge Pool Volume**

The total volume of a plunge pool and its collector tank or tanks shall be equal or greater than 3 minutes of the combined flow rate in gallons per minute of all filter and slide pumps. The design engineer must account for the water level in the pool both when the slide pumps are on and when they are off.  If skimmers are used, skimmers must be placed at both levels if the variance is greater than 3 inches (76 mm).  If perimeter overflow is used, half of the gutter outlets must be functional at each water level.

(SW7173)

**454.1.9.2.2.4**

Attendants or lifeguards ~~Water park personnel~~ shall be provided at the top of the slides and at the run out.

(SW7917)

**454.1.9.2.3 Pump reservoirs.**

Pump reservoirs are only required for slides with run out lanes.  Pump reservoirs shall be made of concrete or other impervious material with a smooth slip-resistant finish. Pump reservoirs shall be for the slide pump intakes, but where properly sized may also be used as a collector tank for the filter system. Pump reservoir designs shall meet the criteria of Sections 454.1.9.2.3.1 through 454.1.9.2.3.5.

(SW7173)

**454.1.9.2.3.1 Pump reservoir volume.**

The minimum reservoir volume shall be equal to 3 minutes of the combined flow rate in gallons per minute of all filter and slide pumps~~.~~ Unless justified by the design engineer.

(SW7918)

**454.1.9.2.3.5 Pump reservoir main drains.**

The pump reservoir shall have a minimum of one main drain with separate piping and valve to the filtration system collector tank unless the reservoir is used as the collector tank.~~and the v~~Velocity through the openings of the main drain grates shall not exceed 1 ½ feet per second (457 mm/s) at the design flow rate of the filtration system pump…No change to the remaining text.

(SW7920)

**454.1.9.2.6.1 Recirculation rate.**

The recirculation filtration system of water slides shall recirculate and filter a water volume equal to the total

water volume of the facility in a period of 2 hours or less. The total water volume shall include the water in the plunge pool dimensions stipulated by code, plus the slide water.

**454.1.9.2.6.2Filter ~~areas~~ performance .**

~~Minimum filter area requirements shall be twice the filter areas specified for the recirculation rates stipulated in Section 454.1.6.5.5.1.~~This exception is only applicable to conventional pool recreational slides.  The filtration system shall be capable of returning the pool water turbidity to 5/10ths (0.50) NTU within 8 hours or less after peak bather load. A continuous readout/electronic recording in-line turbidity meter shall be installed and used to determine compliance with this NTU criteria whenever the filter area size is optionally not doubled in size.

(SW7894 A1 only/ SW7178 A1+Original)

**~~454.1.9.2.6.3 Hair and lint strainer.~~**

~~Any filtration system pump which takes suction directly from the plunge pool and reservoir shall have a minimum 8-inch (208 mm) diameter hair and lint strainer on the suction side of the pump.~~

(SW7178 A1+Original)

**454.1.9.6.1**

Zero depth entry pools shall have a continuous floor slope from the water edge to ~~the deep end.~~ 3 feet of water depth at which point the slope can transition to another, less steep continuous slope. Floating safety ropes and slope transition markings are not required at this transition point.

(SW7923 A1 only)

**454.1.9.6.2**The deck level perimeter overflow system with grate shall be provided at the water’s edge across

the entire zero depth portion of the pool. Zero entry grate must be 8 to 12 inches wide, slip resistant, and constructed for intended purpose of submersion in water and exposure to UV sunlight.

(SW8341 A1 only)

454.1.9.8.1 Waters discharged from all fountain or spray features shall not pond on the feature floor but shall flow by gravity through a main drain fitting to a ~~below or~~ collection system which discharges to a collector tank.

No change to the existing code language that is left off here

(SW8365 A2 only)

**454.1.9.8.4**

If night operation is proposed, ~~61 footcandles (6010 lux)~~3 footcandles (30 lux) of light shall be provided on the pool deck and the water feature area. For IWFs that are operated with attendants or lifeguards 3 footcandles (30 lux) of light is acceptable. ~~Lighting that may be exposed to the feature pool water shall not exceed 15 volts, shall be installed in accordance with manufacturer’s specifications and be approved for such use by UL or NSF.~~

(SW7174-R1/SW7926)

**454.1.9.8.6.3**

In lieu of Section 454.1.9.8.6.1, the recirculation system must be designed to continuously return 100 percent of the water to the collector tank after all (100 percent) of the water is first filtered, treated with a validated UV disinfectant unit described in Section 454.1.6.5.16.6, with final treatment provided by disinfectant and pH adjustment chemicals~~, and the final treatment provided by a validated UV disinfectant unit described in Section 454.1.6.5.16.6~~ before any of this treated water is piped to the water features.

(SW7929)

**454.1.9.8.6.9**

IWFs shall be fenced in the same fashion as wading pools as noted in Section 454.1.7.7. Where the walking distance ~~IWF~~ is at least 50 feet (15240 mm) ~~from~~ between the IWF and all other pools and the IWF is not designed to have any standing water, fencing requirements should be carefully considered by the applicant to control usage, but are not required by rule.  Effective Barriers that are designed to define the walking path shall be subject to review and approval by the Department.

(SW7931 A1+G2 only)

**454.1.9.8.7.1** Rules and regulations for water theme parks shall be posted in minimum 1-inch (305 mm) letters at each entrance to the park and shall contain the following:  
1. No food, drink, glass or animals in pool or on the pool decks.

No change to the remaining text

(SW8365 A2 only)

**454.1.9.8.6.1**

All (100 percent) of the water from the collector tank must be first filtered, treated ~~with~~ by an NSF Standard 50 certified UV disinfection unit with a minimum 40 mJ/cm2 dose, and then final treatment provided by disinfectant ~~and pH~~ adjustment chemicals~~, and then final treatment provided by an NSF Standard 50 certified UV disinfection unit with a minimum 40 mJ/cm2 dose~~ before any of this treated water is piped to the water features.

(SW7927)

**454.1.9.8.6.3**

In lieu of Section 454.1.9.8.6.1, the recirculation system must be designed to continuously return 100 percent of the water to the collector tank after all (100 percent) of the water is first filtered, treated with disinfectant and pH adjustment chemicals, and ~~the final treatment provided by~~ a validated UV disinfectant unit described in Section 454.1.6.5.16.6~~before any of this treated water is piped to the water features~~.  In this scenario, the feature pumps do not need their own filter or disinfection, but they must be interlocked such that they do not operate unless the filter pump, chemical, and UV systems are all working properly.

(SW7819 /SW7855)

**454.1.9.8.6.12**

Floor slopes of an IWF shall be a maximum 1 foot (305 mm) vertical in 10 feet (3048 mm) horizontal and a minimum of 1 foot (305 mm) vertical in 60 ~~50~~ feet (18,288 ~~15 240~~ mm) horizontal.

(SW7932)

**454.1.9.8.7.3**

Water theme parks are exempt from the fencing requirements of Section 454.1.3.1.9, except that pools designed for small children shall be fenced when located within 50 feet (15240 mm) walking distance of a pool with water depths of 3 feet (914 mm) or more. Where the walking distance is at least 50 feet (15240 mm) between a pool designed for small children and all other pools, fencing requirements should be carefully considered by the applicant to control usage, but are not required by rule.  Barriers that are designed to define the walking path shall be subject to review and approval by the Department.

(SW7933 A1 only)

454.1.10 Resurfacing ~~Modifications.~~

454.1.10.1.6 Should resurfacing works affect the step riser heights, no riser shall exceed 12 ~~10~~ inches (305 ~~254~~ mm) for pools and 12 inches (305mm) for spas, and the intermediate risers shall be made uniform.

(SW7658)

**454.1.11 Public Bathing Places- Artificial Lagoons-**

454.1.11.1 General

An artificial lagoon is a type of water impoundment used as a public bathing place as defined in Section 514.011, Florida Statutes, that is man-made and has either: a total water surface area of at least one-half acre (2,023.4 square meters) in size, with an impervious containment system such as an artificial liner, and incorporates a method of disinfection that results in a disinfectant residual in the swimming zone(s) that is protective of the public health; or has no impervious containment system or disinfectant system, and the water surface area of the artificial lagoon shall be at least 2 acres (8,093.9 sq. m.) in size. Such artificial lagoons shall be designed and constructed within the limits of sound engineering practice and the provisions of section 454.1.11.

454.1.11.2 Sizing and Sanitary Facilities for Artificial Lagoons

The maximum bathing load for an artificial lagoon with a disinfection system approved by the local authority shall be limited by total square footage of the entire lagoon area that allows for swimming or bathing with 25 square feet assigned per bather in water 4 feet deep or less, and 75 sq. ft. in water over 4 feet deep. The maximum bathing load for all other artificial lagoons shall be limited by total square footage of the entire lagoon area that allows for swimming or bathing with 50 square feet assigned per bather in water 4 feet deep or less, and 75 sq. ft. in water over 4 feet deep. Sanitary facilities serving patrons of an artificial lagoon shall meet the Florida plumbing code criteria and are exempt from the fixture count requirements in Section 454.1.6.1.1. All sanitary facilities shall be located as near to the designated swimming area(s) as prudent to ensure patron use, but not over 200 feet (61 m) walking distance from the designated swimming area(s).

454.1.11.3 Construction Standards for Artificial Lagoons

If an artificial liner is utilized as a containment system, the artificial liner used to contain the water shall consist of a material certified under NSF/ANSI Standard 61-2017, Drinking Water System Components-Health Effects, dated March 13, 2017, hereby incorporated by reference, which has been deemed copyright protected, and is available for review at the Department of State, R.A. Gray Building, 500 South Bronough Street, Tallahassee, Florida 32399-0250. The liner or artificial bottom, floor, and the walls, if any, shall be white or light pastel in color and shall have the characteristic of reflecting rather than absorbing light. The liner material color shall have a dry lightness level (CIE L value) of 80.0 or greater and a wet luminous reflectance value (CIE Y value) of 50.0 or greater, as determined by test results provided by the manufacturer, utilizing testing methodology from American Standard ASTM D4086, ASTM E1477, or ASTM E1347. The design of such liner system is the responsibility of a professional engineer licensed in Florida. If any designated swimming area, or portion thereof, is designed with swimming pool features, including concrete vertical walls and floors, such areas of the artificial lagoon shall be designed in compliance with Sections 454.1.2.2.2, 454.1.2.2.3 and 454.1.2.2.4. Additionally, debris skimmers shall be provided in such areas at least every 40 linear feet. Zero depth entry areas of artificial lagoons shall be designed in compliance with Sections 454.1.11.5 and 454.1.11.6.

454.1.11.4 Access to Artificial Lagoons

Points of access shall be provided as needed to provide adequate entrance to and exit from the artificial lagoon. Means of access may consist of ladders, stairs, recessed treads, and swimouts, designed in compliance with Section 454.1.2.5, zero depth entry areas, and docks, in any number and combination that is appropriate for the intended use(s) of the artificial lagoon. Permanent or portable steps, ramps, handrails, lifts or other devices designed to accommodate handicapped individuals may be provided. Lifts mounted into the wet deck shall have a minimum 4-foot-wide (1219 mm) deck behind the lift mount.

454.1.11.5 Decks and Walkways for Artificial Lagoons

Decks and walkways, if utilized to access a designated swimming area, shall be designed in compliance with Sections 454.1.3.1.1 and 451.1.3.1.2. Zero depth entry areas may slope toward the water for no more than 7 feet (2133 mm), as measured from the water’s edge outward. Beyond this area, the deck or other surface shall slope away from the lagoon at a minimum of 2 percent to a maximum of 4 percent. Docks for aquatic activities such as sailing or kayaking, located outside of designated swimming areas, are exempt from this section.

454.1.11.6 Safety for Artificial Lagoons

The portion(s) of artificial lagoons designated for swimming shall meet the safety requirements in Section 454.1.3.3. Such designated swimming area(s) shall be visually separated from the rest of the artificial lagoon using a buoyed safety line(s) or similar device(s) approved by the local authority. Additionally, the floor slope at any designated swimming area(s) shall be continuous from the water’s edge to the deepest point and not exceed 1-unit vertical in 10-units horizontal. The depth at the deepest point in any designated swimming area shall be indicated, along with the other rules and regulations signage required in Section 454.1.2.3.5. Where access to a portion of the artificial lagoon with a vertical wall is not blocked or obstructed by an approved substantial barrier, NO DIVING markers and depth markers shall be installed in accordance with 454.1.2.3.1, except that markers are not required on inside vertical walls of an artificial lagoon. Signage may be substituted for markers if approved by the local authority, and such markers or signs are required only along the accessible perimeter of the lagoon. Markings shall be of such materials that will not fade over time. Artificial lagoons are exempt from the fencing requirements of Section 454.1.3.1.9, except that separate swimming pools designed for small children shall be fenced when located within 50 feet (15 240 mm) of an artificial lagoon. If installed, underwater seat bench construction shall be in compliance with section 454.1.2.6. -2. If installed, sun shelf construction shall be in compliance with sections 454.1.2.6 -3. and applicable sections of 454.1.2.8. Where water slides or climbable water activity features are used in or adjacent to the artificial lagoon, a lifeguard safety plan shall be submitted to the health department for approval and implemented by the owner/operator. Slides and water activity features shall be reviewed and approved by the local authority to conform with the same criteria for public swimming pools. If boating is allowed in the lagoon, provisions for bather safety and injury prevention must be specified and provided to the health department.

454.1.11.7 Electrical Systems for Artificial Lagoons

Electrical equipment wiring and installation, including the bonding and grounding of components, shall comply with Chapter 27 of the Florida Building Code, Building. Outlets supplying pump motors connected to single-phase 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, and outlets supplying other electrical equipment and underwater luminaires operating at voltages greater than the low voltage contact limit, connected to single-phase, 120 volt through 240 volt branch circuits, rated 15 or 20 amperes, whether by receptacle or by direct connection, shall be provided with ground-fault circuit interrupter protection for personnel. Any portions of the artificial lagoon designated for swimming at night shall comply with the lighting requirements in Sections 454.1.4.2.1. and 454.1.4.2.3.

454.1.11.8 Equipment Rooms

Equipment rooms for artificial lagoons shall comply with Section 454.1.5.

454.1.11.9 Treatment Systems for Artificial Lagoons

If continuous or intermittent chemical disinfection and/or non-chemical disinfection is provided to the artificial lagoon water, the equipment that feeds or generates the chemical shall be NSF/ANSI Standard 50 certified and subject to review and approval by the local authority.  The disinfectant chemical shall be applied in accordance with the manufacturer’s instructions, and must be a NSF/ANSI Standard 60 certified chemical, or a US EPA registered microbial biocide. Any other chemicals applied to the water for water quality treatment must be applied in accordance with the manufacturer’s instructions and must be an NSF/ANSI Standard 60 or Standard 50 certified chemical.  If remote chemical monitoring sensors are used, one (1) chemical sensor shall be installed in or directly adjacent to each designated swimming area. Vacuum systems shall not be used in designated swimming area(s) while such area(s) is(are) open for swimming, and all suction outlets shall comply with the requirements of section 514.0315, Florida Statutes.

(SW8327 Commission/DOH handout)

**SECTION 457 MENTAL HEALTH PROGRAMS**

Revise as follows:

457.1.4.1.5 Surge protection.

Surge protection in compliance with ~~the~~NFPA 70, National Electric Code~~, Article 280, as incorporated by reference in Chapter 27 of the Florida Building Code, Building,~~ shall be installed to protect the ~~each~~ service ~~entrance~~ equipment and have integral visual indication of surge protector failure. Additional surge protection shall be provided for all low-voltage and power connections to all electronic equipment and conductors entering or exiting the building and other life safety systems equipment such as fire alarm, telephone, and nurse call. Protection shall be in accordance with appropriate IEEE standards for the type of equipment being protected.

(SP7212)

**SECTION 464 ASSISTED LIVING FACILITIES**

Revise as follows:

**464.3 Codes and standards for the design and construction**

**of assisted living facilities.**

464.3.1 Except as modified and required by this section of the code, Chapter 58A-5, Florida Administrative Code or Chapter 429 Part III, Florida Statutes, all new assisted living facilities and all additions, alterations, or renovations to existing assisted living facilities with more than 16 licensed beds shall also be in compliance with *The Guidelines for the Design and Construction of Residential Health, Care and Support Facilities* (The Guidelines) Part I General, and Chapter 4.~~2~~1 Special Requirements for Assisted Living Facilities as referenced in Chapter 35 of this code.

(SP7637 A2 only)

**464.4.2.1**~~When outside temperatures are 65°F (18°C) or below, an indoor temperature of at least 72°F (22°C) shall be maintained in all areas used by residents during hours when residents are normally awake. During night hours when residents are asleep, an indoor temperature of at least 68°F (20°C) shall be maintained.~~ Mechanical systems shall be designed to maintaindry-bulb temperatures between 70°F (18°C) and 81°F (27°C) in resident occupied areas and between 70°F (18°C) and 85°F (29°C) in areas not intended for resident occupancy. This shall not preclude heating or cooling as necessary to maintain temperatures beyond this range for personal comfort. Residents who have individually controlled thermostats in their bedrooms or apartments shall be permitted to control temperatures in those areas.

**~~464.4.2.2~~** ~~During hours when residents are normally awake, mechanical cooling devices, such as electric fans, must be used in those as are of buildings used by residents when inside temperatures exceed 85°F (29°C) provided outside temperatures remain below 90°F (32°C). No residents shall be in any inside area that exceeds 90°F (32°C). However, during daytime hours when outside temperatures exceed 90°F (32°C), and at night, an indoor temperature of no more than 81°F (27°C) must be maintained in all areas used by residents.~~

**464.4.2.~~3~~2**Residents who have individually controlled thermostats in their bedrooms or apartments shall be permitted to control temperatures in those areas.  
**464.4.2.3** A new facility shall be equipped with either a permanent on-site alternate power source to operate at least the equipment necessary to maintain safe indoor air temperatures, life safety systems, and equipment for resident care needs, or there shall be a permanently installed predesigned electrical service entry for the electrical system that will allow a quick connection to a temporary alternate power source to operate at least the equipment necessary to maintain safe indoor air temperatures, life safety systems, and equipment for resident care needs. This quick connection shall be installed inside of a permanent metal enclosure rated for this purpose and may be located on the exterior of the building. See 58A-5.036 F.A.C. Environmental Controls for Assisted Living Facilities for additional requirements.

**464.4.2.3.1**If the alternate power source is a generator, it shall comply with the requirements of NFPA 70 for either an optional standby system or a legally required system.

**464.4.2.3.1**If the alternate power source is a generator, gasoline shall not be permitted as a fuel source.

(SP8280 A2 only)

Revise as follows:

**SECTION 467 HOSPICE INPATIENT FACILITIES AND UNITS AND HOSPICE ~~RESIDENCES~~ RESIDENTIAL FACILITIES**

467.1 Scope. All hospice inpatient facilities and units and ~~residences~~ residential facilities shall comply with the following design and construction standards. Enforcement and interpretation of these provisions shall be by the state agency authorized by Section 553.73, Florida Statutes.

Note: Other administrative and programmatic provisions may apply. See Department of Elder Affairs (DOEA) Rule 58A-2, Florida Administrative Code, Agency for Health Care Administration (AHCA) Rule 59C-1, Florida Administrative Code, and Chapter 400 Part VI, Florida Statutes.

467.1.2 The following are exempt from review under this ~~part~~ section:

467.1.2.1 Change of ownership of an existing licensed hospice facility or unit.

467.1.2.2 Change of the functional use of a space, room, or area when no physical plant revisions are made or are required to be made by this code.

467.1.3 The Florida Building Code, Existing Building, Section 101.2, Scope exempts state licensed facilities such as hospices from compliance with that code. Any repair,

alteration, change of occupancy, addition or relocation of an existing state licensed inpatient hospice facility shall comply with the applicable requirements of this code and this section.

467.2 Physical plant ~~requirements~~ definitions ~~(inpatient facility and unit)~~.

467.2.1 As used in this ~~rule~~ section, “inpatient facility and unit” means the location where inpatient services are provided to hospice patients that are in need of hospice inpatient care.

467.2.2 As used in this section the term “inpatient facility” means a freestanding building or structure that ~~contains only a single inpatient hospice and no other health care facility types.~~ houses inpatient beds licensed exclusively to the hospice program but does not house any inpatient beds licensed to a hospital or nursing home.

467.2.3 As used in this section, the term “unit” means ~~an inpatient hospice that is separately licensed and is part of other health care and support settings.~~ a distinct part section, wing or unit within a hospital or nursing home that houses beds licensed to the hospital or nursing home but which is leased by a hospice for the provision of hospice inpatient care to its patients.

467.2.3 As used in this section, the term “existing” means an inpatient hospice facility, unit or hospice ~~residence~~ residential facility constructed and approved under a previous edition of the *Florida Building Code, Building*.

467.~~2~~.3.~~2~~ Codes and standards.

467.~~2~~.3~~2~~.1 All new inpatient facilities and units ~~and facilities~~, and additions or renovations to existing ~~units and~~ facilities and units shall be in compliance with the requirements for:

467.3.1.1 Institutional Occupancy - Group I-2, Condition 1, as described in Section 308.3 of this code; and

467.3.1.2. The National Fire Protection Association Life Safety Code 101, Chapter 18, New Health Care Occupancy for nursing homes, as described in Rule 69A-3.012, Florida Administrative Code, Standards of the National Fire Protection Association and incorporated by reference in Rule 69A-3.012, Florida Administrative Code.

467.3.1.3. Part 1of the *Guidelines for the Design and Construction of Residential Health, Care and Support Facilities* as referenced in Chapter 35 of this code.

467.~~2.2.2~~ 3.1.4 Inpatient sleeping rooms shall be made accessible in accordance with the requirements for medical care facilities of the Florida Building Code, Accessibility.

 467.~~2.2.3~~ 3.1.5 In renovations and additions to existing facilities, only that portion of the total facility or unit affected by the project must comply with applicable sections of the

codes for new facilities and units.

 467.~~2.2.4~~ 3.1.6  Existing portions of the facility that are not included in the renovation or addition but are essential to the functioning of the complete facility, as well as existing areas which receive less than substantial amounts of new work, shall comply with the applicable sections of the codes for existing inpatient facilities and units.

 467.~~2.2.5~~ 3.1.7 All existing inpatient facilities and units licensed by the Agency for Health Care Administration shall be in compliance with National Fire Protection

Association Life Safety Code 101, Chapter 19, Existing Health Care Occupancy, for nursing homes and incorporated by reference in Rule 69A-3.012, Florida Administrative Code.

467.~~2.3~~ 4 Construction requirements. The following shall be provided in each inpatient facility ~~and~~ or unit:

~~467.2.3.1~~ 467.4.1  Each new patient sleeping room shall have a minimum room area exclusive of toilet room, or permanently attached or built-in closets, lockers or wardrobes, of ~~100~~ 120 square feet ~~(9.29~~… m2) per bed for private rooms and ~~80~~ 100 square feet (~~7.70~~ 9.29 m2) per bed for double occupancy rooms.

467.4.1.1 In new construction and additions, the maximum room capacity of each patient room shall be two persons. In double occupancy patient rooms, sleeping areas shall be separated from each other by a wall or partition to increase acoustic and visual privacy. Each person lying in bed shall have direct visual access to an exterior window at all times. For visual privacy, either doors or cubicle curtains to these individual patient sleeping areas shall be provided.

467.4.1.2 The design for privacy shall not restrict a patient’s access at any time to the room entrance, resident armchair, toilet or bathroom, wardrobe, exterior window or closet.

~~467.2.3.2~~ 467.4.2 Each patient sleeping room shall have a window(s), with a maximum sill height of 36 inches (…m) for any building constructed after July 5, 2016, or door with a clear glass light in compliance with Section 1205.2 of this code. The window or door shall open directly to an atrium or to the outside of the building with a minimum of 20 feet (6.10 m) in clear and unobstructed vista measured perpendicularly from the window or door.

~~467.2.3.3~~ 467.4.3 Each patient sleeping room shall have a wardrobe, locker or closet suitable for hanging clothing of the patient.

~~467.2.3.4~~ 467.4.4 ~~Other than a patient sleeping room located in a hospital or nursing home,~~ ~~e~~Each patient sleeping room shall have access to a toilet room without having to enter the general corridor area. One toilet room shall serve no more than ~~four~~ two beds and no more than ~~two~~ one resident room~~s~~ unless the hospice unit is located inside of an existing hospital or nursing home.

 467.4.4.1 The door shall be side hinged, and swing out from the toilet room, ~~and unless otherwise required by this code~~ or shall be a sliding barn door with, be at least 32 inches (813 mm) wide.

467.4.4.2  The toilet room shall contain a water closet with grab bars on both sides.

~~and an emergency nurse call station.~~

467.4.4.3 The water closet shall be equipped with a bedpan-rinsing device unless the Functional Program as described in Part I of the Guidelines for the Design and Construction of Residential facilities as referenced in Chapter 35 provides for disposable bedpans after every use.

467.4.4.4 There shall be an emergency nurse call station inside of each toilet room.

~~467.2.3~~ 467.4 5 A hand washing facility shall be provided within each patient toilet room or if the hospice unit is located inside of an existing hospital or nursing home, within each patient bedroom.

~~467.2.3~~ 467.4.6 A nurses’ station, clean workroom and soiled workroom shall be provided. Access to these rooms shall be from a corridor or ante room.

~~467.2.3~~ 467.4.7 A charting space for clinical staff shall be provided at each nurses’ station.

~~467.2.3~~. 467.4.8 A hand washing facility shall be located in or near each nurses’ station.

~~467.2.3.~~ 467.4.9 The clean workroom shall be provided with a work counter, hand wash facility, storage facilities and covered waste receptacle.

~~467.2.3.~~ 467.4.10 The soiled workroom shall be provided with a service sink equipped with rinsing device, work counter, a hand-washing facility, storage facilities, covered

waste receptacle and covered linen receptacle.

~~467.2.3.~~ 467.4.11 A drug distribution system shall be provided with provisions for the locked storage of medications. ~~Nothing in this section shall prohibit~~ ~~t~~The use of the clean workroom for drug distribution shall be permitted.

~~467.2.3.~~ 467.4.12 A clean linen storage room or closet shall be provided.

~~467.2.3.~~ 467.4.13 A nourishment station with equipment for preparing or serving nourishments between scheduled meals shall be provided and shall be available for patient, family, volunteers, guests and staff use. Provisions shall be made for the use and storage of small appliances such as coffee makers or toasters. A minimum of two duplex receptacles connected to a small appliance circuit shall be provided.

~~467.2.3.~~ 467.4.14 Nurse call systems. Wired- or wireless-type nurse call systems shall be permitted if they have been tested and approved by a nationally recognized testing laboratory (NRTL) to meet the requirements of UL 1069, 7th edition, published October 12, 2007, as referenced in Chapter 35 of this code. All wireless systems shall have

been tested and approved by a nationally recognized testing laboratory (NRTL) to meet the requirements of Section 49, Wireless Systems of UL 1069, 7th edition as

referenced in Chapter 35 of this code. All nurse call systems whether wired or wireless shall have electronically supervised visual and audible annunciation in accordance

with the supervision criteria of UL 1069, 7th edition for nurse call systems and tested and approved by a nationally recognized testing laboratory (NRTL) to meet those requirements.

467.4.14.1 A nurse call~~ing~~ system accessible by the patient shall be provided in each patient sleeping room. Nurse call master panel shall be provided at the nurses’ station. Nurse call duty stations shall be provided in each clean workroom, soiled workroom, medicine preparation room and nourishment room.

~~467.2.3.~~467.4.15 Storage for administrative supplies shall be provided.

~~467.2.3.~~ 467.4.16 Parking for stretchers and wheelchairs in an area out of the path of normal traffic and of adequate size for the unit shall be provided.

~~467.2.3~~ 467.4.17 A janitor’s closet with a floor drain and storage space for housekeeping equipment and supplies shall be provided.

~~467.2.3.~~ 467.4.18 A multipurpose lounge suitable and furnished for reception, recreation, dining, visitation, group social activities and worship shall be provided.

~~467.2.3.~~ 467.4.19 A conference or consultation room for patient and family use shall be provided for every hospice facility or unit.

~~467.2.3.~~ 467.4.20 A washer and dryer for patients’ personal use shall be provided.

~~467.2.3.~~467.4.21 Bathing facilities.

~~467.2.3.21467~~.4.21.1 A centralized resident bathing room(s) shall be provided with a minimum of one bathtub, hydro tub, or shower for every 20 hospice inpatients or fraction thereof not otherwise served by ~~bath or~~ shower facilities designed to accommodate a shower chair, connected directly to the resident rooms.

~~467.2.3.21~~ 467.4.21.2 A separate private toilet room shall be provided that is directly accessible to each central bathing area with multiple bathing fixtures without requiring entry into the general corridor.

~~467.2.3.21.~~ 467.4.21.3 All showers located in bathing rooms connected directly to the resident rooms shall be designed so that a shower chair can be easily rolled in and out of the shower area.

467.~~2.4~~.5 Details.

467.~~2.4~~.5.1 Fixtures, such as drinking fountains, public telephone, vending machines and portable equipment, shall not be located or stored so as to restrict corridor traffic or reduce the minimum required corridor width.

~~467.2.~~ 467.4.5.2 Doors to patient tub rooms, showers and water closets that swing into the room shall be equipped with reversible hardware that will allow the door to swing out in an emergency.

~~467.2. 4.5.~~ 467.4.5.3 Doors, except those to closets or spaces not subject to occupancy, shall not swing into the exit access corridors.

~~467.2~~ 467.4.5.4 Windows and outer doors, if ~~used for ventilation~~ operable, shall be equipped with insect screens.

~~467.2.~~ 467.4.5.5 Interior thresholds and expansion joint covers shall be made flush with the floor surface.

~~467.2.4.5.~~ 467.4.5.6 Grab bars shall be provided at all patient toilets, showers, and tubs. The bars shall have a clearance of 11 /2 inches (38 mm) to the walls and shall be sufficiently

anchored to sustain a concentrated applied load of not less than 250 pounds (113 kg).

~~467.2.4.5.~~ 467.4.5.7 Single paper towel dispensers, soap dispensers and covered waste receptacles shall be provided at all hand washing facilities.

~~467.2.4.5.~~ 467.4.5.8 Staff hand washing facilities shall be fitted with wrist blades and a gooseneck-type spout.

~~467.2.4.5.~~ 467.4.5.9 All hand washing facilities shall be securely anchored to withstand an applied vertical load of not less than 250 pounds (113 kg) on the front of the fixture.

467.~~2.5~~ 4.6 Elevators. In new multistory units and facilities an elevator shall be provided in compliance with the requirements of Chapter 30 of the Florida Building Code, Building . In addition, a hospital-type elevator large enough to accommodate a bed and attending staff shall service all patient sleeping rooms and patient treatment areas located above the ground floor. The car shall be at least 5 feet 8 inches (1.73 m) wide by 9 feet (2.74 m) deep and the car doors shall have a clear opening of not less than 4 feet (1.22 m) wide and 7 feet (2.13 m) high.

~~467.2.6~~ 467.4.7 Mechanical system requirements.

~~467.2.6~~ 467.4.7.1 Air conditioning, heating and ventilating systems.

 1. All patient occupied areas shall be heated or cooled by individual or central units. Heating units shall be designed to provide a minimum of 72°F (22.22°C) ambient indoor temperature and air conditioning units shall be designed to provide a minimum of 78°F (25.55°C) ambient indoor temperature.

2. All air-supply and air-exhaust systems shall be mechanically operated. Fans serving exhaust systems shall be located at the discharge end of the system.

~~467.2.6.1~~ 467.4.7.1 Carbon monoxide detector. See Section 908.8.

~~467.2.6.~~ 4674. 7 2 Plumbing and other piping systems. Water distribution systems shall be arranged to provide hot water at each hot water outlet at all times. Hot water at shower, bathing, and hand washing facilities for patients’ personal use shall not exceed 110°F (43.3°C).

~~467.2.7~~ 467.4.8 Electrical system requirements.

~~467.2.7~~ 467.4.8.1 Lighting.

1. All spaces occupied by people, machinery, and equipment within the building, approaches to building, and parking areas shall have electric lighting.

2. All patients’ rooms shall have general lighting and night lighting. General room luminaries shall be switched at the entrance to the patient room.

~~467.2.7~~ 467.4.8.2 Receptacles. All patient rooms shall have hospital grade duplex grounding-type receptacles.

~~467.2~~ 467.4.8.3 ~~8~~ Emergency electrical system.

~~467.2.8~~ 467.4.8.3.1 A Type III essential electrical system shall be provided in all hospice facilities as described in National Fire Protection Association Life Safety Code 99, “Health Care Facilities”, and incorporated by reference in Rule 69A-3.012, Florida Administrative Code. The emergency power for this system shall meet the requirements of a Level II, type 10, Class 48 generator as described in National Fire Protection Association Life Safety Code 110, “Emergency Standby Power Systems”, and incorporated by reference in Rule 69A-3.012, Florida Administrative Code.

~~467.2.8.2 In new construction, the normal main service equipment shall be separated from the emergency distribution equipment by locating it in a separate room.~~

~~Transfer switches shall be considered emergency distribution equipment for this purpose.~~ The essential electrical system shall have at a minimum ~~1~~ one transfer switch. Separate electrical branches are not required.

~~467.2.8.3 Switches for critical branch lighting shall be completely separate from normal switching. The devices or cover plates shall be of a distinctive color.~~

~~Critical branch switches are permitted to be adjacent to normal switches. Switches for life safety lighting are not permitted except as required for dusk-to-dawn automatic control of exterior lighting fixtures.~~

~~467.2.8.4~~ 467.4.8.3.2  There shall be selected life safety lighting provided at a minimum of 1 footcandle (10 lux) and designed for automatic dusk-to-dawn operation along

the travel paths from the exits to the public way or to safe areas located a minimum of 30 feet (9.14 m) from the building.

~~467.2.8.5~~ 467.4.8.3.3  A minimum of one elevator per bank serving any patient use floor shall be connected to the ~~equipment branch of the~~ essential electric system and arranged for ~~manual or~~ automatic operation during loss of normal power. Elevator cab lighting, controls, and communication and signal systems shall be connected to the ~~life safety branch. E~~ essential electrical system.

~~467.2.8.6 There shall be a dedicated low-fuel alarm for the day tank supplying the emergency generator driver. A manual pump shall also be provided for the day tank. The alarm shall be located at the generator derangement panel.~~

~~467.2.8.7 Transfer switch contacts shall be of the open type and shall be accessible for inspection and replacement.~~

~~467.2.8.8~~ 467.4.8.3.4  If required by the facility’s emergency food plan, there shall be power connected to the ~~equipment branch of the~~ essential electrical system for kitchen

refrigerators, freezers and range hood exhaust fans. Selected lighting within the kitchen and dry storage areas shall be connected to the ~~critical branch of the~~ essential electrical system.

467.~~3~~.5 Residential ~~units~~ Facilities.

467.~~3~~5.1 Residential ~~units~~ facilities shall comply with the Florida Building Code, Building and the National Fire Protection Association Life Safety Code 101 as adopted by the Florida Fire Prevention Code.

 467.~~3~~5.2 Residential ~~units~~ facilities shall comply with the following codes and standards:

 467.~~3~~ 5.2.1 All new facilities and additions and renovations to existing facilities shall be in compliance with:

1. Section 310.6 of this code for Group R-4 occupancy;

2. The National Fire Protection Association Life Safety Code 101, Chapter 32, Residential Board and Care Occupancy and incorporated by reference in Rule 69A-3.012, Florida Administrative Code, and

3. The Florida Building Code, Accessibility for residential facilities.

467~~.3~~ 5.2.2 All existing facilities shall comply with National Fire Protection Association Life Safety Code 101, Chapter 33, Existing Residential Board and Care Occupancy

and incorporated by reference in Rule 69A-3.012, Florida Administrative Code.

(SP7639-R1 + Commission)

**SECTION 468 SCHOOLS, COLLEGES AND UNIVERSITIES**

Revise as follows:

**468.2.2 Playgrounds and equipment.** Playgrounds ~~and~~ shall be evenly graded and sloped to provide positive surface drainage. Playground equipment shall be safe, structurally sound, verminproof, and shall not have jagged or sharp projections. Playground equipment shall be anchored to suitable foundations to prevent toppling or dislodgement. Cushioning materials such as mats, wood chips, or sand shall be used under climbing equipment, slides, and swings as required by the Public Playground Safety Handbook.

**468.2.4 Transmission line right-of-way.** Buildings, play areas, and common use areas shall not be located within a high-voltage power transmission line right-of-way.

(SP7732-R1)

**~~453.16.3~~ 468.3.5.11 Urinals.** Trough urinals shall not be installed in any location.

(SP7979)

**~~453.16.6~~ 468.3.5.12 Hot water.** When hot water is supplied to ~~showers,~~ handwash sinks or lavatories in toilet rooms, a mixing valve shall be installed to control the temperature, at the fixture, which shall not exceed 110°F (43°C) nor be less than 95°F (35°C).

(SP7983)

**~~453.15.4~~ 468.3.6.7 Toilet room ventilation.** Toilet rooms shall be continuously ventilated during building occupancy.

**Exception:** Individual toilet rooms shall be ventilated continuously during building occupancy or ventilation shall turn on with the light switch and run for at least 10 minutes after the light has been turned off.

(SP7733)

**468.3.7.1 Illumination level in classrooms/instructional spaces.** Illumination at the normal task level for the type of classroom/instruction space shall be ~~a minimum~~ designed to provide and maintain an average of 40 footcandles (400 Lux).

(SP7729 A7 only)

**SECTION 469 OFFICE SURGERY SUITE**

Revise as follows:

469.2.1.2 Part I and Part 2: Outpatient Facility Types, Chapter 2.1, Common Elements for Outpatient Facilities of T*he Guidelines for Design and Construction of* ~~Health Care~~ *Outpatient Facilities* (The Guidelines), as referenced in Chapter 35 of this code.

(SP7640 A1 only)

**Chapter 5 GENERAL BUILDING HEIGHTS AND AREAS**

Revise as follows:

**503.1.4 Occupied roofs**A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs shall not be included in the building area as regulated by Section506.

**Exceptions:**

1.    The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Section 907.5 is provided in the area of the occupied roof.

2.    Assembly occupancies shall be permitted on roofs of open parking garages of Type I or Type II construction, in accordance with the exception to Section903.2.1.6.

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

**Exception:**Penthouses constructed in accordance with Section 1510.2 and towers, domes, spires, and cupolas constructed in accordance with Section 1510.5.

(F8173)/(I-Code)

**TABLE 509**

**INCIDENTAL USES**

|  |  |
| --- | --- |
| **ROOM OR AREA** | **SEPARATION AND/OR PROTECTION** |
| Furnace room where any piece of equipment is  over 400,000 Btu per hour input | 1 hour or provide automatic sprinkler system |
| Rooms with boilers where the largest piece of  equipment is over 15 psi and 10 horsepower | 1 hour or provide automatic sprinkler system |
| Refrigerant machinery room | 1 hour or provide automatic sprinkler system |
| Hydrogen fuel gas rooms, not classified as Group H | 1 hour in Group B, F, M, S and U occupancies; 2  hours in Group A, E, I and R occupancies. |
| Incinerator rooms | 2 hours and provide automatic sprinkler system |
| Paint shops, not classified as Group H, located in  occupancies other than Group F | 2 hours; or 1 hour and provide automatic sprinkler  system |
| In Group E occupancies, laboratories and  vocational shops not classified as Group H | 1 hour or provide automatic sprinkler system |
| In Group I-2 occupancies, laboratories not  classified as Group H | 1 hour and provide automatic sprinkler system |
| In ambulatory care facilities, laboratories not  classified as Group H | 1 hour or provide automatic sprinkler system |
| Laundry rooms over 100 square feet | 1 hour or provide automatic sprinkler system |
| In Group I-2, laundry rooms over 100 square feet | 1 hour |
| Group I-3 cells and Group I-2 patient rooms  equipped with padded surfaces | 1 hour |
| In Group I-2, physical plant maintenance shops | 1 hour |
| In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of  10 cubic feet or greater | 1 hour |
| In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms  over 100 square feet | 1 hour or provide automatic sprinkler system |
| In ambulatory care facilities or Group I-2  occupancies, storage rooms greater than 100 square feet | 1 hour |
| Stationary storage battery systems having an energy capacity greater than the threshold quantity specified in the *Florida Fire Prevention Code* ~~a liquid electrolyte capacity of more than 50~~ ~~gallons for flooded lead- acid, nickel cadmium or~~ ~~VRLA, or more than 1,000 pounds for lithium-ion~~ ~~and lithium metal polymer used for facility standby~~ ~~power, emergency power or uninterruptable~~  ~~power supplies~~ | 1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies. |
| Electrical installations and transformers | See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection  and separation requirements. |

(F7506 A1)/(I-Code)

**510.2 Horizontal building separation allowance.** A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.

2. The building below the *horizontal assembly* is of Type IA construction.

3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with

Section ~~716.5~~ 716.

**Exception:** Where the enclosure walls below the *horizontal assembly* have not less than a 3- hour *fire-resistance rating* with opening protectives in accordance with Section ~~716.5~~716, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire- resistance rating*, provided:

1. The building above the *horizontal assembly* is not required to be of Type I construction;

2. The enclosure connects fewer than four *stories*; and

3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.

5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.

6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

(F74-15)

**Chapter 6 TYPES OF CONSTRUCTION**

Revise as follows:

**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 wood,~~or~~ laminated wood, heavy timber (HT) or structural composite lumber (SCL) without concealed spaces. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, structural composite lumber (SCL), and cross-laminated timber and~~The~~ details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Interior walls and partitions not less than 1-hour fire-resistance rating or heavy timber complying with Section 2304.11.2.2 shall be permitted. ~~Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued-laminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4.~~*~~Cross-laminated timber~~*~~(CLT) dimensions used in this section are actual dimensions.~~

**602.4.1 Fire-retardant-treated wood in exterior walls.** *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less.

**602.4.2 Cross-laminated timber in exterior walls.** *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:

1.     *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;

2.     *Gypsum board* not less than 1/2 inch (12.7 mm) thick; or

3.     A noncombustible material.

**~~602.4.3 Columns.~~** ~~Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an~~*~~approved~~*~~manner. Protection in accordance with Section 704.2 is not required.~~

**~~602.4.4 Floor framing.~~** ~~Wood beams and girders shall be of sawn or glued-laminated timber and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn or glued-laminated timber arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.~~

**~~602.4.5 Roof framing.~~** ~~Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by~~*~~approved~~*~~automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.~~

**~~602.4.9~~ 602.4.3 Exterior structural members.** Where a horizontal separation of 20 feet(6096 mm) or more is provided, wood columns and arches conforming to heavy timber sizes complying with 2304.11 shall be permitted to be used externally.

**2304.11 Heavy timber construction.** Where a structure ~~or~~ , portion thereof ~~is~~, or individual structural elements are required to be of ~~Type IV construction~~heavy timber by ~~other~~ provisions of this code, the building elements therein shall comply with the applicable provisions of Sections 2304.11.1 through ~~2304.11.5~~ 2304.11.4.Minimum dimensions of heavy timber shall comply as applicable in Table2304.11 based on roofs or floors supported and the configuration of each structural element, or as applicable in Sections2304.11.2 through 2304.11.4.

**2304.11.1 ~~Columns~~**

**Details of heavy timber structural members.** ~~Columns~~

Heavy timber structural members shall be ~~continuous or superimposed throughout all stories by means of~~ ~~reinforced concrete or metal caps~~ detailed and constructed in accordance with ~~brackets, or shall be connected by~~ ~~properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the~~

~~columns by metal connectors housed within the contact faces, or by other~~*~~approved~~* ~~methods.~~ Sections

2304.11.1.1 through 2304.11.1.3.

**2304.11.1.1~~Column connections~~Columns.** Minimum dimensions of columns shall be in accordance with Table

2304.11.Columns shall be continuous or superimposed throughout all stories and connected in an *approved*manner. Girders and beams at column connections shall be closely fitted around columns and adjoining ends shall be cross tied to each other,or intertied by caps or ties,to transfer horizontal loads across joints. Wood bolsters shall not be placed on tops of columns unless the columns support roof loads only.Where traditional heavy timber detailing is used, connections shall be permitted to be by means of reinforced concrete ormetal caps with brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other approved methods.

**~~2304.11.2~~ 2304.11.1.2 Floor framing.** Minimum dimensions of floor framing shall be in accordance with Table

2304.11. *Approved*wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on masonry or concrete walls. Where intermediate beams are used to support a floor, they shall rest on top of girders, or shall be supported by ~~ledgers or blocks securely fastened to the sides of the girders, or they shall be~~ ~~supported by~~ an *approved* metal hanger into which the ends of the beams shall be closely fitted.Where traditional heavy timber detailing is used, these connections shall be permitted to be supported by ledgers or blocks securely fastened to the sides of the girders.

**~~2304.11.3~~ 2304.11.1.3 Roof framing.** Minimum dimensions of roof framing shall be in accordance with Table 2304.11. Every roof girder and at least every alternate roof beam shall be anchored to its supporting member; ~~and every monitor and every sawtooth construction shall be anchored to the main roof construction. Such~~ ~~anchors shall consist o fsteel or iron bolts of sufficient strength~~ to resist ~~vertical uplift of the roof.~~forces as required in Chapter 16.

**~~602.4.8~~ 2304.11.2 Partitions and walls.** Partitions and walls shall comply with Section ~~602.4.8.1~~2304.11.2.1 or

~~602.4.8.2~~ 2304.11.2.2.

**~~602.4.8.2~~ 2304.11.2.1Exterior walls.**Exterior walls shall permitted to be ~~of one of the following:~~

~~1.~~    ~~Noncombustible materials.~~

1.    ~~Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~

~~1.1.~~  *~~Fire-retardant-treated wood~~*~~in accordance with Section 2303.2 and complying with~~

~~Section 602.4.1.~~

1.1.*Cross-laminated timber* ~~complying with~~meeting the requirements of Section ~~602.4.2~~

2303.1.4.

**~~602.4.8.1~~ 2304.11.2.2 Interior walls and partitions.** *No change to text.*

**~~602.4.6~~ 2304.11.3 Floors.** Floors shall be without concealed spaces. Wood floors shall be constructed in accordance with Section ~~602.4.6.1~~2304.11.3.1 or ~~602.4.6.2~~2304.11.3.2.

