**Florida Supplement to the 2020 Florida Building Code, Building**

***Chapters 1-35***

**ICC EDIT VERSION**

**Note 1**: Throughout the document, change International Building Code to Florida Building Code, Building; 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.

**PREFACE**

**PREFACE**

**……**

The model codes used for the Florida Building Code, 8th Edition (2023) include: the ~~2018~~ 2021 editions of the International Building Code®; the International Plumbing Code®; the International Mechanical Code®; the International Fuel Gas Code®; the International Residential Code®; the International Existing Building Code®; the International Energy Conservation Code®; the National Electrical Code, 20~~1720~~ edition; or substantive criteria from ASHRAE Standard 90.1-20~~16~~ 19. State and local codes adopted and incorporated into the code include the Florida Building Code, Accessibility, and special hurricane protection standards for the High-Velocity Hurricane Zone.

**……**

**Marginal Markings**

Solid vertical lines in the margins within the body of the code indicate a change from the requirements of the Florida Building Code, Fuel Gas, 7th Edition (20~~17~~20) to the Florida Building Code, Fuel Gas, 8th Edition (20~~20~~23) effective December 31, 20~~20~~23.

Sections deleted from the base code are designated “Reserved” in order to maintain the structure of the base code.

**Chapter 1 - SCOPE AND ADMINISTRATION**

**Revise as follows:**

**SECTION 101**

**SCOPE AND GENERAL REQUIREMENTS**

**(CA9156 / CCC-ADM1-19 AS)**

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

**Exceptions:**

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

2. Code requirements that address snow loads and earthquake protection ~~are pervasive; they are left in place but~~ shall not be utilized or enforced ~~because Florida has no snow load or earthquake threat~~.

**Revise as follows:**

**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.

**Revise as follows:**

**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*.

**(CA10035 AS)**

**[A] 110.3 Required inspections.**

**Building**

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

6.1 In flood hazard areas, as part of the final inspection, a final certification of the lowest floor elevation or the elevation to which a building is dry floodproofed, as applicable, shall be submitted to the authority having jurisdiction.

**(CA10265 AS)**

**Delete and substitute as follows:**

## ~~[A]~~ ~~104.11~~ ~~Alternative materials, design and methods of construction and equipment.~~ ~~The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been~~ *approved*~~. An alternative material, design or method of construction shall be~~ *approved* ~~where the~~ *building official* ~~finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness,~~ *fire resistance*~~, durability and safety. Where the alternative material, design or method of construction is not~~ *approved*~~, the~~ *building official* ~~shall respond in writing, stating the reasons why the alternative was not~~ *approved*~~.~~

**[A] 104.11 Alternative materials, design and methods of construction and equipment.** The provisions of this code

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

design or method of construction shall be *approved* where the *building official* finds that the proposed alternative meets all of the following:

1. The alternative material, design or method of construction is satisfactory and complies with the

intent of the provisions of this code, 2. The material, method or work offered is, for the

purpose intended, not less than the equivalent of that prescribed in this code as it pertains to the following:

2.1. Quality.

2.2. Strength.

2.3. Effectiveness.

2.4. *Fire resistance*.

2.5. Durability.

2.6. Safety.

Where the alternative material, design or method of construction is not approved, the *building official* shall

respond in writing, stating the reasons why the alternative was not approved.

**(CA9053/ADM19-19 AM)**

**Add Section 105.3.8 to read as follows:**

A local government may not require a contract between a builder and an owner for the issuance of a building permit or as a requirement for the submission of a building permit application.

**(Code language for consistency with HB 401)**

Revise section 105.3.1.2 to read as follows:

**105.3.1.2.** No permit may be issued for any building construction, erection, alteration, modification, repair, or addition unless the applicant for such permit provides to the enforcing agency which issues the permit any of the following documents which apply to the construction for which the permit is to be issued and which shall be prepared by or under the direction of an engineer registered under Chapter 471, *Florida Statutes*:

1. Plumbing documents for any new building or addition which requires a plumbing system with more than 250 fixture units or which costs more than $125,000.

2. Fire sprinkler documents for any new building or addition which includes a fire sprinkler system which contains 50 or more sprinkler heads. Personnel as authorized by chapter 633 *Florida Statutes*, may design a new fire sprinkler system of 49 or fewer heads; ~~and~~ may design the alteration of an existing fire sprinkler system if the alteration consists of the relocation, addition or deletion of ~~not more than~~ 49 heads or fewer, notwithstanding the size of the existing fire sprinkler system~~.~~; or may design the alteration of an existing fire sprinkler system if the alteration consists of the relocation or deletion of 249 or fewer sprinklers, notwithstanding the size of the existing fire sprinkler system, if there is no change of occupancy of the affected areas, as defined in this Code and the Florida Fire Prevention Code, and there is no change in the water demand as defined in NFPA 13, “Standard for the Installation of Sprinkler Systems,” and if the occupancy hazard classification as defined in NFPA 13 is reduced or remains the same as a result of the alteration.