**~~602.4.6.2~~ 2304.11.3.1 Cross-laminated timber floors.** *Cross-laminated timber*shall be not less than 4 inches (102 mm) in actual thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber*shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design.Corbelling of masonry walls under the floor shall be permitted to be used.

**~~602.4.6.1~~ 2304.11.3.2 Sawn or glued-laminated plank floors.***No change to text.*

**Delete without substitution:**

**~~2304.11.4 Floor decks.~~** ~~Floor decks and covering shall not extend closer than 1/2 inch (12.7 mm) to walls. Such~~

~~1/2-inch(12.7 mm) spaces shall be covered by a molding fastened to the wall either above or below the floor and~~ ~~arranged such that the molding will not obstruct the expansion or contraction movements of the floor. Corbeling of~~ ~~masonry walls under floors is permitted in place of such molding.~~

**Revise as follows:**

**~~2304.11.5~~ 2304.11.4 Roof decks.** Roofs shall be without concealed spaces and roof decks shall be constructed in accordance with Section 2304.11.4.1 or2304.11.4.2.Other types of decking shall be permitted to be used where equivalent fire resistance and structural properties are being provided. Where supported by a wall, roof decks shall be anchored to walls to resist ~~uplift~~  forces determined in accordance with Chapter 16.Such anchors shall consist of steel  bolts, lags, screws or ~~iron bolts~~*approved* hardware of sufficient strength to resist ~~vertical~~ ~~uplift of the roof.~~ prescribed forces.

**~~602.4.7~~ 2304.11.4.1 ~~Roofs~~ Cross-laminated timber roofs.** ~~Roofs shall be without concealed spaces and wood~~ ~~roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm)~~ ~~nominal in thickness; 11 /8-inch-thick(32 mm)wood structural panel (exterior glue); planks not less than 3inches~~ ~~(76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber.~~ ~~Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural~~ ~~properties.~~

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) ~~nominal in~~    in actual thickness and

shall be continuous from support to support and mechanically fastened to one another.

**Add new text as follows:**

**2304.11.4.2Sawn, wood structuralpanel, or glued-laminated plank roofs.**

Sawn,wood structural panel, or glued-laminated plank roofs shall be one of the following:

1. Sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness;

2. 11 /8-inch-thick (32mm) wood structural panel (exterior glue);

3. Planks not less than 3inches (76mm) nominal in width, set on edge close together and laid as required for floors.

**TABLE ~~602.4~~ 2304.11**

**~~WOODMEMBER SIZE EQUIVALENCIES~~ MINIMUM DIMENSIONS OF HEAVY TIMBER STRUCTURAL MEMBERS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **MINIMUM NOMINAL SOLID**  **SAWN SIZE** | **MINIMUM GLUED- LAMINATED NETSIZE** | **MINIMUM STRUCTURAL COMPOSITELUMBER NETSIZE** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Supporting** | **Heavy Timber Structural Element** | **Width, inch** | **Depth, inch** | **Width, inch** | **Depth, inch** | **Width,inch** | **Depth, inch** |
| Floor loads only or combined floor and roof loads | Columns; Framed sawn  or glued- laminated timber arches which spring from the floor line;  Framed timber trusses | 8 | 8 | 6 3/4 | 8 1/4 | 7 | 7 1/2 |
| Wood beams and girders | 6 | 10 | 5 | 10 1/2 | 5 1/4 | 9 1/2 |
| Roof loads only | Columns (roof and ceiling loads);  Lower half of: Wood-frame or glued- laminated arches which spring from the floor line or from grade | 6 | 8 | 5 | 8 1/4 | 5 1/4 | 7 1/2 |
| Upper half of: Wood-frame or glued- laminated arches which spring from the floor line or from grade | 6 | 6 | 5 | 6 | 5 1/4 | 5 1/2 |
| Framed timber trusses and other roof framing;a  Framed or glued-laminated arches that spring from the top of walls or wall abutments | 4 b | 6 | 3 b | 6 7/8 | 3 1/2  b | 5 1/2 |

For SI:1inch =25.4 mm.

A Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice lates shall be not less than 3 inches (76mm) nominal in thickness.

bWhere protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches(76 mm) nominal in width.

(F7522)/(G175-15, G178-15 and G179-15)

*Revise the Nonbearing walls and partitions row of Table 601 as follows:*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nonbearing walls and partitions Interiord | 0 | 0 | 0 | 0 | 0 | 0 | See Section ~~602.4.6~~ 2304.11.2 | 0 | 0 |

*Revise footnote c to Table 601 as follows:*

c.In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

(F8265)/(G180-15)

*Revise item 19 of 603.1 as follows:*

**603.1 Allowable materials.**

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

19.Heavy timber as permitted by Note c to Table 601 and Sections ~~602.4.7~~ 602.4.3 and 1406.3.

(F8267)/(G180-15)

**604 Fuel line piping protection.** Fuel lines supplying a generator set inside a building shall be separated from areas of the building other than the room the generator is located in by an approved method, or an assembly that has a fire-resistance rating of not less than 2 hours. Where the building is protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, the required fire-resistance rating shall be reduced to 1 hour.

(F8121)

**Chapter 7 FIRE AND SMOKE PROTECTION FEATURES**

Revise as follows:

**TABLE 705.2 (705.2) MINIMUM DISTANCE OFPROJECTION**

|  |  |
| --- | --- |
| **FIRE SEPARATION DISTANCE - FSD**  **(~~FSD~~ feet)** | **MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD** |
| 0 ~~feet~~ to less than 2 ~~feet~~ | Projections not permitted |
| ~~Greater than~~ 2 ~~feet~~ to less than 3 ~~feet~~ | 24 inches |
| ~~Greater than~~ 3 ~~feet~~ to less than ~~30~~ 5 ~~feet~~ | 24 inches plus 8 inches for every foot of FSDbeyond  3 feet or fraction thereof |
| ~~30 feet~~5 or greater | ~~20 feet~~ 40 inches |

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

(F7495)/(I-Code)

**705.2.3 Combustible projections.**

Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the *fire separation distance* shall be of not less than 1-hour *fire-resistance-rated* construction, ~~Type IV~~ heavy timber construction complying with Section 2304.11, *fire-retardant-treated* wood or as required by Section 1406.3.

**Exception:**Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

(F8269)/(G180-15)

**705.8.2 Protected openings.** Where openings are required to be protected, *~~fire doors~~* ~~and fire shutters~~ opening protectives shall comply with Section ~~716.5 and~~ *~~fire window assemblies~~* ~~shall comply with Section 716.6~~ 716.

**Exception:** Opening protectives are not required where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers *approved* for that use.

**706.8 Openings.** Each opening through a *fire wall* shall be protected in accordance with Section ~~716.5~~ 716 and shall not exceed 156 square feet (15 m2). The aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall.

**Exceptions:**

1. Openings are not permitted in party walls constructed in accordance with Section 706.1.1.

2. Openings shall not be limited to 156 square feet (15 m2) where both buildings are equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

(F74-15)

**705.8.5 Vertical separation of openings.**

Openings in exterior walls in adjacent stories shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizontally and the opening in the lower story is not a protected opening with a fire protection rating of not less than 3/4 hour. Such openings shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, exterior walls or other similar assemblies that have a fire-resistance rating of not less than 1 hour, rated for exposure to fire from both sides, or by flame barriers that extend horizontally not less than 30 inches (762 mm) beyond the exterior wall. Flame barriers shall have a fire-resistance rating of not less than 1 hour. The unexposed surface temperature limitations specified in ASTM E119 or UL 263 shall not apply to the flame barriers ~~or vertical separation~~ unless otherwise required by the provisions of this code.

Exceptions:

1.This section shall not apply to buildings that are three stories or less above grade plane.

2.This section shall not apply to buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

3.Open parking garages.

(F7569)/(I-Code)

**709.5 Openings.** Openings in a *smoke barrier* shall be protected in accordance with Section 716.

**Exceptions:**

1. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of 3/4 inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer’s listing, positive- latching devices are not required. Factory applied or field applied protective plates are not required to be labeled.

2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, special purpose horizontal sliding, accordion or folding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

(F8133/ F8140) /(I-Code)/(FS44-15)

**712.1.10.1 Automobile ramps.**

Vertical openings for automobile ramps in ~~open and enclosed~~ parking garages shall be permitted where constructed in accordance with Sections 406.5 and 406.6~~, respectively~~.

(F8187)/(FS46-15)

**713.8 Penetrations.**

PenetrationsinashaftenclosureshallbeprotectedinaccordancewithSection714 as required for *fire barriers*. Structural elements, such as beams or joists, where protected in accordance with Section 714 shall be permitted to penetrate a shaftenclosure.

**713.8.1 Prohibitedpenetrations.**

Penetrationsotherthanthosenecessaryforthepurposeoftheshaft shall not be permitted in shaftenclosures.

**Add new text as follows:**

**713.8.2**  **Membrane penetrations.**

Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section714.3.2.

(F8196)/(FS49-15)

**713.13 Waste and linen chutes and incinerator rooms.**

Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter ~~5~~ 6 and shall meet the requirements of Sections 712 and 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.

**Exception:** Chutes serving and contained within a single dwelling unit.

(F8304/(FS51-15)/(FS50-15)

**713.13.1 Waste and linen.**

A shaft enclosure containing a recycling, or waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. A shaft enclosure shall be permitted to contain recycling and waste chutes. Openings into the shaft, from access rooms and discharge rooms, shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be self-closing. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing devices shall be permitted between the shaft and the discharge room.

(F8306)/(FS52-15)

**713.14 Elevator, dumbwaiter and other hoistways.** Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with ~~Section~~ Sections 712, 713 and Chapter 30.

(FS51-15)

**714.2 Installation A listed penetration firestop system shall be installed in accordance with the manufacturer's installation instructions and the listing criteria.**

**714.2.1 Installation details.**

Where sleeves are used, they shall be securely fastened to the assembly penetrated. The space between the item contained in the sleeve and the sleeve itself and any space between the sleeve and the assembly penetrated shall be protected in accordance with this section. Insulation and coverings on or in the penetrating item shall not penetrate the assembly unless the specific material used has been tested as part of the assembly in accordance with this section.

(F7596) /(I-Code)

714.3.1.1 Fire-resistance-rated assemblies. ~~Penetrations~~ Through penetrations shall be protected using systems installed as tested in ~~an~~ the approved fire-resistance-rated assembly.

714.4.1.1 ~~Installation~~ Fire-resistance-rated assemblies. Through penetrations shall be protected using systems installed as tested in the approved fire-resistance-rated assembly.

(F7682) /(I-Code)

**714.4.1.2 Through-penetration firestop system.** *Through penetrations* shall be protected by

an *approved through-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

**Exceptions:**

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.

2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.

3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter metal conduit or tubing penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

(FS63-15 AMPC1)

***714.4.2* Membrane penetrations.** Penetrations of membranes that are part of a *horizontal*

*assembly* shall comply with Section 714.4.1.1 or 714.4.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

**Exceptions:**

1. *Membrane penetrations* by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the *annular space* is protected either in accordance with Section 714.4.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane shall not exceed 100 square inches (64 500 mm2) in any 100 square feet (9.3 m2) of ceiling area in assemblies tested without penetrations.

2. Ceiling *membrane penetrations* of maximum 2-hour *horizontal assemblies* by steel electrical boxes that do not exceed 16 square inches (10 323 mm2) in area, provided the aggregate area of such penetrations does not exceed 100 square inches (44 500 mm2) in any 100 square feet (9.29 m2) of ceiling area, and the *annular space* between the ceiling membrane and the box does not exceed 1/ inch (3.2 mm).

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3. *Membrane penetrations* by electrical boxes of any size or type, that have been *listed* as part of an opening protective material system for use in *horizontal assemblies* and are installed in accordance with the instructions included in the listing.

4. *Membrane penetrations* by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the ceiling membrane and the box shall not exceed 1/ inch (3.2 mm) unless *listed* otherwise.

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5. The *annular space* created by the penetration of a fire sprinkler, provided it is covered by a metal escutcheon plate.

6. Noncombustible items that are cast into concrete building elements and that do not penetrate both top and bottom surfaces of the element.

7. The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the double top plates are protected in accordance with Section 714.4.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.

8. Ceiling membrane penetrations by listed luminaires (light fixtures) or by luminaires protected with listed materials, which have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.

(FS67-15)

**715.1**   **General.** Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies androofsorroof/ceilingassembliesshallbeprotectedbyanapproved*fire-resistantjointsystem*designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section715.3.

**Exception:** *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1.       Floors within a single *dwelling unit*.

**2.       Floors where the joint is protected by a shaft enclosure in accordance with Section713.**

3.       Floorswithinatriumswherethespaceadjacenttothe atrium isincludedinthevolumeofthe atrium for smoke controlpurposes.

4.       Floors within malls.

5.       Floors and ramps within open and enclosed parking garages or structures constructedin accordance with Sections 406.5 and 406.6,respectively.

6.       Mezzaninefloors.

7.       Walls that are permitted to have unprotectedopenings.

8.       Roofs where openings are permitted.

9.       Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and testedin accordance with ASTM E 119 or UL263.

10.   The intersection of exterior curtain wall assemblies and the roof slab or roofdeck.

(F7609) /(I-Code)

**715.3 Fire test criteria.** Fire-resistant joint systems shall be tested in accordance with the requirements of either ASTM E1966 or UL 2079. Nonsymmetrical wall joint systems shall be tested with both faces exposed to the furnace, and the assigned fire-resistance rating shall be the shortest duration obtained from the two tests. Where evidence is furnished to show that the wall was tested with the least fire-resistant side exposed to the furnace, subject to acceptance of the building official, the wall need not be subjected to tests from the opposite side.

**Exception:** For exterior walls with a horizontal fire separation distance greater than ~~5~~ 10 feet (~~1524~~ 3048 mm), the joint system shall be required to be tested for interior fire exposure only.

(F7683 G1) /(I-Code)

**716.1 General.** Opening protectives required by other sections of this code shall comply with the provisions of this section and shall be installed in accordance with NFPA 80.

(F7497/F7623)

**TABLE 716.3 (716.3)**

**MARKING FIRE-RATED GLAZING ASSEMBLIES**

|  |  |  |
| --- | --- | --- |
| **FIRE TEST STANDARD** | **MARKING** | **DEFINITION OF MARKING** |
| ASTM E 119 or UL 263 | W | Meets wall assembly criteria. |
| ASTM E 119 or UL 263 | FC | Meets floor/ceiling criteriaa |
| NFA 257 or UL 9 | OH | Meets fire window assembly criteria including the hose stream test. |
| NFPA 252 or UL 10B or UL 10C | D H T | Meets fire door assembly criteria.  Meets fire door assembly hose stream test.  Meets 450ºF temperature rise criteria for 30 minutes |
|  | XXX | The time in minutes of the fire resistance or fire protection rating of the glazing assembly. |

For SI: ºC = [(ºF) - 32]/1.8.

a. See Section 2409.1

 (F7624)/(I-Code)

**716.3.1 Fire-rated glazing identification.**

For fire-rated glazing, the label shall bear the identification required in Tables 716.3 and 716.5. "D" indicates that the glazing is permitted to be used in fire door assemblies and that the glazing meets the fire protection requirements of NFPA 252, UL 10B or UL 10C. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252, UL 10B or UL 10C. "T" shall indicate that the glazing meets the temperature requirements of Section 716.5.5.1. The placeholder "XXX" represents the fire-rating period, in minutes.

(F7684)

**716.5  Fire door and shutter assemblies.** Approved *fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 716.5.1, 716.5.2 or 716.5.3 and the *fire protection rating* indicated in Table 716.5.*Firedoor frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.5.6.~~Fire door assemblies and shutters shall be installed in accordance with the provisions of thissection and NFPA 80.~~*

**Exceptions:**

**1.   Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B and UL 14C for tin-clad *fire door* assemblies.**

**2.    Floor *fire door* assemblies in accordance with Section712.1.13.1.**

**716.6  Fire-protection-rated glazing.** Glazing in fire window assemblies shall be fire protection rated in accordance with this section and Table 716.6. Glazing in fire door assemblies shall comply with Section 716.5.8. Fire-protection rated glazing in fire window assemblies shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257 or UL 9. ~~Fire-protection- rated glazing shall comply with NFPA 80.~~ Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 705.3, 705.8, 705.8.5 or 705.8.6 shall have a fire protection rating of not less than 3 /4 hour. Fire- protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire protectionrating.

(F7623) /(I-Code)

**Table 716.5, Footnote**

a.     Two doors, each with a fire protection rating of 11/2 hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire-door.

b.     Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c.      Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d.     Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e.   See Section 716.5.8.1.2.1

f.    See also Section 716.3.1 and Table 716.3 for additional permitted markings.

(F7671) /(I-Code)

**716.5.2 Other types of assemblies.**

*Fire door*assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire doors ~~assemblies~~, rolling steel fire doors, ~~and~~ fire shutters ~~assemblies~~, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

(F7890)/(FS88-15)

***716.5* Fire door and shutter assemblies.** Approved *fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 716.5.1, 716.5.2 or 716.5.3 and the *fire protection rating* indicated in Table 716.5.*Firedoor* frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.5.6.~~Fire door assemblies and shutters~~ shall be installed in accordance with the provisions of thissection and NFPA 80.

No change to the remaining text

**716.6 Fire-protection-rated glazing.** Glazing in fire window assemblies shall be fire protection rated in accordance with this section and Table 716.6. Glazing in fire door assemblies shall comply with Section 716.5.8. Fire-protection rated glazing in fire window assemblies shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257 or UL 9. ~~Fire-protection- rated glazing shall comply with NFPA 80.~~ Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 705.3, 705.8, 705.8.5 or 705.8.6 shall have a fire protection rating of not less than 3 /4 hour. Fire- protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire protectionrating.

(F7497)

**716.5.8.1.2.1 Horizontal exits.**

Fire-protection-rated glazing shall be permitted as vision panels in *self- closing* swinging *fire door* assemblies serving as horizontal exits in *fire walls* where limited to 100 square inches (0.065 m2) ~~with no dimension exceeding 10 inches (0.3 mm)~~.

(F8308) /(I-Code)

**716.5.9.1 Latch required.**

Unless otherwise specifically permitted, single side-hinged swinging *fire doors* and both leaves of pairs of side-hinged swinging *fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

(F7891) /(I-Code)

**716.5.9.1**     **Latch required.**

Unless otherwise specifically permitted, single *side-hinged swinging fire doors*andbothleavesofpairsofside-hingedswinging*firedoors*shallbeprovidedwithanactivelatch bolt that will secure the door when it isclosed.

(F8324) /(I-Code)

Revise as follows:

**716.5.9 Door closing.** *Fire doors* shall be latching and self- or automatic-closing in accordance with this

section.

**Exceptions:**

1. *Fire doors* located in common walls separating *sleeping units* in Group R-1 shall be permitted without automatic- or *self-closing* devices.

2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

**716.5.9.1 Latch required.** Unless otherwise specifically permitted, single *fire doors* and both leaves of pairs of side-hinged swinging *fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

**716.5.9.1.1 Chute intake door latching**. Chute intake doors shall be positive latching, remaining latched and closed in the event of latch spring failure during a fire emergency.

**716.5.9.2 Automatic-closing fire door assemblies.** Automatic-closing *fire door* assemblies shall be *self-closing* in accordance with NFPA 80.

**716.5.9.3 Delayed action closers.** Doors required to be self-closing and not required to be automatic closing shall be permitted to be equipped with delayed action closers.

[Renumber subsequent sections]

(F8226) /(I-Code)

**716.5.9.3** **Smoke-activated doors.**

Automatic-closing doors installed in the following locations shall be permitted to have hold-open devices. Doors shall automatically close ~~automatic-closing~~ by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector orhold-opendevice.Doors thatareautomatic-closing bysmokedetectionshallnothavemorethana10- second delay before the door starts to close after the smoke detector is actuated.: Automatic-closing doors that protect openings installed in the following locations shall comply with thissection:

~~1.    Doors installed across acorridor.~~

~~2.    DoorsinstalledintheenclosuresofexitaccessstairwaysandrampsinaccordancewithSections 1019 and 1023,respectively.~~

~~3.    Doorsthatprotectopeningsinexitsorcorridorsrequiredtobeoffire-resistance-rated construction.~~

1.~~4. Doors that protect openings~~ in walls ~~that are capable of resisting the passage of smoke~~ that separate incidental uses in accordance with Section 509.4.

2.~~7. Doors installed~~ In *fire ~~wall~~ walls* in accordance with Section 706.8.

3. In *fire barriers* in accordance with Section 707.6

4.~~6. Doors installed~~ In *fire partitions* in accordance with Section 708.6.

5. ~~Doors installed~~ In *smoke barriers* in accordance with Section 709.5.

6.~~12. Doors installed~~ In smoke partitions in accordance with Section 710.5.2.3.

7.~~8. Doors installed~~ In shaft enclosures in accordance with Section 713.7.

8.~~9. Doors installed~~ In waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections 716.5.9 and 716.5.9.1.1.

~~10 Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.~~

~~11. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.~~

(F8331) /(I-Code)

**716.5.9.4 Doors in pedestrian ways.**

Vertical sliding fire doors or ~~vertical~~ rolling steel *fire doors* in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.

(F7887)/(FS96-15)

**716.6.2 Nonsymmetrical glazing systems.**

Nonsymmetrical fire-protection-rated glazing systems in *fire partitions*, *fire barriers* or in *exterior walls* with a *fire separation distance* of ~~5~~ 10 feet (~~1524~~ 3048 mm) or less pursuant to Section 705 shall be tested with both faces exposed to the furnace, and the assigned *fire protection rating* shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9.

(F8336 G1)/(FS98-15)

**717.3.3.1 Fire damper actuation ~~device~~.**

~~The~~*~~fire~~**~~damper~~*~~actuation device~~ Primary heat responsive devices used to actuate fire dampers shall meet one of the following requirements:

1.The operating temperature shall be approximately 50°F (10°C) above the normal temperature within the duct system, but not less than 160°F (71°C).

2.The operating temperature shall be not more than 350°F (177°C) where located in a smoke control system complying with Section 909.

(F7919)

**717.4 Access** **and** **identification**. Access and identification of fire and smoke dampers shall comply with sections 717.4.1 through 717.4.2

**717.4.1 Access**. Fire and smoke dampers shall be provided with an approved means of access that is large enough to permit inspection and maintenance of the damper and its operating parts. Dampers equipped with fusible likes, internal operators, or both shall be provided with an access door that is not less than 12 inches (305 mm) square or provided with a removable duct section.

**717.4.1.1 Access openings**. The access shall not affect the integrity of fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance rating of the assembly. Access doors in ducts shall be tight fitting and suitable for the required duct construction.

**717.4.1.2 Restricted access.** Where space constraints or physical barriers restrict access to a damper for periodic inspection and testing, the damper shall be a single- or multi-blade type damper and shall comply with the remote inspection requirements of NFPA 80 or NFPA 105.

**717.4.2 Identification.** Access points shall be permanently identified on the exterior by a label having letters not less than 1/2 inch (12.7 mm) in height reading: FIRE/SMOKE DAMPER, SMOKE DAMPER or FIRE DAMPER. ~~Access doors in ducts shall be tight fitting and suitable for the required duct construction.~~

(F7928)

**717.5.2 Fire barriers.**

Ducts and air transfer openings of fire barriers shall be protected with ~~approved~~ listed  fire dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for interior exit stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

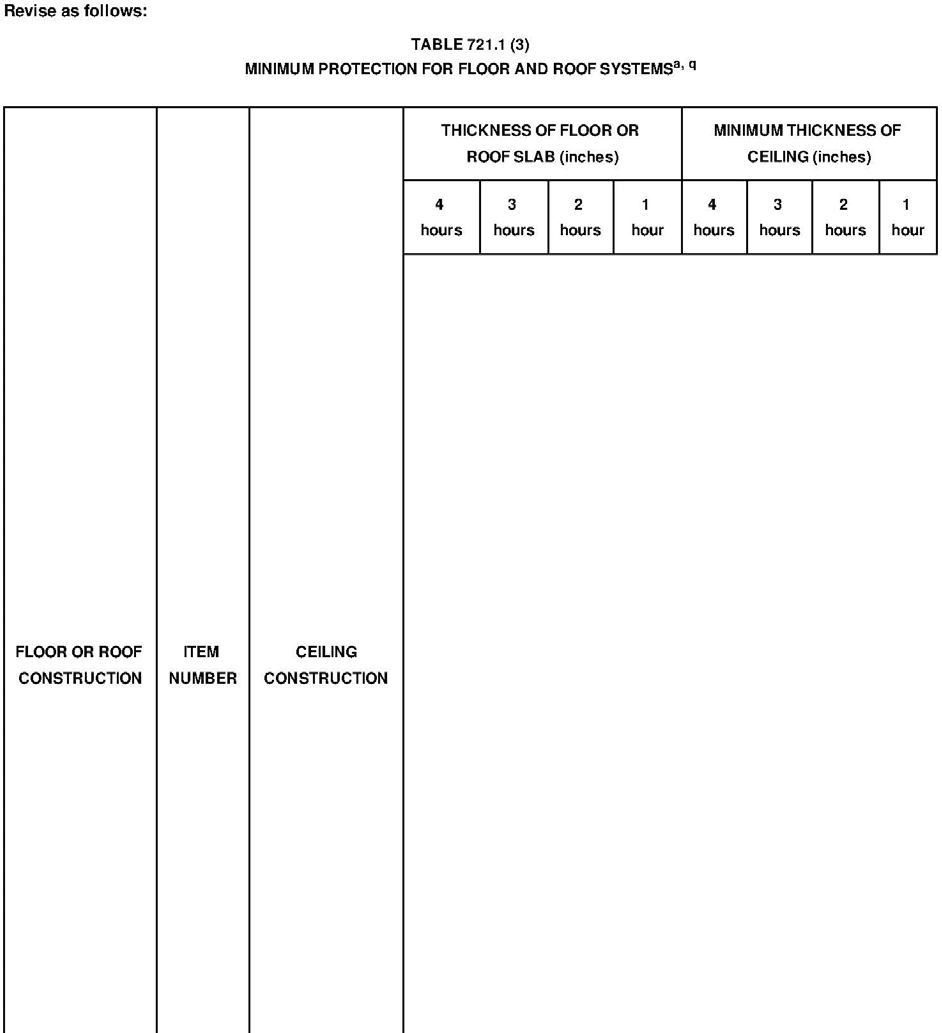
No change to remaining text

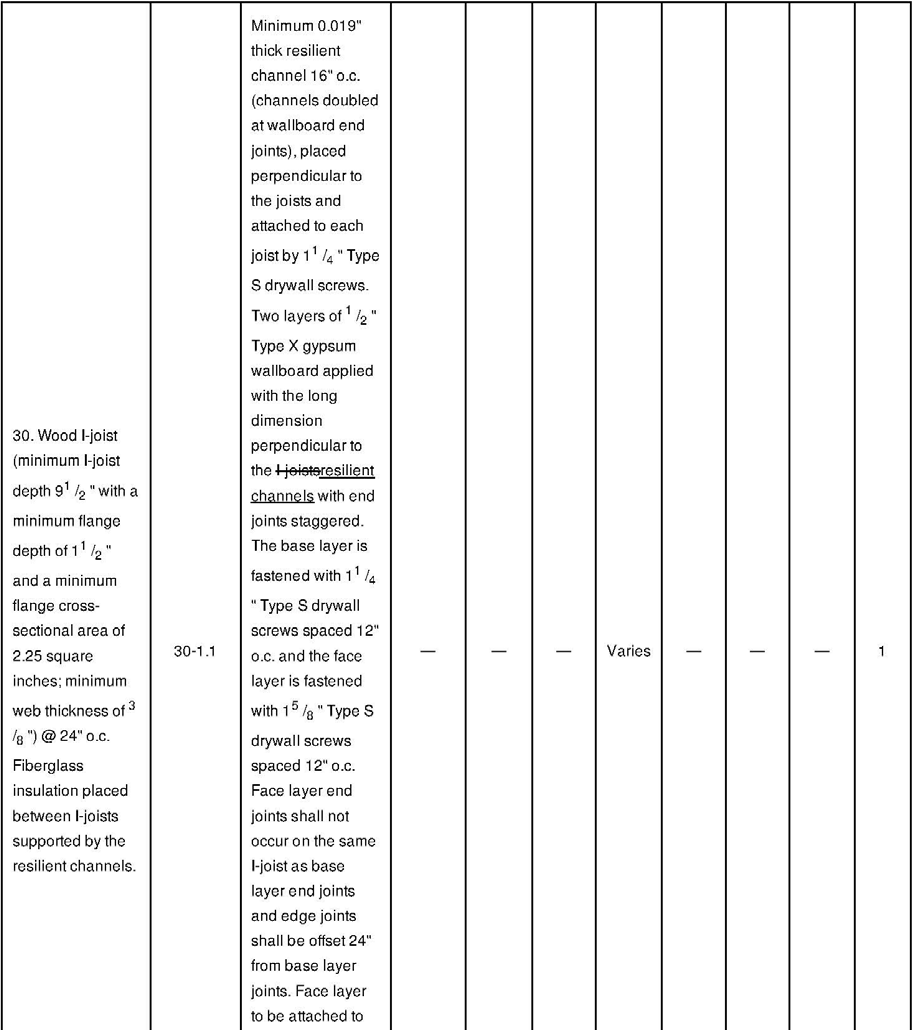
**717.5.3 Shaft enclosures.**

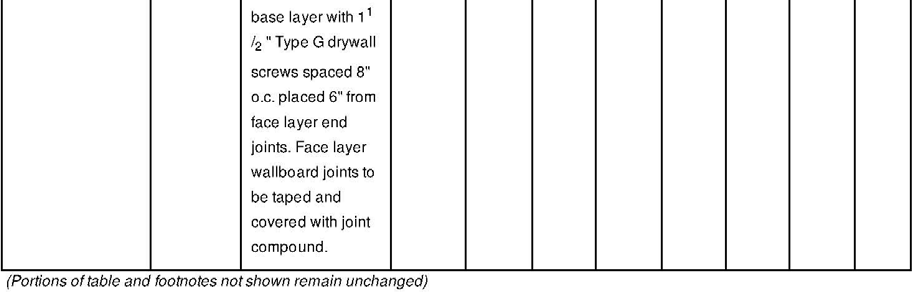
Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with ~~approved~~ listed fire and smoke dampers installed in accordance with their listing.

No change to remaining text.

(F7702) /(I-Code)







(F7496)/(FS129-15)

**TABLE 721.1(3)**

**MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMSa, q**

*Revise row 27 of the Table as follows:*

Minimum 0.019" thick resilient channel 16" o.c. (channels doubled at wallboardend joints), placed perpendicular to thejoist and attached to each joist by 11/4"Type S drywall screws. Two layers of 1/2"Type X gypsum wallboard applied withthe long dimension perpendicular to the ~~I-joists~~ resilient channels with end joints staggered. The baselayer is fastened with 11/4" Type S drywallscrews spaced 12" o.c. and the face layeris fastened with 15/8" Type S drywallscrews spaced 12" o.c. Face layer endjoints shall not occur on the same I-joistas base layer end joints and edge jointsshall be offset 24" from base layer joints.Face layer to also be attached to baselayer with 11/2" Type G drywall screwsspaced 8" o.c. placed 6" from face layerend joints. Face layer wallboard joints tobe taped and covered with joint compound.

(S7501)/(FS130-15)

**722.2.4.4 Columns built into walls.** The minimum dimensions of Table 722.2.4 do not apply to a reinforced concrete column that is built into a concrete or masonry wall provided all of the following are met:

1. The *fire-resistance rating* for the wall is equal to or greater than the required rating of the column;

2. The main longitudinal reinforcing in the column has cover not less than that required by Section 722.2.4.2; and

3. Openings in the wall are protected in accordance with ~~Table 716.5~~ Section 716.

Where openings in the wall are not protected as required by Section ~~716.5~~716, the minimum dimension of columns required to have a *fire-resistance rating* of 3 hours or less shall be 8 inches (203 mm), and 10 inches (254 mm) for columns required to have a *fire-resistance rating* of 4 hours, regardless of the type of aggregate used in the concrete.

(F74-15)

**Chapter 8 INTERIOR FINISHES**

Revise as follows:

**803.3 Heavy timber exemption.**

Exposed portions of building elements complying with the requirements for buildings of ~~Type IV~~ heavy timber construction in Section 602.4 or Section 2304.11 shall not be subject to *interior finish* requirements~~.~~, except in interior stairways, interior exit ramps, and exit passageways.

**803.13.3 Heavy timber construction.**

Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of ~~Type IV~~ heavy timber construction in Sections 602.4.2 or 2304.11 or to wood furring strips applied directly to the wood decking or planking shall be fire-blocked as specified in Section 803.13.1.1.

(F8270/F7507) /(FS132-15)/(G180-15)

**804.2 Classification.** Interior floor finish and floor covering materials required by Section 804.4.2 to be of Class I or II materials shall be classified in accordance with ASTM E648 or NFPA 253. The classification referred to herein corresponds to the classifications determined by ASTM E648 or NFPA 253 as follows: Class I, 0.45 watts/cm2 or greater; Class II, 0.22 watts/cm2 or greater.

**804.3 Testing and identification.** Interior floor finish and floor covering materials shall be tested by an agency in accordance with ASTM E648 or NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification in accordance with Section 804.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

(F7547)/(I-Code)

**Chapter 9 FIRE PROTECTION SYSTEMS**

Revise as follows:

**901.6.1 Automatic sprinkler systems.** *Automatic sprinkler systems* shall be monitored byan

*approved* supervising station.

**Exceptions:**

1.            A supervising station is not required for *automatic sprinkler systems* protecting one and two familydwellings.

2.            Limited area systems ~~serving fewer than 20 sprinklers~~ in accordance with Section 903.3.8.

(F8059)/(I-Code)

**903.3.1.2.1 Balconies and decks.** Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* and *sleeping units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

**903.3.1.2.2 Open-ended corridors.** Sprinkler protection shall be provided in *open-ended corridors* and associated *exterior stairways* and *ramps* as specified in Section 1027.6, Exception 3.

**903.3.1.2.3 Attics** Attic protection shall be provided as follows:

1. Attics that are used or intended for living purposes or storage shall be protected by sprinklers.

2. Where fuel-fired equipment is installed in an unsprinklered attic, at least one quick-response

intermediate temperature sprinkler shall be installed above the equipment.

3. Where located in a building of Type III Type IV or Type V construction designed in accordance with Section 510.2 or Section 510.4 of the *International Building Code*, attics not required by Item 1 to have sprinklers shall comply with one of the following if the roof assembly is located more than 55 feet (16 764 mm) above the lowest level of required fire department vehicle access:

a. Provide sprinkler protection.

b. Construct the attic using noncombustible materials.

c. Construct the attic using fire-retardant-treated wood complying with Section 2303.2.

d. Fill the attic with noncombustible insulation.

The height of the roof assembly shall be determined by measuring the distance from the lowest required fire vehicle access road surface adjacent to the building to the eave of the highest pitched roof, the intersection of the highest roof to the exterior wall, or the top of the highest parapet, whichever yields the greatest distance. For the purpose of this measurement, required fire vehicle access roads shall include only those roads that are necessary for compliance with Section 503.

4. Group R-4 Condition 2 occupancy attics not required by Item 1 to have sprinklers shall comply with one of the following:

a. Provide sprinkler protection.

b. Provide a heat detector system throughout the attic that is arranged to activate the building fire alarm system in accordance with Section 907.2.10.

c. Construct the attic using noncombustible materials.

d. Construct the attic using fire-retardant-treated wood complying with Section 2303.2 of the *International Building Code*.

e. Fill the attic with noncombustible insulation.

**[F] 903.2.8.3 Group R-4 Condition 2.** An *automatic sprinkler system* installed in accordance with Section

903.3.1.2 shall be permitted in Group R-4 Condition 2 occupancies. ~~Attics shall be protected in accordance with Section 903.2.8.3.1 or 903.2.8.3.2.~~

**Delete without substitution:**

**~~[F] 903.2.8.3.1 Attics used for living purposes, storage or fuel-fired equipment.~~** ~~Attics used for living purposes, storage or fuel-fired equipment shall be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.~~

~~[F]~~ **~~903.2.8.3.2 Attics not used for living purposes, storage or fuel-fired equipment.~~** ~~Attics not used for living purposes, storage or fuel-fired equipment shall be protected in accordance with one of the following:~~

~~1. Attics protected throughout by a heat detector system arranged to activate the building fire alarm system in accordance with Section 907.2.10.~~

~~2. Attics constructed of noncombustible materials.~~

~~3. Attics constructed of fire-retardant-treated wood framing complying with Section 2303.2 of the International Building Code.~~

~~4. The automatic sprinkler system shall be extended to provide protection throughout the attic space.~~

(F172-16 AM)

**905.4 Location of Class I standpipe hose connections.** Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *interior exit stairway*, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located at ~~an intermediate~~ the main

floor landing ~~between stories~~, unless otherwise *approved* by the *fire code official*.

2. On each side of the wall adjacent to the *exit* opening of a horizontal *exit*.

**Exception:** Where floor areas adjacent to a horizontal *exit* are reachable from an *interior exit stairway* hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal *exit*.

3. In every *exit* passageway, at the entrance from the exit passageway to other areas of a building.

**Exception:** Where floor areas adjacent to an exit passageway are reachable from an *interior exit stairway* hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an *exit* passageway or *exit corridor* to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.

5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), a hose connection shall be located to serve the roof or at the highest landing of an *interior exit stairway* with access to the roof provided in accordance with Section 1011.12.

6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the *fire code official* is authorized to require that additional hose connections be provided in *approved* locations.

(F187-16 AM)

**905.4 Location of Class I standpipe hose connections.** Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *interior exit stairway*, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located at an intermediate landing between stories, unless otherwise *approved* by the *fire code official*.

**Exception:** A single hose connection shall be permitted to be installed in the open corridor or open breezeway between open stairs that are not greater than 75 ft (22,860 mm) apart.

2. On each side of the wall adjacent to the *exit* opening of a horizontal *exit*.

**Exception:** Where floor areas adjacent to a horizontal *exit* are reachable from an *interior exit stairway* hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal *exit*.

3. In every *exit* passageway, at the entrance from the exit passageway to other areas of a building.

**Exception:** Where floor areas adjacent to an exit passageway are reachable from an *interior exit stairway* hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an *exit* passageway or *exit corridor* to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.

5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), a hose connection shall be located to serve the roof or at the highest landing of an *interior exit stairway* with access to the roof provided in accordance with Section 1011.12.

6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the *fire code official* is authorized to require that additional hose connections be provided in *approved* locations.

(F188-16)

[F] 907.1.2 Fire alarm shop drawings Shop drawings for fire alarm systems shall be prepared in accordance with NFPA 72 and submitted for review and approval prior to system installation.

~~[F] 907.1.2 Fire alarm shop drawings. Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following where applicable to the system being installed:~~

~~1. A floor plan that indicates the use of all rooms.~~

~~2. Locations of alarm-initiating devices.~~

~~3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.~~

~~4. Design minimum audibility level for occupant notification.~~

~~5. Location of fire alarm control unit, transponders and notification power supplies.~~

~~6. Annunciators.~~

~~7. Power connection.~~

~~8. Battery calculations.~~

~~9. Conductor type and sizes.~~

~~10. Voltage drop calculations.~~

~~11. Manufacturers’ data sheets indicating model numbers and listing information for equipment, devices and materials.~~

~~12. Details of ceiling height and construction.~~

~~13. The interface of fire safety control functions.~~

~~14. Classification of the supervising station.~~

(F7374 G1)/(I-Code)

**[F] 907.2.1 Group A**. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more, or where the Group A occupant load is more than 100 persons above or below the lowest level of exit discharge. Group A occupancies not separated from one another in accordance with Section 707.3.10 shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

No change to the remaining text

(F7376) /(I-Code)

**~~[F] 907.2.23 Battery rooms.~~** ~~An automatic smoke detection system shall be installed in areas containing stationary storage battery systems with a liquid capacity of more than 50 gallons (189 L).~~

**[F] 907.2.23 Battery rooms**. An automatic smoke detection system shall be installed in areas containing stationary storage battery systems as required in Florida Fire Prevention Code.

**[F] 907.2.24 Capacitor energy storage systems.** An automatic smoke detection system shall be installed in areas containing capacitor energy storage systems as required by the Florida Fire Prevention Code.

(F7373)/(I-Code)

~~[F] 907.5.2.3.2 Groups I-1 and R-1. Group I-1 and R-1 dwelling units or sleeping units in accordance with Table 907.5.2.3.2 shall be provided with a visible alarm notification appliance, activated by both the in-room smoke alarm and the building fire alarm system.~~

[F] 907.5.2.3.2 Groups I-1 and R-1. Habitable spaces in dwelling units and sleeping units in Group I-1 and R-1 occupancies in accordance with Table 907.5.2.3.2 shall be provided with visible alarm notification. Visible alarms shall be activated by the in-room smoke alarm and the building fire alarm system.

~~[F] 907.5.2.3.3 Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 10 of ICC A117.1. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.~~

[F] 907.5.2.3.3 Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, each story that contains dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 11 of ICC A117.1. Such capability shall accommodate wired or wireless equipment. The future capability shall include one of the following:

1. The interconnection of the building fire alarm system with the unit smoke alarms.

2. The replacement of audible appliances with combination audible/visible appliances.

3. The future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

(F7379) /(I-Code)

~~[F] 907.5.2.2.4 Emergency voice/alarm communication captions. Where stadiums, arenas and grandstands are required to caption audible public announcements in accordance with the Florida Building Code, Accessibility, the emergency/voice alarm communication system shall be captioned. Prerecorded or live emergency captions shall be from an approved location constantly attended by personnel trained to respond to an emergency.~~

F] 907.5.2.2.4 Emergency voice/alarm communication captions.  Where stadiums, arenas and grandstands have 15,000 fixed seats or more and provide audible public announcements, the emergency/voice alarm communication system shall provide prerecorded or real-time captions. Prerecorded or live emergency captions shall be from an approved location constantly attended by personnel trained to respond to an emergency.

(F7378 G1) /(I-Code)

~~908.8 Carbon monoxide protection. Every separate building or an addition to an existing building for which a permit for new construction is issued and having a fossil-fuel-burning heater or appliance, a fireplace, an attached garage, or other feature, fixture, or element that emits carbon monoxide as a byproduct of combustion shall have an operational carbon monoxide alarm installed within 10 feet (3050 mm) of each room used for sleeping purposes in the new building or addition, or at such other locations as required by this code.~~

~~Exceptions:~~

~~1. An approved operational carbon monoxide detector shall only be required to be installed inside or directly outside of each room or area where a fossilfuel burning heater, engine or appliance is located within a hospital, inpatient hospice facility or skilled nursing home facility licensed by the Agency for Health Care Administration, or a new state correctional institution. The carbon monoxide detector shall be connected to the fire-alarm system of the hospital, inpatient hospice facility or nursing home facility as a supervisory signal.~~

~~2. This section shall not apply to existing buildings that are undergoing alterations or repairs unless the alteration is an addition as defined in Section 908.7.3.~~

~~908.8.1 Carbon monoxide alarm. The requirements of Section 908.8 shall be satisfied by providing for one of the following alarm installations:~~

~~1. A hard-wired carbon monoxide alarm.~~

~~2. A battery-powered carbon monoxide alarm.~~

~~3. A hard-wired combination carbon monoxide and smoke alarm.~~

~~4. A battery-powered combination carbon monoxide and smoke alarm.~~

~~908.8.2 Combination alarms. Combination smoke/carbon monoxide alarms shall be listed and labeled by a nationally recognized testing laboratory.~~

~~908.8.3 Addition shall mean an extension or increase in floor area, number of stories or height of a building or structure.~~

**~~SECTION 915~~**

**~~CARBON MONOXIDE DETECTION~~**

**~~RESERVED~~**

**SECTION 915**

**CARBON MONOXIDE PROTECTION**

**915.1 Carbon monoxide protection.**

Every separate building or an addition to an existing building for which a permit for new construction is issued and having a fossil-fuel-burning heater or appliance, a fireplace, an attached garage, or other feature, fixture, or element that emits carbon monoxide as a byproduct of combustion shall have an operational carbon monoxide alarm installed within 10 feet (3050 mm) of each room used for sleeping purposes in the new building or addition, or at such other locations as required by this code.

**Exceptions:**

1. An approved operational carbon monoxide detector shall only be required to be installed inside or directly outside of each room or area where a fossil fuel burning heater, engine or appliance is located within a hospital, inpatient hospice facility or skilled nursing home facility licensed by the Agency for Health Care Administration, or a new state correctional institution. The carbon monoxide detector shall be connected to the fire-alarm system of the hospital, inpatient hospice facility or nursing home facility as a supervisory signal.

2. This section shall not apply to existing buildings that are undergoing alterations or repairs unless the alteration is an addition as defined in Section 915.1.3.

**915.1.1 Carbon monoxide alarm.**

The requirements of Section 908.8 shall be satisfied by providing for one of the following alarm installations:

1. A hard-wired carbon monoxide alarm.

2. A battery-powered carbon monoxide alarm.

3. A hard-wired combination carbon monoxide and smoke alarm.

4. A battery-powered combination carbon monoxide and smoke alarm.

**915.1.2 Combination alarms.**

Combination smoke/carbon monoxide alarms shall be listed and labeled by a nationally recognized testing laboratory.

**915.1.3**

Addition shall mean an extension or increase in floor area, number of stories or height of a building or structure.

(F7383 A3 Only)

**[F] 908.1 Group H occupancies.** Emergency alarms for the detection and notification of an emergency condition in Group H occupancies shall be provided in accordance with Section 415.5.

**[F] 908.2 Group H-5 occupancy.** Emergency alarms for notification of an emergency condition in an HPM facility shall be provided as required in Section 415.11.3.5. ~~A continuous gas detection system shall be provided for HPM gases in accordance with Section 415.11.7.~~

**~~[F] 908.3 Highly toxic and toxic materials.~~** ~~A gas detection system shall be provided to detect the presence of~~ *~~highly~~*

*~~toxic~~* ~~or~~ *~~toxic~~* ~~gas at or below the permissible exposure limit (PEL) or ceiling limit of the gas for which detection is provided. The~~ ~~system shall be capable of monitoring the discharge from the treatment system at or below one-half the immediately dangerous to~~ life and health (IDLH) limit.

**~~Exception:~~** ~~A gas detection system is not required for~~ *~~toxic~~* ~~gases when the physiological warning threshold level for the gas is~~ ~~at a level below the accepted PEL for the gas.~~

**~~[F] 908.3.1 Alarms.~~** ~~The gas detection system shall initiate a local alarm and transmit a signal to a constantly attended contro~~l ~~station when a short-term hazard condition is detected. The alarm shall be both visible and audible and shall provide warning both~~ inside and outside the area where gas is detected. The audible alarm shall be distinct from all other alarms.

**~~Exception:~~** ~~Signal transmission to a constantly attended control station is not required when not more than one cylinder~~ ~~of~~ *~~highly toxic~~* ~~or~~ *~~toxic~~* ~~gas is stored.~~

~~[F]~~ **~~908.3.2 Shutoff of gas supply.~~** ~~The gas detection system shall automatically close the shutoff valve at the source on gas supply piping and tubing related to the system being monitored for whichever gas is detected.~~

**~~Exception:~~** ~~Automatic shutdown is not required for reactors utilized for the production of~~ *~~highly toxic~~* ~~or~~ *~~toxic~~* ~~compressed~~ ~~gases where such reactors are:~~

~~1. Operated at pressures less than 15 pounds per square inch gauge (psig) (103.4 kPa).~~

~~2. Constantly attended.~~

~~3. Provided with readily accessible emergency shutoff valves.~~

~~[F]~~ **~~908.3.3 Valve closure.~~** ~~The automatic closure of shutoff valves shall be in accordance with the following:~~

~~1. When the gas-detection sampling point initiating the gas detection system alarm is within a gas cabinet or exhausted enclosure, the shutoff valve in the gas cabinet or exhausted enclosure for the specific gas detected shall automatically close.~~

~~2. Where the gas-detection sampling point initiating the gas detection system alarm is within a gas room and compressed gas containers are not in gas cabinets or exhausted enclosures, the shutoff valves on all gas lines for the specific gas detected shall automatically close.~~