No change to the remaining text

**(Code language for consistency with SB 286)**

**105.14 Permit issued on basis of an affidavit.**

Whenever a permit is issued in reliance upon an affidavit or whenever the work to be covered by a permit involves installation under conditions which, in the opinion of the building official, are hazardous or complex, the building official shall require that the architect or engineer who signed the affidavit or prepared the drawings or computations shall supervise such work. In addition, they shall be responsible for conformity to the permit, provide copies of inspection reports as inspections are performed, and upon completion make and file with the building official written affidavit that the work has been done in conformity to the reviewed plans and with the structural provisions of the technical codes. In the event such architect or engineer is not available, the owner shall employ in his stead a competent person or agency whose qualifications are reviewed by the building official. The building official shall ensure that any person conducting plans review is qualified as a plans examiner under Part XII of Chapter 468, Florida Statutes, and that any person conducting inspections is qualified as a building inspector under Part XII of Chapter 468, Florida Statutes.

**~~Exception:~~ 105.14.1 Affidavits in flood hazard areas.**Permit issued on basis of an affidavit shall not extend to the flood load and flood resistance requirements of the Florida Building Code and the building official shall review and inspect those requirements.

**107.6 Affidavits.**

The building official may accept a sworn affidavit from a registered architect or engineer stating that the plans submitted conform to the technical codes. For buildings and structures, the affidavit shall state that the plans conform to the laws as to egress, type of construction and general arrangement and, if accompanied by drawings, show the structural design and that the plans and design conform to the requirements of the technical codes as to strength, stresses, strains, loads and stability. The building official may without any examination or inspection accept such affidavit, provided the architect or engineer who made such affidavit agrees to submit to the building official copies of inspection reports as inspections are performed and upon completion of the structure, electrical, gas, mechanical or plumbing systems a certification that the structure, electrical, gas, mechanical or plumbing system has been erected in accordance with the requirements of the technical codes. Where the building official relies upon such affidavit, the architect or engineer shall assume full responsibility for compliance with all provisions of the technical codes and other pertinent laws or ordinances. The building official shall ensure that any person conducting plans review is qualified as a plans examiner under Part XII of Chapter 468, Florida Statutes, and that any person conducting inspections is qualified as a building inspector under Part XII of Chapter 468, Florida Statutes.

**107.6.1 Building permits issued in flood hazard areas on the basis of an affidavit.**Pursuant to the requirements of federal regulation for participation in the National Flood Insurance Program (44 C.F.R. Parts 59 and 60), the authority granted to the *building official*to issue permits, to rely on inspections, and to accept plans and construction documents on the basis of affidavits and plans submitted pursuant to Sections 105.14 and 107.6, shall not extend to the flood load and flood-resistance construction requirements of the *Florida Building Code.*

**107.6.2 Affidavits Provided Pursuant to Section 553.791, Florida Statutes.**For a building or structure in a flood hazard area,the building official shall review any affidavit certifying compliance with the flood load and flood-resistant construction requirements of the Florida Building Code.

**(CA10348 AM A1)**

Add a new section 110.9 to read as follows:

**110.9 Mandatory structural inspections for condominium and cooperative buildings.**

**110.9.1 General.** The Legislature finds that maintaining the structural integrity of a building throughout its service life is of paramount importance in order to ensure that buildings are structurally sound so as to not pose a threat to the public health, safety, or welfare. As such, the Legislature finds that the imposition of a statewide structural inspection program for aging condominium and cooperative buildings in this state is necessary to ensure that such buildings are safe for continued use.

**110.9.2. As used in this section, the terms:**

(a) “Milestone inspection” means a structural inspection of a building, including an inspection of load-bearing walls and the primary structural members and primary structural systems as those terms are defined in s. 627.706, Florida Statutes, by a licensed architect or engineer authorized to practice in this state for the purposes of attesting to the life safety and adequacy of the structural components of the building and, to the extent reasonably possible, determining the general structural condition of the building as it affects the safety of such building, including a determination of any necessary maintenance, repair, or replacement of any structural component of the building. The purpose of such inspection is not to determine if the condition of an existing building is in compliance with the Florida Building Code or the firesafety code.

(b) “Substantial structural deterioration” means substantial structural distress that negatively affects a building’s general structural condition and integrity. The term does not include surface imperfections such as cracks, distortion, sagging, deflections, misalignment, signs of leakage, or peeling of finishes unless the licensed engineer or architect performing the phase one or phase two inspection determines that such surface imperfections are a sign of substantial structural deterioration.

**110.9.3.** A condominium association under chapter 718, Florida Statutes, and a

cooperative association under chapter 719, Florida Statutes, must have a milestone

inspection performed for each building that is three stories or more in height by

December 31 of the year in which the building reaches 30 years of age, based on the date

the certificate of occupancy for the building was issued, and every 10 years thereafter. If

the building is located within 3 miles of a coastline as defined in s. 376.031,Florida

Statutes, the condominium association or cooperative association must have

a milestone inspection performed by December 31 of the year in which the building

reaches 25 years of age, based on the date the certificate of occupancy for the building

was issued, and every 10 years thereafter. The condominium association or cooperative

association must arrange for the milestone inspection to be performed and is responsible

for ensuring compliance with the requirements of this section. The condominium

association or cooperative association is responsible for all costs associated with

the inspection. This subsection does not apply to a single- family, two-family, or three-

family dwelling with three or fewer habitable stories above ground.

**110.9.4.** If a milestone inspection is required under this section and the building’s certificate of occupancy was issued on or before July 1, 1992, the building’s initial milestone inspection must be performed before December 31, 2024. If the date of issuance for the certificate of occupancy is not available, the date of issuance of the building’s certificate of occupancy shall be the date of occupancy evidenced in any record of the local building official.

**110.9.5.** Upon determining that a building must have a milestone inspection, the local enforcement agency must provide written notice of such required inspection to the condominium association or cooperative association by certified mail, return receipt requested.

**110.9.6.** Within 180 days after receiving the written notice under Section 110.9.5, the condominium association or cooperative association must complete phase one of the milestone inspection. For purposes of this section, completion of phase one of the milestone inspection means the licensed engineer or architect who performed the phase one inspection submitted the inspection report by e-mail, United States Postal Service, or commercial delivery service to the local enforcement agency.

**110.9.7.** A milestone inspection consists of two phases:

**110.9.7.1.** For phase one of the milestone inspection, a licensed architect or engineer authorized to practice in this state shall perform a visual examination of habitable and nonhabitable areas of a building, including the major structural components of a building, and provide a qualitative assessment of the structural conditions of the building. If the architect or engineer finds no signs of substantial structural deterioration to any building components under visual examination, phase two of the inspection, as provided in Section 110.9.7.2, is not required. An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

**110.9.7.2.** A phase two of the milestone inspection must be performed if any substantial structural deterioration is identified during phase one. A phase two inspection may involve destructive or nondestructive testing at the inspector’s direction. The inspection may be as extensive or as limited as necessary to fully assess areas of structural distress in order to confirm that the building is structurally sound and safe for its intended use and to recommend a program for fully assessing and repairing distressed and damaged portions of the building. When determining testing locations, the inspector must give preference to locations that are the least disruptive and most easily repairable while still being representative of the structure. An inspector who completes a phase two milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

**110.9.8.** Upon completion of a phase one or phase two milestone inspection, the architect or engineer who performed the inspection must submit a sealed copy of the inspection report with a separate summary of, at minimum, the material findings and recommendations in the inspection report to the condominium association or cooperative association, and to the building official of the local government which has jurisdiction. The inspection report must, at a minimum, meet all of the following criteria:

(a) Bear the seal and signature, or the electronic signature, of the licensed engineer or architect who performed the inspection.

(b) Indicate the manner and type of inspection forming the basis for the inspection report.

(c) Identify any substantial structural deterioration, within a reasonable professional probability based on the scope of the inspection, describe the extent of such deterioration, and identify any recommended repairs for such deterioration.

(d) State whether unsafe or dangerous conditions, as those terms are defined in the Florida Building Code, were observed.

(e) Recommend any remedial or preventive repair for any items that are damaged but are not substantial structural deterioration.

(f) Identify and describe any items requiring further inspection.

**110.9.9.** The association must distribute a copy of the inspector-prepared summary of the inspection report to each condominium unit owner or cooperative unit owner, regardless of the findings or recommendations in the report, by United States mail or personal delivery and by electronic transmission to unit owners who previously consented to received notice by electronic transmission; must post a copy of the inspector-prepared summary in a conspicuous place on the condominium or cooperative property; and must publish the full report and inspector- prepared summary on the association’s website, if the association is required to have a website.