~~3. Where the gas-detection sampling point initiating the gas detection system alarm is within a piping distribution manifold enclosure, the shutoff valve for the compressed container of specific gas detected supplying the manifold shal~~l ~~automatically close.~~

~~~~ **~~Exception:~~** ~~When the gas-detection sampling point initiating the gas detection system alarm is at a use location or within a gas valve enclosure of a branch line downstream of a piping distribution manifold, the shutoff valve in the gas valve enclosure for the branch line located in the piping distribution manifold enclosure shall automatically close.~~

**~~[F] 908.4 Ozone gas-generator rooms.~~** ~~Ozone gas-generator rooms shall be equipped with a continuous gas detection system that will shut off the generator and sound a local alarm when concentrations above the PEL occur.~~

**~~[F] 908.5 Repair garages.~~** ~~A flammable-gas detection system shall be provided in repair garages for vehicles fueled by nonodorized gases in accordance with Section 406.8.5.~~

**~~[F] 908.6 Refrigerant detector.~~** ~~Machinery rooms shall contain a refrigerant detector with an audible and visual alarm. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The alarm shall be actuated at a value not greater than the corresponding TLV-TWA values for the refrigerant classification shown in~~

~~the~~ *~~International Mechanical Code~~* ~~for the refrigerant classification. Detectors and alarms shall be placed in~~ *~~approved~~* ~~locations. The~~ ~~detector shall transmit a signal to an~~ *~~approved~~* ~~location.~~

**~~[F] 908.7 Carbon dioxide (CO~~2~~) systems.~~** ~~Emergency alarm systems in accordance with Section 5307.5.2 of the~~ *~~International Fire Code~~* ~~shall be provided where required for compliance with Section 5307.5 of the~~ *~~International Fire Code~~*~~.~~

**909.20.6.1 Ventilation systems.** Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

**~~Exceptions~~ Exception:**

1. Control wiring and power wiring ~~utilizing~~ located outside of a 2-hour ~~rated cable or cable system~~ fire barrier construction shall be protected using any one of the following methods:

1.1 Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours.

1.2 Where encased with not less than 2 inches (51 mm) of concrete.

1.3 ~~Control wiring and power wiring protected by a listed electrical~~ Electrical circuit protective ~~system~~ systems shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

(G117-15 AMPC1)

**[F] 913.2.2 Circuits supplying fire pumps.** Cables used for survivability of circuits supplying fire pumps shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.

2. Electrical circuit protective systems shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 1 hour.

**909.20.3.1 Balcony doors.** Where access to the *stairway* or *ramp* is by way of an open exterior balcony, the door assembly into the enclosure shall be a *fire door assembly* in accordance with Section ~~716.5~~ 716.

***909.20.3.2* Vestibule doors.** Where access to the *stairway* or *ramp* is by way of a vestibule, the door assembly into the vestibule shall be a *fire doorassembly* complying with Section ~~716.5~~716. The door assembly from the vestibule to the *stairway* shall have not less than a 20-minute *fire protection*

*rating* complying with Section ~~716.5~~ 716.

(F74-15/ G117-15 AMPC1)

**SECTION 916**

**GAS DETECTION SYSTEMS**

**[F] 916.1 Gas detection systems.** Gas detection systems required by this code shall comply with Sections 916.2 through 916.11.

**[F] 916.2 Permits.** Permits shall be required as set forth in Section 105.7.11 of the International Fire Code.

**[F] 916.2.1 Construction documents.** Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code shall be provided with the application for permit.

**[F] 916.3 Equipment.** Gas detection system equipment shall be designed for use with the gases being detected and shall be installed in accordance with manufacturer’s instructions.

**[F] 916.4 Power connections.** Gas detection systems shall be permanently connected to the building electrical power sup- ply or shall be permitted to be cord connected to an unswitched receptacle using an approved restraining means that secures the plug to the receptacle.

**[F] 916.5 Emergency and standby power.** Standby or emergency power shall be provided or the gas detection system shall initiate a trouble signal at an approved location if the power supply is interrupted.

**[F] 916.6 Sensor locations.** Sensors shall be installed in approved locations where leaking gases are expected to accumulate.

**[F] 916.7 Gas sampling.** Gas sampling shall be performed continuously. Sample analysis shall be processed immediately after sampling, except as follows:

1. For HPM gases, sample analysis shall be performed at intervals not exceeding 30

minutes.

2. For toxic gases, sample analysis shall be performed at intervals not exceeding 5 minutes

in accordance with Section 6004.2.2.7 of the International Fire Code.

3. Where a less frequent or delayed sampling interval is approved.

**[G] 916.8 System activation**. A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding the following thresholds:

1. For flammable gases, a gas concentration exceeding 25 percent of the lower flammability

limit (LFL).

2. For nonflammable gases, a gas concentration exceeding one-half of the IDLH, unless a

different threshold is specified by the section of this code requiring a gas

detection system.

Upon activation of a gas detection alarm, alarm signals or other required responses shall be as specified by the section of this code requiring a gas detection system. Audible and visible alarm signals associated with a gas detection alarm shall be distinct from fire alarm and carbon monoxide alarm signals.

**[F] 916.9 Signage.** Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.

**[F] 916.10 Fire alarm system connections.** Gas sensors and gas detection systems shall not be connected to fire alarm systems unless approved and connected in accordance with the fire alarm equipment manufacturer’s instructions.

**[F] 916.11 Inspection, testing and sensor calibration.** Gas detection systems and sensors shall be inspected, tested and calibrated in accordance with the Florida Fire Prevention Code.

(F75-16 AMPC1)

**SECTION ~~916~~ 917 EMERGENCY RESPONDER RADIO COVERAGE**

**[F] 916.1 General.** Emergency responder radio coverage shall be provided in all new buildings in accordance with the *Florida Fire Prevention Code*.

**Chapter 10 MEANS OF EGRESS**

Revise as follows:

**~~1004.1.1~~1004.2 Cumulative occupant loads.** *(no change to the text)*

**~~1004.1.1.1~~1004.2.1 Intervening spaces or accessory areas.***(no change to the text)*

**~~1004.1.1.2~~1004.2.2 Adjacent levels for mezzanines.***(no change to the text)*

**~~1004.1.1.3~~1004.2.3 Adjacent stories.***(no change to the text)*

**Add new text as follows:**

**1004.3 Multiple function occupant load.**

Where an area under consideration contains multiple functions having different occupant load factors, the design occupant load for such area shall be based on the floor area of each function calculated independently.

**Revise as follows:**

**~~1004.6~~ 1004.4 Multiple occupancies.** *(no change to the text)*

**~~1004.1.2~~ 1004.5 Areas without fixed seating.**

The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table ~~1004.1.2~~1004.5. For areas without fixed seating, the occupant load shall be not less than that number determined by dividing the floor area under consideration by the occupant load factor assigned to the function of the space as set forth in Table ~~1004.1.2~~1004.5. Where an intended function is not listed in Table ~~1004.1.2~~1004.5, the building official shall establish a function based on a listed function that most nearly resembles the intended function.

*(no change to the* ***Exception****)*

**TABLE ~~1004.1.2~~ 1004.5**

**MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

*(no change to table or footnotes)*

**~~1004.2~~ 1004.5.1 Increased occupant load.**The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table ~~1004.1.2~~1004.5, provided that all other requirements of the code are met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m2) of occupiable floor space. Where required by the building official, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the building official, such diagram shall be posted.

**~~1004.4~~1004.6 Fixed seating.**

For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces, shall be determined in accordance with Section ~~1004.1.2~~1004.5and added to the number of fixed seats. *(no change to the remaining of the text)*

**~~1004.5~~ 1004.7 Outdoor areas.** *(no change to the text)*

**~~1004.3~~ 1004.8 Posting of occupant load.** *(no change to the text)*

(F7679 G1) /(I-Code)

**TABLE 1004.1.2**

**MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

|  |  |
| --- | --- |
| **FUNCTION OF SPACE** | **OCCUPANT LOAD FACTORa** |
| Business area  Concentrated business use areas | ~~100~~150 gross See Section1004.7 |

*(Portions of table not shown remain unchanged)*

*For SI: 1 square foot = 0.0929 m2, 1 foot = 304.8 mm.*

a. Floor area in square feet per occupant.

**1004.3 Posting of occupant load.** Every room or space that is an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space, for the intended configurations. Posted signs shall be an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

(F7471) /(I-Code)

**1004.5 Outdoor areas**. *Yards*, patios, occupied roofs, *courts* and similar outdoor areas accessible to and usable by the building occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, *means of egress* requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

**Exceptions:**

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.

2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

(F7472) /(I-Code)

**Add new text as follows:**

**1004.7 Concentrated business use areas.** The occupant load factor for concentrated business use shall be applied to telephone call centers, trading floors, electronic data processing centers and similar business use areas with a higher density of occupants than would normally be expected in a typical business occupancy environment. Where approved by the *building official*, the *occupant load* for concentrated business use areas shall be the actual *occupant load*, but not less than one occupant per 50 square foot (4.65 m2) of gross occupiable floor space.

(F7573) /(I-Code)

**1005.3.1 Stairways.**

The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story.

**Exceptions:**

1. 1.For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.

2. 2.Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.

3. 3.Facilities with ~~outdoor~~ *~~smoke-protected~~ open-air assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

(F7771) /(I-Code)

**1005.3.2 Other egress components.**

The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

**Exceptions:**

1. 1.For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.

2. 2.Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.

3. 3.Facilities with ~~outdoor~~ *~~smoke-protected~~ open-air assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

(F7772/Duplicate to F7771) /(I-Code)

**1006.2.1 Egress based on occupant load and common path of egress travel distance.**

Two *exits* or *exit access doorways* from any space shall be provided where the design *occupant load* or the *common path of egress travel* distance exceeds the values listed in Table 1006.2.1.

**Exceptions:**

1.Reserved.

2.*Care suites* in Group I-2 occupancies complying with Section 407.4.

**TABLE 1006.2.1**

**SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | **MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)** | | |
| OCCUPANCY | **MAXIMUM OCCUPANTLOAD OF SPACE** | **Without Sprinkler System(feet)**  **Occupant Load** | | **With Sprinkler System(feet)** |
|  |  | **OL = 30** | **OL > 30** |  |
| Ac, E, M | 49 | 75 | 75 | 75a |
| B | 49 | 100 | 75 | 100a |
| F | 49 | 75 | 75 | 100a |
| H-1, H-2, H-3 | 3 | NP | NP | 25b |
| H-4, H-5 | 10 | NP | NP | 75b |
| I-1, I-2d, I-4 | 10 | NP | NP | 75a |
| I-3 | 10 | NP | NP | 100a |
| R-1 | 10 | NP | NP | 75a |
| R-2 | 49 | NP | NP | 125a |
| R-3e | 49 | NP | NP | 125a |
| R-4e | ~~10~~ 20 | 75 | 75 | 125a |
| Sf | 29 | 100 | 75 | 100a |
| U | 49 | 100 | 75 | 75a |

For SI: 1 foot = 304.8 mm. NP = Not Permitted.

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The ~~length of~~ *common path of egress travel* distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility.*

f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

(F7718 A1 Only)/(E17-15)

**1006.2.1 Egress based on occupant load and common path of egress travel distance.**

Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative *occupant load* from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

**Exceptions:**

1. ~~Reserved.~~ The number of *exits* from foyers, lobbies, vestibules or similar spaces need not be based on cumulative *occupant loads* for areas discharging through such spaces, but the capacity of the *exits* from such spaces shall be based on applicable cumulative *occupant loads.*

2. Care suites in Group I-2 occupancies complying with Section 407.4.

**1006.2.2.2. Refrigeration machinery rooms.**

Machinery rooms larger than 1,000 square feet (93 m2) shall have not less than two *exits* or *exit access doorways*. Where two *exit* *access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of room.

All portions of machinery rooms shall be within 150 feet (45720 mm) of an *exit* or *exit access doorway*. An increase in travel distance is permitted in accordance with Section 1016.1.

~~Doors~~ *Exit* or *exit access doorways* shall swing in the direction of egress travel, regardless of the occupant load served. ~~Doors~~ *Exit* or *exit access doorways* shall be tight fitting and self-closing.

(F7563)/(E25-15)

**1006.2.2.4 ~~Day care~~ Group I-4 means of egress.**

Day care facilities, rooms or spaces where care is provided for more than 10 children that are 2 1/2 years of age or less, shall have access to not less than two *exits* or *exit access doorways*.

(F7672) /(I-Code)

**1006.3 Egress from stories or occupied roofs.**

The means of egress system serving any story or occupied roof shall be provided with the number of separate and distinct exits or access to exits based on the aggregate *occupant load* served in accordance with this section. ~~The path of egress travel to an exit shall not pass through more than one adjacent story.~~ Where stairways serve more than on story, only the occupant load of each story considered individually shall be used in calculating the required number of exits or access to exits serving that story.

**Add text as follows:**

**1006.3.1 Adjacent story.**

The path of egress travel to an exit shall not pass through more than one adjacent story.

**Exception:** The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:

1. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/workunit.

2. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.

3. Exit access stairways and ramps in open parking garages that serve only the parking garage.

4. Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.

5. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

(F7650) (F7512/F7333/F7650) /(I-Code)

**1006.3.~~1~~ 2 Egress based on occupant load.** Each *story* and occupied roof shall have the minimum number of ~~independent~~ separate and distinct *exits*, or access to *exits*, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

(F7333) /(E25-15)

Renumber remaining text as applicable

**1008.2.2 ~~Exit discharge~~ Group I-2.**

*(no change in the text)*

**Add new test as follows:**

**1008.2.3 Exit discharge.**

Illumination shall be provided along the path of travel for the exit discharge from each exit to the public way.

**Exception:** Illumination shall not be required where the path of exit discharge meets both of the following requirements:

    1. The path of exit discharge is illuminated from the exit to a safe dispersal area complying with Section 1028.5.

    2. A dispersal area shall be illuminated to a level not less than 1 footcandle (11 lux) at the walking surface.

(F7670)/(I-Code)

**1010.1.1 Size of doors.** The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear opening width of 32 inches (813 mm). ~~Clear openings~~ The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear opening width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 32 inches (813 mm). In Group I-2, doors serving as means of egress doors where used for the movement of beds shall provide a minimum clear opening width of 41-1/ 2 inches (1054 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *~~Means of egress~~* ~~doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41-1/ 2 inches (1054 mm).~~ The minimum clear height of door openings shall be ~~not less than~~ 80 inches (2032 mm).

**Exceptions**:

1. In Group R-2 and R-3 dwelling and sleeping units that are not required to be an Accessible unit, Type A unit or  
Type B unit, the ~~The~~ minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* ~~in Group R-2 and R-3 occupancies~~.  
2. In Group I-3, door ~~Door~~ openings to resident *sleeping units* that are not required to be and Accessible units ~~in Group I-3 occupancies~~ shall have a minimum clear opening width of ~~not less than~~ 28 inches (711 mm).  
3. Door openings to storage closets less than 10 square feet (0.93 m2) in area shall not be limited by the minimum clear opening width.  
4. Width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.  
5. Door openings within a *dwelling unit* or *sleeping unit* shall ~~be not less than~~ have a minimum clear opening height of 78 inches (1981 mm) ~~in height~~.  
6. In dwelling and sleeping units that are not required to be Accessible, Type A or Type B units, exterior ~~Exterior~~ door openings ~~in dwelling units and sleeping units,~~ other than the required *exit* door, shall ~~be not less than~~ have a minimum clear opening height of 76 inches (1930 mm) ~~in height~~.  
7. ~~In other than Group R-1 occupancies~~ In Groups I-1, R-2, R-3 and R-4 occupancies, in dwelling and sleeping units that are not required to be Accessible, Type A or Type B units, the minimum clear opening widths shall not apply to interior egress doors ~~within a dwelling unit or sleeping unit that is not required to be an~~ *~~Accessible unit~~*.  
8. Buildings that are 400 square feet (37 m2) or less and that are intended for use in conjunction with one- and two-family residences are not subject to the door height and width requirements of this code.  
9. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m2) in area shall have a maximum width of 60 inches (1524 mm) nominal.  
10. ~~In Group R-1~~ *~~dwelling units~~* ~~or~~ *~~sleeping units~~* ~~not required to be~~ *~~Accessible units~~*~~, the~~ The minimum width shall not apply to doors for non-accessible showers or sauna~~s~~ compartments.  
11. The minimum width shall not apply to the doors for non-accessible toilet seats.

**1010.1.1.1 Projections into clear width.** There shall not be projections into the required clear opening width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

**Exception**: Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.

(F8309/F7750)/(E47-15 and E49-15)

**1010.1.4.1.2 Other than egress component.** A revolving door used as other than a component of a *means of egress* shall comply with Section 1010.1.4.1. The *breakout* force of a revolving door not used as a component of a *means of egress* shall not be more than 180 pounds (801 N).

**Exception:** A *breakout* force in excess of 180 pounds (801 N) is permitted if the ~~collapsing~~*breakout*force is reduced to not more than 130 pounds (578 N) when not less than one of the following conditions is satisfied:

(F7762) /(I-Code)

**1010.1.4.2 Power-operated doors.** Where *means of egress* doors are operated or assisted by power, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1010.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging open from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Power-operated swinging doors, power-operated sliding doors and power operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low energy power-operated swinging doors shall comply with BHMA A156.19. Low energy power-operated sliding doors and low energy power-operated folding doors shall comply with BHMA A156.38.

**Exceptions:**

1. Occupancies in Group I-3.

2. Special purpose ~~H~~horizontal sliding, accordion or folding doors complying with Section 1010.1.4.3.

3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1010.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

(F8133/F7763) /(I-Code)

**1010.1.4.4 Locking arrangements in educational occupancies.** In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.

2. The door shall be openable from within the room in accordance with Section 1010.1.9.

3. Modifcations shall not be made to listed panic hardware, fire door hardware or door closer.

**1010.1.4.4.1 Remote operation of locks.** Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

Renumber these sections as shown:

**1010.1.4.~~4~~5 Security grilles.** <no revisions to text>

**1010.1.4.~~5~~6 Protection devices for emergency escape and rescue openings.**  <no revisions to text>

(F8134) /(I-Code)

**1010.1.7 Thresholds.**

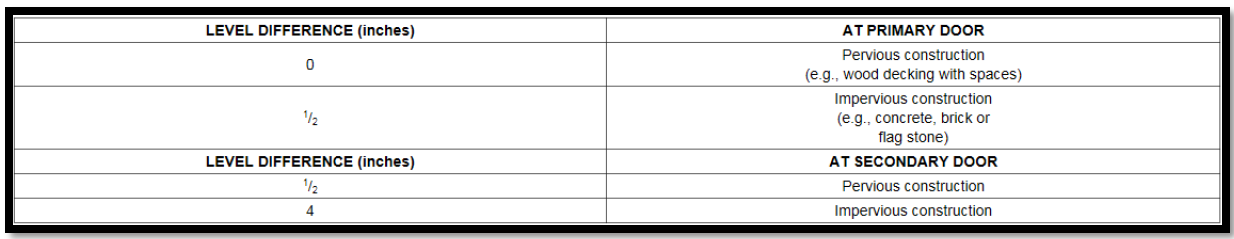
Thresholds at doorways shall not exceed 3/4 inch (19.1 mm) in height above the finished floor or landing for sliding doors serving dwelling units or 1/2 inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than 1/4 inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

Exceptions:

     1.  In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to 7-3/4 inches (197 mm) in height if all of the following apply:

          1.1.The door is not part of the required means of egress.

          1.2.The door is not part of an accessible route as required by Chapter 11.

     2.  For exterior doors serving dwelling units, or sleeping units, thresholds at doorways shall not exceed the height required to pass the water resistance test of AAMA/WDMA/CSA 101/I.S.2/A440, or TAS 202 for high-velocity hurricane zones, or the maximum allowable height difference between interior floor levels.  Exterior floor level shall comply with the following:

(F8224-R1 plus Commission handout)

**1010.1.9 Door operations.** Except as specifically permitted by this section, egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

**1010.1.9.1 Hardware.** Door handles, pulls, latches, locks and other operating devices on doors required to be *accessible* by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

**1010.1.9.2 Hardware height.** Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

**Exception:** Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also selflocking devices operated by means of a key, electronic opener or integral combination lock.

**1010.1.9.3 Monitored or recorded egress.** Where electrical systems which monitor or record egress activity are incorporated, the locking system shall comply with Sections 1010.1.9.6, 1010.1.9.7, 1010.1.9.8, 1010.1.9.9, or 1010.1.9.10 or shall be readily openable from the egress side without the use of a key or special knowledge or effort.

Renumber remaining text as appropriate.

(F8136) /(I-Code)

**1010.1.9.3 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.  
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

2.1. The locking device is readily distinguishable as locked.  
2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.  
2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.

3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.  
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.  
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door test* procedures.  
6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof provided that when accessing the roof from the building the locks do not automatically lock preventing re-entry into the building from the roof.

(F8313) /(I-Code)

**~~1010.1.9.5.1 Closet and bathroom doors in Group R-4 occupancies.~~**

~~In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.~~

(F7828)/(E64-15)

**~~1010.1.9.5.1~~**~~Closet and bathroom doors in Group R-4 occupancies. In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.~~

(F8314) /(I-Code)

**1010.1.9.7 Delayed egress.** Delayed egress locking systems shall be permitted to be installed on doors serving ~~any occupancy except Group A, E and H~~ Groups B,E, F, I, M, R, S and U occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke* or *heat detection system* installed in accordance with Section 907.

**Exceptions**:

1. Delayed egress locking systems shall be permitted to be installed on doors serving Group E occupancies that have an *occupant load* of 10 or fewer and that are in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke or heat detection system* installed in accordance with Section 907.
2. Delayed egress locking systems shall be permitted to be installed on exit  or exit access doors, other than the main exit or exit access door, that serve a courtroom in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**1010.1.9.7.1 Delayed egress locking system.** The delayed egress locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the automatic sprinkler system or automatic fire detection system, allowing immediate, free egress.  
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.  
3. The delayed egress locking system shall have the capability of being deactivated at the fire command center and other approved locations.  
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.

**Exception**: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

**~~Exception~~ Exceptions:**

1.In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.  
2.In Group I-1 or I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:  
6.1 For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 1530] SECONDS.  
6.2 For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.  
6.3 The sign shall comply with the visual character requirements in ICC A117.1.

**Exception**: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

7. Emergency lighting shall be provided on the egress side of the door.

8. The delayed egress locking system units shall be listed in accordance with UL 294.  
(F8315/F8317/F7848/F8132) /(I-Code)

**1010.1.9.8** **Sensor release of electrically locked egress doors.** ~~The~~ Sensor release of electric ~~locks~~ locking systems shall be permitted on ~~sensor~~ ~~released~~ doors located in ~~a~~ the *means of egress* ~~in buildings~~ with an occupancy in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 ~~and entrance doors to tenant spaces in occupancies in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 are permitted~~ where installed and operated in accordance with all of the following criteria:

1. The sensor shall be installed on the egress side, arranged to detect an occupant approaching the doors, and shall cause the electric locking system to unlock.  
2. The ~~doors~~ electric locks shall be arranged to unlock by a signal from or loss of power to the sensor.  
3. Loss of power to the lock or locking system shall automatically unlock the ~~doors~~ electric lock.  
4. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the electric lock—independent of other electronics—and the ~~doors~~ electric lock shall remain unlocked for not less than 30 seconds.  
5. Activation of the building *fire alarm system*, where provided, shall automatically unlock the ~~doors~~ electric lock, and the ~~doors~~ electric lock shall remain unlocked until the fire alarm system has been reset.  
6. Activation of the building *automatic sprinkler system or fire detection system*, where provided, shall automatically unlock the ~~doors~~ electric lock. The ~~doors~~ electric lock shall remain unlocked until the *fire alarm system* has been reset.  
7. The door locking system units shall be listed in accordance with UL 294.

(F8318/F7853) /(I-Code) Check I-Code for consistency

**1010.1.9.9 ~~Electromagnetically~~ Door hardware release of electrically locked egress doors.** ~~Doors~~ Door hardware release of electric locking systems shall be permitted on doors in the *means of egress* with any occupancy except in Group H ~~in buildings with an occupancy in GroupA, B, E, I-1, I-2, I-4, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 shall be permitted to be locked with an electromagnetic locking system where equipped with hardware that incorporates a built-in switch and~~ where installed and operated in accordance with all of the following:

1. The door hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.

2. The door hardware is capable of being operated with one hand and shall comply with Section 1010.1.9.5.

3. Operation of the door hardware directly interrupts the power to the ~~electromagnetic~~ electric lock and unlocks the door immediately.

4. Loss of power to the electric locking system automatically unlocks the door.

5. Where *panic* or *fire exit hardware* is required by Section 1010.1.10, operation of the *panic* or *fire exit hardware* also releases the ~~electromagnetic~~ electric lock.

6. The locking system units shall be listed in accordance with UL 294.

**1010.1.10 Panic and fire exit hardware.** Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware or fire exit hardware*.

**Exceptions**:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.

2. Doors serving a Group A or E occupancy shall be permitted to be ~~electromagnetically~~ electronically locked in accordance with Section 1010.1.9.9.

3. Outdoor gates from residential and commercial swimming pool decks, except where the pool deck serves as a portion of the means of egress of a building or has an occupant load of 300 or greater.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access* doors, shall be equipped with *panic hardware or fire exit hardware*. The doors shall swing in the direction of egress travel.

(F8319 A1+Original/ F8097 A1+Original) /(I-Code) check I – Code for consistency

**1010.1.9.10 Locking arrangements in buildings within correctional facilities.** In ~~occupancies in~~ ~~Groups A-2, A-3, A-4, B, E, F, I-2, I-3, M and S~~ buildings within correctional and detention facilities, doors in *means of egress* serving rooms or spaces occupied by persons whose movements are controlled for security reasons shall be permitted to be locked where equipped with egress control devices that shall unlock manually and by not less than one of the following means:

     1.  Activation of an *automatic sprinkler system* installed in accordance with Section903.3.1.1

      2.   Activation of an *approved manual fire alarm box*.

      3.   A signal from a *constantly attended location*.

(F7889/F8323) /(I-Code)

**1010.1.9.11 Stairway doors.**

Interior *stairway means of egress* doors shall be openable from both sides without the use of a key or special knowledge or effort.

**Exceptions:**

1.    *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.

2.    This section shall not apply to doors arranged in accordance with Section 403.5.3.

3.    .~~In~~ *~~stairways~~* ~~serving not more than four stories,~~ Stairway exit doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the *fire command center*, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.

4.    *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.2.

5.    *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single *exit stairway* where permitted in Section 1006.3.2.

(F8101) /(I-Code)

**1010.1.10 Panic and fire exit hardware**. ~~Doors~~Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item

2. Doors provided with panic hardware or fire exit hardware serving a Group A or E occupancy shall be permitted to be ~~electromagnetically~~ electrically locked in accordance with Section 1010.1.9.8 or 1010.1.9.9.

3. Outdoor gates from residential and commercial swimming pools or swimming pool decks, except where the pool deck serves as a portion of the means of egress of a building or has an occupant load of 300 or greater.

(F8219/F8109) /(I-Code)

**1010.3 Turnstiles and Similar Devices**. Turnstiles or similar devices that restrict travel to one direction shall not be placed so as to obstruct any required *means of egress*, except where permitted in accordance with Sections1010.3.1,1010.3.2and1010.3.3.

**~~Exception:~~1010.3.1 Capacity.** Each turnstile or similar device shall be credited with a capacity based on not more than a 50-person *occupant load* where all of the following provisions are met:

1.     Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by an employee in the area.

2.     Such devices are not given credit for more than 50 percent of the required egress capacity or width.

3.     Each device is not more than 39 inches (991 mm) high.

4.     Each device has not less than 161/2 inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

**1010.3.1.1 Clear width.** Where located as part of an *accessible route*, turnstiles shall have not less than 36 inches (914 mm) clear at and below a height of 34 inches (864 mm), not less than 32 inches (813 mm) clear width between 34 inches (864 mm) and 80 inches (2032 mm) and shall consist of a mechanism other than a revolving device.

**Add new text as follows:**

**1010.3.2 Security access turnstiles.** Security access turnstiles that inhibit travel in the direction of egress utilizing a physical barrier shall be permitted to be considered as a component of the means of egress, provided that all of the following criteria are met:

1. The building is protected throughout by an approved supervised automatic sprinkler system in accordance with Section 903.3.1.1.

2. Each security access turnstile lane configuration has a minimum clear passage width of 22 inches (560 mm).

3. Any security access turnstile lane configuration providing clear passage width of less than 32 inches (810 mm) shall be credited with a maximum egress capacity of 50 persons.

4. Any security access turnstile lane configuration providing a clear passage width of 32 inches (810 mm) or more shall be credited with a maximum egress capacity as calculated in accordance with Section 1005.

5. Each secured physical barrier shall automatically retract or swing to unobstructed open position in the direction of egress, under each of the following conditions:

    5.1 Upon loss of power to the turnstile or any part of the access control system that secures the physical barrier.

    5.2 Upon actuation of a readily accessible and clearly identified manual release device that results in direct interruption of power to each secured     physical barrier, remains in the open position for not less than 30 seconds.

    The manual release device shall be positioned at one of the following locations:

        5.2.1 The manual release device is located on the egress side of each security access turnstile lane.

        5.2.2 The manual release device is located at an approved location where it can be actuated by an employee assigned to the area at all times that         the building is occupied.

    5.3 Upon actuation of the building fire alarm system, if provided, the physical barrier remains in the open position until the fire alarm system is     manually reset.

**Exception:** Actuation of manual fire alarm boxes.

    5.4 Upon actuation of the building automatic sprinkler of fire detection system, and for which the physical barrier remains in the open position until     the fire alarm system is manually reset.

**Revise as follows:**

**~~1010.3.1~~1010.3.3 High turnstile.** Turnstiles more than 39 inches (991 mm) high shall meet the requirements for revolving doors or the requirements of Section 1010.3.2 for security access turnstiles.

**~~1010.3.2~~1010.3.4 Additional door.** Where serving an *occupant load* greater than 300, each turnstile that is not portable shall have a side-hinged swinging door that conforms to Section 1010.1 within 50 feet (15240 mm)**.**

**Exception:** A side-hinged swinging door is not required at security access turnstiles that comply with Section 1010.3.2.

(F7354) /(I-Code)

**1011.10 Spiral stairways.** *Spiral stairways* are permitted to be used as a component in the *means of egress* only within *dwelling units* or from a space not more than 250 square feet (23 m2) in area and serving not more than five occupants, or from *technical production areas* in accordance with Section 410.6.  
A *spiral stairway* shall have a ~~7-1/2~~ 6-3/4 inch (~~191~~171 mm) minimum clear tread depth at a point 12 inches (305 mm) from the ~~narrow edge~~ walkline. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 9-1/2 inches (241 mm). The minimum *stairway* clear width at and below the handrail shall be 26 inches (660 mm).

(F8333) /(I-Code)

**1011.11 Handrails.**

~~Stairways~~ Flights of stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall comply with Section 2407.

Exceptions:

1.      ~~Stairways~~ Flights of stairwayswithin dwelling units and flights of spiral stairways are permitted to have a handrail on one side only.

2.      Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.

3.      In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.

4.      Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

(F7897/F8337) /(I-Code)

1011.16 Ladders.

Permanent ladders shall not serve as a part of the means of egress from occupied spaces within a building. Permanent ladders shall be constructed in accordance with Section 306.5 of the Florida Building Code, Mechanical.    Permanent ladders shall be permitted to provide access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.

2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.

3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands.

4. Elevated levels in Group U not open to the general public.

5. Nonoccupied roofs that are not required to have stairway access in accordance with Section 1011.12.1.

6. Where permitted to access equipment and appliances ~~Ladders shall be constructed~~ in accordance with Section 306.5 of the Florida Building Code, Mechanical.

(F7909/F8339)) /(I-Code)

**1013.2 Floor-level exit signs in Group R-1.**

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

The bottom of the sign shall be not less than 10 inches (254 mm) nor more than ~~12~~ 18 inches (~~305~~ 455 mm) above the floor level. The sign shall be flush mounted to the door or wall. Where mounted on the wall, the edge of the sign shall be within 4 inches (102 mm) of the door frame on the latch side.

(F7973) /(I-Code)

**1013.4 Raised character and braille exit signs.**

A sign stating EXIT in visual characters, raised characters and braille and complying with the Florida Building Code, Accessibility shall be provided adjacent to each door to an area of refuge providing direct access to a stairway, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway and the exit discharge.

(F7977) /(I-Code)

**1013.6.3 Power source.** Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27. Group I-2, Condition 2 exit sign illumination shall not be provided by unit equipment batteries only.

Exceptions:

1. Approved exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.

~~2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.~~

(F7360) /(I-Code)

**1014.1 Where required.** *Handrails* serving flights of *stairways*, *ramps*, stepped *aisles* and ramped *aisles* shall be adequate in strength and attachment in accordance with Section 1607.8. *Handrails* required for flights of *stairways* by Section 1011.11 shall comply with Sections 1014.2 through 1014.9. *Handrails* required for ramps by Section 1012.8 shall comply with Sections 1014.2 through 1014.8. *Handrails* for stepped *aisles* and ramped *aisles* required by Section 1029.15 shall comply with Sections 1014.2 through 1014.8.

(F8337/F7902) /(I-Code)

**Revise as follows:**

**1015.3 Height.**

Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1.From the adjacent walking surfaces.

2.On *stairways* and stepped *aisles*, from the line connecting the leading edges of the tread *nosings*.

3.On *ramps* and ramped *aisles*, from the *ramp* surface at the *guard*.

**Exceptions:**

1.For occupancies in Group R-3 not more than three stories above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces ~~or adjacent~~*~~fixed seating~~*.

2.For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.

3.For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

4.The *guard* height in assembly seating areas shall comply with Section 1029.16 as applicable.

5.Along *alternating tread devices* and ships ladders, *guards* where the top rail also serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing*.

 6. In Group F occupancies, where exit access stairways serve three stories or less and such stairs are not open to the public, where the top of the guard also serves as a handrail, the top of the guard shall be not less than the 34 inches (864 mm) and not more than 38 inches 9965 mm) measured from ta line connecting the leading edges of the treads

(F8046/F7986) /(I-Code)

**1015.8 Window openings.**

Windows in Group R-2 and R-3 buildings including *dwelling units*, where the top of the sill of an operable window opening is located less than ~~36~~ 24 inches above the finished floor and more than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, shall comply with one of the following:

    1.Operable windows where the top of the sill of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F2006.

    2.Operable windows where the openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.

    3.Operable windows where the openings are provided with window fall prevention devices that comply with ASTM F2090.

    4.Operable windows that are provided with window opening control devices that comply with Section 1015.8.1.

**1015.8.1 Window opening control devices.**

Window opening control devices shall comply with ASTM F2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1030.2.

(F7213)

**1016.2 Egress through intervening spaces.** Egress through

intervening spaces shall comply with this section.

1. *Exit access* through an enclosed elevator lobby is permitted.  Access to not less than one of the required *exits* shall be provided without travel through the enclosed elevator lobbies required by Section 3006, not to apply if the lobby is only provided to meet the requirements of Section 3007.6 Exception 1. Where the path of exit access travel passes through an enclosed elevator lobby, the level of protection required for the enclosed elevator lobby is not required to be extended to the *exit* unless direct access to an *exit* is required by other sections of this code.

No change to the remaining text

(F7792 A1 only)

**1017.3 Measurement.** *Exit access* travel distance shall be measured from the most remote point ~~within a story~~ of each room, area or space along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an *exit*.  
**Exception**: In *open parking garages, exit access* travel distance is permitted to be measured to the closest riser of an *exit access stairway* or the closest slope of an *exit access ramp*.

(F8006) /(I-Code)

**Revise as follows:**

**1019.3 Occupancies other than Groups I-2 and I-3.**

In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1.*Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.

2.In Group R-1, R-2 or R-3 occupancies, *exit access stairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*

3.*Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.

4.*Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.

5.*Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.

6.*Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.

7.*Exit access stairways* and *ramps* serving smoke protected or open-air assembly seating complying with the *exit access* travel distance requirements of Section 1029.7.

8.*Exit access stairways* and *ramps* ~~serving~~ between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

(F7773/F7701/F7774)/ (G201-15)

**1020.1.1(IFC [BE] 1020.1.1) Hoistway opening protection** Elevator hoistway openings shall be protected in accordance with Section 3006.2.1.

(G201-15)

**1020.4 Dead ends.**

Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that there are no dead ends in *corridors* more than 20 feet (6096 mm) in length.

**Exceptions:**

1.In occupancies in Group I-3 of Condition 2, 3 or 4, the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).

2.In occupancies in Groups B, E, F, I-1, M, R-1, R-2, ~~R-4~~, S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).

3.A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.

(F7720) /(I-Code)

**1023.3.1 Extension.**

Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716.5 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairwa*y and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

**Exceptions:**

1.Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.

2.Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.

3. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extensionshall not be required when the interior exit stair and the exit passageway extension are pressurized inaccordance with Section909.20.5.

(F7722)/ (F74-15) /(I-Code)

1023.4 Openings.

*Interior exit stairway* and *ramp* opening protectives shall be in accordance with the requirements of Section 716.

Openings in *interior exit stairways* and *ramps* other than unprotected exterior openings shall be limited to those ~~necessary~~ required for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Elevators shall not open into *interior exit stairways* and *ramps*.

(F8202/F7837) /(I-Code)

**1023.5 Penetrations.**

Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and security systems, and electrical race-way serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

**Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.

(F7723)

**1023.11 Smokeproof enclosures.** Where required by Section 403.5.4 ~~or~~, 405.7.2, or 412.3.2, *interior exit stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

(F8206/F7725) /(I-Code)

**1023.12 Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

(F7753) /(I-Code)

**1024.6 Penetrations.**

Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for independent pressurization, ~~sprinkler piping~~ fire protection systems, ~~standpipes~~ twoway communication systems, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

**Exception:** Membrane penetrations shall be permitted on the outside of the *exit passageway*. Such penetrations shall be protected in accordance with Section 714.3.2

(F7724)

**1024.8 Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

(F7754) /(I-Code)

**1025.2.5 Obstacles.**

Obstacles at or below 6 feet 6 inches (1981 mm) in height and projecting more than 4 inches (102 mm) into the egress path shall be outlined with markings not less than 1 inch (25 mm) in width comprised of a pattern of alternating equal bands, of luminous material and black, with the alternating bands not more than 2 inches (51 mm) thick and angled at 45 degrees (0.79 rad). Obstacles shall include, but are not limited to, standpipes, hose cabinets, wall projections and restricted height areas. However, such markings shall not conceal any required information or indicators including but not limited to instructions to occupants for the use of standpipes.

**Exception:** The minimum width of 1 inch (25 mm) shall not apply to markings listed in accordance with UL 1994.

(F7759) /(I-Code)

**1026.4 Refuge area.**

The refuge area of a horizontal exit shall be a space occupied by the same tenant or a public area and each such refuge area shall be adequate to accommodate the original occupant load of the refuge area plus the occupant load anticipated from the adjoining compartment. The anticipated occupant load from the adjoining compartment shall be based on the capacity of the horizontal exit doors entering the refuge area or the total *occupant load* of the adjoining compartment, whichever is less.

(F7866/F7334)

**1026.4.1 Capacity.**

The capacity of the refuge area shall be computed based on a *net floor area* allowance of 3 square feet (0.2787 m2) for each occupant to be accommodated therein. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Groups I-1, I-2 and I- 3 occupancies and Group B ambulatory care facilities shall comply with Section 407.5.1, 408.6.2, 420.4.1 and 422.3.2 as applicable.

**~~Exceptions:~~** ~~The~~ *~~net floor area~~* ~~allowable per occupant shall be as follows for the indicated occupancies:~~

1. ~~1.Six square feet (0.6 m~~~~2~~~~) per occupant for occupancies in Group I-3.~~

2. ~~2.Fifteen square feet (1.4 m~~~~2~~~~) per occupant for ambulatory occupancies in Group I-2.~~

3. ~~3.Thirty square feet (2.8 m~~~~2~~~~) per occupant for nonambulatory occupancies in Group I-2.~~

(F7761) /(I-Code)

**1026.5 Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

(F7755) /(I-Code)

**1027.5 Location.**

*Exterior exit stairways* and *ramps* shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramps*, including landings, to:

1. 1.Adjacent *lot lines*.

2. 2.Other portions of the building.

3. 3.Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance.*

For the purposes of this section, other portions of the building shall be treated as separate buildings.

**Exception:** Exterior exit stairways and ramps serving individual dwelling units of Group R-3 shall have a minimum fire separation distance of 5 feet.

(F7765) /(I-Code)

**1027.6 Exterior exit stairway and ramp protection.**

*Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the exterior wall shall be rated in accordance with Section 1023.7.

**Exceptions:**

1.Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are not more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.

2.Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exit ramp* or balcony that connects two remote *exterior exit stairways* or other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.

3.Separation from the open-ended *corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:

3.1.The building, including open-ended *corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

3.2.The open-ended *corridors* comply with Section 1020.

3.3.The open-ended *corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027.

3.4.The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.. 3.5.At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

4.       In Group R-3 occupancies not more than 4-stories in height, exterior exit stairways and ramps serving individual dwelling units are not required to be separated from the interior of the building where the exterior exit stairway or ramp discharges directly tograde.

(F7766) /(I-Code)

**1028.4.1 Width or capacity.**

The required capacity of *egress courts* shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm), except as specified herein. *Egress courts* serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of *egress courts* shall be unobstructed to a height of 7 feet (2134 mm).

**Exception:** Encroachments complying with Section 1005.7.

~~Where an~~ *~~egress court~~* ~~exceeds the minimum required width and the width of such~~ *~~egress court~~* ~~is then reduced along the path of exit travel, the reduction in width shall be gradual. The transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the~~ *~~egress court~~* ~~along the path of egress travel.~~ The width of the *egress court* shall not be less than the required capacity.

(F7768) /(I-Code) Check I-Code for consistency

**1029.6 Capacity of aisle for assembly.**

The required capacity of *aisles* shall be not less than that determined in accordance with Section 1029.6.1 where *smoke-protected assembly seating* is not provided and with Section 1029.6.2 ~~or 1029.6.3~~ where *smoke-protected assembly seating* is provided and with section 1029.6.3 where open-air assembly seating is provided.

(F7775) /(I-Code)

**1029.6.3 ~~Outdoor smoke-protected~~Open-air assembly seating.**

~~The~~ In open-air assembly seating, the required capacity in inches (mm) of *aisles* shall be not less than the total *occupant load* served by the egress element multiplied by 0.08 (2.0 mm) where egress is by stepped *aisle* and multiplied by 0.06 (1.52 mm) where egress is by level *aisles* and ramped *aisles*.

**Exception:** The required capacity in inches (mm) of *aisles* shall be permitted to comply with Section 1029.6.2 for the number of seats in the ~~outdoor~~ open-air *smoke-protected assembly seating* where Section 1029.6.2 permits less capacity.

(F7776) /(I-Code)

**1029.7 Travel distance.**

*~~Exits~~* ~~and~~ *~~aisles~~* ~~shall be so located that the~~ The exit access travel distance ~~to an~~ *~~exit~~* ~~door~~ shall ~~be not greater than 200 feet (60 960 mm) measured along the line of travel in nonsprinklered buildings. Travel distance shall be not more than 250 feet (76 200 mm) in sprinklered buildings~~ shall comply with Section 1017. Where *aisles* are provided for seating, the distance shall be measured along the *aisles* and *aisle accessways* without travel over or on the seats.

**Exceptions:**

~~1.~~*~~Smoke-protected assembly seating~~*~~: The travel distance from each seat to the nearest entrance to a vomitory or concourse shall not exceed 200 feet (60 960 mm). The travel distance from the entrance to the vomitory or concourse to a~~ *~~stairway~~*~~,~~ *~~ramp~~* ~~or walk on the exterior of the building shall not exceed 200 feet (60 960 mm).~~

~~2.Open-air seating: The travel distance from each seat to the building exterior shall not exceed 400 feet (122 m). The travel distance shall not be limited in facilities of Type I or II construction.~~

1.       In facilties with *smoke-protected assembly seating* the total exit access travel distance shall be not greater than 400 feet (122 m). That portion of the total permitted exit access travel distance from each seat to the nearest entrance to a vomitory or concourse shall notexceed 200 feet (60 960 mm). The portion of the total permitted exit access travel distance from the entrance to the vomitory or concourse to one of the following shall not exceed 200 feet (60 960mm):

1.1   The closest riser of an exit accessstairway.

1.2 The closest slope of an exit access ramp.

1.3 Anexit.

2.       In facilities with open-air assembly seating of Type III, IV or V construction, the exit access travel distance to one of the following shall not exceed 400 feet (122m):

2.1   The closest riser of an exit accessstairway.

2.2 The closest slope of an exit access ramp. 2.3 An exit

3.       In facilities with open-air assembly seating of Type I or II construction, the exit access travel distance shall not belimited.

(F7777) /(I-Code)

**1029.8 Common path of egress travel.**

The *common path of egress travel* shall not exceed 30 feet (9144 mm) from any seat to a point where an occupant has a choice of two paths of egress travel to two *exits*.

**Exceptions:**

1. 1.For areas serving less than 50 occupants, the *common path of egress travel* shall not exceed 75 feet (22 860 mm).

2. 2.For smoke-protected or *~~smoke-protected~~ open-air assembly seating*, the *common path of egress travel* shall not exceed 50 feet (15 240 mm).

(F7778) /(I-Code)

**1029.8.1 Path through adjacent row.**

Where one of the two paths of travel is across the *aisle* through a row of seats to another *aisle*, there shall be not more than 24 seats between the two *aisles*, and the minimum clear width between rows for the row between the two *aisles* shall be 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row between *aisles*.

**Exception:** For smoke-protected or *~~smoke-protected~~ open-air assembly seating* there shall be not more than 40 seats between the two *aisles* and the minimum clear width shall be 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat.

(F7790) /(I-Code)

**1029.9.1 Minimum aisle width.**

The minimum clear width for *aisles* shall comply with one of the following:

1.Forty-eight inches (1219 mm) for stepped *aisles* having seating on ~~each side~~ both sides.

**Exception:** Thirty-six inches (914 mm) where the stepped *aisles* serve less than 50 seats.

2.Thirty-six inches (914 mm) for stepped *aisles* having seating on only one side.

**Exception:** Twenty-three inches (584 mm) between a stepped *aisle handrail* and seating where a stepped *aisle* does not serve more than five rows on one side.

3.Twenty-three inches (584 mm) between a stepped *aisle handrail* or *guard* and seating where the stepped *aisle* is subdivided by a mid-aisle *handrail*.

4.Forty-two inches (1067 mm) for level or ramped *aisles* having seating on both sides.

**Exceptions:**

1.Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.

2.Thirty inches (762 mm) where the *aisle serves less than 15 seats and* does not serve ~~more than 14 seats~~ as part of an accessible route.

5.Thirty-six inches (914 mm) for level or ramped *aisles* having seating on only one side.

**Exception:** ~~For other than ramped~~ *~~aisles~~* ~~that serve as part of an~~ *~~accessible route~~*~~, 30~~Thirty inches (762 mm) where the ~~ramped~~ *aisle* serves less than 15 seats and does not serve ~~more than 14 seats~~ as part of an accessible route.

(F7961/F7868) /(I-Code)

**1029.9.5 Dead end aisles.**

Each end of an *aisle* shall be continuous to a cross *aisle*, foyer, doorway, vomitory, concourse or *stairway* in accordance with Section 1029.9.7 having access to an *exit*.

**Exceptions:**

1.Dead-end *aisles* shall be not greater than 20 feet (6096 mm) in length.

2.Dead-end *aisles* longer than 16 rows are permitted where seats beyond the 16th row dead-end *aisle* are not more than 24 seats from another *aisle*, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row where seats have backrests or beyond 10 where seats are without backrests in the row.

3.For smoke-protected or *~~smoke-protected~~ open-air assembly seating*, the dead end *aisle* length of vertical *aisles* shall not exceed a distance of 21 rows.

4.For smoke-protected or *~~smoke-protected~~ open-air assembly seating*, a longer dead-end *aisle* is permitted where seats beyond the 21-row dead-end *aisle* are not more than 40 seats from another *aisle*, measured along a row of seats having an *aisle* accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row where seats have backrests or beyond 10 where seats are without backrests in the row.

(F7791) /(I-Code)

**1029.10.1 Transitions ~~and~~ to stairways that maintain stepped aisle riser and tread dimensions.**

Stepped *aisles*, transitions and *stairways* that maintain the stepped aisle riser and tread dimensions shall comply with Section 1029.13 as one *exit access* component.

(F7965) /(I-Code)

**1029.10.2 Transitions to stairways that do not maintain stepped aisle riser and tread dimensions.**

Transitions ~~to~~ between *stairways* ~~from~~ and stepped *aisles* ~~with~~ having different riser and tread dimensions ~~that differ from the~~ *~~stairways~~* shall comply with Sections 1029.10.2.1 through 1029.10.3.

(F7966) /(I-Code)

**1029.10.2.1 Stairways and stepped aisles in a straight run.**

~~Transitions where the~~ *~~stairway~~* ~~is~~ Where stairways and stepped aisles are in a straight run ~~from the stepped~~ *~~aisle~~* the transition shall have one of the following:

1. ~~a~~ A minimum depth of 22 inches (559 mm) where the treads on the descending side of the transition have greater depth ~~and~~

2. A minimum depth of 30 inches (762 mm) where the treads on the descending side of the transition have lesser depth.

(F7968) /(I-Code)

**1029.10.2.2 Stairways ~~and stepped aisles~~ that change direction from stepped aisles.**

Transitions where the *stairway* changes direction from the stepped *aisle* shall have a minimum depth of 11 inches (280 mm) or the stepped *aisle* tread depth, whichever is greater, between the stepped *aisle* and *stairway*.

(F7969) /(I-Code)

**1029.10.3 Transition marking.**

A distinctive marking stripe shall be provided at each *nosing* or leading edge adjacent to the transition. Such stripe shall be ~~not less than~~ a minimum of 1 inch (25 mm), and ~~not more than~~ a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the stepped *aisle* contrasting marking stripe.

(F7971) /(I-Code)

**1029.12.2.1 Dual access.**

For rows of seating served by *aisles* or doorways at both ends, there shall be not more than 100 seats per row. The minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14 seats where seats have backrests or beyond 21 where seats are without backrests. The minimum clear width is not required to exceed 22 inches (559 mm).

**Exception:** For smoke-protected or ~~s~~*~~moke~~*~~-~~*~~protected~~ open-air assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accesswa*y, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1029.12.2.1.

(F7793) /(I-Code)

**1029.12.2.2 Single access.**

For rows of seating served by an *aisle* or doorway at only one end of the row, the minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven seats where seats have backrests or beyond 10 where seats are without back-rests. The minimum clear width is not required to exceed 22 inches (559 mm).

**Exception:** For smoke-protected or *~~smoke-protected~~ open-air assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1029.12.2.1.

(F7794) /(I-Code)

**1029.14.1 Stepped aisles that change direction at vomitories.** Stepped aisle treads where the stepped aisle changes direction at a vomitory shall have a minimum depth of 11 inches (280 mm) or the stepped aisle tread depth, whichever is greater. The height of a stepped aisle tread above a transition at a vomitory shall comply with Section 1029.13.2.2.

(F7963)

**1029.14.2 Stepped aisle transitions at the top of vomitories.** Transitions between the stepped aisle above a vomitory and stepped aisles to the side of a vomitory shall have a minimum depth of 11 inches (280mm) or the stepped aisle depth, whichever is greater.

(F7964)

**1029.14.3 Stepped aisles at vomitories.** Stepped aisles that change direction at vomitories shall comply with 1029.14.1 Transitions between a stepped aisle above a vomitory and stepped aisle to the side of vomitory shall comply with 1029.14.2.

(F7962)

**Chapter 11 ACCESSIBILITY**

No change

**Chapter 12 INTERIOR ENVIRONMENT**

Revise as follows:

**1207.2 Air-borne sound.** Walls, partitions and floor/ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for air-borne noise when tested in accordance with ASTM E90. Alternatively, the sound transmission class of walls, partitions and floor/ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor/ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E 90.Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.

**1207.3 Structure-borne sound. Floor/ceiling assemblies**between *dwelling units* and *sleeping units* or between a *dwelling unit* or *sleeping unit* and a public or service area withinthe structure shall have an impact insulation class rating of not less than 50, or not less than 45 if field tested, when tested in accordance withASTM E492. Alternatively, the impact insulation class of floor/ceiling assemblies shall be established by engineering analysis based on a comparison of floor/ceiling assemblies having impact insulation class ratings as determined by the test procedures set forth in ASTM E492.

(S7510) /(I-Code)

**1208.2 Minimum ceiling heights.** Occupiable spaces, *habitable spaces* and *corridors* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

**Exceptions:**

1.      In one- and two-family *dwellings*, beams or girders spaced not less than 4 feet (1219 mm) on center shall be permitted to project not more than 6 inches (152 mm) below the required ceilingheight.

2.      If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum areathereof.

3.      The height of *mezzanines* and spaces below *mezzanines* shall be in accordance with Section505.1.

4.   Corridors contained within a *dwelling unit* or *sleeping unit* in a Group R occupancy shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

(F7531) /(I-Code)

**CHAPTER 13 ENERGY EFFICIENCY**

No change

**Chapter 14 EXTERIOR WALLS**

Revise as follows:

**[BS]1404.3 Wood.**

*Exterior walls* of wood construction shall be designed and constructed in accordance with Chapter 23.

**[BS]1404.3.1 Basic hardboard.**

Basic hardboard shall conform to the requirements of ~~AHA~~ ANSI A135.4.

**[BS]1404.3.2 Hardboard siding.**

Hardboard siding shall conform to the requirements of ~~AHA~~ ANSI A135.6 and, where used structurally, shall be so identified by the *label* of an *approved* agency.

(S7846)/(S258-16)

**1406.3 Balconies and similar projections.**

Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of ~~Type IV~~ heavy timber construction in accordance with Section ~~602.4~~ 2304.11. The aggregate length of the projections shall not exceed 50 percent of the building’s perimeter on each floor.

Exceptions:

1.On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.

2.Untreated wood, and plastic composites which comply with ASTM D7032 and Section 2612, ~~is~~ are permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.

3.Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.

4.Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

(F8271/ F8233 A1 Only)

**1407.10 Type I, II, III and IV construction.**

Where installed on buildings of Type I, II, III and IV construction, MCMs and MCM systems shall comply with Sections 1407.10.1 through 1407.10.3 for installations up to 40 feet (12192 mm) above grade plane.  Where installed on buildings of Type I, II, III, and IV construction, MCMs and MCM systems shall comply with Sections 1407.10.1 through 1407.10.4 for installations greater than 40 feet (12192 mm) above grade plane.~~1407.10.4, or Section 1407.11.~~

DELETE WITHOUT SUBSTITUTION

**~~1407.11 Alternate conditions.~~**

~~MCM and MCM systems shall not be required to comply with Sections 1407.10.1 through 1407.10.4 provided such systems comply with Section 1407.11.1, 1407.11.2, 1407.11.3 or 1407.11.4.~~

**~~1407.11.1 Installations up to 40 feet in height.~~**

~~MCM shall not be installed more than 40 feet (12 190 mm) in height above grade where installed in accordance with Sections 1407.11.1.1 and 1407.11.1.2.~~

**~~1407.11.1.1 Fire separation distance of 5 feet or less.~~**

~~Where the fire separation distance is 5 feet (1524 mm) or less, the area of MCM shall not exceed 10 percent of the exterior wall surface.~~

**~~1407.11.1.2 Fire separation distance greater than 5 feet.~~**

~~Where the fire separation distance is greater than 5 feet (1524 mm), there shall be no limit on the area of exterior wall surface coverage using MCM.~~

**~~1407.11.2 Installations up to 50 feet in height.~~**

~~MCM shall not be installed more than 50 feet (15 240 mm) in height above grade where installed in accordance with Sections 1407.11.2.1 and 1407.11.2.2.~~

**~~1407.11.2.1 Self-ignition temperature.~~**

~~MCM shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

**~~1407.11.2.2 Limitations.~~**

~~Sections of MCM shall not exceed 300 square feet (27.9 m~~~~2~~~~) in area and shall be separated by not less than 4 feet (1219 mm) vertically.~~

**~~1407.11.3 Installations up to 75 feet in height (Option 1).~~**

~~MCM shall not be installed more than 75 feet (22 860 mm) in height above grade plane where installed in accordance with Sections 1407.11.3.1 through 1407.11.3.5.~~

~~Exception: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall be exempt from the height limitation.~~

**~~1407.11.3.1 Prohibited occupancies.~~**

~~MCM shall not be permitted on buildings classified as Group A-1, A-2, H, I-2 or I-3 occupancies.~~

**~~1407.11.3.2 Nonfire-resistance-rated exterior walls.~~**

~~MCM shall not be permitted on exterior walls required to have a fire-resistance rating by other provisions of this code.~~

**~~1407.11.3.3 Specifications.~~**

~~MCM shall be required to comply with all of the following:~~

1. ~~1.MCM shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

2. ~~2.MCM shall conform to one of the following combustibility classifications when tested in accordance with ASTM D635:~~

o ~~Class CC1: Materials that have a burning extent of 1 inch (25 mm) or less when tested at a nominal thickness of 0.060 inch (1.5 mm) or in the thickness intended for use.~~

o ~~Class CC2: Materials that have a burning rate of 2~~~~1~~~~/~~~~2~~ ~~inches per minute (1.06 mm/s) or less when tested at a nominal thickness of 0.060 inch (1.5 mm) or in the thickness intended for use.~~

**~~1407.11.3.4 Area limitation and separation.~~**

~~The maximum area of a single MCM panel and the minimum vertical and horizontal separation requirements for MCM panels shall be as provided for in Table 1407.11.3.4. The maximum percentage of exterior wall area of any story covered with MCM panels shall not exceed that indicated in Table 1407.11.3.4 or the percentage of unprotected openings permitted by Section 705.8, whichever is smaller.~~

~~Exception: In buildings provided with flame barriers complying with Section 705.8.5 and extending 30 inches (760 mm) beyond the exterior wall in the plane of the floor, a vertical separation shall not be required at the floor other than that provided by the vertical thickness of the flame barrier.~~

~~TABLE 1407.11.3.4~~

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ~~FIRE SEPARATION DISTANCE (feet)~~ | ~~COMBUSTIBILITY CLASS OF MCM~~ | ~~MAXIMUM PERCENTAGE AREA OF EXTERIOR WALL COVERED WITH MCM PANELS~~ | ~~MAXIMUM SINGLE AREA OF MCM PANELS (square feet)~~ | ~~MINIMUM SEPARATION OF MCM PANELS (feet)~~ | |
| ~~Vertical~~ | ~~Horizontal~~ |
| ~~Less than 6~~ | ~~—~~ | ~~Not Permitted~~ | ~~Not Permitted~~ | ~~—~~ | ~~—~~ |
| ~~6 or more but less than 11~~ | ~~CC1~~ | ~~10~~ | ~~50~~ | ~~8~~ | ~~4~~ |
| ~~CC2~~ | ~~Not Permitted~~ | ~~Not Permitted~~ | ~~—~~ | ~~—~~ |
| ~~11 or more but less than or equal to 30~~ | ~~CC1~~ | ~~25~~ | ~~90~~ | ~~6~~ | ~~4~~ |
| ~~CC2~~ | ~~15~~ | ~~70~~ | ~~8~~ | ~~4~~ |
| ~~More than 30~~ | ~~CC1~~ | ~~50~~ | ~~Not Limited~~ | ~~3~~~~a~~ | ~~0~~ |
| ~~CC2~~ | ~~50~~ | ~~100~~ | ~~6~~~~a~~ | ~~3~~ |

~~For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m~~~~2~~~~.~~

1. ~~a.For reductions in the minimum vertical separation, see Section 1407.11.3.4.~~

**~~1407.11.3.5 Automatic sprinkler system increases.~~**

~~Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the maximum percentage area of exterior wall of any story covered with MCM panels and the maximum square footage of a single area of MCM panels in Table 1407.11.3.4 shall be increased 100 percent. The area of MCM panels shall not exceed 50 percent of the exterior wall area of any story or the area permitted by Section 704.8 for unprotected openings, whichever is smaller.~~

**~~1407.11.4 Installations up to 75 feet in height (Option 2).~~**

~~MCM shall not be installed more than 75 feet (22 860 mm) in height above grade plane where installed in accordance with Sections 1407.11.4.1 through 1407.11.4.4.~~

~~Exception: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall be exempt from the height limitation.~~

**~~1407.11.4.1 Minimum fire separation distance.~~**

~~MCM shall not be installed on any wall with a fire separation distance less than 30 feet (9 144 mm).~~

~~Exception: Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the fire separation distance shall be permitted to be reduced to not less than 20 feet (6096 mm).~~

**~~1407.11.4.2 Specifications.~~**

~~MCM shall be required to comply with all of the following:~~

1. ~~1.MCM shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

2. ~~2.MCM shall conform to one of the following combustibility classifications when tested in accordance with ASTM D635:~~

o ~~Class CC1: Materials that have a burning extent of 1 inch (25 mm) or less when tested at a nominal thickness of 0.060 inch (1.5 mm), or in the thickness intended for use.~~

o ~~Class CC2: Materials that have a burning rate of 2~~~~1~~~~/~~~~2~~ ~~inches per minute (1.06 mm/s) or less when tested at a nominal thickness of 0.060 inch (1.5 mm), or in the thickness intended for use.~~

**~~1407.11.4.3 Area and size limitations.~~**

~~The aggregate area of MCM panels shall not exceed 25 percent of the area of any exterior wall face of the story on which those panels are installed. The area of a single MCM panel installed above the first story above grade plane shall not exceed 16 square feet (1.5 m~~~~2~~~~) and the vertical dimension of a single MCM panel shall not exceed 4 feet (1219 mm).~~

~~Exception: Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the maximum aggregate area of MCM panels shall be increased to 50 percent of the exterior wall face of the story on which those panels are installed and there shall not be a limit on the maximum dimension or area of a single MCM panel.~~

**~~1407.11.4.4 Vertical separations.~~**

~~Flame barriers complying with Section 705.8 and extending 30 inches (762 mm) beyond the exterior wall or a vertical separation of not less than 4 feet (1219 mm) in height shall be provided to separate MCM panels located on the exterior walls at one-story intervals.~~

~~Exception: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

(F7242)

**Chapter 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

Revise as follows:

**SECTION1501  
GENERAL**

**1501.1 Scope.**

The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

**Exception:** Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of Section 1503.7, Section 1507.18.1 and Sections 1512 through 1525.

(R7161)

**SECTION1502  
DEFINITIONS AND NOTATIONS**

**NOTATIONS**

|  |  |  |
| --- | --- | --- |
| *Vasd* | = | Nominal design wind speed (3-second gust), miles per hour (mph) (km/hr) where applicable. |
| *Vult* | = | Ultimate design wind speeds (3-second gust), miles per hour (mph) (km/hr) determined from Figure 1~~6~~509.3(1), 1~~6~~509.3(2), 1~~6~~509.3(3) or ASCE 7. |

(R7830)

**1503.1 General.**

Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be designed in accordance with this code, and installed in accordance with this code and the ~~approved~~ manufacturer’s approved instructions such that the roof covering shall serve to protect the building or structure.

(R8397) /(I-Code)

**Add new text as follows:**

**1504.3.3 Metal roof shingles.**

Metal roof shingles applied to a solid or closely fitted deck shall be tested in accordance with FM 4474, UL 580, UL 1897, ASTM D3161, or TAS 107. Metal roof shingles tested in accordance with ASTM D3161 shall meet the classification requirements of Table 1504.3.3 for the appropriate maximum basic wind speed and the metal shingle packaging shall bear a label to indicate compliance with ASTM D3161 and the required classification in Table 1504.3.3.

**Add new table as follows:**

**TABLE 1504.3.3**

CLASSIFICATION OF METAL ROOF SHINGLES TESTED IN ACCORDANCE WITH ASTM D3161

|  |  |  |
| --- | --- | --- |
| MAXIMUM BASIC WIND SPEED FROM FIGURE ~~1609A, B, C or ASCE-7~~ 1609.3(1), (2), (3) or ASCE 7 | Vasd | ASTM D3161 |
| 110 | 85 | D or F |
| 116 | 90 | D or F |
| 129 | 100 | D or F |
| 142 | 110 | F |
| 155 | 120 | F |
| 168 | 130 | F |
| 181 | 140 | F |
| 194 | 150 | F |

(R7878 A1+Original) /(I-Code)

**1504.5 Edge securement for low-slope roofs.** Low-slope built-up, modified bitumen and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, or RAS 111 except *Vult*wind speed shall be determined from Figure 1609.3(1), 1609.3(2), ~~or~~ 1609.3(3), or 1609.3(4) as applicable.

(S7234)

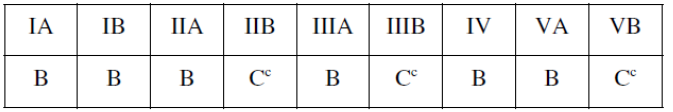
**1504.7 Impact resistance.** Roof coverings installed on low slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272, ~~CGSB 37-GP-~~ ~~52M~~ or the “Resistance to Foot Traffic Test” in Section ~~5.5~~ 4.6 of FM 4470. All structural metal roofing systems having a thickness equal to or greater than 22 gage and all nonstructural metal roof systems having a thickness equal to or greater than 26 gage shall be exempt from the tests listed above.

(R8291/R8399)

**TABLE 1505.1a, b**

**MINIMUM ROOF COVERING CLASSIFICATION**

**FOR TYPES OF CONSTRUCTION**



For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m2.

a. Unless otherwise required in accordance with the International Wildland- Urban Interface Code or due to the location of the building within a fire district in accordance with Appendix D.

b. Nonclassified roof coverings shall be permitted on buildings of ~~Group R-3~~ and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.

c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles constructed in accordance with Section 1505.7.

(R8292)

**1505.8 Building-integrated photovoltaic products.**

***Building-integrated photovoltaic products* installed as the roof covering shall be tested, *listed* and *labeled* for fire classification in accordance with Section 1505.1.**  
(R7872)

**1505.9 ~~Photovoltaic panels and modules~~. Rooftop mounted photovoltaic panel systems.**

Rooftopmounted *photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 or UL2073. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

(R7703)

**1507.1.1 Underlayment.** ~~Unless otherwise noted u~~Underlayment ~~for asphalt shingles, metal roof shingles, mineral surfaced roll roofing,~~ ~~slate and slate-type shingles, wood shingles, wood shakes and metal roof panels~~ for roof slopes 2:12 and greater shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated ~~in Table 1507.1.1~~. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section 1507.1.1.1, 1507.1.1.2, or 1507.1.1.3 as applicable ~~Table 1507.1.1~~.

**Exception:** For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer’s installation instructions.

**1507.1.1.1 Underlayment for asphalt, metal, mineral surfaced, slate and slate-type roof coverings.** Underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, ~~wood shingles, wood shakes~~ and metal roof panels shall comply with one of the following methods:

1. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer’s and roof covering manufacturer’s installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.

2. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch- wide (102 mm) membrane strips.

**Exception:** A ~~reinforced~~ synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength of 15 lbf in accordance with ~~ASTM D1970 or~~ ASTM D4533 ~~of 20 pounds~~ and a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035 shall be permitted to be applied over the entire roof over the 4-inch wide (102 mm) membrane strips. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table 1507.1.1.1 for the applicable roof covering and slope and the underlayment manufacturer’s installation instructions ~~, except metal cap nails shall be~~ ~~required where the ultimate design wind speed, V~~*~~ult~~*~~, equals or exceeds 150 mph~~.

3. A minimum 3 ¾-inch wide (96 mm) strip of self-adhering flexible flashing tape complying with AAMA 711-13, Level 3 (for exposure up to 176° F (80° C)), installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) flashing strips.

**Exception:** A reinforced synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength of 15 lbf in accordance with ASTM D4533 and a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035 shall be permitted to be applied over the entire roof over the 4-inch wide (102 mm) membrane strips. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table 1507.1.1.1 for the applicable roof covering and slope and the underlayment manufacturer’s installation instructions.

4. Two layers of ASTM D226 Type II or ASTM D4869 Type III or Type IV underlayment shall be installed as follows: Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36- inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

5. Two layers of a reinforced synthetic underlayment that has a Product Approval as an alternate to underlayment complying with ASTM D226 Type II shall be permitted to be used. Synthetic underlayment shall have a minimum tear strength of 15 lbf in accordance with ASTM D4533, a minimum tensile strength of 20 lbf/inch in accordance with ASTM D5035, and shall meet the liquid water transmission test of Section 8.6 of ASTM D4869. Synthetic underlayment shall be installed as follows: Apply a strip of synthetic underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full sheets of reinforced synthetic underlayment, overlapping successive sheets half the width of a full sheet plus the width of the manufacturers single ply overlap. End laps shall be 6 inches and shall be offset by 6 feet. Synthetic underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with a maximum fastener spacing measured horizontally and vertically of 12 inches (305 mm) o.c. between side laps, and one row at the end and side laps fastened 6 inches (152 mm) o.c. Synthetic underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph.  Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

**Exception:** Compliance with Section 1507.1.1.1 is not required for structural metal panels that do not require a substrate or underlayment.

**TABLE 1507.1.1.**

**UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Roof Covering** | **Underlayment Type** | **Underlayment Attachment** | |
| **2:12 = Roof Slope < 4:12** | **Roof Slope > 4:12** |
|  |  |  | Underlayment shall be applied shingle fashion, parallel to and |
|  |  |  | starting from the eave and lapped 4 inches (51 mm), end laps |
|  |  |  | shall be 6 inches and shall be offset by 6 feet. The |
|  |  |  | underlayment shall be attached to a nailable deck with two |
| Asphalt Shingles, Metal Roof Panels, Photovoltaic Shingles | ASTM D226 Type II ASTM D4869 Type III  or IV ASTM D 6757 | Apply in accordance with Section 1507.1.1.1 Item 4 or Section 1507.1.1.3 Item 3 as applicable to the type of roof covering. | staggered rows in the field of the sheet with a maximum  fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c.  Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph. Metal caps shall have a thickness of not  less than 32-gage sheet metal. Power-driven metal caps shall |
|  | ASTM D226 Type II ASTM D4869 Type III  or IV |
| Metal Roof Shingles, |  | have a minimum thickness of 0.010 inch. Minimum thickness |
| Mineral-Surface Roll |  | of the outside edge of plastic caps shall be 0.035 inch. The cap |
| Roofing, Slate and |  | nail shank shall be not less than 0.083 inch for ring shank cap |
| Slate-type Shingles, |  | nails and 0.091 inch for smooth shank cap nails. Cap nail |
| Wood Shingles, |  | shank shall have a length sufficient to penetrate through the |
| Wood Shakes |  | roof sheathing or not less than 3/4 inch into the roof |
|  |  | sheathing. |

**~~TABLE 1507.1.1~~**

**~~UNDERLAYMENT TABLE~~**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **~~Roof Covering~~ ~~Section~~** | **Roof Slope 2:12 and**  **~~Less Than 4:12~~ ~~Underlayment~~** | **~~Underlayment~~ ~~Attachment~~a** | **~~Roof Slope 4:12 and~~ ~~Greater~~ ~~Underlayment~~** | **~~Underlayment~~ ~~Attachment~~a** |
| **~~Asphalt shingles~~ ~~1507.2~~** | ~~ASTM D226 Type I or~~ ~~II~~  ~~ASTM D4869 Type II,~~ ~~III or IV~~  ~~ASTM D6757~~ | ~~1~~ | ~~ASTM D226 Type II~~ ~~ASTM D4869 Type III or~~ ~~IV~~  ~~ASTM D 6757~~ | ~~2~~ |
| ~~ASTM D1970~~ | ~~3~~ | ~~ASTM D 1970~~ | ~~3~~ |
| **~~Concrete and~~ ~~Clay Tile~~**  **~~1507.3~~** | **~~See Section 1507.3.3~~** | | | |
| **~~Metal roof panels~~ ~~1507.4~~** | ~~ASTM D226 Type I or~~ ~~II~~  ~~ASTM D4869 Type II,~~ ~~III or IV~~ | ~~1~~ | ~~ASTM D226 Type II~~ ~~ASTM D4869 Type IV~~ ~~ASTM D6757~~ | ~~2~~ |
| ~~ASTM D1970~~ | ~~3~~ | ~~ASTM D1970~~ | ~~3~~ |
| **~~Metal roof~~ ~~shingles~~ ~~1507.5~~** | ~~ASTM D226 Type I or~~ ~~II~~  ~~ASTM D4869 Type II,~~ ~~III or IV~~  ~~ASTM D6757~~ | ~~1~~ | ~~ASTM D226 Type II~~ ~~ASTM D4869 Type IV~~ | ~~2~~ |
|  | ~~ASTM D1970~~ | **~~3~~** | **~~ASTM D1970~~** | **3** |
| **Mineral-surfaced roll roofing 1507.6** | ~~ASTM D226 Type I or II~~  ~~ASTM D4869 Type II, III or IV~~ | **~~1~~** | **~~ASTM D226 Type II ASTM D4869 Type IV~~** | **2** |
|  | ~~ASTM D1970~~ | **~~3~~** | **~~ASTMD 1970~~** | **3** |
| **Slate shingles 1507.7** | ~~ASTM D226 Type I or II~~  ~~ASTM D4869 Type II,~~  ~~III or IV~~ | **~~1~~** | **~~ASTM D226 Type II ASTM D4869 Type IV~~** | **2** |
|  | ~~ASTM D1970~~ | **~~3~~** | **~~ASTM D1970~~** | **3** |
| **Wood shingles 1507.8** | ~~ASTM D226 Type I or II~~  ~~ASTM D4869 Type II, III or IV~~ | **~~1~~** | **~~ASTM D226 Type II ASTM D4869 Type IV~~** | **2** |
| **Wood shakes 1507.9** | ~~Limited to roof slopes 4:12~~  ~~and Greater~~ | **~~ASTM D226 Type II ASTM D4869 Type IV~~** | **~~2~~** | **2** |
| **Photovoltaic Shingles 1507.17** | ~~ASTM D226 Type I or II~~  ~~ASTM D4869 Type II, III or IV~~  ~~ASTM D6757~~ | **~~1~~** | **~~ASTM D226 Type II ASTM D4869 Type IV ASTM D6757~~** |  |
|  | ~~ASTM D1970~~ | **~~3~~** | **~~ASTM D1970~~** | **3** |

a~~Underlayment Attachment~~

~~1. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and less than four units vertical in 12 units horizontal (33-percent slope). Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing~~.

~~2. Roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches (51 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power- driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length s ufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.~~

~~3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope) and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970(2015a) installed in accordance with both the underlayment manufacture r’s and roof covering manufacturer’s installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.~~

**~~Exception:~~** ~~A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970(2015a), installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1 for~~ ~~the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips~~.

**1507.1.1.2 Underlayment for concrete and clay tile.** Underlayment for concrete and clay tile shall comply with one of the following methods:

1. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer’s and roof covering manufacturer’s installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.

2. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An underlayment complying with Section 1507.3.3 shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

3. A minimum 3 ¾-inch wide (96 mm) strip of self-adhering flexible flashing tape complying with AAMA 711-13, Level 3 (for exposure up to 176° F (80° C), installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An underlayment complying with Section 1507.3.3 shall be applied over the entire roof over the 4-inch-wide (102 mm) flashing strips.

4. Two layers of ASTM D226 Type II or ASTM D4869 Type III or Type IV underlayment shall be installed as follows: Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph.  Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

**Exception:** Compliance with Section 1507.1.1.2 is not required where a fully adhered underlayment is applied in accordance with Section 1507.3.3.

**1507.1.1.3 Underlayment for wood shakes and shingles.** Underlayment for wood shakes and shingles shall comply with one of the following methods:

1. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed

in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch- wide (102 mm) membrane strips.

2. A minimum 3 ¾-inch wide (96 mm) strip of self-adhering flexible flashing tape complying with AAMA 711-13, Level 3 (for exposure up to 176° F (80° C)), installed in accordance with the manufacturer’s instructions for the deck material, shall be applied over all joints in the roof decking. An underlayment complying with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) flashing strips.

3. Two layers of ASTM D226 Type II or ASTM D4869 Type III or Type IV underlayment shall be installed as follows: Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36- inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using annular ring or deformed shank nails with metal or plastic caps with a nominal cap diameter of not less than 1 inch. Metal caps are required where the ultimate design wind speed, Vult, equals or exceeds 170 mph. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

(7696 A1+A2+A3+Original + handout/Commission)/ (R7580)/ (R8061)

**1507.2.7.1 Wind resistance of asphalt shingle**s. Asphalt shingles shall be classified in accordance with ASTM D3161, ASTM D7158 or TAS 107. Shingles classified as ASTM D3161 Class D or ASTM D7158 Class G are acceptable for use where Vasd is equal to or less than 100 mph. Shingles classified as ASTM D3161 Class F, ASTM D7158 Class H or TAS 107 are acceptable for use for all wind speeds. Asphalt shingle wrappers shall be *labeled* to indicate compliance with one of the required classifications, as shown in Table 1507.2.7.1.

(R8293)

**1507.2.9.3 Drip edge.** Provide drip edge at eaves and gables of shingle roofs. Overlap to be a minimum of 3 inches (76 mm). Eave drip edges shall extend 1/2 inch (13 mm) below sheathing and extend back on the roof a minimum of 2 inches (51 mm). Drip edge at gables shall be installed over the underlayment. Drip edge at eaves shall be permitted to be installed either over or under the underlayment. If installed over the underlayment, there shall be a minimum 4 inches (51 mm) width of roof cement installed over the drip edge flange. Drip edge shall be mechanically fastened a maximum of 12 inches (305 mm) on center. Where the *Vasd,* as determined in accordance with Section 1609.3.1, is 110 mph (177 km/h) or greater or the mean roof height exceeds 33 feet (10 058 mm), drip edges shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

(R8294)

**1507.3.2 Deck slope.**

Clay and concrete roof tile shall be installed in accordance with the recommendations of FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition where the Vasd as determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

**1507.3.3 Underlayment.**

Unless otherwise noted, underlayment shall be applied according to the underlayment manufacturer's installation instructions or the recommendations of the FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, ~~Fifth~~ Sixth Edition where the basic wind speed, Vasd, is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

**1507.3.3.1 Slope and underlayment requirements.**

Refer to FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition (2012) where the basic wind speed Vasd is determined in accordance with Section 1609.3.1 for underlayment and slope requirements for specific roof tile systems or the recommendations of RAS 111, 118, 119 or 120.

**1507.3.7 Attachment.**

Clay and concrete roof tiles shall be fastened in accordance with Section 1609 or in accordance with *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, *Vasd*, is determined in accordance with Section 1609.3.1.

**1507.3.8 Application.**

Tile shall be applied according to the manufacturer’s installation instructions or recommendations of the *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, *Vasd*, is determined in accordance with Section 1609.3.1 or the recommendation of RAS 118, 119 or 120.

**1507.3.9 Flashing.**

At the juncture of the roof vertical surfaces, flashing and counterflashing shall be provided in accordance with the manufacturer’s installation instructions or the recommendations of the *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, V*asd*, is determined in accordance with Section 1609.3.1or the recommendation of RAS 118, 119 or 120.

(S7356)

**TABLE 1507.9.6**

**WOOD SHAKE MATERIAL REQUIREMENTS**

|  |  |  |
| --- | --- | --- |
| MATERIAL | MINIMUM GRADES | APPLICABLE GRADING RULES |
| Wood shakes of naturally durable wood | 1 | CSSB |
| Taper sawn shakes of naturally durable wood | 1 or 2 | CSSB |
| Preservative-treated shakes and shingles of naturally durable wood | 1 | CSSB |
| Fire-retardant-treated shakes and shingles of naturally durable wood | 1 | CSSB |
| Preservative-treated taper sawn shakes of Southern pine treated in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.6 ~~Use Category 3B~~ ~~and Section 5.6~~) | 1 or 2 | TFS |

 CSSB = Cedar Shake and Shingle Bureau

TFS = Forest Products Laboratory of the Texas Forest Services.

(R7380) /(I-Code)

**1507.11.2 Material standards.**

Modified bitumen roof coverings shall comply with ~~CGSB 37-GP-56M,~~ ASTM D6162, ASTM D6163, ASTM D6164, ASTM D6222, ASTM D6223, ASTM D6298 or ASTM D6509.

**1507.12.2 Material standards.**

Thermoset single-ply roof coverings shall comply with ASTM D4637, or ASTM D5019 ~~or CGSB 37-GP-52M~~.

**1507.13.2 Material standards.**

Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, or ASTM D6878 ~~or CGSB CAN/CGSB 37-54~~.

(R8399) /(I-Code)

**1510.7.1 Wind resistance.** Rooftop-mounted *photovoltaic* systems shall be designed for wind loads in accordance with ASCE 7 ~~for component and cladding in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame~~.

(R7427)

**[BG]1510.2.5 Type of construction.**

Penthouses shall be constructed with walls, floors and roofs as required for the type of construction of the building on which such penthouses are built.

**Exceptions:**

1.On buildings of Type I construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating. The exterior walls and roofs of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall not be required to have a fire-resistance rating.

2.On buildings of Type I construction two stories or less in height above grade plane or of Type II construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602 and be constructed of fire-retardant-treated wood. The exterior walls and roofs of penthouses with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of fire-retardant-treated wood and shall not be required to have a fire-resistance rating. Interior framing and walls shall be permitted to be constructed of fire-retardant-treated wood.

3.On buildings of Type III, IV or V construction, the exterior walls of penthouses with a fire separation distance greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602. On buildings of Type III, IV or VA construction, the exterior walls of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall be permitted to be of ~~Type IV~~ heavy timber construction complying with Sections 602.4 and 2304.11 or noncombustible construction or fire-retardant-treated wood and shall not be required to have a fire-resistance rating.

**[BG]1510.3Tanks.**

Tanks having a capacity of more than 500 gallons (1893 L) located on the roof deck of a building shall be supported on masonry, reinforced concrete, steel or ~~Type IV~~ heavy timber construction complying with Section 2304.11 provided that, where such supports are located in the building above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

(R8273)/(I-Code)

**1510.11 Cable- and Raceway-Type Wiring Methods.**

Cable- and raceway-type wiring methods installed on rooftops, when not encased in a structural concrete environment, shall be supported above the roof system and covering. Cable- and raceway-type wiring methods installed in locations under metal-corrugated sheet roof decking shall be supported so there is not less than 38 mm (1½ in.) measured from the lowest surface of the roof decking to the top of the cable or raceway. A cable or raceway shall not be installed in concealed locations in metal-corrugated sheet decking–type roof.

(R7600 A1 Only)

**1511.5 Reinstallation/Reuse of materials.**

Existing or salvaged slate, clay or ~~cement~~ concrete tile shall be permitted for reinstallation or reuse, to repair an existing slate or tile roof, except that salvaged slate or tile shall be of like kind in both material and profile. D~~d~~amaged, cracked or broken slate or tile shall not be reinstalled. The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 and installed in accordance with Section 1507. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

(R7316)

**1514.4 Roof drainage.** Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof. If required, roof drains shall comply with the *Florida Building Code, Plumbing.* Where required for primary roof drainage, scuppers shall be placed level with the roof surface in a wall or parapet. The scupper shall be located as determined by the roof slope and contributing roof area. Scuppers shall be sized in accordance with the provisions contained in ASCE 7, ~~Section~~ Chapter 8 with commentary and shall comply with Section 1611 herein.

**1514.4.1 Gutters.** Gutters shall be in compliance with RAS 111.

**1514.4.2 Overflow drains and scuppers.** Where roof drains are required, overflow drains or overflow scuppers sized in accordance with *Florida Building Code, Plumbing* and ASCE 7, Chapter 8 with commentary shall be installed with the inlet flow line located not less than 2 inches (51 mm) or more than 4 inches (102 mm) above the low point of the finished roofing surface, excluding sumps. Overflow scuppers shall be a minimum of 4 inches (102 mm) in any dimension and shall be located as close as practical to required vertical leaders, conductors or downspouts. Overflow drains and scuppers shall also comply with the *Florida Building Code, Plumbing*, and Section 1611 of this code.

**1514.4.2.1** When overflow scuppers and roof drains are installed, they shall be lined with approved metal or other approved materials set forth, herein ~~in the roofing system assembly product approval~~.

**1514.4.2.2** When recovering, reroofing or repairing an existing roof, the existing number or size of required scuppers and/or roof drains shall not be reduced, unless a new drainage system is designed by a *registered* *design professional* ~~an architect or engineer~~, in compliance with the provisions of this code.

**1514.4.3 Sizing and discharge.** Roof drains, gutters, conductors and leaders shall be sized and discharge in accordance with the *Florida Building Code, Plumbing* and ASCE 7, Chapter 8 with commentary.

(R7182 A1 Only)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | **TABLE 1515.2**  **MINIMUM SLOPE** | | | | **SYSTEM TYPE** | | **SLOPE** | | Fibrous Cement Shingles | | 4:12 | | Metal Panels | |  | | Architectural | | 2:121 | | Metal Shingles | | 4:12 | | Mortar or Adhesive Tile | | 2:12 | | Mechanically Fastened Tile | | 4:12 | | Asphalt Shingles | |  | | Laminated | | 2:12 | | 3-Tab | | 2:12 | | Quarry Slate | | 3-1/2:12 | | Wood | |  | | Shakes | | 4:12 | | Shingles | | 3-1/2:12 | | 1 | Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G, can be installed to a minimum slope of 1:12. | | |
| (R7437) |

**1521.13** Prior to starting the work the contractor has the responsibility of notifying the owner~~, by means of the roofing permit and required owners notification for roofing considerations herein,~~ of any possibility of ponding water and recommend a structural review if ponding water is a possibility.

(R7338)

**1523.6.4** The building official may request that a quality control field uplift test be carried out on a continuous roofing system in compliance with test procedure TAS 124. Single-ply systems are not required to meet the deflection requirements established in the test protocol if mechanically attached. The roofing system shall resist the design pressures as calculated in compliance with Chapter 16 (High-Velocity Hurricane Zones), and as established in TAS 124, Section 4.

(R7185)

**1523.6.5.2.4.1** All metal roofing shall be tested in compliance with requirements set forth in TAS 110 and TAS 125, and shall be tested for wind-driven rain infiltration resistance in compliance with TAS 100.

**1523.6.5.2.4.1.1** Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G, can be installed to a minimum slope of 1:12.

(R7438)

**1523.6.5.2.8 Roof board insulation.** All roof board insulation shall be tested for physical properties as set forth in Section ~~7~~ 8 of TAS 110.

(R7342)

**1525  
HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION**

*Florida Building Code* ~~6~~ 7th Edition (20~~17~~20)  
High-Velocity Hurricane Zone Uniform Permit Application Form

**Section C (Low Slope Application)**

Design Wind Pressures, From RAS 128 or Calculations:

~~P1~~ Zone 1’:\_\_\_\_\_ ~~P2~~ Zone 1:\_\_\_\_\_ ~~P3~~ Zone 2:\_\_\_\_\_ Zone 3: \_\_\_\_

Fastener Spacing for Anchor/Base Sheet Attachment:

~~Field~~ Zone 1’: \_\_\_\_” oc @ Lap, # Rows \_\_\_\_ @ \_\_\_\_” oc

Zone 1: \_\_\_\_” oc @ Lap, # Rows \_\_\_\_ @ \_\_\_\_” oc

~~Perimeter~~ Zone 2:  \_\_\_\_” oc @ Lap, # Rows \_\_\_ @ \_\_\_\_” oc

~~Corner~~ Zone 3:  \_\_\_\_” oc @ Lap, # Rows \_\_\_\_ @ \_\_\_\_” oc

Number of Fasteners Per Insulation Board:

~~Field~~ Zone 1’ \_\_\_\_\_Zone 1 \_\_\_\_\_~~Perimeter~~ Zone 2 \_\_\_\_\_ ~~Corner~~ Zone 3 \_\_\_\_\_

**Section D (Steep Sloped Roof System)**

Minimum Design Wind Pressures, If Applicable (From RAS 127 or Calculations):

~~P1~~ Zone 1’:\_\_\_\_\_ ~~P1~~ Zone 1:\_\_\_\_\_ ~~P1~~ Zone 2:\_\_\_\_\_ Zone 3: \_\_\_\_

**Section E (Tile Calculations)**

For Moment based tile systems, choose either Method 1 or 2. Compare the values for Mr with the values from Mf. If the Mf values are greater than or equal to the Mr values, for each area of the roof, then the tile attachment method is acceptable.

Method 1 “Moment Based Tile Calculations Per RAS 127”

(~~P~~~~1~~Zone 1:\_\_\_\_ × ? \_\_\_\_ = \_\_\_\_) – Mg: \_\_\_\_ = Mr1 \_\_\_\_ Product Approval Mf \_\_\_\_\_\_\_\_\_\_

(~~P~~~~2~~Zone 2e:\_\_\_\_ × ? \_\_\_\_ = \_\_\_\_) – Mg: \_\_\_\_ = Mr2 \_\_\_\_ Product Approval Mf \_\_\_\_\_\_\_\_\_\_

(~~P~~~~3~~ Zone 2n:\_\_\_\_ × ? \_\_\_\_ = \_\_\_\_) – Mg: \_\_\_\_ = Mr3 \_\_\_\_ Product Approval Mf \_\_\_\_\_\_\_\_\_\_

(Zone 2r: \_\_\_\_\_\_\_ x  \_\_\_\_\_\_= \_\_\_\_\_\_\_) – Mg \_\_\_\_\_\_\_ = Mr1 \_\_\_\_\_\_\_NOA Mf \_\_\_\_\_\_\_

(Zone 3e:\_\_\_\_\_\_\_ x  \_\_\_\_\_\_\_=  \_\_\_\_\_\_\_) – Mg: \_\_\_\_\_\_\_ = Mr2\_\_\_\_\_\_\_NOA Mf \_\_\_\_\_\_\_

(Zone 3r:\_\_\_\_\_\_\_ x  \_\_\_\_\_\_\_=  \_\_\_\_\_\_\_) – Mg: \_\_\_\_\_\_\_ = Mr3\_\_\_\_\_\_\_NOA Mf \_\_\_\_\_\_\_

 For Uplift based tile systems use Method 3. Compared the values for F’ with the values for Fr. If the F’ values are greater than or equal to the Fr values, for each area of the roof, then the tile attachment method is acceptable.

Method 3 “Uplift Based Tile Calculations Per RAS 127”

(~~P~~~~1~~ Zone 1:\_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr1 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

(~~P~~~~2~~Zone 2e: \_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr2 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

(~~P~~~~3~~ Zone 2n:\_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr3 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

(Zone 2r:\_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr1 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

(Zone 3e: \_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr2 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

(Zone 3r:\_\_\_\_ x L \_\_\_\_ = \_\_\_\_ x w: = \_\_\_\_) – W: \_\_\_\_ x cos? \_\_\_\_ = Fr3 \_\_\_\_ Product Approval F’ \_\_\_\_\_\_\_\_\_\_

| **Where to Obtain Information** | | |
| --- | --- | --- |
| **Description** | **Symbol** | **Where to find** |
| Design Pressure | ~~P1 or P2 or P3~~ Zones 1, 2e, 2n, 2r, 3e, 3r | From applicable Table in RAS 127 ~~Table 1~~ or by an engineering analysis prepared by PE based on ASCE 7 |

(R7186)

**Chapter 16 STRUCTURAL DESIGN**

Revise as follows:

**1602.1 NOTATIONS**

D = Dead load.

Di = Weight of ice in accordance with Chapter 10 of ASCE 7.

E = Combined effect of horizontal and vertical earthquake induced forces as defined in Section ~~12.4.2~~ 2.3.6 of ASCE 7.

F = Load due to fluids with well-defined pressures and maximum heights.

Fa = Flood load in accordance with Chapter 5 of ASCE 7.

H = Load due to lateral earth pressures, ground water pressure or pressure of bulk materials.

L = Roof live load greater than 20 psf (0.96 kN/m 2 ) and floor live load.

Lr = Roof live load of 20 psf (0.96 kN/m 2 ) or less.

R = Rain load.

S = Snow load.

T = ~~Self-straining~~ Cummulative effect of self-straining load forces and effects.

Vasd = Nominal design wind speed (3-second gust), miles per hour (mph) (km/hr) where applicable.

Vult= Ultimate design wind speeds (3-second gust), miles per hour (mph) (km/hr) determined from Figure 1609.3(1), 1609.3(2), 1609.3(3) or ASCE 7.

W = Load due to wind pressure.

Wi = Wind-on-ice in accordance with Chapter 10 of ASCE 7.

(S53-16)

**1603.1 General.** *Construction documents* shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through ~~1603.1.8~~ 1603.1.9 shall be indicated on the *construction documents*.

**Exception:** *Construction documents* for buildings constructed in accordance with the *conventional light-frame construction* provisions of Section 2308 shall indicate the following structural design information:

1. Floor and roof dead and live loads.

2. Ground snow load, ~~P~~*p*g.

3. Ultimate design wind speed, *V*ult, (3-second gust), miles per hour (mph) (km/hr) and nominal design wind speed, *V*asd, as determined in accordance with Section 1609.3.1 and wind exposure.

4. *Seismic design category* and *site class*.

5. Flood design data, if located in *flood hazard areas* established in Section 1612.3.

6. Design load-bearing values of soils.

7. Rain load data.

**1603.1.3 Roof snow load data.** The ground snow load, ~~P~~*p*g, shall be indicated. In areas where the ground snow load, ~~P~~*p*g, exceeds 10 pounds per square foot (psf) (0.479 kN/m2), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:

1. Flat-roof snow load, ~~P~~*p*f.

2. Snow exposure factor, *C*e.

3. Snow load importance factor, *I*s.

*4.* Thermal factor, *C*t*.*

5. Slope factor(s), *C*s

6. Drift surcharge load(s), ~~P~~*p*d, where the sum of ~~P~~*p*d and ~~P~~*p*f exceeds 20 psf (0.96 kN/m2).

7. Width of snow drift(s), *w*.

***Add new text as follows:***

**1603.1.9 Roof rain load data.** The following roof rain load parameters shall be shown regardless of whether the rain loads govern the design:

1. Rain Load

2. Rain Intensity, *i* (in/hr) (cm/hr)

(S57-16 AM/S7424)

**1603.1.8 Special loads.** Special loads that are applicable to the design of the building, structure or portions thereof, including but not limited to the loads of machinery or equipment, which are of greater magnitude than the loads defined in the specified floor and roof loads shall be ~~indicated along with~~ specified ~~the specified section of this code that addresses the special loading condition.~~ by their descriptions and locations

(S7425) /(I-Code)

**1604.3.3 Steel.** The deflection of steel structural members shall not exceed that permitted by AISC 360, AISI S100, ASCE 8, SJI CJ~~, SJI JG, SJI K~~ or SJI ~~LH/DLH~~ 100, as applicable.

(S70-16)

**1604.5.1 Multipleoccupancies.**Whereabuildingorstructureisoccupiedbytwoormoreoccupancies not included in the same *risk category*, it shall be assigned the classification of the highest *risk category* corresponding to the various occupancies. Where buildings or structures have two or more portions that are structurally separated, each portion shall be separately classified. Where a separated portion of a building or structure provides required access to, required egress from or shares life safety components with another portion having a higher *risk category*, both portions shall be assigned to the higher *riskcategory*.

**Exception:** Where a *storm shelter* designed and constructed in accordance with ICC 500 is provided in a building, structure or portion thereof normally occupied for other purposes, the *risk category* for the normal occupancy of the building shall apply unless the *storm shelter* is a designated emergency shelter in accordance with Table 1604.5.

(S7410) /(I-Code)

TABLE 1604.3 DEFLECTION LIMITS *(no change to body of table, only the content of footnote "d":)*

d. The deflection limit for the D+L load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For ~~wood~~ lumber, structural glued laminated timber, prefabricated wood I-joists, and structural composite lumber members that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5D. For ~~wood structural~~ lumber and glued laminated timber members installed or used at all other moisture conditions or cross laminated timber and wood structural panels that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from D. The value of 0.5D shall not be used in combination with ANSI/AWC NDS provisions for long-term loading.

(S7845) /(I-Code)

**1605.2 Load combinations using strength design or load and resistance factor design.** Where strength design or load and resistance factor design is used, buildings and other structures, and portions thereof, shall be designed to resist the most critical effects resulting from the following combinations of factored loads:

1.4( D + F ) **(Equation 16-1)**

1.2( D + F ) + 1.6( L + H ) + 0.5( Lr or S orR ) **(Equation 16-2)**

1.2( D + F ) + 1.6( Lr or S or R ) + 1.6 H + ( f1L or 0.5 W ) **(Equation 16-3)**

1.2( D + F ) + 1.0 W + f1L + 1.6 H + 0.5( Lr or S or R ) **(Equation 16-4)**

1.2( D + F ) + 1.0 E + f1L + 1.6 H + f2S **(Equation 16-5)**

0.9 D + 1.0 W + 1.6 H **(Equation 16-6)**

0.9( D + F ) + 1.0 E + 1.6 H **(Equation 16-7)**

where:

f1 = 1 for places of public assembly live loads in excess of 100 pounds per square foot (4.79 kN/m 2 ), and parking garages; and 0.5 for other live loads.

f2 = 0.7 for roof configurations (such as saw tooth) that do not shed snow off the structure, and 0.2 for other roof configurations.

**Exceptions:**

1. Where other factored load combinations are specifically required by other provisions of this code, such combinations shall take precedence.

2. Where the effect of *H* resists the primary variable load effect, a load factor of 0.9 shall be included with *H* where *H* is permanent and *H* shall be set to zero for all other conditions.

**1605.3 Load combinations using allowable stress design.**

**1605.3.1 Basic load combinations.** Where *allowable stress design* (working stress design), as permitted by this code, is used, structures and portions thereof shall resist the most critical effects resulting from the following combinations of loads:

D + F **(Equation 16-8)**

D + H + F + L **(Equation 16-9)**

D + H + F + ( Lr or S or R ) **(Equation 16-10)**

D + H + F + 0.75( L ) + 0.75( Lr or S or R ) **(Equation 16-11)**

D + H + F + (0.6 W or 0.7 E ) **(Equation 16-12)**

D + H + F + 0.75(0.6 W ) + 0.75 L + 0.75( Lr or S or R )  **(Equation 16-13)**

D + H + F + 0.75 (0.7 E ) + 0.75 L + 0.75 S **(Equation 16-14)**

0.6 D + 0.6 W + H **(Equation 16-15)**

0.6( D + F) + 0.7 E + H **(Equation 16-16)**

**Exceptions:**

1. Crane hook loads need not be combined with roof live load or with more than three-fourths of the snow load or one-half of the wind load.

2. Flat roof snow loads of 30 psf (1.44 kN/m2) or less and roof live loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m2), 20 percent shall be combined with seismic loads.

3. Where the effect of *H* resists the primary variable load effect, a load factor of 0.6 shall be included with *H* where *H* is permanent and *H* shall be set to zero for all other conditions.

4. In Equation 16-15, the wind load, *W*, is permitted to be reduced in accordance with Exception 2 of Section 2.4.1 of ASCE 7.

5. In Equation 16-16, 0.6 *D* is permitted to be increased to 0.9 *D* for the design of special reinforced masonry shear walls complying with Chapter 21

**Add new text as follows:**

**1607.14.2 Fire walls.** In order to meet the structural stability requirements of section 706.2 where the structure on either side of the wall has collapsed, fire walls and their supports shall be designed to withstand a minimum horizontal allowable stress load, *L*f*,* of 5 psf (0.240 kN/m2).

(S55-16 AM)

**1605.1 General.** Buildings and other structures and portions thereof shall be designed to resist:

1. The load combinations specified in Section 1605.2, 1605.3.1 or 1605.3.2;

2. The load combinations specified in Chapters 18 through 23; and

3. The seismic load effects including overstrength factor in accordance with Section ~~12.4.3~~ 2.3.6 and 2.4.5 of ASCE 7 where required by ~~Section 12.2.5.2~~ Chapter 12, ~~12.3.3.3 or 12.10.2.1~~ 13, and 15 of ASCE 7. With the simplified procedure of ASCE 7 Section 12.14, the seismic load effects including overstrength factor in accordance with Section 12.14.3.2 and Chapter 2 of ASCE 7 shall be used.

Applicable loads shall be considered, including both earthquake and wind, in accordance with the specified load combinations. Each load combination shall also be investigated with one or more of the variable loads set to zero.

Where the load combinations with overstrength factor in Section ~~12.4.3.2~~ 2.3.6 and 2.4.5 of ASCE 7 apply, they shall be used as follows:

1. The basic combinations for strength design with overstrength factor in lieu of Equations 16-5 and 16-7 in Section 1605.2.

2. The basic combinations for *allowable stress design* with overstrength factor in lieu of Equations 16-12, 16-14 and 16-16 in Section 1605.3.1.

3. The basic combinations for *allowable stress design* with overstrength factor in lieu of Equations 16-21 and 16-22 in Section 1605.3.2.

**1605.2.1 Other loads.** Where flood loads, *F* a, are to be considered in the design, the load combinations of Section ~~2.3.3~~ 2.3.2 of ASCE 7 shall be used. Where self-straining loads, *T*, are considered in design, their structural effects in combination with other loads shall be determined in accordance with Section ~~2.3.5~~ 2.3.4 of ASCE 7. Where an ice-sensitive structure is subjected to loads due to atmospheric icing, the load combinations of Section ~~2.3.4~~ 2.3.3 of ASCE 7 shall be considered.

**1605.3.2 Alternative basic load combinations.** In lieu of the basic load combinations specified in Section 1605.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. When using these alternative ~~basic~~allowable stress load combinations that include wind or seismic loads, allowable stresses are permitted to be increased or load combinations reduced where permitted by the material chapter of this code or the referenced standards. For load combinations that include the counteracting effects of dead and wind loads, only two-thirds of the minimum dead load likely to be in place during a design wind event shall be used. When using allowable stresses that have been increased or load combinations that have been reduced as permitted by the material chapter of this code or the referenced standards, where wind loads are calculated in accordance with Chapters 26 through 31 of ASCE 7, the coefficient (ω) in the following equations shall be taken as 1.3. For other wind loads, (ω) shall be taken as 1. When allowable stresses have not been increased or load combinations have not been reduced as permitted by the material chapter of this code or the referenced standards, (ω) shall be taken as 1. When using these alternative load combinations to evaluate sliding, overturning and soil bearing at the soil-structure interface, the reduction of foundation overturning from Section 12.13.4 in ASCE 7 shall not be used. When using these alternative basic load combinations for proportioning foundations for loadings, which include seismic loads, the vertical seismic *load effect*, *Ev*, in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero.

D + L + ( Lr or S or R ) (Equation 16-17)

D + L + 0.6 ω W (Equation 16-18)

D + L + 0.6 ω W + S /2 (Equation 16-19)

D + L + S + 0.6 ω W /2 (Equation 16-20)

D + L + S + E /1.4 (Equation 16-21)

0.9 D + E /1.4 (Equation 16-22)

**Exceptions:**

1. Crane hook loads need not be combined with roof live loads or with more than three-fourths of the snow load or one-half of the wind load.

2. Flat roof snow loads of 30 psf (1.44 kN/m2) or less and roof live loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m2), 20 percent shall be combined with seismic loads.

(S77-16)

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L*0* , AND MINIMUM CONCENTRATED LIVE LOADSg**

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 1. Apartments (see residential) | — | — |
| 2. Access floor systems |  |  |
| Office use | 50 | 2000 |
| Computer use | 100 | 2000 |
| 3. Armories and drill rooms | 150m | — |
| 4. Assembly areas |  | — |
| Fixed seats (fastened to floor) | 60m |
| Follow spot, projections and control rooms | 50 |
| Lobbies | 100m |
| Movable seats | 100m |
| Stage floors | 150m |
| Platforms (assembly) | 100m |
| Other assembly areas | 100m |
| 5. Balconies and decksh | 1.5 times the live load for the area served. Not required to exceed 100 psf.~~Same as occupancy served~~ | — |
| 6. Catwalks | 40 | 300 |
| 7. Cornices | 60 | — |
| 8. Corridors | 100 Same as occupancy served except as indicated | — |
| First floor |
| Other floors |
| 9. Dining rooms and restaurants | 100m | — |
| 10. Dwellings (see residential) | — | — |
| 11. Elevator machine room and control room grating (on area of 2 inches by 2 inches) | — | 300 |
| 12. Finish light floor plate construction (on area of 1 inch by 1 inch) | — | 200 |
| 13. Fire escapes | 100 | — |
| On single-family dwellings only | 40 |
| 14. Garages (passenger vehicles only) | 40m | Note a |
| Trucks and buses | See Section 1607.7 | |
| 15. Handrails, guards and grab bars | See Section 1607.8 | |
| 16. Helipads | See Section 1607.6 | |
| 17. Hospitals |  |  |
| Corridors above first floor | 80 | 1,000 |
| Operating rooms, laboratories | 60 | 1,000 |
| Patient rooms | 40 | 1,000 |
| 18. Hotels (see residential) | — | — |
| 19. Libraries |  |  |
| Corridors above first floor | 80 | 1,000 |
| Reading rooms | 60 | 1,000 |
| Stack rooms | 150b, m | 1,000 |
| 20. Manufacturing |  |  |
| Heavy | 250m | 3,000 |
| Light | 125m | 2,000 |
| 21. Marquees, except one-and two-family dwellings | 75 | — |
| 22. Office buildings |  |  |
| Corridors above first floor | 80 | 2,000 |
| File and computer rooms shall be designed for heavier loads based on anticipated occupancy | — | — |
| Lobbies and first-floor corridors | 100 | 2,000 |
| Offices | 50 | 2,000 |

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm2,

1 square foot = 0.0929 m2,

1 pound per square foot = 0.0479 kN/m2, 1 pound = 0.004448 kN,

1 pound per cubic foot = 16 kg/m3.

a. Floors in garages or portions of buildings used for the storage of motor vehicles shall be designed for the uniformly distributed live loads of this Table or the following concentrated loads: (1) for garages restricted to passenger vehicles accommodating not more than nine passengers, 3,000 pounds acting on an area of 41 /2 inches by 41 /2 inches; (2) for mechanical parking structures without slab or deck that are used for storing passenger vehicles only, 2,250 pounds per wheel.

b. The loading applies to stack room floors that support nonmobile, double-faced library book stacks, subject to the following limitations:

1. The nominal book stack unit height shall not exceed 90 inches;

2. The nominal shelf depth shall not exceed 12 inches for each face; and

3. Parallel rows of double-faced book stacks shall be separated by aisles not less than 36 inches wide.

c. Design in accordance with ICC 300.

d. Other uniform loads in accordance with an approved method containing provisions for truck loadings shall be considered where appropriate.

e. The concentrated wheel load shall be applied on an area of 4.5 inches by 4.5 inches.

f. The minimum concentrated load on stair treads shall be applied on an area of 2 inches by 2 inches. This load need not be assumed to act concurrently with the uniform load.

g. Where snow loads occur that are in excess of the design conditions, the structure shall be designed to support the loads due to the increased loads caused by drift buildup or a greater snow design determined by the building official (see Section 1608).

h. See Section 1604.8.3 for decks attached to exterior walls.

i. Uninhabitable attics without storage are those where the maximum clear height between the joists and rafters is less than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

j. Uninhabitable attics with storage are those where the maximum clear height between the joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

The live load need only be applied to those portions of the joists or truss bottom chords where both of the following conditions are met:

i. The attic area is accessible from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is a minimum of 30 inches; and

ii. The slopes of the joists or truss bottom chords are no greater than two units vertical in 12 units horizontal.

The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

k. Attic spaces served by stairways other than the pull-down type shall be designed to support the minimum live load specified for habitable attics and sleeping rooms.

l. Areas of occupiable roofs, other than roof gardens and assembly areas, shall be designed for appropriate loads as approved by the building official. Unoccupied landscaped areas of roofs shall be designed in accordance with Section 1607.12.3.

m. Live load reduction is not permitted unless specific exceptions of Section 1607.10 apply.

(S85-16)

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L*0*, AND MINIMUM CONCENTRATED LIVE LOADSg**

|  |  |  |  |
| --- | --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | | **CONCENTRATED (pounds)** |
| 1. Apartments (see residential) | — | | — |
| 2. Access floor systems |  | |  |
| Office use | 50 | | 2000 |
| Computer use | 100 | | 2000 |
| 3. Armories and drill rooms | 150~~m~~n | | — |
| 4. Assembly areas |  | | — |
| Fixed seats (fastened to floor) | 60m | |
| Follow spot, projections and control rooms | 50 | |
| Lobbies | 100m | |
| Movable seats | 100m | |
| Stage floors | 150~~m~~n | |
| Platforms (assembly) | 100m | |
| Other assembly areas | 100m | |
| 5. Balconies and decksh | Same as occupancy served | | — |
| 6. Catwalks | 40 | | 300 |
| 7. Cornices | 60 | | — |
| 8. Corridors | 100 Same as occupancy served except as indicated | | — |
| First floor |
| Other floors |
| 9. Dining rooms and restaurants | 100m | | — |
| 10. Dwellings (see residential) | — | | — |
| 11. Elevator machine room and control room grating (on area of 2 inches by 2 inches) | — | | 300 |
| 12. Finish light floor plate construction (on area of 1 inch by 1 inch) | — | | 200 |
| 13. Fire escapes | 100 | | — |
| On single-family dwellings only | 40 | |
| 14. Garages (passenger vehicles only) | 40~~m~~o | | Note a |
| Trucks and buses | See Section 1607.7 | | |
| 15. Handrails, guards and grab bars | See Section 1607.8 | | |
| 16. Helipads | See Section 1607.6 | | |
| 17. Hospitals |  |  | |
| Corridors above first floor | 80 | 1,000 | |
| Operating rooms, laboratories | 60 | 1,000 | |
| Patient rooms | 40 | 1,000 | |
| 18. Hotels (see residential) | — | — | |
| 19. Libraries |  |  | |
| Corridors above first floor | 80 | 1,000 | |
| Reading rooms | 60 | 1,000 | |
| Stack rooms | 150b, ~~m~~n | 1,000 | |
| 20. Manufacturing |  |  | |
| Heavy | 250~~m~~n | 3,000 | |
| Light | 125~~m~~n | 2,000 | |
| 21. Marquees, except one-and two-family dwellings | 75 | — | |
| 22. Office buildings |  |  | |
| Corridors above first floor | 80 | 2,000 | |
| File and computer rooms shall be designed for heavier loads based on anticipated occupancy | — | — | |
| Lobbies and first-floor corridors | 100 | 2,000 | |
| Offices | 50 | 2,000 | |
| 23. Penal institutions |  | — | |
| Cell blocks | 40 |
| Corridors | 100 |
| 24. Recreational uses: |  | — | |
| Bowling alleys, poolrooms and similar uses | 75 m |
| Dance halls and ballrooms | 100 m |
| Gymnasiums | 100 m |
| Ice skating rink | 250 ~~m~~n |
| Reviewing stands, grandstands and bleachers | 100 c, m |
| Roller skating rink | 100 m |
| Stadiums and arenas with fixed seats (fastened to floor) | 60 c, m |
| 25. Residential |  | — | |
| One- and two-family dwellings |  |
| Uninhabitable attics without storage i | 10 |
| Uninhabitable attics with storage i, j, k | 20 |
| Habitable attics and sleeping areas k | 30 |
| Canopies, including marquees | 20 |
| All other areas | 40 |
| Hotels and multifamily dwellings |  |
| Private rooms and corridors serving them | 40 |
| Public rooms m and corridors serving them | 100 |
| 26. Roofs |  |  | |
| All roof surfaces subject to main- tenance workers |  | 300 | |
| Awnings and canopies: |  |  | |
| Fabric construction supported by a skeleton structure | 5m~~Nonreducible~~ |  | |

|  |  |  |
| --- | --- | --- |
| All other construction, except one-and two-family dwellings | 20 |  |
| Ordinary flat, pitched, and curved roofs (that are not occupiable) | 20 |  |
| Primary roof members exposed to a work floor |  |  |
| Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages |  | 2,000 |
| All other primary roof members |  | 300 |
| Occupiable roofs: |  |  |
| Roof gardens | 100 |  |
| Assembly areas | 100 m |  |
| All other similar areas | Note 1 | Note 1 |
| 27. Schools |  |  |
| Classrooms | 40 | 1,000 |
| Corridors above first floor | 80 | 1,000 |
| First-floor corridors | 100 | 1,000 |
| 28. Scuttles, skylight ribs and accessible ceilings | — | 200 |
| 29. Sidewalks, vehicular driveways and yards, subject to trucking | 250 d, ~~m~~n | 8,000 e |
| 30. Stairs and exits |  |  |
| One- and two-family dwellings | 40 | 300f |
| All other | 100 | 300f |
| 31. Storage warehouses (shall be designed for heavier loads if required for anticipated storage) |  | — |
| Heavy | 250~~m~~n |
| Light | 125 ~~m~~n |
| 32. Stores |  |  |
| Retail |  |  |
| First floor | 100 | 1,000 |
| Upper floors | 75 | 1,000 |
| Wholesale, all floors | 125~~m~~n | 1,000 |
| 33. Vehicle barriers | See Section 1607.8.3 | |
| 34. Walkways and elevated platforms (other than exitways) | 60 | — |
| 35. Yards and terraces, pedestrians | 100m | — |

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm 2 ,

1 square foot = 0.0929 m 2 ,

1 pound per square foot = 0.0479 kN/m 2 , 1 pound = 0.004448 kN, 1 pound per cubic foot = 16 kg/m 3 .

a. Floors in garages or portions of buildings used for the storage of motor vehicles shall be designed for the uniformly distributed live loads of this Table or the following concentrated loads: (1) for garages restricted to passenger vehicles accommodating not more than nine passengers, 3,000 pounds acting on an area of 4 1 / 2 inches by 4 1 / 2 inches; (2) for mechanical parking structures without slab or deck that are used for storing passenger vehicles only, 2,250 pounds per wheel.

b. The loading applies to stack room floors that support nonmobile, double-faced library book stacks, subject to the following limitations:

1. The nominal book stack unit height shall not exceed 90 inches;

2. The nominal shelf depth shall not exceed 12 inches for each face; and

3. Parallel rows of double-faced book stacks shall be separated by aisles not less than 36 inches wide.

c. Design in accordance with ICC 300.

d. Other uniform loads in accordance with an approved method containing provisions for truck loadings shall be considered where appropriate.

e. The concentrated wheel load shall be applied on an area of 4.5 inches by 4.5 inches.

f. The minimum concentrated load on stair treads shall be applied on an area of 2 inches by 2 inches. This load need not be assumed to act concurrently with the uniform load.

g. Where snow loads occur that are in excess of the design conditions, the structure shall be designed to support the loads due to the increased loads caused by drift buildup or a greater snow design determined by the building official (see Section 1608).

h. See Section 1604.8.3 for decks attached to exterior walls.

i. Uninhabitable attics without storage are those where the maximum clear height between the joists and rafters is less than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

j. Uninhabitable attics with storage are those where the maximum clear height between the joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

The live load need only be applied to those portions of the joists or truss bottom chords where both of the following conditions are met:

i. The attic area is accessible from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is a minimum of 30 inches; and

ii. The slopes of the joists or truss bottom chords are no greater than two units vertical in 12 units horizontal.

The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

k. Attic spaces served by stairways other than the pull-down type shall be designed to support the minimum live load specified for habitable attics and sleeping rooms.

l. Areas of occupiable roofs, other than roof gardens and assembly areas, shall be designed for appropriate loads as approved by the building official. Unoccupied landscaped areas of roofs shall be designed in accordance with Section 1607.12.3.

m. ~~Live load reduction is not permitted unless specific exceptions of Section 1607.10 apply.~~

m. Live load reduction is not permitted.

n. Live load reduction is only permitted in accordance with Section 1607.10.1.2 or Item 1 of Section 1607.10.2.

o. Live load reduction is only permitted in accordance with Section 1607.10.1.3 or Item 2 of Section 1607.10.2.

(S87-16)

**1607.4 Concentrated live loads.** Floors, roofs, and other similar surfaces shall be designed to support the uniformly distributed live loads prescribed in Section 1607.3 or the concentrated live loads, given in Table 1607.1, whichever produces the greater *load effects*. Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of 21 /2 feet by 21 /2 feet (762 mm by 762 mm) and shall be located so as to produce the maximum *load effects* in the structural members.

**1607.9.3 Elements supporting hoists for façade access and building maintenance equipment.** In addition to any other applicable live loads, structural elements that support hoists for façade access and building maintenance equipment shall be designed for a live load ~~consisting~~ of ~~the larger of~~ 2.5 times the rated load of the hoist ~~times 2.5~~ or the stall load of the hoist, whichever is larger.

**1607.9.4 ~~Lifeline~~ Fall arrest and lifeline anchorages ~~for façade access equipment~~.** In addition to any other applicable live loads, fall arrest and lifeline anchorages and structural elements that support ~~lifeline~~ these anchorages shall be designed for a live load of at least 3,100 pounds (13.8 kN) for each attached lifeline, in every direction that a fall arrest load may be applied.

(S88-16 AMPC1)

**1607.12.3.1 Vegetative and landscaped roofs.** The weight of all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil as determined in accordance with ~~ASTM E 2397~~Section 3.1.4 of ASCE 7. The uniform design live load in unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m2). The uniform design live load for occupied landscaped areas on roofs shall be determined in accordance with Table 1607.1.

(S93-16)

**1607.12.5.1 Roof live load.** ~~Roof surfaces to be covered by solar photovoltaic panels or modules shall be~~

~~designed for the roof live load,~~ *~~Lr~~*~~, assuming that the photovoltaic panels or modules are not present. The~~

~~roof photovoltaic live load in areas covered by solar photovoltaic panels or modules shall be in addition to~~

~~the panel loading unless the area covered by each solar photovoltaic panel or module is inaccessible. Areas~~

~~where the clear space between the panels and the rooftop is not more than 24 inches (610 mm) shall be considered inaccessible. Roof surfaces not covered by photovoltaic panels shall be designed for the roof live~~

~~load.~~

**1607.13.5.1 Roof live load.** Roof structures that support photovoltaic panel systems shall be designed to

resist each of the following conditions:

1. Applicable uniform and concentrated roof loads with the photovoltaic panel system dead loads.

**Exception:** Roof live loads need not be applied to the area covered by photovoltaic panels

where the clear space between the panels and the roof surface is 24 inches (610 mm) or less.

2. Applicable uniform and concentrated roof loads without the photovoltaic panel system present.

(S95-16 AMPC1

**1607.8 Loads on handrails, guards, grab bars, and seats ~~and vehicle barriers~~.** Handrails~~,~~ *~~guards~~*~~,~~ ~~grab bars, accessible seats, accessible benches~~ and ~~vehicle barriers~~ guards, shall be designed and constructed for the structural loading conditions set forth in ~~this section~~ Section 1607.8.1. Grab bars, shower seats, and accessible benches shall be designed and constructed for structural loading conditions set forth in Section 1607.8.2.

(S7429) /(I-Code)

***Add new text as follows:***

**1607.12.5.2.1 Photovoltaic panels installed on open grid roof structures** Structures with open grid framing and no roof deck or sheathing supporting photovoltaic panel systems shall be designed to support the uniform and concentrated roof live loads specified in Section 1607.12.5.1 , except that the uniform roof live load shall be permitted to be reduced to 12 psf (0.57kN/m2).

(S98-16 AM)

**1609.1.1Determination of wind loads.**

Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

**Exceptions:**

1.Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.

2.Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AWC WFCM.

3.Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230..

4.Designs using NAAMM FP 1001~~.~~, Guide Specifications for Design of Metal Flag Poles

5.Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment. Design using this standard shall be permitted for communication tower and steel antenna support structures.

6.Wind tunnel tests in accordance with ASCE 49 and Sections 31.4 and 31.5 of ASCE 7.

7.Wind loads for screen enclosures shall be determined in accordance with Section 2002.4.

8.Exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, walls, or other means are deemed to comply with the wind resistance requirements of the 2007 Florida Building Code, as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the Florida Building Code.

The wind speeds in Figures 1609.3(1), 1609.3(2) and 1609.3(3) are ultimate design wind speeds, *Vult*, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, *Vasd*, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

(S7663)

**1609.1.1 Determination of wind loads.** Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 ~~or provisions of the alternate all-heights method in Section 1609.6~~. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

**Exceptions:** (exceptions not shown for brevity)

**Delete Section 1609.6 in its entirety, including Sections 1609.6.1 through 1609.6.4.4.1, and Table 1609.6.2:**

**~~1609.6 Alternate all-heights method.~~** ~~The alternate wind design provisions in this section are simplifications of the ASCE 7 Directional Procedure.~~

**~~1609.6.1 Scope.~~** ~~As an alternative to ASCE 7 Chapters 27 and 30, the following provisions are permitted to be used to determine the wind effects on regularly shaped buildings, or other structures that are regularly shaped, that meet all of the following conditions:~~

~~1. The building or other structure is less than or equal to 75 feet (22 860 mm) in height with a height- to-least-width ratio of 4 or less, or the building or other structure has a fundamental frequency greater than or equal to 1 hertz.  
2. The building or other structure is not sensitive to dynamic effects.  
3. The building or other structure is not located on a site for which channeling effects or buffeting in the wake of upwind obstructions warrant special consideration.  
4. The building shall meet the requirements of a simple diaphragm building as defined in ASCE 7 Section 26.2, where wind loads are only transmitted to the main windforce-resisting system (MWFRS) at the diaphragms.  
5. For open buildings, multispan gable roofs, stepped roofs, sawtooth roofs, domed roofs, roofs with slopes greater than 45 degrees (0.79 rad), solid free-standing walls and solid signs, and rooftop equipment, apply ASCE 7 provisions.~~

**~~1609.6.1.1 Modifications.~~** ~~The following modifications shall be made to certain subsections in ASCE 7: in Section 1609.6.2, symbols and notations that are specific to this section are used in conjunction with the symbols and notations in ASCE 7 Section 26.3.~~

**~~1609.6.2 Symbols and notations.~~** ~~Coefficients and variables used in the alternative all-heights method equations are as follows:~~

~~Cnet = Net-pressure coefficient based on Kd [(G) (Cp) - (GCpi)], in accordance with Table 1609.6.2. G = Gust effect factor for rigid structures in accordance with ASCE 7 Section 26.9.1.  
Kd = Wind directionality factor in accordance with ASCE 7 Table 26-6.  
Pnet = Design wind pressure to be used in determination of wind loads on buildings or other structures or their components and cladding, in psf (kN/m2 ).~~

**~~1609.6.3 Design equations.~~** ~~When using the alternative all-heights method, the MWFRS, and components and cladding of every structure shall be designed to resist the effects of wind pressures on the building envelope in accordance with Equation 16-35.~~

~~Pnet = 0.00256V2KzCnetKzt (Equation 16-35)~~

~~Design wind forces for the MWFRS shall be not less than 16 psf (0.77 kN/m2) multiplied by the area of the structure projected on a plane normal to the assumed wind direction (see ASCE 7 Section 27.4.7 for criteria). Design net wind pressure for components and cladding shall be not less than 16 psf (0.77 kN/m2) acting in either direction normal to the surface.~~

**~~1609.6.4 Design procedure.~~** ~~The MWFRS and the components and cladding of every building or other structure shall be designed for the pressures calculated using Equation 16-35.~~

**~~1609.6.4.1 Main windforce-resisting systems.~~** ~~The MWFRS shall be investigated for the torsional effects identified in ASCE 7 Figure 27.4-8.~~

**~~1609.6.4.2 Determination of Kz and Kzt.~~** ~~Velocity pressure exposure coefficient, Kz, shall be determined in accordance with ASCE 7 Section 27.3.1 and the topographic factor, Kzt, shall be determined in accordance with ASCE 7 Section 26.8.~~

~~1. For the windward side of a structure, Kzt and Kz shall be based on height z.  
2. For leeward and sidewalls, and for windward and leeward roofs, Kzt and Kz shall be based on mean roof height h.~~

**~~1609.6.4.3 Determination of net pressure coefficients, Cnet.~~** ~~For the design of the MWFRS and for components and cladding, the sum of the internal and external net pressure shall be based on the net pressure coefficient, Cnet.~~

~~1. The pressure coefficient, Cnet, for walls and roofs shall be determined from Table 1609.6.2.  
2. Where C net has more than one value, the more severe wind load condition shall be used for design.~~

**~~1609.6.4.4 Application of wind pressures.~~** ~~When using the alternative all-heights method, wind pressures shall be applied simultaneously on, and in a direction normal to, all building envelope wall and roof surfaces.~~

**~~1609.6.4.4.1 Components and cladding.~~** ~~Wind pressure for each component or cladding element is applied as follows using Cnet values based on the effective wind area, A, contained within the zones in areas of discontinuity of width and/or length "a," "2a" or "4a" at: corners of roofs and walls; edge strips for ridges, rakes and eaves; or field areas on walls or roofs as indicated in figures in tables in ASCE 7 as referenced in Table 1609.6.2 in accordance with the following:~~

~~1. Calculated pressures at local discontinuities acting over specific edge strips or corner boundary areas.  
2. Include "field" (Zone 1, 2 or 4, as applicable) pressures applied to areas beyond the boundaries of the areas of discontinuity.  
3. Where applicable, the calculated pressures at discontinuities (Zone 2 or 3) shall be combined with design pressures that apply specifically on rakes or eave overhangs.~~

**~~TABLE 1609.6.2  
NET PRESSURE COEFFICIENTS, Cnet a,~~**

(S7428/S108-16))

**1609.7 Garage doors and rolling doors.**

Pressures from Table 1609.7(1) for wind loading actions on garage doors and rolling doors for buildings designed as enclosed shall be permitted.

**TABLE 1609.7(1)**

**NOMINAL (ASD) GARAGE DOOR AND ROLLING DOOR WIND LOADS FOR A BUILDING WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (PSF) 1, 2, 3, 4, 5**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ULTIMATE DESIGN WIND SPEED (Vult) DETERMINED IN ACCORDANCE WITH SECTION 1609.3 (MPH - 3 SECOND GUST)** | | | | | | | | | | | | | | | | | | | | | | | |
| **Width(ft)** | **Height(ft)** | **100 MPH** | | **110 MPH** | | **120 MPH** | | **130 MPH** | | **140 MPH** | | **150 MPH** | | **160 MPH** | | **170 MPH** | | **180 MPH** | | **190 MPH** | | **200 MPH** | |
| **Roof Angle 0 – 10 degrees** | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 8 | + ~~8.7~~10.0 | - ~~9.8~~10.0 | + 10.5 | - 11.9 | + 12.5 | - 14.2 | + 14.7 | - 16.6 | + 17.1 | - 19.3 | + 19.6 | - 22.2 | + 22.3 | - 25.2 | + 25.1 | - 28.5 | + 28.2 | - 31.9 | + 31.4 | - 35.5 | + 34.8 | - 39.4 |
| 10 | 10 | + ~~8.4~~10.0 | - ~~9.4~~10.0 | + 10.2 | - 11.4 | + 12.1 | - 13.6 | + 14.2 | - 16.0 | + 16.5 | - 18.5 | + 18.9 | - 21.2 | + 21.5 | - 24.2 | + 24.3 | - 27.3 | + 27.3 | - 30.6 | + 30.4 | - 34.1 | + 33.7 | - 37.8 |
| 14 | 14 | + ~~8.0~~10.0 | - ~~8.9~~10.0 | + ~~9.7~~10.0 | - 10.8 | + 11.5 | - 12.8 | + 13.5 | - 15.0 | + 15.7 | - 17.4 | + 18.0 | - 20.0 | + 20.5 | - 22.8 | + 23.1 | - 25.7 | + 25.9 | - 28.8 | + 28.9 | - 32.1 | + 32.0 | - 35.6 |
| **Roof Angle > 10 degrees** | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 7 | + ~~9.6~~10.0 | - 10.9 | + 11.4 | - 12.9 | + 13.7 | - 15.5 | + 16.1 | - 18.2 | + 18.5 | - 20.9 | + 21.3 | - 24.1 | + 24.3 | - 27.5 | + 27.6 | - 31.2 | + 30.6 | - 34.6 | + 34.2 | - 38.6 | + 38.0 | - 43.0 |
| 16 | 7 | + ~~9.2~~10.0 | - 10.3 | + 10.9 | - 12.2 | + 13.1 | - 14.6 | + 15.5 | - 17.2 | + 17.7 | - 19.7 | + 20.4 | - 22.7 | + 23.3 | - 26.0 | + 26.4 | - 29.4 | + 29.3 | - 32.6 | + 32.7 | - 36.5 | + 36.4 | - 40.6 |
| 78 MPH | | 85 MPH | | 93 MPH | | 101 MPH | | 108 MPH | | 116 MPH | | 124 MPH | | 132 MPH | | 139 MPH | | 147 MPH | | 155 MPH | |  |  |

For SI: 1 foot = 304.8 mm, 1 mile per hour = 1.609 km/h, 1 psf = 47.88 N/m2.

Nominal Design Wind Speed (Vasd) converted from Ultimate Design Wind Speed per Section 1609.3.1

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1.For door sizes or wind speeds between those given above the load may be interpolated, otherwise use the load associated with the lower door size.

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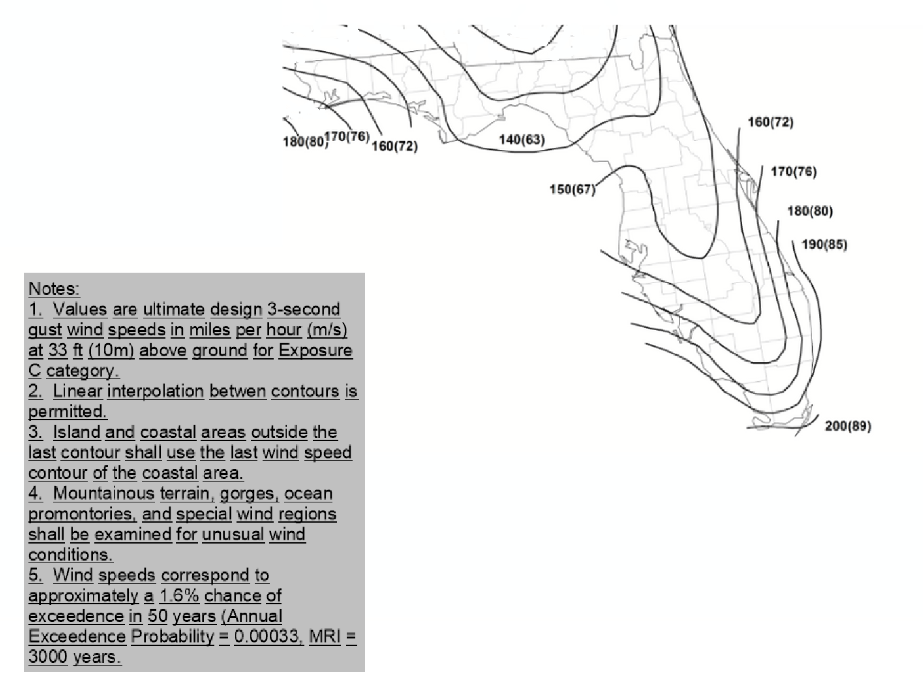
2.Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table 1609.7(2).  Minimum positive wind load shall be 10 PSF and minimum negative wind load shall be 10 PSF.

3.Plus and minus signs signify pressures acting toward and away from the building surfaces.

4.Negative pressures assume door has 2 feet of width in building’s end zone.

5.Table values include the 0.6 load reduction factor.

(S7610)



7410

Add new Figure 1609.3(3)

**FIGURE 1609.3(3)**

**ULTIMATE DESIGN WIND SPEEDS, VULT, FOR RISK CATEGORY IV BUILDINGS AND OTHER STRUCTURES**

Renumber existing Figure 1609.3(3)

(figure not shown for brevity)

**FIGURE 1609.3(4) ~~1609.3(3)~~**

**ULTIMATE DESIGN WIND SPEEDS, *VULT*, FOR RISK CATEGORY I BUILDINGS AND OTHER STRUCTURES**

**1602.1 Definitions.** The following terms are defined in Chapter 2:

Vult = Ultimate design wind speeds (3-second gust), miles per hour (mph) (km/hr) determined from Figure 1609.3(1), 1609.3(2), 1609.3(3), 1609.3(4) or ASCE 7.

**1609.1.1 Determination of wind loads.** Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

**Exceptions:**

(exceptions not shown for brevity)

    The wind speeds in Figures 1609.3(1), 1609.3(2) ~~and~~ 1609.3(3), and 1609.3(4) are ultimate design wind speeds, *Vult*, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, *Vasd*, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

**1609.3 Ultimate design wind speed.** The ultimate design wind speed, *Vult*, in mph, for the determination of the wind loads shall be determined by Figures 1609.3(1), 1609.3(2) ~~and~~ 1609.3(3), and 1609.3(4). The ultimate design wind speed, *Vult*, for use in the design of Risk Category II buildings and structures shall be obtained from Figure 1609.3(1). The ultimate design wind speed, *Vult*, for use in the design of Risk Category III ~~and IV~~ buildings and structures shall be obtained from Figure 1609.3(2). The ultimate design wind speed, *Vult*, for use in the design of Risk Category IV buildings and structures shall be obtained from Figure 1609.3(3). The ultimate design wind speed, *Vult*, for use in the design of Risk Category I buildings and structures shall be obtained from Figure 1609.3(4) ~~1609.3(3)~~. The ultimate design wind speed, *Vult*, for the special wind regions indicated near mountainous terrain and near gorges shall be in accordance with local jurisdiction requirements. The ultimate design wind speeds, *Vult*, determined by the local jurisdiction shall be in accordance with Chapter 26 ~~Section 26.5.1~~ of ASCE 7. The exact location of wind speed lines shall be established by local ordinance using recognized physical landmarks such as major roads, canals, rivers and lake shores wherever possible.

~~In nonhurricane-prone regions, when the ultimate design wind speed,~~ *~~Vult~~*~~, is estimated from regional climatic data, the ultimate design wind speed,~~ *~~V~~~~ult~~*~~, shall be determined in accordance with Section 26.5.3 of ASCE 7.~~

**1609.3.1 Wind speed conversion.** When required, the ultimate design wind speeds of Figures 1609.3(1), 1609.3(2), ~~and~~ 1609.3(3) and 1609.3(4) shall be converted to nominal design wind speeds, Vasd, using Table 1609.3.1 or Equation 16-33.

Vasd =  Vult v0.6   (Equation 16-33)

where:  
Vasd = Nominal design wind speed applicable to methods specified in Exceptions 4 and 5 of Section 1609.1.1.  
Vult = Ultimate design wind speeds determined Figures 1609.3(1), 1609.3(2), ~~or~~ 1609.3(3) or 1609.3(4).

**TABLE 1609.3.1**

**WIND SPEED CONVERSIONSa, b, c**

(table not shown for brevity)

For SI: 1 mile per hour = 0.44 m/s.

a. Linear interpolation is permitted.

b. *Vasd* = nominal design wind speed applicable to methods specified in Exceptions 1 through 5 of Section 1609.1.1.

c. *Vult* = ultimate design wind speeds determined from Figure 1609.3(1), 1609.3(2), ~~or~~ 1609.3(3) or 1609.2(4).

(S7226)

**1612.4.2 Modification of ASCE 24 9.6 Pools.**

In-ground and above ground pools shall be designed to withstand all flood-related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems, and filtering systems, and their associated electrical systems shall comply with Chapter 7.

**Exception:** Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1 provided it is elevated to the extent practical, is anchored to prevent flotation and resist flood forces and is supplied by branch circuits that have ground-fault circuit interrupter protection.

(SP8094-R1)

**1615.1 General.** *High-rise buildings* that are assigned to *Risk Category* III or IV shall comply with the requirements of ~~this section. Frame~~ Section 1615.3 if they are frame structures ~~shall comply with the~~ ~~requirements of~~, or Section ~~1615.3. Bearing~~1615.4 if they are bearing wall structures ~~shall comply with~~ ~~the requirements of Section 1615.4~~.

(S7410)

**1626.1**

All parts or systems of a building or structure envelope such as, but not limited, to exterior walls, roof, outside doors, skylights, glazing and glass block shall meet impact test criteria or be protected with an external protection device that meets the impact test criteria. Test procedures to determine resistance to wind-borne debris of wall cladding, outside doors, skylights, glazing, glass block, shutters and any other external protection devices shall be performed in accordance with this section.

Exception: The following structures or portion of structures shall not be required to meet the provisions of this section:

a. Roof assemblies for screen rooms, porches, canopies, etc., attached to a building that do not breach the exterior wall or building envelope and have no enclosed sides other than screen.

b. Soffits, soffit vents and ridge vents. Size and location of such vents shall be detailed by the designer and shall not compromise the integrity of the diaphragm boundary.

c. Vents in a garage with four or fewer cars. Size and location of such vents shall be detailed by the designer and shall not exceed the minimum required area by more than 25 percent.

d. Exterior wall or roof openings for wall- or roof-mounted HVAC equipment.

e. Openings for roof-mounted personnel access roof hatches.

f. Storage sheds that are not designed for human habitation and that have a floor area of 720 square feet (67 m2) or less are not required to comply with the mandatory windborne debris impact standards of this code.

g. Louvers as long as they properly considered ASCE 7 in the design of the building. **and that meets the requirement of 1626.5 .3**

h. h. Buildings and structures for marinas, cabanas, swimming pools, and greenhouses.

i. Exterior balconies or porches under existing roofs or decks enclosed with screen or removable vinyl and acrylic panels complying with Section 1622.1 or 1622.2 shall not be required to be protected and openings in the wall separating the unit from the balcony or porch shall not be required to be protected unless required by other provisions of this code

**1626.5 Louvers.**

**1626.5.1** Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9144 mm) of grade shall meet the requirements of AMCA 540 or **TAS 201 or** shall be protected by an impact-resistant cover complying with the large missile test of TAS 201, TAS 202, TAS 203.

**1626.5.2** Louvers required to be open for life safety purposes such as providing a breathable atmosphere shall meet the requirements of AMCA 540 or **TAS 201.**

**1626.5.3** Open and closed louvers shall also comply with uniform air pressure testing per TAS 202 protocol and cyclical wind pressure loading per TAS 203 protocol. This test shall be applicable to the construction unit of each louver type and material. A minimum of two test specimens made up of hidden (Architectural joints) and visible mullioned assemblies shall be utilized in verification of all specimen assembly conditions.

(S7982 A3 handout)

**Chapter 17 SPECIAL INSPECTIONS AND TESTS**

Revise as follows:

**1710 Anchorage**

**1710.1 Anchorage methods.**

The methods cited in this section apply only to anchorage of window and door assemblies to the main wind force resisting system.

**1710.2 Anchoring requirements.**

Window and door assemblies shall be anchored in accordance with the published manufacturer's recommendations to achieve the design pressure specified. Substitute anchoring systems used for substrates not specified by the fenestration manufacturer shall provide equal or greater anchoring performance as demonstrated by accepted engineering practice.

**1710.3 Masonry, concrete or other structural substrate.**

Where the wood shim or buck thickness is less than 1-1/2 inches (38 mm), window and door assemblies shall be anchored through the main frame or by jamb clip or subframe system, in accordance with the manufacturer's published installation instructions. Anchors shall be securely fastened directly into the masonry, concrete or other structural substrate material.  Unless otherwise tested, bucks shall fully support the window or door frame.  Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads.  Anchors shall be provided to transfer load from the window or door frame to the rough opening substrate.  
  
Where the wood buck thickness is 1-1/2 inches (38 mm) or greater, the buck shall be securely fastened to transfer load to the masonry, concrete or other structural substrate and the buck shall fully support the window or door frame.  Window and door assemblies shall be anchored through the main frame or by jamb clip or subframe system or through the flange to the secured wood buck in accordance with the manufacturer's published installation instructions.  Unless otherwise tested, bucks shall fully support the window or door.  Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads.  Anchors shall be provided to transfer load from the window or door frame assembly to the secured wood buck.

**1710.4 Wood or other approved framing materials.**

Where the framing material is wood or other approved framing material, window and door assemblies shall be anchored through the main frame or by jamb clip or subframe system or through the flange in accordance with the manufacturer's published installation instructions. Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads.  Anchors shall be provided to transfer load from the window or door frame to the rough opening substrate.

(S7500-R1)

**Chapter 18 SOILS AND FOUNDATIONS**

Revise as follows:

1802.1 Definitions. The following words and terms are defined in Chapter 2:

COMBINED PILE RAFT

DEEP **FOUNDATION.**

**DRILLED SHAFT.**

**Socketed drilled shaft.**

**HELICAL PILE.**

**MICROPILE.**

**SHALLOW FOUNDATION.**

**Revise as follows:**

**1804.1 Excavation near foundations.** Excavation for any purpose shall not reduce vertical or lateral support ~~from~~ for any foundation or adjacent foundation without first underpinning or protecting the foundation against detrimental lateral or vertical movement, or both.

(S7411) /(I-Code)

**1804.4 Site grading.** The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall. If physical obstructions or lot lines prohibit 10 feet (3048 mm) of horizontal distance, a 5-percent slope shall be provided to

an *approved* alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 2 percent where located within 10 feet (3048 mm) of the building foundation. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building, except as otherwise permitted in Section 1010.1.5, 1012.3 or 1012.6.1.

No change to the remaining text

(S7412)

**1807.1.4** Permanent wood foundation systems. Permanent wood foundation systems shall be designed and installed in accordance with AWC PWF. Lumber and plywood shall be preservative treated in accordance with AWPA U1 (Commodity Specification A,~~Use Category 4B and Section 5.2~~ Special Requirement 4.2) and shall be identified in accordance with Section 2303.1.9.1.

(S8183) /(I-Code)

**1810.3.3.1.6 ~~Uplift capacity~~ Allowable uplift load of grouped deep foundation elements.** For grouped deep foundation elements subjected to uplift, the allowable ~~working~~ uplift load for the group shall be calculated by a generally accepted method of analysis. Where the deep foundation elements in the group are placed at a center-to-center spacing less than three times the least horizontal dimension of the largest single element, the allowable ~~working~~ uplift load for the group is permitted to be calculated as the lesser of:

1. The proposed individual allowable ~~working~~ uplift load times the number of elements in the group.

2. Two-thirdsoftheeffectiveweightofthegroupandthesoilcontainedwithinablock defined by the perimeter of the group and the length of the element, plus two-thirds of the ultimate shear resistance along the soil block.

(S7413) /(I-Code)

**1810.3.11 Pile caps.**

Pile caps shall be of reinforced concrete, and shall include all elements to which vertical deep foundation elements are connected, including grade beams and mats. The soil immediately below the pile cap shall not be considered as carrying any vertical load, with the exception of a combined pile raft. The tops of vertical deep foundation elements shall be embedded not less than 3 inches (76 mm) into pile caps and the caps shall extend ~~at least~~ not less than 4 inches (102 mm) beyond the edges of the elements. The tops of elements shall be cut or chipped back to sound material before capping.

(S8182/S7409) /(I-Code)

**1810.3.5.2.1 Cased.** Cast-in-place or grouted-in-place deep foundation elements with a permanent casing shall have a nominal outside diameter of not less than 8 inches (203 mm).

(S7414) /(I-Code)

**1810.3.5.2.2 Uncased.**Cast-in-place or grouted-in-place deep foundation elements without a permanent casing shall have a specified diameter of not less than 12 inches (305 mm). The element length shall not exceed 30 times the ~~average~~ specified diameter.

**Exception:** The length of the element is permitted to exceed 30 times the specified diameter, provided the design and installation of the deep foundations are under the direct supervision of a *registered design professional* knowledgeable in the field of soil mechanics and deep foundations. The *registered design professional* shall submit a report to the *building official* stating that the elements were installed in compliance with the *approved construction documents*.

(S7415) /(I-Code)

**1810.3.5.2.3 Micropiles.**

Micropiles shall have ~~an outside~~ a nominal diameter of 12 inches (305 mm) or less. The minimum diameter set forth elsewhere in Section 1810.3.5 shall not apply to micropiles.

(S8156) /(I-Code)

**1810.4.4 Pre-excavation.** The use of jetting, augering or other methods of pre-excavation shall be subject to the approval of the *building official*. Where permitted, pre-excavation shall be carried out in the same manner as used for deep foundation elements subject to load tests and in such a manner that will not impair the carrying capacity of the elements already in place or damage adjacent structures. Element tips shall be ~~driven~~ advanced below the pre-excevated depth until the required resistance or penetration is obtained.

(S7416) /(I-Code)

**Chapter 19 CONCRETE**

**1909.1 Reinforced concrete.** The design and construction of reinforced concrete for buildings sited in areas where the ultimate design wind speed, *Vult*, is equal to or greater than 115 mph (45 m/s) in accordance with Figure 1609.3(1), 1609.3(2), ~~or~~ 1609.3(3), or 1609.3(4) shall conform to the requirements of ACI 318 or with Section 1609.1.1, Exception 1, as applicable, except as modified in this section.

(S7235)

**CHAPTER 20 ALUMINUM**

No change

**Chapter 21 MASONRY**

**2101.2 Design methods.** Masonry shall comply with the provisions of TMS 402/ACI 530/ASCE 5, TMS 403, or TMS 404 as well as applicable requirements of this chapter.

**2103.1 Masonry units.** Concrete masonry units, clay or shale masonry units, stone masonry units, glass unit masonry and AAC masonry units shall comply with Article 2.3 of TMS 602/ACI 503.1/ASCE 6. Architectural cast stone shall conform to ASTM C 1364 and TMS 504. Adhered manufactured stone masonry veneer units shall conform to ASTM C1670.

**Exception:** Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E 119 or UL 263 and shall comply with the requirements of Table 602.

**2104.1 Masonry construction.** Masonry construction shall comply with the requirements of Sections 2104.1.1 and 2104.1.2 and with the requirements of either TMS 602/ACI 530.1/ASCE 6 or TMS 604.

 (S7419/S8372)/ (S245-16 Part I AMPC1)

**Delete without substitution:**

**~~2107.4 TMS 402/ACI 530/ASCE 5, Section 8.3.6, maximum bar size.~~** ~~Add the following to Chapter 8:~~ ~~8.3.6 – Maximum bar size. The bar diameter shall not exceed one-eighth of the nominal wall thickness~~ ~~and shall not exceed one-quarter of the least dimension of the cell, course or collar joint in which it is~~ ~~placed.~~

(S7420)/ (S245-16 Part I AMPC1)

**2107.2 TMS 402 ~~/ACI 530/ASCE 5~~, Section ~~8.1.6.7.1.1~~ 6.1.6.1.1, lap**

**splices. As an alternative to Section ~~8.1.6.7.1.1~~ 6.1.6.1.1, it shall be**

**permitted to design lap splices in accordance with Section**

**2107.2.1.**

**2107.2.1 Lap splices. The minimum length of lap splices**

**for reinforcing bars in tension or compression, ld, shall be**

**ld = 0.002 db *f*s                                          (Equation 21-1)**

**For SI: ld = 0.29db *f*s**

**but not less than 12 inches (305 mm). In no case shall the**

**length of the lapped splice be less than 40 bar diameters.**

**where:**

**db = Diameter of reinforcement, inches (mm).**

***f*s = Computed stress in reinforcement due to design**

**loads, psi (MPa).**

**In regions of moment where the design tensile stresses**

**in the reinforcement are greater than 80 percent of the**

**allowable steel tension stress, Fs, the lap length of splices**

**shall be increased not less than 50 percent of the minimum**

**required length, length, but need not be greater than 72 db.**

**Other equivalent means of stress transfer to accomplish the**

**same 50 percent increase shall be permitted. Where epoxy-**

**coated bars are used, lap length shall be increased by 50 percent.**

**2107.3 TMS 402 ~~/ACI 530/ASCE 5~~, Section** **~~8.1.6.7~~ 6.1.6.1, splices**

**of reinforcement. Modify Section ~~8.1.6.7~~ 6.1.6.1 as follows:**

**~~8.1.6.7~~ 6.1.6.1 – Splices of reinforcement. Lap splices, welded**

**splices or mechanical splices are permitted in accordance**

**with the provisions of this section. All welding shall conform**

**to AWS D1.4. Welded splices shall be of ASTM A706 steel**

**reinforcement. Reinforcement larger than No. 9 (M #29) shall**

**be spliced using mechanical connections in accordance with**

**Section ~~8.1.6.7.3~~ 6.1.6.1.3.**

**2107.4 Reserved.  ~~TMS 402 /ACI 530/ASCE 5, Section 8.3.6, maximum~~**

**~~bar size. Add the following to Chapter 8:~~**

**~~8.3.6 – Maximum bar size. The bar diameter shall not~~**

**~~exceed one-eighth of the nominal wall thickness and shall~~**

**~~not exceed one-quarter of the least dimension of the cell,~~**

**~~course or collar joint in which it is placed~~.**

**2107.5 TMS 402 ~~/ACI 530/ASCE 5~~, Section 5.4 Pilasters.**

**Modify Section 5.4 as follows:**

**5.4 — Pilasters**

    **~~Walls interfacing with pilasters shall not be considered as~~**

**~~flanges, unless the construction requirements of Sections~~**

**~~5.1.1.2.1 and 5.1.1.2.5 are met. When these construction~~**

**~~requirements are met, the pilaster’s flanges shall be~~**

**~~designed in accordance with Sections 5.1.1.2.2 through~~**

**~~5.1.1.2.4.~~**

**5.4.~~1~~ 3 Where vertical pilaster reinforcement is not provided**

**to resist axial compressive stress, lateral ties are not**

**required.**

**2107.6 TMS 402 ~~/ACI 530/ASCE 5~~, Section 6.1.5.1 Development**

**of bar reinforcement in tension or compression.**

**Modify Section 6.1.5.1.1 as follows:**

**6.1.5.1.1 The required development length of reinforcing**

**bars shall be determined by Equation (6-1), but shall not**

**be less than ­12 inches or 40 db and need not be greater than 72 db.**

**Equation 6-1 including the notations from TMS 402 are unchanged ~~/ACI 530/ASCE 5~~. Gamma factors are changed as follows:**

**REMAINDER UNCHANGED.**

**2108.2 Reserved.  ~~TMS 402 /ACI 530/ASCE 5, Section 9.3.3.3 6.1.5.1.1, development.~~**

**~~Modify the second first paragraph of Section 9.3.3.3 6.1.5.1.1 as~~**

**~~follows:~~**

**~~The required development length of reinforcement shall be~~**

**~~determined by Equation (9-16 6-1), but shall not be less than 12~~**

**~~inches (305 mm) and need not be greater than 72~~ *~~db~~*~~.~~**

**2108.3 Reserved.  ~~TMS 402 /ACI 530/ASCE 5, Section 6.1.6.1, splices.~~**

**~~Modify items (c) and (d) of Section 9.3.3.4 as follows:~~**

**~~9.3.3.4 (c) – A welded splice shall have the bars butted and~~**

**~~welded to develop at least 125 percent of the yield~~**

**~~strength,~~ *~~ƒy~~*~~, of the bar in tension or compression, as~~**

**~~required. Welded splices shall be of ASTM A706 steel~~**

**~~reinforcement. Welded splices shall not be permitted in~~**

**~~plastic hinge zones of intermediate or special reinforced~~**

**~~walls.~~**

**~~9.3.3.4 (d) – Mechanical splices shall be classified as Type~~**

**~~1 or 2 in accordance with Section 18.2.7.1 of ACI 318.~~**

**~~Type 1 mechanical splices shall not be used within a plastic~~**

**~~hinge zone or within a beam-column joint of intermediate~~**

**~~or special reinforced masonry shear walls. Type 2~~**

**~~mechanical splices are permitted in any location within a~~**

**~~member~~**

**2108.4 TMS 402 ~~/ACI 530/ASCE 5~~, Section 6.1.5.1 Development**

**of bar reinforcement in tension or compression.**

**Modify Section 6.1.5.1.1 as follows:**

**6.1.5.1.1 The required development length of reinforcing**

**bars shall be determined by Equation (6-1), but shall not**

**be less than 12 inches or 40 db and need not be greater than 72 db.**

**Equation 6-1 including the notations from TMS 402 ~~/ACI 530/ASCE 5~~,**

**are unchanged. Gamma factors are changed as follows:**

**REMAINDER UNCHANGED.**

**General change throughout the FBC-B and FBC-R to strike all references to ACI 530, ACI 530.1, ASCE 5, and ASCE 6. ACI and ASCE have stopped publishing these masonry documents and turned over maintenance of TMS 402 and 602 to the Masonry Society.**

**~~ACI 530, ACI 530.1, ASCE 5~~, and ~~ASCE~~ ~~6.~~ in Chapter 35 and the following Sections:**

(S8350)

**~~SECTION 2109 EMPIRICAL DESIGN OF MASONRY~~**

**~~2109.1 General. Empirically designed masonry shall conform to the requirements of Appendix A of TMS 402/ACI 530/ASCE 5, except where otherwise noted in this section.~~**

**~~2109.1.1 Limitations. The use of empirical design of masonry shall be limited as noted in Section A.1.2 of TMS 402/ACI 530/ASCE 5. The use of dry-stacked, surface-bonded masonry shall be prohibited inRisk Category IV structures. In buildings that exceed one or more of the limitations of Section A.1.2 of TMS 402/ACI 530/ASCE 5, masonry shall be designed in accordance with the engineered design provisions of Section 2101.2 or the foundation wall provisions of Section 1807.1.5.~~**

**~~Section A.1.2.2 of TMS 402/ACI 530/ASCE 5 shall be modified as follows:~~**

**~~– Wind. Empirical requirements shall not apply to the design or construction of masonry for buildings, parts of buildings, or other structures to be located in areas where Vasd as determined in accordance with Section 1609.3.1 of the International Building Code exceeds 110 mph.~~**

**~~2109.2 Surface-bonded walls. Dry-stacked, surface-bonded concrete masonry walls shall comply with the requirements of Appendix A of TMS 402/ACI 530/ASCE 5, except where otherwise noted in this section.~~**

**~~2109.2.1 Strength. Dry-stacked, surface-bonded concrete masonry walls shall be of adequate strength and proportions to support all superimposed loads without exceeding the allowable stresses listed in Table 2109.2.1. Allowable stresses not specified in Table 2109.2.1 shall comply with the requirements of TMS 402/ACI 530/ASCE 5.~~**

**~~TABLE 2109.2.1~~**

**~~ALLOWABLE STRESS GROSS CROSS-SECTIONAL AREA FOR DRY-STACKED, SURFACE-~~**

**~~BONDED CONCRETE MASONRY WALLS~~**

**~~For SI: 1 pound per square inch = 0.006895 MPa.~~**

**~~2109.2.2 Construction. Construction of dry-stacked, surface-bonded masonry walls, including stacking and leveling of units, mixing and application of mortar and curing and protection shall comply with ASTM C 946.~~**

**~~2109.3 Adobe construction. Adobe construction shall comply with this section and shall be subject to the requirements of this code for Type V construction, Appendix A of TMS 402/ACI 530/ASCE 5, and this section.~~**

**~~2109.3.1 Unstabilized adobe. Unstabilized adobe shall comply with Sections 2109.3.1.1 through 2109.3.1.4.~~**

**~~2109.3.1.1 Compressive strength. Adobe units shall have an average compressive strength of 300 psi (2068 kPa) when tested in accordance with ASTM C 67. Five samples shall be tested and no individual unit is permitted to have a compressive strength of less than 250 psi (1724 kPa).~~**

**~~2109.3.1.2 Modulus of rupture. Adobe units shall have an average modulus of rupture of 50 psi (345 kPa) when tested in accordance with the following procedure. Five samples shall be tested and no individual unit shall have a modulus of rupture of less than 35 psi (241 kPa).~~**

**~~2109.3.1.2.1 Support conditions. A cured unit shall be simply supported by 2-inch-diameter (51 mm) cylindrical supports located 2 inches (51 mm) in from each end and extending the full width of the unit.~~**

**~~2109.3.1.2.2 Loading conditions. A 2-inch-diameter (51 mm) cylinder shall be placed at midspan parallel to the supports.~~**

**~~2109.3.1.2.3 Testing procedure. A vertical load shall be applied to the cylinder at the rate of 500 pounds per minute (37 N/s) until failure occurs.~~**

**~~2109.3.1.2.4 Modulus of rupture determination. The modulus of rupture shall be determined by the~~**

**~~equation:~~**

|  |  |
| --- | --- |
| **~~f r = 3 PLs /2 Sw (St2)~~** | **~~(Equation 21-2)~~** |

**~~where, for the purposes of this section only:~~**

|  |  |  |
| --- | --- | --- |
| **~~Sw~~** | **~~=~~** | **~~Width of the test specimen measured parallel to the loading cylinder, inches (mm).~~** |
| **~~fr~~** | **~~=~~** | **~~Modulus of rupture, psi (MPa).~~** |
| **~~Ls~~** | **~~=~~** | **~~Distance between supports, inches (mm).~~** |
| **~~St~~** | **~~=~~** | **~~Thickness of the test specimen measured parallel to the direction of load, inches (mm).~~** |
| **~~P~~** | **~~=~~** | **~~The applied load at failure, pounds (N).~~** |

**~~2109.3.1.3 Moisture content requirements. Adobe units shall have a moisture content not exceeding 4 percent by weight.~~**

**~~2109.3.1.4 Shrinkage cracks. Adobe units shall not contain more than three shrinkage cracks and any single shrinkage crack shall not exceed 3 inches (76 mm) in length or 1/ 8 inch (3.2 mm) in width.~~**

**~~2109.3.2 Stabilized adobe. Stabilized adobe shall comply with Section 2109.3.1 for unstabilized adobe in addition to Sections 2109.3.2.1 and 2109.3.2.2.~~**

**~~2109.3.2.1 Soil requirements. Soil used for stabilized adobe units shall be chemically compatible with the stabilizing material.~~**

**~~2109.3.2.2 Absorption requirements. A 4-inch (102 mm) cube, cut from a stabilized adobe unit dried to a constant weight in a ventilated oven at 212°F to 239°F (100°C to 115°C), shall not absorb more than 21/ 2 percent moisture by weight when placed upon a constantly water-saturated, porous surface for seven days. A minimum of five specimens shall be tested and each specimen shall be cut from a separate unit.~~**

**~~2109.3.3 Allowable stress. The allowable compressive stress based on gross cross-sectional area of adobe shall not exceed 30 psi (207 kPa).~~**

**~~2109.3.3.1 Bolts. Bolt values shall not exceed those set forth in Table 2109.3.3.1.~~**

**~~TABLE 2109.3.3.1~~**

**~~ALLOWABLE SHEAR ON BOLTS IN ADOBE MASONRY~~**

**~~For SI: 1 inch = 25.4 mm, 1 pound = 4.448 N.~~**

**~~2109.3.4 Detailed requirements. Adobe construction shall comply with Sections 2109.3.4.1 through 2109.3.4.9.~~**

**~~2109.3.4.1 Number of stories. Adobe construction shall be limited to buildings not exceeding one story, except that two-story construction is allowed when designed by a registered design professional.~~**

**~~2109.3.4.2 Mortar. Mortar for adobe construction shall comply with Sections 2109.3.4.2.1 and 2109.3.4.2.2.~~**

**~~2109.3.4.2.1 General. Mortar for stabilized adobe units shall comply with this chapter or adobe soil. Adobe soil used as mortar shall comply with material requirements for stabilized adobe. Mortar for unstabilized adobe shall be Portland cement mortar.~~**

**~~2109.3.4.2.2 Mortar joints. Adobe units shall be laid with full head and bed joints and in full running bond.~~**

**~~2109.3.4.3 Parapet walls. Parapet walls constructed of adobe units shall be waterproofed.~~**

**~~2109.3.4.4 Wall thickness. The minimum thickness of exterior walls in one-story buildings shall be 10 inches (254 mm). The walls shall be laterally supported at intervals not exceeding 24 feet (7315 mm). The minimum thickness of interior load-bearing walls shall be 8 inches (203 mm). In no case shall the unsupported height of any wall constructed of adobe units exceed 10 times the thickness of such wall.~~**

**~~2109.3.4.5 Foundations. Foundations for adobe construction shall be in accordance with Sections 2109.3.4.5.1 and 2109.3.4.5.2.~~**

**~~2109.3.4.5.1 Foundation support. Walls and partitions constructed of adobe units shall be supported by foundations or footings that extend not less than 6 inches (152 mm) above adjacent ground surfaces and are constructed of solid masonry (excluding adobe) or concrete. Footings and foundations shall comply with Chapter 18.~~**

**~~2109.3.4.5.2 Lower course requirements. Stabilized adobe units shall be used in adobe walls for the first 4 inches (102 mm) above the finished first-floor elevation.~~**

**~~2109.3.4.6 Isolated piers or columns. Adobe units shall not be used for isolated piers or columns in a load-bearing capacity. Walls less than 24 inches (610 mm) in length shall be considered isolated piers or columns.~~**

**~~2109.3.4.7 Tie beams. Exterior walls and interior load-bearing walls constructed of adobe units shall have a continuous tie beam at the level of the floor or roof bearing and meeting the following requirements.~~**

**~~2109.3.4.7.1 Concrete tie beams. Concrete tie beams shall be a minimum depth of 6 inches (152 mm) and a minimum width of 10 inches (254 mm). Concrete tie beams shall be continuously reinforced with a minimum of two No. 4 reinforcing bars. The specified compressive strength of concrete shall be at least 2,500 psi (17.2 MPa).~~**

**~~2109.3.4.7.2 Wood tie beams. Wood tie beams shall be solid or built up of lumber having a minimum nominal thickness of 1 inch (25 mm), and shall have a minimum depth of 6 inches (152 mm) and a minimum width of 10 inches (254 mm). Joints in wood tie beams shall be spliced a minimum of 6 inches (152 mm). No splices shall be allowed within 12 inches (305 mm) of an opening. Wood used in tie beams shall be approved naturally decay-resistant or preservative-treated wood.~~**

**~~2109.3.4.8 Exterior finish. Exterior walls constructed of unstabilized adobe units shall have their exterior surface covered with a minimum of two coats of Portland cement plaster having a minimum thickness~~**

**~~of 3/ 4 inch (19.1 mm) and conforming to ASTM C 926. Lathing shall comply with ASTM C 1063. Fasteners shall be spaced at 16 inches (406 mm) on center maximum. Exposed wood surfaces shall be treated with an approved wood preservative or other protective coating prior to lath application.~~**

**~~2109.3.4.9 Lintels. Lintels shall be considered structural members and shall be designed in accordance with the applicable provisions of Chapter 16.~~**

**Add new text as follows:**

**SECTION 2109**

**DRY-STACK MASONRY**

**2109.1 General. The design of dry-stack masonry structures shall comply with the requirements of Chapters 1 through 8 of TMS 402 except as modified by Sections 2109.2 through 2109.5.**

**2109.2 Limitations. Dry-stack masonry shall be prohibited in Risk Category IV structures.**

**2109.3 Materials. Concrete masonry units complying with ASTM C90 shall be used.**

**2109.4 Strength. Dry-stack masonry shall be of adequate strength and proportions to suport all superimposed loads without exceeding the allowable stresses listed in Table 2109.4. Allowable stresses not specified in Table 2109.1.1 shall comply with the requirements of Chapter 8 of TMS 402.**

**TABLE 2109.4**

**GROSS CROSS-SECTIONAL AREA ALLOWABLE STRESS FOR DRY-STACK MASONRY**

|  |  |
| --- | --- |
| **DESCRIPTION** | **MAXIMUM ALLOWABLE STRESS (psi)** |
| **Compression** | **45** |
| **Flexural tension Horizontal Span Vertical Span** | **30**  **18** |
| **Shear** | **10** |

**For SI: 1 pound per square inch = 0.006895 MPa.**

**2109.5 Construction. Construction of dry-stack masonry shall comply with ASTM C946.**

(S8381)/(I-Code)

**Chapter 22 STEEL**

Revise as follows:

**2203.1 Identification.**

Identification of *structural steel elements* shall be in accordance with AISC 360. Identification of cold-formed steel members shall be in accordance with AISI S100. Identification of cold-formed steel light-frame construction shall also comply with the requirements contained in AISI S240~~S200~~ or AISI S220, as applicable. Other steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specified ASTM standard or other specification and the provisions of this chapter. Steel that is not readily identifiable as to grade from marking and test records shall be tested to determine conformity to such standards.

**2203.2 Protection.**

Painting of *structural steel elements* shall be in accordance with AISC 360. Painting of open-web steel joists and joist girders shall be in accordance with SJI CJ, SJI JG, SJI K and SJI LH/DLH. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall be in accordance with AISI S240~~S200~~ or AISI S220, as applicable.

(S7452) /(I-Code)

**2203.2 Protection.** Painting of *structural steel elements* shall be in accordance with AISC 360. Painting of open-web steel joists and joist girders shall be in accordance with SJI CJ~~, SJI JG, SJI K~~ and SJI ~~LH/DLH~~ 100. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall be in accordance with AISI S200 or AISI S220, as applicable.

**2207.1 General.** The design, manufacture and use of open-web steel joists and joist girders shall be in accordance with ~~one of the following Steel Joist Institute (~~either SJI~~) specifications:~~

1. SJI CJ

2. SJI K

3. SJI LH/DLH

4. SJI JG

CJ or SJI 100, as applicable.

**2207.1.1 Seismic design.** Where required, the seismic design of buildings shall be in accordance with the additional provisions of Section 2205.2 or ~~2211.6~~ 2211.1.

(S70-16)

**Delete without substitution:**

**~~2208.2 Seismic requirements for steel cable.~~** ~~The design strength of steel cables shall be determined~~ ~~by the provisions of ASCE 19 except as modified by these provisions.~~

***~~1.~~* ~~A load factor of 1.1 shall be applied to the prestress force included in~~ *~~T~~3*~~and~~ *~~T~~4*~~as defined in Section3.12.~~**

~~2. In Section 3.2.1, Item (c) shall be replaced with "1.5~~ *~~T~~3*~~" and Item (d) shall be replaced with "1.5~~ *~~T~~4*~~."~~

(S7421) /(I-Code)

**2210.2 Seismic requirements for cold-formed steel structures.**

Where a response modification coefficient, *R*, in accordance with ASCE 7, Table 12.2-1, is used for the design of cold-formed steel structures, the structures shall be designed and detailed in accordance with the requirements of AISI S100, ASCE 8, or, for cold-formed steel special-bolted moment frames, AISI S400~~S110~~.

(S7454) /(I-Code)

***Add new text as follows:***

2209.2 Cantilevered steel storage racks. The design, testing, and utilization of cantilevered storage racks made of cold formed or hot-rolled steel structural members shall be in accordance with RMI ANSI/MH 16.3. Where required by ASCE 7, the seismic design of cantilevered steel storage racks shall be in accordance with Section 15.5.3 of ASCE 7.

(S255-16 AM)

**2211.1 ~~General.~~ Structural framing.**

~~The~~For cold-formed steel light-frame construction, the design and installation of the following structural framing systems, including their members and ~~nonstructural members utilized in cold-formed steel light-frame construction where the specified minimum base steel thickness is not greater than 0.1180 inches (2.997 mm)~~connections, shall be in accordance with AISI S240 ~~S200~~ and Sections 2211.1.1~~2211.2~~ through 2211.1.3~~2211.7, or AISI S220~~, as applicable:~~.~~

1. Floor and roof systems,

2. Structural walls,

3. Shear walls, strap braced walls and diaphragms to resist in-plane lateral loads, and

4. Trusses.

**2211.1.1 Seismic requirements for cold-formed steel structural systems.**The design of cold-formed steel light frame construction to resist seismic forces shall be in accordance with the provisions of Section 2211.1.1.1 or 2211.1.1.2, as applicable**.**

**2211.1.1.1 Seismic Design Categories B and C.**Where a response modification coefficient, R, in accordance with ASCE 7, Table 12.2-1 is used for the design of cold-formed steel light frame construction assigned to Seismic Design Category B or C, the seismic force-resisting system shall be designed and detailed in accordance with the requirements of AISI S400.

**Exception:** The response modification coefficient, R, designated for "Steel systems not specifically detailed for seismic resistance, excluding cantilever column systems" in ASCE 7 Table 12.2-1 shall be permitted for systems designed and detailed in accordance with AISI S240 and need not be designed and detailed in accordance with AISI S400.

**2211.1.1.2 Seismic Design Categories D through F.**In cold-formed steel light frame construction assigned to Seismic Design Category D, E, or F, the seismic force-resisting system shall be designed and detailed in accordance with AISI S400.

**2211.1.2~~2211.7~~Prescriptive framing.**Detached one- and two-family *dwellings*and*townhouses*, less than or equal to three*stories above grade plane*, shall be permitted to be constructed in accordance withAISI S230subject to the limitations therein.

**~~2211.2 Header design.~~**

~~Headers, including box and back-to-back headers, and double and single L-headers shall be designed in accordance with AISI S212 or AISI S100.~~

**2211.1.3~~2211.3~~Truss design.**

Cold-formed steel trusses shall comply with the additional provisions of Sections 2211.1.3.1 through 2211.1.3.3.~~be designed in accordance with AISI S214, Sections 2211.3.1 through 2211.3.4 and accepted engineering practice.~~

**2211.1.3.1~~2211.3.1~~ Truss design drawings.**The truss design drawings shall conform to the requirements of Section I1 of AISI S202 ~~B2.3 of AISI S214~~and shall be provided with the shipment of trusses delivered to the job site. The truss design drawings shall include the details of permanent individual truss member restraint/bracing in accordance with Section I1.6 of AISI S202~~B6(a) or B 6(c) of AISI S214~~where these methods are utilized to provide restraint/bracing.

**~~2211.3.2 Deferred submittals.~~**~~AISI S214 Section B4.2 shall be deleted.~~

**2211.1.3.2~~2211.3.3~~ Trusses spanning 60 feet or greater.**The owner or the owner’s authorized agent shall contract with a *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing for trusses with clear spans 60 feet (18 288 mm) or greater.

**2211.1.3.3~~2211.3.4~~ Truss quality assurance.**Reserved.

**2211.2 Nonstructural Members.**For cold-formed steel light frame construction, the design and installation of nonstructural members and connections shall be in accordance with AISI S220.

**~~2211.4 Sructural wall stud design.~~**~~Structural wall studs shall be designed in accordance with either AISI S211 or AISI S100.~~

**~~2211.5 Floor and roof system design.~~**~~Framing for floor and roof systems in buildings shall be designed in accordance with either AISI S210 or AISI S100.~~

**~~2211.6 Lateral design.~~**~~Light-frame shear walls, diagonal strap bracing that is part of a structural wall and diaphragms used to resist wind, seismic and other in-plane lateral loads shall be designed in accordance with AISI S213.~~

(S7455 A3 Only)

**2214.3** The following standards, as set forth in Chapter 35 of this code, are hereby adopted.

1.American Institute of Steel Construction, AISC:

a.~~Reserved~~.

~~b.~~DG03, Serviceability Design Considerations for Steel Buildings, AISC.

b. DG09, Torsional Analysis of Structural Steel Members, AISC.

c. DG15, AISC Rehabilitation and Retrofit Guide A Reference for Historic Shapes and Specifications, AISC.

d. AISC Steel Construction Manual, AISC.

e~~d~~. Detailing for Steel Construction, AISC.

~~e.DG15, AISC Rehabilitation and Retrofit Guide A Reference for Historic Shapes and Specifications, AISC.~~

~~f. DG09, Torsional Analysis of Structural Steel Members, AISC.~~

2.American Iron and Steel Institute, AISI

a.AISI S100, North American Standard for the Design of Cold-Formed Steel Structural Members

b. ~~AISI S200, North American Standard for Cold Formed Steel Framing – General Provisions~~

~~c.AISI S210, North American Standard for Cold Formed Steel Framing – Floor and Roof System Design~~

~~d.AISI S211, North American Standard for Cold Formed Steel Framing – Wall Stud Design~~

~~e.AISI S212, North American Standard for Cold Formed Steel Framing – Header Design~~

~~f.AISI S213, North American Standard for Cold Formed Steel Framing – Lateral Design with Supplement 1~~

~~g.AISI S-214, North American Standard for Cold Formed Steel Framing – Truss Design~~

~~h.~~AISI S230, Standard for Cold-formed Steel Framing–Prescriptive Method for One-and Two Family Dwellings

c. AISI S240, *North American Standard for Cold-Formed Steel Structuring Framing*

3.~~American National Standards Institute/~~American Society of Civil Engineers, ~~ANSI/~~ASCE.

a.~~Reserved.~~

~~b.~~ASCE 8, Specification~~s~~ for the Design of Cold-Formed Stainless Steel Structural Members~~, ANSI/ASCE 8~~.

~~c.Reserved.~~

4.American National Standards Institute/American Welding Society, ANSI/AWS.

a. Specification for Welding Procedure and Performance Qualification, AWS B2.1.

b. ~~Reserved.~~

~~c.~~ Structural Welding Code–Steel, ANSI/AWS D1.1—D1.1M.

c~~d~~. Structural Welding Code–Sheet Metal, ANSI/AWS D1.3—D1.3M.

d~~e~~. Structural Welding Code–Reinforcing Steel, ANSI/AWS D1.4

e~~f~~. Sheet Metal Welding Code, AWS D9.1—D9.1M.

5.ASTM International.

a.Standard Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use, ASTM A6.

b. ~~Standard Specifications for High-Strength Bolts for Structural Steel Joints, ASTM A325.~~

~~c.Standard Specification for Heat-Treated Steel Structural Bolts, Alloy Steel, Heat Treated 150 KSI Minimum Tensile Strength, ASTM A490.~~

~~d.~~Standard Specification for Sheet Steel, Carbon, Metallic, and Nonmetallic Coated for Cold-formed Steel Framing Members, ASTM A1003- A1003M.

c. Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions, ASTM F3125-F3125M

6.National Association of Architectural Metal Manufacturers, NAAMM.

a.NAAMM MBG 531, Metal Grating Manual.

7.~~Reserved.~~

~~8.~~Research Council on Structural Connections, RCSC.

a. Specification for Structural Joints Using High Strength Bolts, RSC.

~~9.Reserved.~~

8~~10~~.Steel Deck Institute, Inc., SDI.

a.~~Reserved.~~

~~b.Reserved.~~

~~c.Reserved.~~

~~d.Reserved.~~

~~e.Reserved.~~

~~f~~.Diaphragm Design Manual, SDI.

b~~g~~.SDI-C~~-2011~~ Standard for Composite Steel Floor Deck Slabs

c~~h~~.SDI-RD~~-2010~~ Standard for Steel Roof Deck

d~~i~~.SDI-NC~~-2010~~Standard for Non-Composite Steel Floor Deck.

9~~11~~.Steel Joist Institute, SJI.

a. 44th~~43rd~~ Edition Standard Specifications ~~and~~ Load Tables and Weight Tables for Steel Joists and Joist Girders~~, which includes Errata No. 1 and No. 2~~, SJI.

b.“Structural Design of Steel Joist Roofs to Resist Ponding Loads”, Technical Digest No. 3, SJI.

c.“Vibration of Steel Joist-Concrete Slab Floors”, Technical Digest No. 5, SJI.

d.“Design of Steel Joist Roofs to Resist Uplift Loads”, Technical Digest No. 6, SJI.

e.“Welding of Open Web Steel Joist and Joist Girders”, Technical Digest No. 8, SJI.

f.“Handling and Erection of Steel Joists and Joist Girders”, Technical Digest No. 9, SJI.

g.~~85~~90 Years of Open Web Steel Joist Construction, SJI.

h.“Design of Lateral Load Resisting Frames Using Steel Joists and Joist Girders”, Technical Digest No. 11, SJI

~~12.Reserved.~~

~~a.Reserved.~~

~~b.Reserved.~~

~~13.Reserved.~~

~~14~~10.Steel Tube Institute, STI.

a.~~HSS Design Manual.~~HSS Design Manual, Volume 1:  Section Properties & Design Information

b. HSS Design Manual, Volume 2:  Member Design

c. HSS Design Manual, Volume 3:  Connections at HSS Members

d. HSS Design Manual, Volume 4:  Truss & Bracing Connections

(S8099-R1)

**2221.6.3**

The ends of joists shall have a minimum bearing, on reinforced concrete and steel supports as specified in the standard set forth in Section 2214.3(9~~11~~).

(S8102)

**2222.2.1**

Galvanizing as referred to herein is to be zinc coating conforming to the standard set forth in Section 2214.3(5)(b~~d~~).

(S8103)

**2222.6.1**

All steel sheets having a thickness of less than 20 gauge, i.e., materials of higher gauge, shall be galvanized in accordance with the standards of Section 2214.3(5)(b~~d~~) herein to provide a minimum coating designation of G90.

(S8104)

**Chapter 23 WOOD**

Revise as follows:

**2303.1.7 Hardboard.**

Hardboard siding shall conform to the requirements of ANSI A135.6 and, where used structurally shall be identified by the label of an *approved agency* ~~conforming to CPA/ANSI A135.6~~. Hardboard underlayment shall meet the strength requirements of 7/32-inch (5.6 mm) or 1/4-inch (6.4 mm) service class hardboard planed or sanded on one side to a uniform thickness of not less than 0.200 inch (5.1 mm). Prefinished hardboard paneling shall meet the requirements of ~~CPA/~~ANSI A135.5. Other basic hardboard products shall meet the requirements of ~~CPA/~~ANSI A135.4. Hardboard products shall be installed in accordance with manufacturer's recommendations.

(S7849)/(S258-16)

**2303.1.9 Preservative-treated wood.**Lumber, timber, plywood, piles and poles supporting permanent structures required by Section 2304.12 to be preservative treated shall conform to ~~the requirements of the~~ ~~applicable~~AWPA~~Standard~~ U1 and M4~~for the species, product, preservative and end use. Preservatives~~ ~~shall be listed in Section 4 of AWPA U1~~. Lumber and plywood used in permanent wood foundation systems shall conform to Chapter 18.

(S8186) /(I-Code)

**2303.2.2 Other means during manufacture.** For wood products impregnated with chemicals by other means

during manufacture, the treatment shall be an integral part of the manufacturing process of the wood product. The treatment shall provide permanent protection to all surfaces of the wood product. The use of paints, coating, stains or other surface treatments is not an approved method of protection as required in this section.

(S262-16 AM)

**Revise as follows:**

**2303.2.4 Labeling.** ~~Fire-retardant-treated~~ In addition to the labels required in Section 2303.1.1 for sawn lumber and Section 2303.1.5 for wood structural panels each piece of fire-retardant-treated lumber and wood structural panels shall be labeled. The *label* shall contain the following items:

1.        The identification *mark* of an *approved agency* in accordance with Section1703.5.

2.        Identification of the treatingmanufacturer.

3.        The name of the fire-retardanttreatment.

4.        The species of wood treated.

5.        Flame spread and smoke-developedindex.

6.        Method of drying aftertreatment.

7.        Conformance with appropriate standards in accordance with Sections 2303.2.5 through2303.2.8.

8.        For*fire-retardant-treatedwood*exposedtoweather,damporwetlocations,includethewords"No increase in the *listed* classification when subjected to the Standard Rain Test" (ASTM D2898).

(S7422) /(I-Code)

**TABLE 2304.8 (5)**

**ALLOWABLE LOAD (PSF) FOR WOOD STRUCTURAL PANEL ROOF SHEATHING CONTINUOUS OVER TWO OR MORE SPANS AND STRENGTH AXIS PARALLEL TO SUPPORTS (Plywood Structural Panels Are Five-Ply, Five-Layer Unless Otherwise Noted)a, b**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PANEL GRADE** | **THICKNESS (inch)** | **MAXIMUM SPAN**  **(inches)** | **LOAD AT MAXIMUM SPAN (psf)** | |
| **Live** | **Total** |
| Structural I sheathing | 7/16 | 24 | 20 | 30 |
| 15/32 | 24 | 35cb | 45cb |
| 1/2 | 24 | 40cb | 50cb |
| 19/32 , 5/8 | 24 | 70 | 80 |
| 23/32 , 3/4 | 24 | 90 | 100 |
| Sheathing, other grades | 7/16 | 16 | 40 | 50 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PANEL GRADE**                covered in DOC PS 1 or DOC PS 2 | **THICKNESS (inch)** | **MAXIMUM SPAN**  **(inches)** | **LOAD AT MAXIMUM SPAN (psf)** | |
| **Live** | **Total** |
| 15/32 | 24 | 20 | 25 |
| 1/2 | 24 | 25 | 30 |
|  |  |  |  |
| 19/32 | 24 | 40cb | 50cb |
| 5/8 | 24 | 45cb | 55cb |
| 23/32 , 3/4 | 24 | 60cb | 65cb |

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kN/m 2 .

~~a.     Roof sheathing complying with this table shall be deemed to meet the design criteria of Section2304.8.~~

~~b~~a. Uniform load deflection limitations 1 / 180 of span under live load plus dead load, 1 / 240 under live load only. Edges shall be blocked with lumber or other approved type of edge supports.

~~c~~b. For composite and four-ply plywood structural panel, load shall be reduced by 15 pounds per square foot.

**TABLE 2304.8 (4)**

**ALLOWABLE SPAN FOR WOOD STRUCTURAL PANEL COMBINATION SUBFLOOR-UNDERLAYMENT**

**(SINGLE FLOOR)a, b (Panels Continuous Over Two or More Spans and Strength Axis Perpendicular to Supports)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IDENTIFICATION** | **MAXIMUM SPACING OF JOISTS (inches)** | | | | |
| **16** | **20** | **24** | **32** | **48** |
| **Species groupcb** | **Thickness (inches)** | | | | |
| 1 | 1/2 | 5/8 | 3/4 | — | — |
| 2, 3 | 5/8 | 3/4 | 7/8 | — | — |
| 4 | 3/4 | 7/8 | 1 | — | — |
| Single floor span ratingdc | 16 o.c. | 20 o.c. | 24 o.c. | 32 o.c. | 48 o.c. |

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kN/m 2 .

a.     Spans limited to value shown because of possible effects of concentrated loads. Allowable uniform loads based on deflection of 1 / 360 of span is 100 pounds per square foot except allowable total uniform load for 1 1 / 8 -inch wood structural panels over joists spaced 48 inches on center is 65 pounds per square foot. Panel edges shall have approved tongue-and-groove joints or shall be supported with blocking, unless 1 / 4 -inch minimum thickness underlayment or 1 1 / 2 inches of approved cellular or lightweight concrete is placed over the subfloor, or finish floor is 3 / 4 -inch woodstrip.

b.     ~~Floor panels complying with this table shall be deemed to meet the design criteria of Section 2304.8.~~ ~~c~~b. Applicable to all grades of sanded exterior-type plywood. See DOC PS 1 for plywood speciesgroups.

~~d~~c. Applicable to Underlayment grade, C-C (Plugged) plywood, and Single Floor grade wood structural panels.

**TABLE 2304.8 (3)**

**ALLOWABLE SPANS AND LOADS FOR WOOD STRUCTURAL PANEL SHEATHING AND SINGLE-FLOOR GRADES CONTINUOUS OVER TWO OR MORE SPANS WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTSa, b**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SHEATHING GRADES** | | **ROOFcb** | | | | **FLOORdc** |
| **Panel span rating roof/ floor span** | **Panel thickness (inches)** | **Maximum span (inches)** | | **Loaded (psf)** | | **Maximum span (inches)** |
| **With edge supportfe** | **Without edge support** | **Total load** | **Live load** |
| 16/0 | 3/8 | 16 | 16 | 40 | 30 | 0 |
| 20/0 | 3/8 | 20 | 20 | 40 | 30 | 0 |
| 24/0 | 3/8 ,7/16 ,1/2 | 24 | 20gf | 40 | 30 | 0 |
| 24/16 | 7/16 , 1/2 | 24 | 24 | 50 | 40 | 16 |
| 32/16 | 15/32 ,1/2 ,5/8 | 32 | 28 | 40 | 30 | 16hg |
| 40/20 | 19/32 ,5/8 ,3/4 ,7/8 | 40 | 32 | 40 | 30 | 20g, h,i |
| 48/24 | 23/32 ,3/4 ,7/8 | 48 | 36 | 45 | 35 | 24 |
| 54/32 | 7/8 , 1 | 54 | 40 | 45 | 35 | 32 |
| 60/32 | 7/8 , 11/8 | 60 | 48 | 45 | 35 | 32 |
| **SINGLE FLOOR GRADES** | | **ROOFcb** | | | | **FLOORdc** |
| **Panel span** | **Panel thickness** | **Maximum span (inches)** | | **Loaded (psf)** | | **Maximum** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **rating** | **(inches)** | **With edge supportfe** | **Without edge support** | **Total load** | **Live load** | **span (inches)** |
| 16 o.c. | 1 /2 ,19 /32 ,5 /8 | 24 | 24 | 50 | 40 | 16hg |
| 20 o.c. | 19 /32 ,5 /8 ,3 /4 | 32 | 32 | 40 | 30 | 20g, h,i |
| 24 o.c. | 23 /32 ,3 /4 | 48 | 36 | 35 | 25 | 24 |
| 32 o.c. | 7 /8 , 1 | 48 | 40 | 50 | 40 | 32 |
| 48 o.c. | 13 /32 , 11 /8 | 60 | 48 | 50 | 40 | 48 |

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kN/m 2 .

a.     Applies to panels 24 inches orwider.

b.    ~~FloorandroofsheathingcomplyingwiththistableshallbedeemedtomeetthedesigncriteriaofSection2304.8.~~ cb. Uniform load deflection limitations 1 / 180 of span under live load plus dead load, 1 / 240 under live loadonly.

~~d~~c. Panel edges shall have approved tongue-and-groove joints or shall be supported with blocking unless 1 / 4 -inch minimum thickness underlayment or 1 1 / 2 inches of approved cellular or lightweight concrete is placed over the subfloor, or finish floor is 3 / 4 -inch wood strip. Allowable uniform load based on deflection of 1 / 360 of span is 100 pounds per square foot except the span rating of 48 inches on center is based on a total load of 65 pounds per square foot.

~~e~~d. Allowable load at maximum span.

fe. Tongue-and-groove edges, panel edge clips (one midway between each support, except two equally spaced between supports 48 inches on center), lumber blocking or other. Only lumber blocking shall satisfy blocked diaphragm requirements.

~~g~~f. For 1 / 2 -inch panel, maximum span shall be 24 inches.

~~h~~g. Span is permitted to be 24 inches on center where 3 / 4 -inch wood strip flooring is installed at right angles to joist.

ih. Span is permitted to be 24 inches on center for floors where 1 1 / 2 inches of cellular or lightweight concrete is applied over the panels.

**TABLE 2304.8 (1)**

**ALLOWABLE SPANS FOR LUMBER FLOOR AND ROOF SHEATHINGa, b**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SPAN (inches)** | **MINIMUM NET THICKNESS (inches) OF LUMBER PLACED** | | | |
| **Perpendicular to supports** | | **Diagonally to supports** | |
| **Surfaced dryca** | **Surfaced unseasoned** | **Surfaced dryca** | **Surfaced unseasoned** |
| **Floors** | | | | |
| 24 | 3/4 | 25/32 | 3/4 | 25/32 |
| 16 | 5/8 | 11/16 | 5/8 | 11/16 |
| **Roofs** | | | | |
| 24 | 5/8 | 11/16 | 3/4 | 25/32 |

For SI: 1 inch = 25.4 mm.

~~a.     Installation details shall conform to Sections 2304.8.1 and 2304.8.2 for floor and roof sheathing, respectively. b.        Floor or roof sheathing complying with this table shall be deemed to meet the design criteria of Section 2304.8.~~ ca. Maximum 19-percent moisture content.

(S7626)/(S271-16)

**TABLE2304.10.1**

**FASTENINGSCHEDULE**

|  |  |  |
| --- | --- | --- |
| **DESCRIPTION OF BUILDING ELEMENTS** | **NUMBER AND TYPE OF FASTENER** | **SPACING AND LOCATION** |
| **Roof** | | |
| 1. Blocking between ceiling joists, raf ters or trusses to top plate or other f raming below | 3-8d common (21 /2 ″ × 0.131″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″14 gage staples, 7 /16 ″ crown | Each end, toenail |
| Blocking between raf ters or truss not at the wall top plate, to raf ter or truss | 2-8d common (2 1 /2 ″ × 0.131″) 2-3″ × 0.131″ nails 2-3″ 14 gage staples | Each end, toenail |
| 2-16 d common (3 1 /2 ″ × 0.162″) 3-3″ × 0.131″ nails 3-3″ 14 gage staples | End nail |
| Flat blocking to truss and web f iller | 16d common (31 /2 ″ × 0.162″) @ 6″ o.c. 3″ × 0.131″ nails @ 6″ o.c. 3″ × 14 gage staples @ 6″ o.c | Face nail |
| 2. Ceiling joists to top plate | 3-8d common (21 /2 ″ × 0.131″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown | Each joist, toenail |
| 3. Ceiling joist not attached to parallel raf ter, laps ov er partitions (no thrust)  (see Section 2308.7.3.1, Table 2308.7.3.1) | 3-16d common (31 /2 ″ × 0.162″); or 4-10d box (3″ × 0.128″); or  4-3″ × 0.131″ nails; or  4-3″ 14 gage staples, 7 /16 ″ crown | Face nail |
| 4. Ceiling joist attached to parallel raf ter |  |  |

|  |  |  |
| --- | --- | --- |
| (heel joint) (see Section 2308.7.3.1, Table 2308.7.3.1) | Per Table 2308.7.3.1 | Face nail |
| 5. Collar tie to raf ter | 3-10d common (3″ × 0.148″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown | Face nail |
|  | 3-10 common (3″ × 0.148″); or 3-16d box |  |
| 6. Raf ter or roof truss to top plate (See Section 2308.7.5, Table 2308.7.5) | (31 /2 ″ × 0.135″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131 nails; or 4-3″ 14 | Toenailc |
|  | gage staples, 7 /16 ″ crown |  |
| 7. Roof raf ters to ridge v alley or hip  raf ters; or roof raf ter to 2-inch ridge beam | 2-16d common (3 1/2 ″ × 0.162″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown; or | End nail |
| 3-10d common (3~~1 /2~~ ″ × 0.148″); or 4-16d box (31 /2 ″ × 0.135″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown | Toenail |

|  |  |  |
| --- | --- | --- |
| **DESCRIPTION OF BUILDING ELEMENTS** | **NUMBER AND TYPE OF FASTENER** | **SPACING AND LOCATION** |
| **Wall** | | |
| 8. Stud to stud (not at braced wall panels) | 16d common (31 /2 ″ × 0.162″); | 24″ o.c. f ace nail |
| 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown | 16″ o.c. f ace nail |
| 9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels) | 16d common (31 /2 ″ × 0.162″); or | 16″ o.c. f ace nail |
| 16d box (31 /2 ″ × 0.135″); or | 12″ o.c. f ace nail |
| 3″ × 0.131″ nails; or 3-3″ 14 gage staples, | 12″ o.c. f ace nail |

|  |  |  |
| --- | --- | --- |
|  | 7 /16 ″ crown |  |
| 10. Built-up header (2″ to 2″ header) | 16d common (31 /2 ″ × 0.162″); or | 16″ o.c. each edge, f ace nail |
| 16d box (31 /2 ″ × 0.135″) | 12″ o.c. each edge, f ace nail |
| 11. Continuous header to stud | 4-8d common (21 /2 ″ × 0.131″); or 4-10d box (3″ × 0.128″) | Toenail |
| 12. Top plate to top plate | 16d common (31 /2 ″ × 0.162″); or | 16″ o.c. f ace nail |
| 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7 /16 ″ crown | 12″ o.c. f ace nail |
| 13. Top plate to top plate, at end joints | 8-16d common (31 /2 ″ × 0.162″); or 12-  10d box (3″ × 0.128″); or 12-3″ × 0.131″ nails; or 12-3″ 14 gage staples, 7 /16 ″ crown | Each side of end joint, f ace nail (minimum 24" lap splice length each side of end joint) |
| 14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels) | 16d common (31 /2 ″ × 0.162″); or | 16" o.c. f ace nail |
| 16d box (31 /2 ″ × 0.135″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7 /16 ″ crown | 12" o.c. f ace nail |
| 15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels | 2-16d common (31 /2 ″ × 0.162″); or 3-16d box (31 /2 ″ × 0.135″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown | 16" o.c. f ace nail |
| 16. Stud to top or bottom plate | 4-8d common (21 /2 ″ × 0.131″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown; or | Toenail |
| 2-16d common (31 /2 ″ × 0.162″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or | End nail |

|  |  |  |
| --- | --- | --- |
|  | 3-3″ 14 gage staples, 7 /16 ″ crown |  |
| ~~17. Top or bottom plate to stud~~ | ~~2-16d common (31 /2 ″ × 0.162″); or 3-10d~~ ~~box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or~~ ~~3-3″ 14 gage staples,~~ ~~7 /16 ″ crown~~ | ~~End nai~~l |
| 18. Top plates, laps at corners and intersections | 2-16d common (31 /2 ″ × 0.162″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown | Face nail |

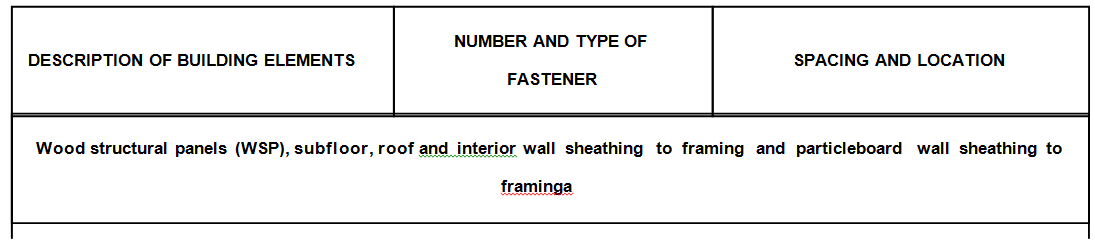
|  |  |  |
| --- | --- | --- |
| **DESCRIPTION OF BUILDING ELEMENTS** | **NUMBER AND TYPE OF FASTENER** | **SPACING AND LOCATION** |
| **Wall** | | |
| 19. 1″ brace to each stud and plate | 2-8d common (21 /2 ″ × 0.131″); or 2-10d box (3″ × 0.128″); or 2-3″ × 0.131″ nails; or 2-3″ 14 gage staples, 7 /16 ″ crown | Face nail |
| 20. 1″ × 6″ sheathing to each bearing | 2-8d common (21 /2 ″ × 0.131″); or 2-10d box (3″ × 0.128″) | Face nail |
| 21. 1″ × 8″ and wider sheathing to each bearing | 3-8d common (21 /2 ″ × 0.131″); or 3-10d box (3″ × 0.128″) | Face nail |
| **Floor** | | |
| 22. Joist to sill, top plate, or girder | 3-8d common (21 /2 ″ × 0.131″); or f loor 3- 10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown | Toenail |
| 23. Rim joist, band joist, or blocking to top plate, sill or other f raming below | 8d common (21 /2 ″ × 0.131″); or 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7 /16 ″ crown | 6" o.c., toenail |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| 24. 1″ × 6″ subf loor or less to each joist | 2-8d common (21 /2 ″ × 0.131″); or 2-10d box (3″ × 0.128″) | Face nail |
| 25. 2″ subf loor to joist or girder | 2-16d common (31 /2 ″ × 0.162″) | Face nail |
| 26. 2″ planks (plank & beam – f loor & roof ) | 2-16d common (31 /2 ″ × 0.162″) | Each bearing, f ace nail |
| 27. Built-up girders and beams, 2″ lumber lay ers | 20d common (4″ × 0.192″) | 32" o.c., f ace nail at top and bottom staggered on opposite sides |
| 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7 /16 ″ crown | 24" o.c. f ace nail at top and bottom staggered on opposite sides |
| And: 2-20d common (4″ × 0.192″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7 /16 ″ crown | Ends and at each splice, f ace nail |
| 28. Ledger strip supporting joists or raf ters | 3-16d common (31 /2 ″ × 0.162″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown | Each joist or raf ter, f ace nail |
| 29. Joist to band joist or rim joist | 3-16d common (31 /2 ″ × 0.162″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-3″ 14 gage staples, 7 /16 ″ crown | End nail |
| 30. Bridging or blocking to joist, raf ter or truss | 2-8d common (21 /2 ″ × 0.131″); or 2-10d box (3″ × 0.128″); or 2-3″ × 0.131″ nails; or 2-3″ 14 gage staples, 7 /16 ″ crown | Each end, toenail |

|  |  |  |  |
| --- | --- | --- | --- |
| **DESCRIPTION OF BUILDING ELEMENTS** | **NUMBER AND TYPE OF FASTENER** | **SPACING AND LOCATION** | |
| **Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framinga** | | | |
|  | |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **Edges (inches)** | **Intermediate supports (inches)** |
| 31. 3 /8 ″ – 1 /2 ″ | 6d common or def ormed (2″ × 0.113″) (subf loor and wall) | 6 | 12 |
| 8d ~~box~~common or def ormed (21  /2 ″ × 0.~~113~~ 0.131″) (roof ) | 6 | 12 |
| 23 /8 ″ × 0.113″ nail (subf loor and wall) | 6 | 12 |
| 13 /4 ″ 16 gage staple, 7 /16 ″ crown (subf loor and wall) | 4 | 8 |
| 23 /8 ″ × 0.113″ nail (roof ) | 4 | 8 |
| 13 /4 ″ 16 gage staple, 7 /16 ″ crown (roof ) | 3 | 6 |
| 32. 19 /32 ″ – 3 /4 ″ | 8d common (21 /2 ″ × 0.131″); or 6d def ormed (2″ × 0.113″) (subf loor and wall) | 6 | 12 |
| 8d common or def ormed (2 1/2" × 0.131") (roof ) | 6 | 12 |
| 23 /8 ″ × 0.113″ nail; or 2″ 16 gage staple, 7 /16 ″ crown | 4 | 8 |
| 33. 7 /8 ″ – 11 /4 ″ | 10d common (3″ × 0.148″); or 8d def ormed (21 /2 ″ × 0.131″) | 6 | 12 |
| **Other exterior wall sheathing** | | | |
|  | 11 /2 ″ galv anized roof ing nail (7 |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 34. 1 /2 ″ f iberboard sheathingb | /16 ″ head diameter); or 11 /4 ″ 16 gage staple with 7 /16 ″ or 1″ crown | 3 | 6 |
| 35. 25 /32 ″ f iberboard sheathingb | 13 /4 ″ galv anized roof ing nail (7  /16 ″ diameter head); or 11 /2 ″ 16 gage staple with 7 /16 ″ or 1″ crown | 3 | 6 |
| **Wood structural panels, combination subfloor underlayment to framing** | | | |
| 36. 3 /4 ″ and less | 8d common (21 /2 ″ × 0.131″); or 6d def ormed (2″ × 0.113″) | 6 | 12 |
| 37. 7 /8 ″ – 1″ | 8d common (21 /2 ″ × 0.131″); or 8d def ormed (21 /2 ″ × 0.131″) | 6 | 12 |
| 38. 11 /8 ″ – 11 /4 ″ | 10d common (3″ × 0.148″); or 8d def ormed (21 /2 ″ × 0.131″) | 6 | 12 |
| **Panel siding to framing** | | | |
| 39. 1 /2 ″ or less | 6d corrosion-resistant siding (17  /8 ″ × 0.106″); or 6d corrosion- resistant casing (2″ × 0.099″) | 6 | 12 |
| 40. 5 /8 ″ | 8d corrosion-resistant siding (23  /8 ″ × 0.128″); or 8d corrosion- resistant casing (21 /2 ″ × 0.113″) | 6 | 12 |



|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Edges (inches)** | **Intermediate supports (inches)** |
| **Interior paneling** | | | |
| 41. 1 /4 ″ | 4d casing (11 /2 ″ × 0.080″); or 4d f inish (11 /2 ″ × 0.072″) | 6 | 12 |
| 42. 3 /8 ″ | 6d casing (2″ × 0.099″); or 6d f inish (Panel supports at 24 inches) | 6 | 12 |

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, ref er to Section 2305. Nails f or wall sheathing are permitted to be common, box or casing.

b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports f or nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).

c. Where a raf ter is f astened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is f astened to the top plate in accordance with this schedule, the number of toenails in the raf ter shall be permitted to be reduced by one nail.

(S7860)/ (S272-16)(S273-16)

/

**Revise as follows:**

**2304.8.1 Structural floor sheathing.** Structural floor sheathing shall be designed in accordance with the general provisions of this code ~~and the special provisions in this section~~.

Floor sheathing conforming to the provisions of Table 2304.8(1), 2304.8(2), 2304.8(3) or 2304.8(4) shall be deemed to meet the requirements of this section.

**2304.8.2 Structural roof sheathing.** Structural roof sheathing shall be designed in accordance with the general provisions of this code and the special provisions in this section.

Roof sheathing conforming to the provisions of Table 2304.8(1), 2304.8(2), 2304.8 (3) or 2304.8 (5) shall be deemed to meet the requirements of this section.  Wood structural panel roof sheathing shall be ~~bonded by~~of a type  manufactured with exterior glue (Exposure 1 or Exterior).

(S7630)/(S280-16)

**TABLE2304.10.1**

**FASTENING SCHEDULE**

*(Rows not shown remain unchanged)*

|  |  |  |  |
| --- | --- | --- | --- |
| **DESCRIPTION OFBUILDING ELEMENTS** | **NUMBERANDTYPEOF FASTENER** | **SPACINGANDLOCATION** | |
| **Wood structural  panels(WSP),  subfloor,  roof  and  interior wall  sheathing  to  framing  and  particleboard  wall  sheathing to framinga** | | | |
|  | |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **Edges**    **(inches)** | **Intermediate**    **supports**    **(inches)** |
| 31.  3/8"–1/2" | 6d common or deformed (2"×    0.113")  (subfloor and wall) | 6 | 12 |
| 8d ~~box~~ common or deformed (2 1/2" × ~~0.113~~0.131") (roof), or RSRS-01 (2-3/8"x  0.113") nail (roof)d | 6 | 12 |
| 2 3/8" × 0.113" nail (subfloor and wall) | 6 | 12 |
| 1 3/4" 16 gage staple,  7/16"    crown  (subfloor and wall) | 4 | 8 |
| 23/8" × 0.113"  nail (roof) | 4 | 8 |
| 1 3/4" 16 gage staple,  7/16"    crown  (roof) | 3 | 6 |
| 32.  19/32"–3/4" | 8d common (21/2" × 0.131"); or    6d deformed (2" × 0.113") (subfloor  and  wall) | 6 | 12 |
| 8d common or    deformed  (2-1/2" x    0.131") (roof), or    RSRS-01 (2-3/8" x 0.113") nail    (roof)d | 6 | 12 |
| 2 3/8" × 0.113"  nail; or 2" 16 gage staple,  7/16"crown | 4 | 8 |
| 33.  7/8"–11/4" | 10d  common (3" × 0.148");  or 8d deformed (21/2" × 0.131") | 6 | 12 |

For SI: 1inch=25.4  mm.

a.     Nails  spaced at 6 inches  at intermediate supports where spans are 48 inches  or more. For nailingof  wood  structural panel and particleboard diaphragms and shear walls,  refer to Section 2305.  Nails  for wall sheathing are permitted to be common,  box  or casing.

b.     Spacing shall be 6inches  on center on the edges and 12 inches  on center at intermediate supports for nonstructural applications.  Panel supports at 16 inches  (20 inches  if  strength axis  in the long direction of  the panel,  unless  otherwise marked).

c.     Where a rafter is  fastened to an adjacent  parallel ceiling joist  in accordance with this  schedule and the ceiling joist  is  fastened to the top plate in accordance with this  schedule,  the number of  toenails  in the rafters hall be permitted to be reduced by  one nail.

d.             RSRS-01  is  a  Roof  Sheathing  Ring  Shank  nail  meeting  the specifications in  ASTMF1667.

 (S7854) /(S272-16)/(S273-16)

**2304.9.3.2 Nailing.** The length of nails connecting laminations shall be not less than two and one-half times the net thickness of each lamination. Where decking supports are 48 inches (1219 mm) on center or less, side nails shall be installed not more than 30 inches (762 mm) on center alternating between top and bottom edges, and staggered one-third of the spacing in adjacent laminations. Where supports are spaced more than 48 inches (1219 mm) on center, side nails shall be installed not more than 18 inches (457 mm) on center alternating between top and bottom edges and staggered one-third of the spacing in adjacent laminations. For mechanically laminated decking constructed with laminations of 2-inch (51 mm) nominal thickness, nailing in accordance with Table 2304.9.3.2 shall be permitted. Two side nails shall be installed at each end of butt-jointed pieces.

Laminations shall be toenailed to supports with 20d or larger common nails. Where the supports are 48 inches (1219 mm) on center or less, alternate laminations shall be toenailed to alternate supports; where supports are spaced more than 48 inches (1219 mm) on center, alternate laminations shall be toenailed to every support. For mechanically laminated decking constructed with laminations of 2-inch (51 mm) nominal thickness, toenailing at supports in accordance with Table 2304.9.3.2 shall be permitted.

**Add new text as follows:**

**TABLE 2304.9.3.2**

**FASTENING SCHEDULE FOR MECHANICALLY LAMINATED DECKING USING LAMINATIONS OF 2-INCH NOMINAL THICKNESS**

|  |  |  |  |
| --- | --- | --- | --- |
| **MINIMUM NAIL SIZE**  **(Length x Diameter)** | **MAXIMUM SPACING BETWEEN**  **FACE NAILS a,b (inches)** | | **NUMBER OF TOENAILS INTO SUPPORTS c** |
| **Decking Supports**  **≤ 48 inches o.c.** | **Decking Supports**  **> 48 inches o.c.** |
| 4” x 0.192” | 30 | 18 | 1 |
| 4” x 0.162” | 24 | 14 | 2 |
| 4” x 0.148” | 22 | 13 | 2 |
| 31/2” x 0.162” | 20 | 12 | 2 |
| 31/2” x 0.148” | 19 | 11 | 2 |
| 31/2” x 0.135” | 17 | 10 | 2 |
| 3” x 0.148” | 11 | 7 | 2 |
| 3” x 0.128” | 9 | 5 | 2 |
| 23/4” x 0.148” | 10 | 6 | 2 |
| 23/4” x 0.131” | 9 | 6 | 3 |
| 23/4” x 0.120” | 8 | 5 | 3 |

For SI: 1 inch = 25.4 mm

a. Nails shall be driven perpendicular to the lamination face, alternating between top and bottom edges.

b. Where nails penetrate through two laminations and into the third, they shall be staggered one-third of the spacing in adjacent laminations. Otherwise, nails shall be staggered one-half of the spacing in adjacent laminations.

c. Where supports are 48 inches (1219 mm) on center or less, alternate laminations shall be toenailed to alternate supports; where supports are spaced more than 48 inches (1219 mm) on center, alternate laminations shall be toenailed to every support.

(S281-16)/(S7877)

**2304.10.5 Fasteners and connectors in contact with preservative-treated and fire-retardant-treated wood.** Fasteners, including nuts and washers, and connectors in contact with *preservative-*

*treated* and *fire-retardant-treated wood* shall be in accordance with Sections 2304.10.5.1 through 2304.10.5.4. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153. Stainless steel driven fasteners shall be in accordance with the material requirements of ASTM F 1667

(S274-16)

**2304.10.5.1 Fasteners and connectors for preservative-treated wood.** Fasteners, including nuts and washers, in contact with *preservative-treated wood* shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Staples shall be of stainless steel. Fasteners other than nails, staples, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum. Connectors that are used in exterior applications and in contact with *preservative-treated wood* shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A 653, Type G185 zinc-coated galvanized steel, or equivalent, shall be used.

**Exception:** Plain carbon steel fasteners, including nuts and washers, in SBX/DOT and zinc borate *preservative-treated wood* in an interior, dry environment shall be permitted.

**2304.10.5.3 Fasteners for fire-retardant-treated wood used in exterior applications or**

**wet or damp locations.** Fasteners, including nuts and washers, for *fire-retardant-treated wood* used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Staples shall be of stainless steel. Fasteners other than nails, staples, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

(S275-16 Part I)

**2304.11Heavy timber construction.**

Where a structure or portion thereof is required to be of Type IV construction by other provisions of this code, the building elements therein shall comply with the applicable provisions of Sections 2304.11.1 through 2304.11.5. Lumber decking shall also be in accordance with Section 2304.9.

(S7874)/(S276-16)

**2304.12.2.2 Posts or columns.**

Posts or columns supporting permanent structures and supported by a concrete or masonry slab or footing that is in direct contact with the earth shall be of naturally durable or preservative-treated wood.

Exception: Posts or columns that meet all of the following:  ~~are not exposed to the weather, are supported by concrete piers or metal pedestals projected at least 1 inch (25 mm) above the slab or deck and 8 inches (203 mm) above exposed earth and are separated by an impervious moisture barrier.~~

1. Are not exposed to the weather, or are protected by a roof, eave, overhang, or other covering if exposed to the weather, and  
2. Are supported by concrete piers or metal pedestals projecting at least 1 inch (25 mm) above the slab or deck and are separated from the concrete pier by an impervious moisture barrier, and  
3. Are located at least 8 inches (203 mm) above exposed earth.

(S8344) /(I-Code)

**2304.12.2.5 Supporting members for permeable floors and roofs.**

Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or *preservative-treated wood* unless separated from such floors or roofs by an impervious moisture barrier. The impervious moisture barrier system protecting the structure supporting floors shall provide positive drainage of water that infiltrates the moisture-permeable floor topping.

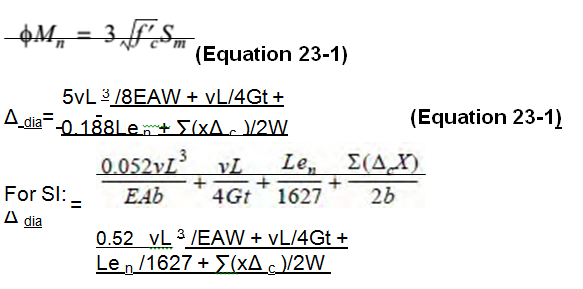
(S7832)/(S279-16)

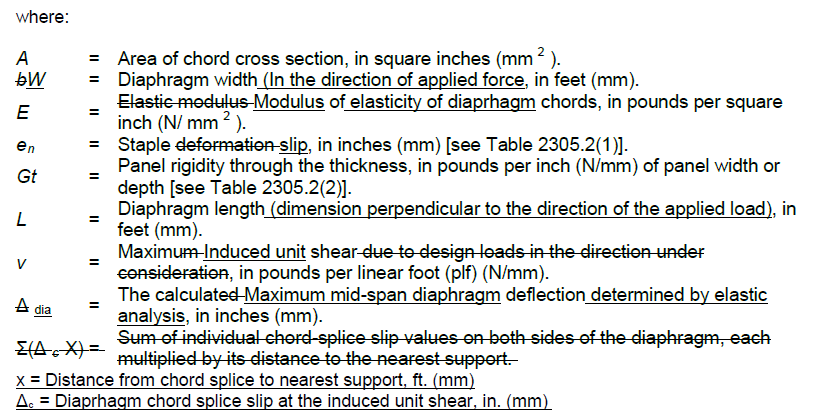
**2304.12.2.6 Ventilation required beneath balcony or elevated walking surfaces.** In new construction, enclosed framing in exterior balconies and elevated walking surfaces that are exposed to rain, snow, or drainage from irrigation shall be provided with openings that provide a net free cross ventilation area not less than 1/150 of the area of each separate space.

(S7448 A2)/(I-Code)

**2305.2 Diaphragm deflection.** The deflection of wood-frame diaphragms shall be determined in accordance with AWC SDPWS. The deflection (~~?~~Δdia) of a blocked wood structural panel diaphragm uniformly fastened throughout with staples is permitted to be calculated in accordance with Equation 23-

1. If not uniformly fastened, the constant 0.188 (For SI: 1/1627) in the third term shall be modified by an approved method.





(S282-16)

**TABLE 2305.2 (2)**

**VALUES OF *Gt* FOR USE IN CALCULATING DEFLECTION OF WOOD STRUCTURAL PANEL SHEAR WALLS**

**AND DIAPHRAGMS**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PANEL TYPE** | **SPAN RATING** | **VALUES OF*Gt* (lb/in. panel depth or width)** | | | | | | | |
| **Structural Sheathing ~~other~~** | | | | **Structural I** | | | |
| **Plywood** | | | **OSB** | **Plywood** | | | **OSB** |
| **3-**  **ply ~~plywood~~** | **4- ply** | **5-ply** | **3-**  **ply plywood** | **4- ply**  **~~plywood~~** | **5-ply**  **~~plywood~~a** |
|  |  |  | **~~plywood~~** | **plywooda** |  |  |
| Sheathing | 24/0 | 25,000 | 32,500 | 37,500 | 77,500 | 32,500 | 42,500 | 41,500 | 77,500 |
| 24/16 | 27,000 | 35,000 | 40,500 | 83,500 | 35,000 | 45,500 | 44,500 | 83,500 |
| 32/16 | 27,000 | 35,000 | 40,500 | 83,500 | 35,000 | 45,500 | 44,500 | 83,500 |
| 40/20 | 28,500 | 37,000 | 43,000 | 88,500 | 37,000 | 48,000 | 47,500 | 88,500 |
| 48/24 | 31,000 | 40,500 | 46,500 | 96,000 | 40,500 | 52,500 | 51,000 | 96,000 |
| Single Floor | 16 o.c. | 27,000 | 35,000 | 40,500 | 83,500 | 35,000 | 45,500 | 44,500 | 83,500 |
| 20 o.c. | 28,000 | 36,500 | 42,000 | 87,000 | 36,500 | 47,500 | 46,000 | 87,000 |
| 24 o.c. | 30,000 | 39,000 | 45,000 | 93,000 | 39,000 | 50,500 | 49,500 | 93,000 |
| 32 o.c. | 36,000 | 47,000 | 54,000 | 110,000 | 47,000 | 61,000 | 59,500 | 110,000 |
| 48 o.c. | 50,500 | 65,500 | 76,000 | 155,000 | 65,500 | 85,000 | 83,500 | 155,000 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **~~Other~~ Structural**  **Sheathing** | | | **Structural I** | | |
| **Thickness**  **(in.)** | **A-A, A- C** | **Marine** | **All Other Grades** | **A-A, A- C** | **Marine** | **All Other Grades** |
| Sanded Plywood | 1 / 4 | 24,000 | 31,000 | 24,000 | 31,000 | 31,000 | 31,000 |
| 11 / 32 | 25,500 | 33,000 | 25,500 | 33,000 | 33,000 | 33,000 |
| 3 / 8 | 26,000 | 34,000 | 26,000 | 34,000 | 34,000 | 34,000 |
| 15 / 32 | 38,000 | 49,500 | 38,000 | 49,500 | 49,500 | 49,500 |
| 1 / 2 | 38,500 | 50,000 | 38,500 | 50,000 | 50,000 | 50,000 |
| 19 / 32 | 49,000 | 63,500 | 49,000 | 63,500 | 63,500 | 63,500 |
| 5 / 8 | 49,500 | 64,500 | 49,500 | 64,500 | 64,500 | 64,500 |
| 23 / 32 | 50,500 | 65,500 | 50,500 | 65,500 | 65,500 | 65,500 |
| 3 / 4 | 51,000 | 66,500 | 51,000 | 66,500 | 66,500 | 66,500 |
| 7 / 8 | 52,500 | 68,500 | 52,500 | 68,500 | 68,500 | 68,500 |
| 1 | 73,500 | 95,500 | 73,500 | 95,500 | 95,500 | 95,500 |
| 1 1 / 8 | 75,000 | 97,500 | 75,000 | 97,500 | 97,500 | 97,500 |

For SI: 1 inch = 25.4 mm, 1 pound/inch = 0.1751 N/mm.

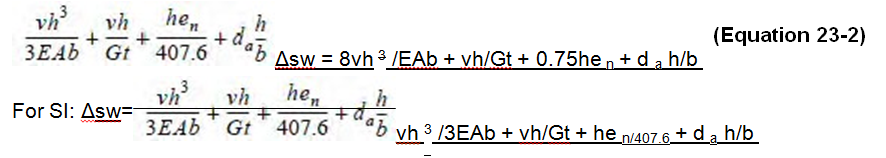
a. 5-ply applies to plywood with five or more layers. For 5-ply plywood with three layers, use values for 4- ply panels.

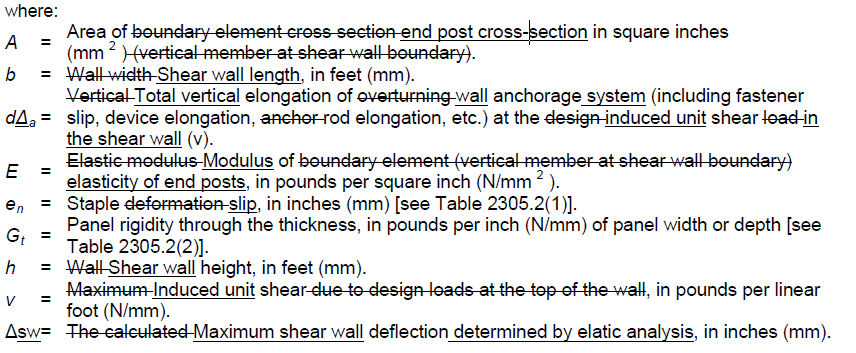
~~For SI: 1 inch = 25.4 mm, 1 pound/inch = 0.1751 N/mm.~~

~~a. Applies to plywood with five or more layers; for five-ply/three-layer plywood, use values for four ply.~~

(S283-16)

**2305.3 Shear wall deflection.** The deflection of wood-frame shear walls shall be determined in accordance with AWC SDPWS. The deflection (Δ) of a blocked wood structural panel shear wall uniformly fastened throughout with staples is permitted to be calculated in accordance with Equation 23-2.





(S284-16)

2306.1

|  |  |
| --- | --- |
| **American Institute of Timber Construction.** | |
| AITC 104 | Typical Construction Details |
| AITC 110 | Standard Appearance Grades for StructuralGlued Laminated Timber |
| AITC 113 | Standard for Dimensions of StructuralGlued Laminated Timber |
| ~~AITC 117~~ | ~~Standard Specifications for StructuralGlued Laminated Timber of SoftwoodSpecies~~ |
| AITC 119 | Standard Specifications for StructuralGlued Laminated Timber of HardwoodSpecies |
| ~~ANSI/AITC A190.1~~ | ~~Structural Glued Laminated Timber~~ |
| AITC 200 | Inspection Manual |
| **American Society of Agricultural and BiologicalEngineers.** | |
| (No changes) |  |
| **APA—The Engineered Wood Association.** | |
| ANSI 117 Glued Laminated Timber of Softwood Species  ANSI A190.1 Structural Glued Laminated Timber  (No changes to the reamining section.) | |

(S7951) /(I-Code)

**TABLE 2306.3 (2)**

**ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF FIBERBOARD SHEATHING BOARD CONSTRUCTION UTILIZING STAPLES FOR TYPE V CONSTRUCTION ONLYa, b, c, d, e**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **THICKNESS AND GRADE** | **FASTENER SIZE** | **ALLOWABLE SHEAR VALUE (pounds per linear foot) STAPLE SPACING AT PANEL EDGES (inches)a** | | |
| **4** | **3** | **2** |
| 1 /2 ″ or 25 /32 ″ Structural | ~~No.~~ 16 gage galvanized staple, 7 /16 ″ crown~~f~~ 1-3/4 inch long | 150 | 200 | 225 |
| ~~No.~~ 16 gage galvanized staple, 1″ crown~~f~~1-3/4 inch long | 220 | 290 | 325 |

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

a. Fiberboard sheathing shall not be used to brace concrete or masonry walls.

b. Panel edges shall be backed with 2-inch or wider framing of Douglas Fir-larch or Southern Pine. For framing of other species:

(1) Find specific gravity for species of framing lumber in ANSI/AWC NDS. (2) For staples, multiply the shear value from the table above by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.

c. Values shown are for fiberboard sheathing on one side only with long panel dimension either parallel or perpendicular to studs.

d. Fastener shall be spaced 6 inches on center along intermediate framing members.

e. Values are not permitted in Seismic Design Category D, E or F.

~~f. Staple length shall be not less than 1 1 / 2 inches for 25 / 32 -inch sheathing or 1 1 / 4 inches for 1 / 2 -inch sheathing.~~

(S286-16)/(S7879)

***Delete Section 2308 and all subsections without substitution:***

**SECTION 2308  
CONVENTIONAL LIGHT-FRAME CONSTRUCTION**

**RESERVED**

(8258 A1 Only)

**2314.1 Design.** Wood members and their fastenings shall be designed to comply with ~~this code~~ ASCE 7 by methods based on rational analysis or approved laboratory testing procedures, both performed in accordance with fundamental principles of theoretical and applied mechanics.

(S7818)

**2319.13 Heavy timber construction.** Heavy timber construction of floors or roofs shall comply with the standards in Section 2314.4. All heavy timber construction shall be designed by methods based on rational analysis performed in accordance with ASCE 7 ~~a registered professional engineer or registered architect proficient in structural design~~ to withstand the loads required in Chapter 16 (High-Velocity Hurricane Zones).

(S7820)

2322.2.3 Plywood roof sheathing shall be rated for Exposure 1 and shall be designed in accordance with ASCE 7, to have a minimum nominal thickness of no less than 19/32 inch (15 mm) and shall be continuous over two or more spans with face grain perpendicular to supports. Roof sheathing panels shall be provided with a minimum of 2-inch by 4-inch (51 mm by 102 mm) edgewise blocking at all horizontal panel joints with edge spacing in accordance with manufacturer’s specifications, for a distance at least 4 feet (1219 mm) from each gable end. The allowable spans shall not exceed those set forth in Table 2322.2.3.

(S7822)

2322.2.5 Nails and nail spacing shall be designed in accordance with ASCE 7 and shall be spaced no more than ~~be~~ 6-inches (152 mm) on center at panel edges and at intermediate supports. ~~Nail spacing shall be 4-inches (102 mm) on center at gable ends with either 8d ring shank nails or 10d common nails~~. Nails shall be minimum hand driven 8d ring shank or power driven 8d ring shank nails of the following minimum dimensions: (a) 0.113-inch (2.9 mm) nominal shank diameter, (b) ring diameter of 0.012 inch (0.3 mm) over shank diameter, (c) 16 to 20 rings per inch, (d) 0.280-inch (7.1 mm) full round head diameter, (e) 2-inch (60.3 mm) nail length.

~~2322.2.5.1 Nails shall be hand driven 8d ring shank or power driven 8d ring shank nails of the following minimum dimensions: (a) 0.113-inch (2.9 mm) nominal shank diameter, (b) ring diameter of 0.012 inch (0.3 mm) over shank diameter, (c) 16 to 20 rings per inch, (d) 0.280-inch (7.1 mm) full round head diameter, (e)~~

~~2-inch (60.3 mm) nail length. Nails of a smaller diameter or length may be used only when approved by an architect or professional engineer and only when the spacing is reduced accordingly~~

~~2322.2.5.2 Nails at gable ends shall be hand driven 8d ring shank or power driven 8d ring shank nails of the following minimum dimensions: (a) 0.113-inch (2.9 mm) nominal shank diameter, (b) ring diameter of 0.012 inch (0.3 mm) over shank diameter, (c) 16 to 20 rings per inch, (d) 0.280-inch (7.1 mm) full round head diameter, (e) 23/8-inch (60.3 mm) nail length or as an alternative hand driven 10d common nails [0.148-inch (4 mm) diameter by 3-inches (76 mm) long with 0.312 inch (7.9 mm) diameter full round head] or power driven 10d nails of the same dimensions [0.148 inch (4 mm) diameter by 3 inches (76 mm) long with 0.312-~~

~~inch-diameter (8 mm) full round head]. Nails of a smaller diameter or length may be used only when approved by an architect or professional engineer and only when the spacing is reduced accordingly. Other products with unique fastening methods may be substituted for these nailing requirements as approved by the building official and verified by testing.~~

(S7824)

**Chapter 24 GLASS AND GLAZING**

Revise as follows:

**SECTION2405  
SLOPED GLAZING AND SKYLIGHTS**

**2405.1 Scope.**

This section applies to the installation of glass and other transparent, translucent or opaque glazing material installed at a slope of more than 15 degrees (0.26 rad) from the vertical plane, including glazing materials in skylights, roofs and sloped walls.

**2405.2 Allowable glazing materials and limitations.**

Sloped glazing shall be any of the following materials, subject to the listed limitations.

1.For monolithic glazing systems, the glazing material of the single light or layer shall be laminated glass with a minimum 30-mil (0.76 mm) polyvinyl butyral (or equivalent) interlayer, wired glass, light-transmitting plastic materials meeting the requirements of Section 2607, heat-strengthened glass or fully tempered glass.

2.For multiple-layer glazing systems, each light or layer shall consist of any of the glazing materials specified in Item 1 above.

Annealed glass is permitted to be used as specified in Exceptions 2 and 3 of Section 2405.3.

For additional requirements for plastic skylights, see Section 2610. Glass-block construction shall conform to the requirements of Section 2110.1.

**2405.3 Screening.**

Broken glass retention screens, where required, shall: (1) be capable of supporting twice the weight of the glazing; (2) be firmly and substantially fastened to the framing members and (3) be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent non-corrosive screen materials shall be used.

**2405.3.1 Screens under monolithic glazing.**

~~Where used in monolithic glazing systems,~~ H~~h~~eat-strengthened glass and fully tempered glass shall have screens installed below the full area of the glazing material. ~~The screens and their fastenings shall: (1) be capable of supporting twice the weight of the glazing; (2) be firmly and substantially fastened to the framing members and (3) be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used.~~

**2405.3.2 Screens under multiple-layer glazing.**

Heat-strengthened glass, fully tempered glass and wired glass~~, when used in multiple-layer glazing systems~~ used as the bottom glass layer shall have screens installed below the full area of the glazing material.~~over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.~~

**2405.3.3 Screens not required.**For all other types of glazing complying with 2405.2, retention screens shall not be required.

**Exceptions:** In monolithic and multiple-layer sloped glazing systems, the following apply~~applies~~:

1.Fully tempered glass shall be permitted to be installed without retention ~~protective~~ screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane, and ~~shall~~ having ~~have~~ the highest point of the glass 10 feet (3048 mm) or less above the walking surface.

2. Retention ~~S~~screens ~~are~~ shall not be required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.

3.Retention screens shall not be required below ~~A~~any glazing material, including annealed glass, ~~is permitted to be installed without screens~~ in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.

4. Retention ~~S~~screens shall not be required in individual *dwelling units* in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and all of the following conditions are met:

4.1.Each pane of the glass is 16 square feet (1.5 m2) or less in area.

4.2.The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.

4.3.The glass thickness is 3/16 inch (4.8 mm) or less.

5.Retention ~~S~~screens shall not be required for laminated glass with a 15-mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer used in individual *dwelling units* in Groups R-2, R-3 and R-4, and both of the following conditions are met~~within the following limits~~:

5.1.Each pane of glass is 16 square feet (1.5 m2) or less in area.

5.2.The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

(S7825)

**2406.4.5 Glazing and wet surfaces.**  
Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered a hazardous location. This shall apply to single glazing and all panes in multiple glazing.

**Exceptions:**  
1.  Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the water’s edge of a bathtub, hot tub, spa, whirlpool or swimming pool.  
2.  Outboard sacrificial panes in laminated insulating glass units in walls where the exterior of the unit is not exposed to any of the hazardous locations specified in 2406.4.3 or 2406.4.5.

(F8201)

**2407.1.1 Loads.** The panels and their support system shall be designed to withstand the loads specified in Section 1607.8. ~~A design~~, using a safety factor of four ~~shall be used for safety~~.

(S7595)/ (S295-16)

**2407.1.2 ~~Support~~ Structural glass baluster panels.** ~~Each handrail~~ Guards with structural glass baluster panels shall be installed with an attached top rail or *~~guard~~* ~~section~~ handrail. The top rail or handrail shall be supported by a minimum of three glass ~~balusters~~ baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail. ~~Glass balusters shall not be installed without an~~ ~~attached handrail or~~ *~~guard~~*~~.~~

**~~Exception:~~** ~~A top rail shall not be required where the glass balusters are laminated glass with two or~~ ~~more glass plies of equal thickness and the same glass type when~~ *~~approved~~* ~~by the~~ *~~building official~~*~~.~~ ~~The panels shall be designed to withstand the loads specified in Section 1607.8.~~

**Exception:** An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

(S295-16)

***Revise as follows:***

**2407.1.2 Support.** Each handrail or *guard* section shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached handrail or *guard*.

**~~Exception:~~** ~~A top rail shall not be required where the glass balusters are laminated glass with two or~~ ~~more glass plies of equal thickness and the same glass type when~~ *~~approved~~* ~~by the~~ *~~building official~~*~~.~~ ~~The panels shall be designed to withstand the loads specified in Section 1607.8.~~

**Exception:** A top rail shall not be required where the glass balusters are laminated glass with two or more glass plies of equal thickness and the same glass type. The panels shall be designed to withstand the loads specified in Section 1607.8 and shall be tested to remain in place as a barrier following impact or glass breakage in accordance with ASTM E2353.

(S297-16)

**2407.1.2 Structural glass baluster panels.** Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by not fewer than three glass baluster panels, or shall be otherwise supported to remain in place should

one glass baluster panel fail.

**Exception:** An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type. The panels shall be tested to remain in place as a barrier following impact or glass

breakage in accordance with ASTM E2353.

(S295-16)/(S297-16) – Final as per 2018 I-Code

**2409.1 Glass walkways. Glass installed as a part of a floor/ceiling assembly as a walking surface and constructed with laminated glass shall comply with ASTM E 2751 or with the load requirements specified in Chapter 16. Such assemblies shall comply with the *fire-resistance rating and marking* requirements of this code where applicable.**

(F7624) /(I-Code)

**2411.3.2 Tests.**

**2411.3.2.1**

Operative window and door assemblies shall be tested in accordance with the requirements of this section, TAS 202 and the forced entry resistance requirements from ~~provisions~~ AAMA/WDMA/CSA 101/I.S.2/A440. ~~and the forced entry requirements of the American Architectural Manufacturers Association (AAMA) Standards 1302.5 and 1303.5.~~

**Exceptions:**

     1.Door assemblies installed in nonhabitable areas, where the door assembly and area are designed to accept water infiltration, need not be tested for water infiltration.

    2.Door assemblies installed where the overhang (OH) ratio is equal to or more than 1 need not be tested for water infiltration. The overhang ratio shall be calculated by the following equation:

**where:**

**OH length = The horizontal measure of how far an overhang over a door projects out from the door’s surface.**

**OH height = The vertical measure of the distance from the door’s sill to the bottom of the overhang over a door.**

     3.Pass-through windows for serving from a single-family kitchen, where protected by a roof overhang of 5 feet (1.5 m) or more shall be exempted from the requirements of the water infiltration test.

**2411.3.2.1.1**

Glazed curtain wall, window wall and storefront systems shall be tested in accordance with the requirements of this section and the laboratory test requirements of the American Architectural Manufacturers Association (AAMA) Standard 501, following test load sequence and test load duration in TAS 202.

(S7736)

**Chapter 25 GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER**

Revise as follows:

**TABLE 2506.2 (2506.2)**

**GYPSUM BOARD AND GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Accessories for gypsum board | ASTM C1047 |
| Adhesives for fastening gypsum board | ASTM C557 |
| Cold-formed steel studs and track, structural | AISI S200 and ASTM C 955, Section 8 |
| Cold-formed steel studs and track, nonstructural | AISI S220 and ASTM C 645, Section 10 |
| Elastomeric joint sealants | ASTM C 920 |
| Factory-laminated gypsum panel products | ASTM C 1766 |
| Fiber-reinforced gypsum panels | ASTM C 1278 |
| Glass mat gypsum backing panel | ASTM C 1178 |
| Glass mat gypsum panel 5 | ASTM C 1658 |
| Glass mat gypsum substrate | ASTM C 1177 |
| Joint reinforcing tape and compound | ASTM C 474; C 475 |
| Nails for gypsum boards | ASTM C 514, F 547, F 1667 |
| Steel screws | ASTM C 954; C 1002 |
| Standard specification for gypsum board | ASTM C 1396 |
| Testing gypsum and gypsum products | ASTM C 22; C 472; C 473 |

(S298-16)

**TABLE 2506.2**

**GYPSUM BOARD AND GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Accessories for gypsum board | ASTM C1047 |
| Adhesives for fastening gypsum board | ASTM C557 |
| Cold-formed steel studs and track, structural | AISI S240~~S200 and ASTM C 955, Section 8~~ |
| Cold-formed steel studs and track, nonstructural | AISI S220 ~~and ASTM C 645, Section 10~~ |
| Elastomeric joint sealants | ASTM C 920 |
| Fiber-reinforced gypsum panels | ASTM C 1278 |
| Glass mat gypsum backing panel | ASTM C 1178 |
| Glass mat gypsum panel 5 | ASTM C 1658 |
| Glass mat gypsum substrate | ASTM C 1177 |
| Joint reinforcing tape and compound | ASTM C 474; C 475 |
| Nails for gypsum boards | ASTM C 514, F 547, F 1667 |
| Steel screws | ASTM C 954; C 1002 |
| Standard specification for gypsum board | ASTM C 1396 |
| Testing gypsum and gypsum products | ASTM C 22; C 472; C 473 |

**TABLE 2507.2**

**LATH, PLASTERING MATERIALS AND ACCESSORIES**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Accessories for gypsum veneer base | ASTM C1047 |
| Blended cement | ASTM C595 |
| Exterior plaster bonding compounds | ASTM C932 |
| Cold-formed steel studs and track, structural | AISI S240~~S200 and ASTM C 955, Section 8~~ |
| Cold-formed steel studs and track, nonstructural | AISI S220 ~~and ASTM C 645, Section 10~~ |
| Hydraulic cement | ASTM C 1157; C 1600 |
| Gypsum casting and molding plaster | ASTM C 59 |
| Gypsum Keene’s cement | ASTM C 61 |
| Gypsum plaster | ASTM C 28 |
| Gypsum veneer plaster | ASTM C 587 |
| Interior bonding compounds, gypsum | ASTM C 631 |
| Lime plasters | ASTM C 5; C 206 |
| Masonry cement | ASTM C 91 |
| Metal lath | ASTM C 847 |
| Plaster aggregates | ASTM C 35; C 897 |

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Sand Perlite Vermiculite | ASTM C 35  ASTM C 35 |
| Plastic cement | ASTM C 1328 |
| Portland cement | ASTM C 150 |
| Steel screws | ASTM C 1002; C 954 |
| Welded wire lath | ASTM C 933 |
| Woven wire plaster base | ASTM C 1032 |

(S299-16)

**TABLE 2506.2**

**GYPSUM BOARD AND GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Accessories for gypsum board | ASTM C1047 |
| Adhesives for fastening gypsum board | ASTM C557 |
| Expandable foam adhesives for fastening gypsum wallboard | ASTM D6464 |
| Cold-formed steel studs and track, structural | AISI S200 and ASTM C 955, Section 8 |
| Cold-formed steel studs and track, nonstructural | AISI S220 and ASTM C 645, Section 10 |
| Elastomeric joint sealants | ASTM C 920 |
| Fiber-reinforced gypsum panels | ASTM C 1278 |
| Glass mat gypsum backing panel | ASTM C 1178 |
| Glass mat gypsum panel 5 | ASTM C 1658 |
| Glass mat gypsum substrate | ASTM C 1177 |
| Joint reinforcing tape and compound | ASTM C 474; C 475 |
| Nails for gypsum boards | ASTM C 514, F 547, F 1667 |
| Steel screws | ASTM C 954; C 1002 |
| Standard specification for gypsum board | ASTM C 1396 |
| Testing gypsum and gypsum products | ASTM C 22; C 472; C 473 |

**Add new text as follows:**

**2508.4 Adhesives** Gypsum board and gypsum panel products secured to framing with adhesives in ceiling assemblies shall be attached using an *approved* fastening schedule. Expandable foam adhesives for fastening gypsum wallboard shall conform to ASTM D6464. All other adhesives for the installation of gypsum wallboard shall conform to ASTM C557.

(S300-16 Part I)

**SECTION 2509**

**SHOWERS AND WATER CLOSETS**

**2509.1 Wet areas.** Showers and public toilet walls shall conform

**to Section 1210.2.**

**2509.2 Base for tile.** Materials used as a base for wall tile in

tub and shower areas and wall and ceiling panels in shower

areas shall be of materials listed in Table 2509.2 and installed

in accordance with the manufacturer’s recommendations.

Water-resistant gypsum backing board shall be used as a base

for tile in water closet compartment walls when installed in

accordance with GA-216 or ASTM C840 and the manufacturer’s

recommendations. Regular gypsum wallboard is permitted

under tile or wall panels in other wall and ceiling areas

when installed in accordance with GA-216 or ASTM C840.

**TABLE 2509.2**

**BACKERBOARD MATERIALS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Glass mat gypsum backing panel | ASTM C1178 |
| Fiber-reinforced gypsum panels | ASTM C1278 |
| Nonasbestos fiber-cement backer  board | ASTM C1288 or ISO 8336,  Category C |
| Nonasbestos fiber-mat reinforced cementitious backer unit | ASTM C1325 |

**2509.3 Limitations.** Water-resistant gypsum backing board

shall not be used in the following locations:

1. Over a vapor retarder in shower or bathtub compartments.

2. Where there will be direct exposure to water or in areas

subject to continuous high humidity.

(S8035)

**2510.6 Water-resistive barriers.** Water-resistive barriers shall be installed as required in Section 1404.2 and, where applied over wood-based sheathing, shall include a water resistive vapor-permeable barrier with a performance at least equivalent to two layers of water-resistive barrier complying with ASTM E2556, Type I. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section 1405.4) intended to drain to the water resistive barrier is directed between the layers.

**~~Exception:~~ Exceptions:**

 1. Where the water-resistive barrier that is applied over wood-based sheathing has a water resistance equal to or greater than that of a water-resistive barrier complying with ASTM E2556, Type II and is separated from the stucco by an intervening, substantially nonwater-absorbing layer or drainage space.

2. Where the water-resistive barrier is applied over wood-based sheathing in Climate Zone 1A, 2A or 3A, a ventilated air space shall be provided between the stucco and water-resistive barrier.

(S8321) /(I-Code)

**Chapter 26 PLASTIC**

Revise as follows:

**2603.4 Thermal barrier.** Except as provided for in Sections 2603.4.1 and 2603.9, foam plastic shall be separated from the interior of a building by an approved thermal barrier of 1 /2-inch (12.7 mm) gypsum wallboard, heavy timber in accordance with Section 602.4, or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Combustible concealed spaces shall comply with Section 718.

(F7847) /(I-Code)

**Delete and replace as shown:**

**~~2603.7 Foam plastic insulation used as interior finish or interior trim in plenums.~~** ~~Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smokedeveloped index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.~~

**~~2603.7.1 Separation required.~~** ~~The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

**~~2603.7.2 Approval.~~** ~~The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

**~~2603.7.3 Covering.~~** ~~The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

**2603.7 Foam plastic insulation in plenums as interior finish or interior trim.** Foam plastic insulation in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, and shall be tested in accordance with NFPA 286 and meet the acceptance criteria of Section 803.1.2.

**Exceptions:**

1. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4.

2. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by corrosion resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm).

3. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by not less than a 1 inch (25mm) thickness of masonry or concrete.

**Add new text as follows:**

**2604.1.1 Plenums.** Foam plastics installed in plenums as interior wall or ceiling finish shall comply with Section 2603.7. Foam plastics installed in plenums as interior trim shall comply with Sections 2604.2 and 2603.7.

(F8251) /(I-Code)

**2603.12 Cladding attachment over foam sheathing to cold-formed steel framing.**

Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer’s approved installation instructions, including any limitations for use over foam plastic sheathing, or an approved design. Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or fur-ring attachments through foam sheathing to cold-formed steel framing shall meet or exceed the minimum fastening requirements of Sections 2603.12.1and 2603.12.2, or an approved design for support of cladding weight.

**Exceptions:**

1.Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing, those requirements shall apply.

2.For exterior insulation and finish systems, refer to Section 1408.

3.For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

**2603.12.1 Direct attachment.**

Where cladding is installed directly over foam sheathing without the use of furring, cladding minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.1.

**TABLE 2603.12.1**

**CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHTa**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CLADDING FASTENERTHROUGH FOAMSHEATHING INTO:** | **CLADDING FASTENERTYPE AND MINIMUM SIZEb** | **CLADDINGFASTENERVERTICAL SPACING(inches)** | **MAXIMUM THICKNESS OF FOAM SHEATHINGc(inches)** | | | | | |
| **16?o.c. fastener horizontal spacing** | | | **24?o.c. fastener horizontal spacing** | | |
| **Cladding weight** | | | **Cladding weight** | | |
| **3 psf** | **11 psf** | **25 psf** | **3 psf** | **11 psf** | **25 psf** |
| Cold-formed s~~S~~teel framing(minimum penetration of steel thickness plus3 threads) | #8 screw into 33 milsteel or thicker | 6 | 3 | 3 | 1.5 | 3 | 2 | DR |
| 8 | 3 | 2 | 0.5 | 3 | 1.5 | DR |
| 12 | 3 | 1.5 | DR | 3 | 0.75 | DR |
| #10 screw into 33 milsteel | 6 | 4 | 3 | 2 | 4 | 3 | 0.5 |
| 8 | 4 | 3 | 1 | 4 | 2 | DR |
| 12 | 4 | 2 | DR | 3 | 1 | DR |
| #10 screw into 43 milsteel or thicker | 6 | 4 | 4 | 3 | 4 | 4 | 2 |
| 8 | 4 | 4 | 2 | 4 | 3 | 1.5 |
| 12 | 4 | 3 | 1.5 | 4 | 3 | DR |

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required; o.c. = on center.

a.Cold-formed s~~S~~teel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.

b.Screws shall comply with the requirements of AISI S240~~S200~~.

c.Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578or ASTM C1289.

**2603.12.2 Furred cladding attachment.**

Where steel or wood furring is used to attach cladding over foam sheathing, furring minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.2. Where placed horizontally, wood furring shall be preservative-treated wood in accordance with Section 2303.1.9 or naturally durable wood and fasteners shall be corrosion resistant in accordance Section 2304.10.5. Steel furring shall have a minimum G60 galvanized coating.

**TABLE 2603.12.2**

**FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHTa**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **FURRING MATERIAL** | **FRAMINGMEMBER** | **FASTENER TYPEAND MINIMUMSIZEb** | **MINIMUMPENETRATION INTOWALL FRAMING(inches)** | **FASTENERSPACING INFURRING(inches)** | **MAXIMUM THICKNESS OF FOAM SHEATHING4(inches)** | | | | | |
| **16” o.c. furringe** | | | **24” o.c. furringe** | | |
| **Cladding weight** | | | **Cladding weight** | | |
| **3 psf** | **11 psf** | **25 psf** | **3 psf** | **11 psf** | **25 psf** |
| Minimum 33 milsteel furring or minimum1x wood furringc | 33 mil cold-formed steel stud | #8 screw | Steel thickness plus3 threads | 12 | 3 | 1.5 | DR | 3 | 0.5 | DR |
| 16 | 3 | 1 | DR | 2 | DR | DR |
| 24 | 2 | DR | DR | 2 | DR | DR |
| #10 screw | Steel thickness plus3 threads | 12 | 4 | 2 | DR | 4 | 1 | DR |
| 16 | 4 | 1.5 | DR | 3 | DR | DR |
| 24 | 3 | DR | DR | 2 | DR | DR |
| 43 mil or thicker cold- formed steel stud | #8 Screw | Steel thickness plus3 threads | 12 | 3 | 1.5 | DR | 3 | 0.5 | DR |
| 16 | 3 | 1 | DR | 2 | DR | DR |
| 24 | 2 | DR | DR | 2 | DR | DR |
| #10 screw | Steel thickness plus3 threads | 12 | 4 | 3 | 1.5 | 4 | 3 | DR |
| 16 | 4 | 3 | 0.5 | 4 | 2 | DR |
| 24 | 4 | 2 | DR | 4 | 0.5 | DR |

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required: o.c. = on center.

a.Wood furring shall be Spruce-Pine fir or any softwood species with a specific gravity of 0.42 or greater. Cold-formed s~~S~~teel furring shall be minimum 33 ksi steel. Steel studs shall be minimum 33 ksi steel for 33 mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.

b.Screws shall comply with the requirements of AISI S240~~S200~~.

c.Where the required cladding fastener penetration into wood material exceeds 3/4 inch and is not more than 1-1/2 inches, a minimum 2-inch nominal wood furring shall be used or an approved design.

d.Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578or ASTM C1289.

e.Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

(S7604)/(S299-16)

*Add new text as follows:*

**2603.13  Cladding attachment over foam sheathing to wood framing.**Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer’s installation instructions.  Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Section 2603.13.1, Section 2603.13.2, or an approved design for support of cladding weight.

**Exceptions:**

1.       Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing, those requirements shall apply.

2.       For exterior insulation and finish systems, refer to Section 1408.

3.       For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

**2603.11.1 Direct attachment.** Where cladding is installed directly over foam sheathing without the use of furring, cladding minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.13.1.

**2603.11.2 Furred cladding attachment.**  Where wood furring is used to attach cladding over foam sheathing, furring minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.13.2.  Where placed horizontally, wood furring shall be preservative treated wood in accordance with Section 2303.1.9 or naturally durable wood and fasteners shall be corrosion resistant in accordance with Section 2304.10.5.

**TABLE 2603.13.1**

**CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT**

**ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHTa**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cladding**  **Fastener Through Foam Sheathing into:** | **Cladding Fastener Type and Minimum Sizeb** | **Cladding Fastener  Vertical Spacing**  **(inches)** | **Maximum Thickness of Foam Sheathingc**  **(inches)** | | | | | | | |
| **16” o.c. Fastener Horizontal Spacing** | | | | **24” o.c. Fastener Horizontal Spacing** | | | |
| **Cladding Weight:** | | | | **Cladding Weight:** | | | |
| **3 psf** | **11 psf** | **18 psf** | **25 psf** | **3 psf** | **11 psf** | **18psf** | **25 psf** |
| Wood Framing  (minimum  1-1/4 inch penetration) | 0.113”  diameter nail | 6 | 2.00 | 1.45 | 0.75 | DR | 2.00 | 0.85 | DR | DR |
| 8 | 2.00 | 1.00 | DR | DR | 2.00 | 0.55 | DR | DR |
| 12 | 2.00 | 0.55 | DR | DR | 1.85 | DR | DR | DR |
| 0.120”   diameter nail | 6 | 3.00 | 1.70 | 0.90 | 0.55 | 3.00 | 1.05 | 0.50 | DR |
| 8 | 3.00 | 1.20 | 0.60 | DR | 3.00 | 0.70 | DR | DR |
| 12 | 3.00 | 0.70 | DR | DR | 2.15 | DR | DR | DR |
| 0.131”  diameter nail | 6 | 4.00 | 2.15 | 1.20 | 0.75 | 4.00 | 1.35 | 0.70 | DR |
| 8 | 4.00 | 1.55 | 0.80 | DR | 4.00 | 0.90 | DR | DR |
| 12 | 4.00 | 0.90 | DR | DR | 2.70 | 0.50 | DR | DR |
| 0.162”  diameter nail | 6 | 4.00 | 3.55 | 2.05 | 1.40 | 4.00 | 2.25 | 1.25 | 0.80 |
| 8 | 4.00 | 2.55 | 1.45 | 0.95 | 4.00 | 1.60 | 0.85 | 0.50 |
| 12 | 4.00 | 1.60 | 0.85 | 0.50 | 4.00 | 0.95 | DR | DR |

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa

DR = design required

o.c. = on center

a.         Wood framing shall be Spruce-Pine-Fir or any wood species with a specific gravity of 0.42 or greater in accordance with AFPA/NDS.

b.        Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

c.         Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C 578 or ASTM C 1289.

**TABLE 2603.13.2**

**FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION**

**OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHTa,b**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Furring Material** | **Framing Member** | **Fastener Type and Minimum**  **Size** | **Minimum Penetration  into Wall Framing**  **(inches)** | **Fastener Spacing in Furring**  **(inches)** | **Maximum Thickness of Foam Sheathingd (inches)** | | | | | | | |
| **16”oc Furringe** | | | | **24”oc Furringe** | | | |
| **Siding Weight:** | | | | **Siding Weight:** | | | |
| **3**  **psf** | **11 psf** | **18 psf** | **25 psf** | **3**  **psf** | **11 psf** | **18 psf** | **25 psf** |
| Minimum 1x Wood Furringc | Minimum 2x Wood Stud | 0.131” diameter nail | 1-1/4 | 8 | 4.00 | 2.45 | 1.45 | 0.95 | 4.00 | 1.60 | 0.85 | DR |
| 12 | 4.00 | 1.60 | 0.85 | DR | 4.00 | 0.95 | DR | DR |
| 16 | 4.00 | 1.10 | DR | DR | 3.05 | 0.60 | DR | DR |
| 0.162” diameter nail | 1-1/4 | 8 | 4.00 | 4.00 | 2.45 | 1.60 | 4.00 | 2.75 | 1.45 | 0.85 |
| 12 | 4.00 | 2.75 | 1.45 | 0.85 | 4.00 | 1.65 | 0.75 | DR |
| 16 | 4.00 | 1.90 | 0.95 | DR | 4.00 | 1.05 | DR | DR |
| No. 10 wood screw | 1 | 12 | 4.00 | 2.30 | 1.20 | 0.70 | 4.00 | 1.40 | 0.60 | DR |
| 16 | 4.00 | 1.65 | 0.75 | DR | 4.00 | 0.90 | DR | DR |
| 24 | 4.00 | 0.90 | DR | DR | 2.85 | DR | DR | DR |
| ¼” lag screw | 1-1/2 | 12 | 4.00 | 2.65 | 1.50 | 0.90 | 4.00 | 1.65 | 0.80 | DR |
| 16 | 4.00 | 1.95 | 0.95 | 0.50 | 4.00 | 1.10 | DR | DR |
| 24 | 4.00 | 1.10 | DR | DR | 3.25 | 0.50 | DR | DR |

For SI: 1” = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa.

DR = design required

o.c. = on center

a.         Wood framing and furring shall be Spruce-Pine-Fir or any wood species with a specific gravity of 0.42 or greater in accordance with AFPA/NDS.

b.        Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

c.         Where the required cladding fastener penetration into wood material exceeds ¾ inch (19.1 mm) and is not more than 1-1/2 inches (38.1 mm), a minimum 2x wood furring shall be used or an approved design.

d.        Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C 578 or ASTM C 1289.

e.         Furring shall be spaced a maximum of 24 inches (610 mm) on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing.  In a horizontal orientation, the indicated 8 inch (203.2 mm) and 12 inch (304.8 mm) fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches (406.4 mm) and 24 inches (610 mm) on center, respectively.

(S8340) /(I-Code)

**SECTION 2612**

**PLASTIC COMPOSITES**

**2612.1 General.** Plastic composites shall consist of either wood/plastic composites or plastic lumber. Plastic composites shall comply with the provisions of this code and with the additional requirements of Section 2612.

**~~2612.2 Labeling and identification.~~** ~~Packages and containers of plastic composites used in exterior applications shall bear a~~ *~~label~~* ~~showing the manufacturer’s name, product identification and information sufficient to determine that the end use will comply with code requirements.~~

**~~2612.2.1 Performance levels.~~** ~~The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the required performance levels and demonstrate compliance with the provisions of ASTM D 7032.~~

**~~2612.2.2 Loading.~~** ~~The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the type and magnitude of the load determined in accordance with ASTM D 7032~~.

**2612.2 Labeling.**Plastic composite deck boards and stair treads, or their packaging, shall bear a *label* that indicates compliance to ASTM D7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D7032.  Plastic composite handrails and guards, or their packaging, shall bear a *label* that indicates compliance to ASTM D7032 and includes the maximum allowable span determined in accordance with ASTM D7032.

**2612.3 Flame spread index.** Plastic composite~~s~~ deck boards, stair treads, handrails and guards shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test.

**Exception:** Materials determined to be noncombustible in accordance with Section 703.5.

**2612.4 Termite and decay resistance.** Where required by Section 2304.12 ~~P~~plastic composite~~s~~ deck boards, stair treads, handrails and guards containing wood, cellulosic or any other biodegradable materials shall be termite and decay resistant as determined in accordance with ASTM D 7032.

**2612.5 Construction requirements.** Plastic composites shall be permitted to be used as exterior deck boards, stair treads, handrails and guards in buildings of Type VB construction.

**2612.5.1 Span rating.** Plastic composites used as exterior deck boards shall have a span rating determined in accordance with ASTM D 7032.

**2612.6 Plastic compositedeck~~ing~~ boards, stair treads, handrails and guards.** Plastic composite deck~~ing~~ boards, stair treads, handrails and guards shall be installed in accordance with this code and the manufacturer’s instructions.

(F8236) /(I-Code)

[Replace the proposed modification to Section 2612.5 with the following:]

**2612.5 Construction requirements.**

Plastic composites meeting the requirements of Section 2612 shall be permitted to be used as

exterior deck boards, stair treads, handrails and guards ~~in buildings of Type VB~~ where combustible construction is permitted.

(F8233 A1 Only) /(I-Code)

**2615.2 ~~Definitions~~. APPROVED PLASTIC**

**~~APPROVED PLASTIC~~.** Approved plastics for outdoor exposure shall be evaluated for outdoor durability in accordance with the Voluntary Standard Uniform Load Test Procedure for Thermoformed Plastic Domed Skylights, of the AAMA/WDMA 101/IS2/NAFS, Voluntary Performance Specification for Windows, Skylights and Glass Doors, as follows:

(S7170)

**Chapter 27 ELECTRICAL**

Revise as follows:

**2701.1 Scope.** ~~This~~ The provisions of this chapter ~~governs~~ and NFPA 70 shall govern the design, construction, erection, and installation of the electrical components, appliances, equipment and systems used in buildings and structures covered by this code. ~~Electrical~~ The *Florida Fire Prevention Code* and NFPA 70 shall govern the use and maintenance of electrical components, appliances, equipment and systems ~~shall be designed~~. The *Florida Building Code, Existing Building* and ~~constructed in accordance with the provisions of~~ NFPA 70 shall govern the alteration, repair, relocation, replacement, and addition of electrical components, appliances, equipment and systems.

(G192-15 Part I)

**[F] 2702.1.7 Group I-2 occupancies.** In Group I-2 occupancies~~, in new construction or where the building is substantially damaged, where an essential electrical system is~~ located in flood hazard areas established in Section 1612.3 where new or essential electrical systems generators are installed, the ~~system~~ systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

(G35-16)

**[F] 2702.1.8) Fuel line piping protection.** Fuel lines supplying a generator set inside a building shall be separated from areas of the building other than the room the generator is located in by an approved method, or an assembly that has a fire-resistance rating of not less than 2 hours. Where the building is protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, the required fire-resistance rating shall be reduced to 1 hour.

(F79-16 AMPC2)

**[F] 2702.2.3 Emergency responder radio coverage systems.** Standby power shall be provided for emergency responder radio coverage systems as required in Section 510.4.2.3. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than ~~24~~ 12 hours at 100 percent system operation capacity.

(F56-16)/(F57-16)

**~~[F] 2702.2.1 Emergency alarm systems.~~** ~~Emergency power shall be provided for emergency alarm systems as required by Section 415.5.~~

**[F] 2702.2.6 Gas detection systems.** Emergency or standby power shall be provided for *gas detection systems* in accordance with the *Florida Fire Prevention Code*.

Renumber remaining text

(F75-16 AMPC1)

**[F] 2702.2.10 ~~Horizontal~~ Special purpose horizontal sliding, accordion, or folding doors.** Standby power shall be provided for special purpose horizontal sliding, accordion or folding doors as required in Section 1010.1.4.3. The standby power supply shall have a capacity to operate not fewer than 50 closing cycles of the door.

(G37-16)

***Add new text as follows:***

**[F] 2702.2.17 Exhaust systems.** Standby power shall be provided for common exhaust systems for domestic kitchens located in multistory structures as required in Section 505.3 of the *International Mechanical Code*. Standby power shall be provided for common exhaust systems for clothes dryers located in multistory structures as required in Section 504.10 of the *International Mechanical Code* and Section 614.10 of the *International Fuel Gas Code*.

(G36-16)

**2702.2.18 Ambulatory care facilities**. Essential electrical systems for ambulatory care facilities shall comply with Section 422.6.

(E7362) /(I-Code)

**[F] 2702.3.1 Critical circuits.** Required critical circuits shall be protected using one of the following methods:

1. Cables, used for survivability of required critical circuits, that are listed in accordance with UL 2196 and

have a fire-resistance rating of not less than 1 hour.

2. Electrical circuit protective systems having a fire-resistance rating of not less than 1 hour. Electrical circuit

protective systems are installed in accordance with their listing requirements.

3. Construction having a fire-resistance rating of not less than 1 hour.

(G117-15 AMPC1)

**Chapter 29 PLUMBING SYSTEMS**

**Add new text as follows:**

**2902.3.7 Fixture distribution.** Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

(P46-15 Part II)

**Chapter 30 ELEVATORS AND CONVEYING SYSTEMS**

Revise as follows:

**3001.2 Referenced standards.**

Except as otherwise provided for in this code, the design, construction, installation, *alteration*, repair and maintenance of elevators and conveying systems and their components shall conform to the applicable standard specified in Table 3001.2 ~~ASME A17.1/CSA B44, ASME A17.7/CSA B44.7, ASME A17.3 and ASME A18.1, ASME A90.1, ASME B20.1, ANSI MH29.1, ALI ALCTV,~~ and ASCE 24 for construction in *flood hazard areas* established in Section 1612.3. The Division of Hotels and Restaurants may grant ~~exceptions,~~ variances and waivers to the *Elevator Safety Code* as authorized by the *Safety Code for Elevators and Escalators* (ASME A17.1, Section 1.2) and Florida Statutes (Chapter 120 and Chapter 399.)

**TABLE 3001.2**

**STANDARDS FOR ELEVATORS AND CONVEYING SYSTEMS AND COMPONENTS**

|  |  |
| --- | --- |
| **TYPE** | **STANDARD** |
| Elevators, escalators, dumbwaiters, moving walks, material lifts | ASME A17.1/CSA B44, ASME A17.6, ASME A17.7/CSA B44.7 |
| Existing elevators and escalators | ASME A17.3 |
| Platform lifts, stairway chairlifts, wheelchair lifts | ASME A18.1 |
| Belt manlifts | ASME A90.1 |
| Conveyors and related equipment | ASME B20.1 |
| Industrial scissors lifts | ANSI MH29.1 |
| Automotive lifts | ALI ALCTV |

(SP7468)

**3002.1 Hoistway enclosure protection.** Elevator, dumbwaiter and other hoistway enclosures shall be *shaft enclosures* complying with ~~Section~~ Sections 712 and 713.

(FS51-15)

**3004.2.2 Escalators.** Where provided in below-grade transportation stations, escalators shall have a clear width of not less than 32 inches (815 mm).

**~~Exception:~~** ~~The clear width is not required in existing facilities undergoing~~ *~~alterations~~*~~.~~

(G197-15)

***Add new text as follows:***

**3006.2.1 Rated corridors.** Where corridors are required to be fire resistance rated in accordance with Section 1020.1, elevator hoistway openings shall be protected in accordance with Section 3006.3.

(G201-15)

***Revise as follows:***

**3007.1 General.** Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

**Exception:** Elevators that only service an open or enclosed parking garage and the lobby of the building shall not be required to serve as fire service access elevators in accordance with Section 3007.

(G203-15)

**Revise as follows:**

**3007.3 Water protection.** ~~An~~ *~~approved~~* ~~method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the~~ *~~automatic sprinkler system~~* ~~outside the enclosed fire service~~ ~~access elevator lobby shall be provided.~~in accordance with an approved method.

**3008.3 Water protection.** ~~An~~ *~~approved~~* ~~method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the~~ *~~automatic sprinkler system~~* ~~outside the enclosed occupant~~ ~~evacuation elevator lobby shall be provided.~~in accordance with an approved method.

(G204-15)

**3007.6.3 Lobby doorways.** Other than doors to the hoistway, elevator control room or elevator control space, each doorway to a fire service access elevator lobby shall be provided with a 3 /4-hour *fire door assembly* complying with Section ~~716.5~~716. The *fire door assembly* shall comply with the smoke and draft control door assembly requirements of Section 716.5.3.1, and tested in accordance with ~~the~~ UL 1784 ~~test conducted~~ without ~~the~~ an artificial bottom seal.

(F74-15)

**3008.1 General.** ~~Where elevators are to be~~ Elevators used for occupant self-evacuation during fires~~, all~~ ~~passenger elevators for general public use~~ shall comply with Sections 3008.1 through 3008.10. ~~Where~~ ~~other elevators are used for occupant self-evacuation, those elevators shall comply with these sections.~~

***Add new text as follows:***

**3008.1.1 Number of occupant evacuation elevators.** The number of elevators available for occupant evacuation shall be determined based on an egress analysis that addresses one of the following scenarios

1. Full building evacuation where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than one hour.

2. Evacuation of the 5 consecutive floors with the highest cumulative occupant load where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than 15 minutes.

A minimum of one elevator in each bank shall be designated for occupant evacuation. Not less than two shall be provided in each occupant evacuation elevator lobby where more than one elevator opens

into the lobby. Signage shall be provided to denote which elevators are available for occupant evacuation.

**3008.8.1 Determination of standby power load.** Standby power loads shall be based upon the determination of the number of occupant evacuation elevators in Section 3008.1.1.

Renumber remaining sections

(G207-15)

**3008.1 General.** Where elevators are to be used for occupant self-evacuation during fires, all passenger elevators for general public use shall comply with Sections 3008.1 through 3008.10. Where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections.

**3008.6.1 Access to interior exit stairway or ramp.** The occupant evacuation elevator lobby shall have direct access from the enclosed elevator lobby to an *interior exit stairway* or *ramp*.

**Exceptio~~n~~ Exceptions:**

1. Access to an *interior exit stairway* or *ramp* shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

2. Elevators that only service an open parking garage and the lobby of the building shall not be required to provide direct access in accordance with this section.

(G208-15)

**3007.8.1 Protection of wiring or cables.** Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected ~~by construction having~~ using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours~~,~~.

2. Electrical circuit protective systems shall be ~~a circuit integrity cable having~~ tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours ~~or~~. Electrical circuit protective systems shall be ~~protected by a listed electrical protective system~~ installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 2 hours.

**Exception:** Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

**3008.8.1 Protection of wiring or cables.** Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire- detecting systems to occupant ~~evactuation~~ evacuation elevators shall be protected ~~by construction~~ ~~having~~ using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating*~~of not less than 2 hours, shall be circuit integrity cable having a fire-resistance rating of not less than 2 hours or shall be protected by a listed electrical circuit protective system having a fire-resistance rating~~ of not less than 2 hours.

2. Electrical circuit protective systems and shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 2 hours.

**Exception:** Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

(G117-15 AMPC1)

**Revise as follows:**

**3008.6.3 Lobby doorways.** Other than the doors to the hoistway, elevator machine rooms, machinery spaces, control rooms and control spaces within the lobby enclosure smoke barrier, each doorway to an occupant evacuation elevator lobby shall be provided with a 3 /4-hour *fire door assembly* complying with Section ~~716.5~~ 716. The *fire door assembly* shall comply with the smoke and draft control assembly requirements of Section 716.5.3.1, and tested in accordance with ~~the~~ UL 1784 ~~test conducted~~ \_without ~~the~~ an artificial bottom seal.

**3008.6.3.1 Vision panel.** A vision panel shall be installed in each *fire door assembly* protecting the lobby doorway. The vision panel shall consist of fire-protection-rated glazing and shall comply with the requirements of Section 716 and shall be located to furnish clear vision of the occupant evacuation elevator lobby.

(F74-15)

**3010.1.3**

The following ASME A17.1 and ASME A17.3 rules are~~rule is~~ hereby amended to read as follows:

a.Rule 2.29.1.1 of ASME A17.1 is amended~~amend~~ to add the following to the rule: “Each car in a multicar group shall be sequentially identified from left to right, as viewed from the elevator lobby.”

b.Rule 2.7.3.1.1 of ~~the~~ ASME A17.1, ~~which~~ is amended to add the following to the rule~~read as follows~~: “~~Rule 2.7.3.1 General Requirements. A permanent, safe and convenient means of access to elevator machine rooms and overhead machinery spaces shall be provided for authorized persons.~~ The key to the machine rooms, control rooms, machinery spaces and control ~~overhead machinery~~ spaces shall be kept on the premises at all times and be readily available for use by State of Florida C~~c~~ertified Elevator Inspectors.”

c.Rule 3.11.3 of ASME A17.3 is amended to read as follows:

**Note**: Updates to the Safety Code for Existing Elevators and Escalators ASME A17.1 and ASME A17.3 which require Phase II Firefighters’ Service shall apply except where Section 399.02(9) Florida Statutes states Phase II Firefighters’ Service on elevators may not be enforced until the elevator is replaced or requires major modification, whichever occurs first, on elevators in condominiums or multifamily residential buildings, including those that are part of a continuing care facility licensed under Chapter 651, or similar retirement community with apartments, having a certificate of occupancy by the local building authority that was issued before July 1, 2008. This exception does not prevent an elevator owner from requesting a variance from the applicable codes. This subsection does not prohibit the division from granting variances pursuant to Section 120.542, Florida Statutes.

(SP7466)

**Chapter 31 SPECIAL CONSTRUCTION**

Revise as follows:

**3101.1 Scope.** The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, ~~and~~ towers and antennas, and exterior elevated flooring systems.

(S8357 handout/Commission)

**3104.5.2.2 Glass.**

The wall shall be constructed of a tempered, wired or laminated glass ~~wall~~ and doors ~~or glass~~ separating the interior of the building from the pedestrian walkway. The glass shall be protected by an automatic sprinkler system in accordance with Section 903.3.1.1 that, when actuated, shall completely wet the entire surface of interior sides of the wall or glass. Obstructions shall not be installed between the sprinkler heads and the wall or glass. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates.

(F7534) /(I-Code)

**3104.10 Tunneled walkway.** Separation between the tunneled walkway and the building to which it is connected shall be not less than 2-hour fire-resistant construction and openings therein shall be protected in accordance with ~~Table 716.5.~~Section 716.

(F74-15)

**3105.3 Design and construction.**

*Awnings* and *canopies* shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 and in accordance with Section 3105.4 of this code with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of noncombustible material, *fire-retardant-treated wood*, ~~wood of Type IV size~~heavy timber complying with Section 2304.11, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

(F8275)/(G180-15)

**~~SECTION 3111~~**

~~PHOTOVOLTAIC PANELS AND MODULES~~

~~3111.1 General. Photovoltaic panels and modules shall comply with the requirements of this code and the Florida Fire Prevention Code.~~

~~3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the Florida Fire Prevention Code.~~

SECTION 3111

SOLAR ENERGY SYSTEMS

3111.1 General. Solar energy systems shall comply with the requirements of this section.

3111.1.1 Wind resistance. Rooftop-mounted photovoltaic panels and modules and solar thermal collectors shall be designed in accordance with Section 1609. **For buildings and structures located within the high-velocity hurricane zone refer to Section 1620.**

3111.1.2 Roof live load. Roof structures that provide support for solar energy systems shall be designed in accordance with Section 1607.13.5.

3111.2 Solar thermal systems.  Solar thermal systems shall be designed and installed in accordance with the Florida Building Code-Plumbing, the Florida Building Code-Mechanical, and the Florida Fire Prevention Code.

3111.2.1 Equipment. Solar thermal systems and components shall be listed and labeled in accordance with ICC 900/SRCC 300 and ICC 901/SRCC 100.

3111.3 Photovoltaic solar energy systems. Photovoltaic solar energy systems shall be designed and installed in accordance with this section, the Florida Fire Prevention Code, NFPA 70 and the manufacturer’s installation instructions.

3111.3.1 Equipment. Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

3111.3.2 Fire classification. Rooftop-mounted photovoltaic systems shall have a fire classification in accordance with Section 1505.9. Building-integrated photovoltaic systems shall have a fire classification in accordance with Section 1505.8. **For buildings and structures located within the high-velocity hurricane zone refer to Section 1516.**

3111.3.3 Building-integrated photovoltaic systems. Building-integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section 1507.18. **For buildings and structures located within the high-velocity hurricane zone refer to Section 1518.11.**

3111.3.4 Access and pathways. Roof access, pathways and spacing requirements shall be provided in accordance with Section **~~1204~~ 11.12.2.2** of the Florida Fire Prevention Code.

3111.3.5 Ground-mounted photovoltaic systems. Ground-mounted photovoltaic systems shall be designed and installed in accordance with Chapter 16 and the Florida Fire Prevention Code.

3111.3.5.1 Fire separation distances. Ground-mounted photovoltaic systems shall be subject to the fire separation distance requirements determined by the local jurisdiction.

(M7365 A1+A2+Original)

**Section 3115**

**Exterior Elevated Flooring Systems.**

**3115.1 Scope.** This section ~~is applicable~~ applies to exterior elevated flooring systems installed over roof assemblies or other exterior supporting structures such as an exterior deck. Each exterior elevated flooring system consists of pedestrian deck panels ~~/~~ or pavers supported by pedestals placed directly on roof assemblies or other exterior supporting structures, to provide a level walking surface. Pedestals ~~can~~ may be ~~adjusted~~ adjustable ~~to various heights or installed at~~ or a fixed height. The pedestals need not be mechanically or adhesively attached to the supporting structure. The exterior elevated flooring system comprised of the pedestrian deck panels ~~/~~ or pavers and pedestals ~~must~~ shall be restrained on all sides and along any ramps and ~~/or~~ walkway areas against horizontal and vertical movement using a perimeter-restraining system.

**3115.1.1 Attached exterior elevated flooring systems.** Attached systems shall be designed and constructed as a roofing system in accordance with Chapter 15 of this code.

**3115.1.2 Independent exterior elevated flooring systems.** Independent systems shall comply with the provisions of Section 3115.

**3115.2 Materials Information Submitted with Permit Application.** In addition to other information required to accompany the permit application, product-specific information shall be provided as follows:

**3115.2.1 Pedestrian Deck panels ~~/~~ or pavers.** Documentation describing the weight, dimensions, specifications, and the manufacturing process of the materials. Specifications for ~~cementitious~~ materials ~~such as concrete pavers~~ shall include required material strength properties used in analysis or reference to appropriate tests used to determine paver load capacity.

**3115.2.2 Pedestals.** Documentation describing materials, dimensions, specifications, ~~compression strength~~, and manufacturer’s installation instructions. Specifications shall include the allowable axial compression capacity of the pedestal.

**3115.2.3 Fasteners.** Documentation describing mechanical fasteners and adhesives as applicable. A statement shall be provided regarding whether or not the fasteners are commonly available or are proprietary.

**3115.2.4 Plastics for outdoor exposure HVHZ.** Plastics for outdoor exposure in the HVHZ shall comply with Florida Building Code-Building Section 2615.2.

**3115.2.5 Packaging and Identification.** A description of the method of packaging and identification of pedestrian deck panels ~~/~~ or pavers, pedestals, and accessory components. Identification provisions shall include the manufacturer’s name, the product name, and copy of the installation instructions, as packaged with the product.

**3115.3 Product Approval and Manufacturer’s Installation Instructions.**

**3115.3.1 Product approval.** Exterior elevated flooring systems shall have Florida ~~P~~ product  ~~A~~  approval or local product approval.

**3115.3.2 Manufacturer’s installation instructions**. Manufacturer’s installation instructions shall include information on the protection of the roof surface during installation, procedures for removing pavers to facilitate reroofing, roofing repairs, and roofing maintenance. In addition to the copy of the manufacturer’s installation instructions submitted with the permit application, the manufacturer’s installation instructions shall be kept on the job site and made available to inspection personnel.

**3115.4 Structural Requirements for Exterior Elevated Flooring Systems.**

**3115.4.1 General.** Exterior elevated flooring systemsshall withstand the applicable uniform loads of Florida Building Code-Building Table 1607.1, the applicable load combinations, and other applicable loads contained in ~~FBC-B~~ the Florida Building Code-Building, Chapter 16. Independent systems shall not be permitted in the HVHZ

**3115.4.2 Pedestrian Deck panels ~~/~~ or pavers.** Where analysis of panels or pavers is not consistent with codified material design procedures, testing for uniform load and concentrated load capacities shall be performed in accordance with ASTM E2322 and CISCA Recommended Test Procedures for Access Floors achieving a load capacity three (3) times the uniform load capacity designated in the specifications.

**3115.4.3 Pedestals.** Where analysis of pedestals is not consistent with codified material design procedures, testing for axial load capacity shall be performed in accordance with CISCA Recommended Test Procedures for Access Floors, 2016, Section 5 achieving a load capacity three (3) times the axial load capacity designated in the specifications.

**3115.4.4 Wind resistance.** Wind resistance of independent exterior elevated flooring systems shall be determined by wind tunnel testing in accordance with ASCE 7 Chapter 31 and Section 30.1.5 where applicable. Testing shall be conducted, and the data analyzed by a registered design professional. Exterior elevated flooring systems shall be evaluated by a registered design professional to withstand applicable wind loads as specified in ASCE 7 Chapters 26 through 30, as applicable, as well as combined load effects of other applicable gravity loads in ~~FBC-B~~ the Florida Building Code-Building, Chapter 16, such as live and dead loads.

**3115.4.5 Deflection.** Pedestrian deck panels or pavers shall meet the deflection requirement of floor members in Table 1604.3 and Section 1616.3.1 in the HVHZ.

**3115.5 Substrate Requirements for Exterior Elevated Flooring Systems.**

**3115.5.1 Bearing Capacity**. Pedestal support surface or roofing membrane shall be able to support a concentrated surface load of 40 psi under the pedestal base.

**3115.5.2 Drainage.** The substrate immediately below the pedestals shall provide positive drainage.

**3115.5.3 Analysis.** Load effects onstructural members and their connections that provide support for independent exterior elevated flooring systems shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties. Roof structures that provide support for exterior elevated flooring systems shall be checked for deflection in accordance with Section 1604.3.6 or Section 1616 for buildings sited in the HVHZ. Roof structures shall be checked in accordance with Section 1611 for ponding. The design shall account for concentrated loads of the pedestals.

**3115.6 Accessibility.** Accessibility shall comply with the Florida Building Code-Accessibility.

(S8357 handout/Commission)

**CHAPTER 32 ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY**

No change

**Chapter 33 SAFEGUARDS DURING CONSTRUCTION**

Modify as follows:

**3306.2 Walkways.**

A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. A walkway shall be provided for pedestrian travel that leads from a building entrance or exit of an occupied structure to a public way.Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be *accessible* in accordance with Chapter 11 and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m2).

(F7607) /(I-Code)

**CHAPTER 34 RESERVED**

No change

**CHAPTER 35 REFERENCED STANDARDS**

**See attached**

Appendix D – Fire Districts

**D102.2.8 Permanent canopies.**

**Permanent canopies are permitted to extend over adjacent open spaces provided all of the following are met:**

1.The canopy and its supports shall be of noncombustible material, *fire-retardant-treated wood*, ~~Type IV construction~~ heavy timber complying with Section 2304.11 or of 1-hour fire-resistance-rated construction.

**Exception:** Any textile covering for the canopy shall be flame resistant as determined by tests conducted in accordance with NFPA 701 after both accelerated water leaching and accelerated weathering.

2.Any canopy covering, other than textiles, shall have a *flame spread index* not greater than 25 when tested in accordance with ASTM E84 or UL 723 in the form intended for use.

3.The canopy shall have at least one long side open.

4.The maximum horizontal width of the canopy shall not exceed 15 feet (4572 mm).. 5.The *fire resistance* of *exterior walls* shall not be reduced.

(F8276)/(G180-15)

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(F8133)