**110.9.10.** A local enforcement agency may prescribe timelines and penalties with respect to compliance with this section.

**110.9.11.** A board of county commissioners may adopt an ordinance requiring that a condominium or cooperative association schedule or commence repairs for substantial structural deterioration within a specified timeframe after the local enforcement agency receives a phase two inspection report; however, such repairs must be commenced within 365 days after receiving such report. If an association fails to submit proof to the local enforcement agency that repairs have been scheduled or have commenced for substantial structural deterioration identified in a phase two inspection report within the required timeframe, the local enforcement agency must review and determine if the building is unsafe for human occupancy.

**(Code language for consistency with SB 4-D)**

**CHAPTER 2 DEFINITIONS**

**[BG] ATRIUM.**  ~~An opening~~ A vertical space which is closed at the top connecting two or more stories ~~other than enclosed~~ ~~stairways, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall.~~ ~~Stories, as used in this definition, do not include balconies within assembly groups or~~ ~~mezzanines~~ ~~that comply with~~ ~~Section 505~~in Groups I-2 and I-3 Occupancies or three stories in all other occupancies.

**(F9342/G1-18 AMPC1)/ (F9256 / CCC-IBC4-20 AS)/ (F9256 / CCC-IBC4-20 / G1-17 / G-18)**

**Delete without substitution:**

**~~[ B G ] CABLE-REST RAINED, AIR-SUPPORT ED ST RUCT URE.~~** ~~A structure in which the uplift is resisted by cables or~~ ~~webbings which are anchored to either foundations or dead men. Reinforcing cable or webbing is attached by various~~ ~~methods to the membrane or is an integral part of the membrane. This is not a cable-supported structure.~~

**(S9150 / CCC-G2-18 AS)**

**Revise as follows:**

**[A] CHANGE OF OCCUPANCY**. ~~A change in the use of a building or a portion a building which results in one of the following~~ Either of the following shall be considered as a change of occupancy where this code requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.

2. Any change in the purpose of, or a change in the level of activity within, a building or structure.

~~1. A change of occupancy classification.~~

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

~~3. Any change in use within a group for which there is a change in application of the requirements of this code.~~

**(CA8986-ADM3-19 Part I AMPC1)**

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

**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.

**(F9244/CCCIBC2-20 AS)**

**Revise as follows:**

**~~DESIGN EARTHQUAKE GROUND MOTION.~~**~~The earthquake ground motion that buildings and structures are specifically proportioned to resist in Section 1613.~~

**~~DESIGNATED SEISMIC SYSTEM.~~**~~Those nonstructural components that require design in accordance with Chapter 13 of ASCE 7 and for which the component importance factor,~~*~~Ip~~*~~, is greater than 1 in accordance with Section 13.1.3 of ASCE 7.~~

**ESSENTIAL FACILITIES.**Buildings and other structures that are intended to remain operational in the event of extreme environmental loading from *flood*~~,~~ or wind~~, snow or earthquakes~~.

**JOINT.**The opening in or between adjacent assemblies that is created due to building tolerances, or is designed to allow independent movement of the building in any plane caused by thermal, ~~seismic,~~ wind or any other loading.

**LIVE LOAD.**A *load*produced by the use and occupancy of the building or other structure that does not include construction or environmental *loads*such as wind load, ~~snow load,~~ rain load, ~~earthquake load,~~ flood load or *dead load*.

**NOMINAL LOADS.**The magnitudes of the *loads*specified in Chapter 16 (dead, live, soil, wind, ~~snow,~~ rain, and *flood*~~and earthquake~~).

**RISK CATEGORY.**A categorization of buildings and other structures for determination of *flood*, wind, and ~~snow,~~ ice ~~and earthquake~~ *loads*based on the risk associated with unacceptable performance.

**~~RISK-TARGETED MAXIMUM CONSIDERED EARTHQUAKE (MCE~~~~R~~~~) GROUND MOTION RESPONSE ACCELERATIONS.~~**~~The most severe earthquake effects considered by this code, determined for the orientation that results in the largest maximum response to horizontal ground motions and with adjustment for targeted risk.~~

**~~SEISMIC DESIGN CATEGORY.~~**~~A classification assigned to a structure based on its~~*~~risk category~~*~~and the severity of the~~*~~design earthquake ground motion~~*~~at the site.~~

**~~SEISMIC FORCE-RESISTING SYSTEM.~~**~~That part of the structural system that has been considered in the design to provide the required resistance to the prescribed seismic forces.~~

**~~SITE CLASS.~~**~~A classification assigned to a site based on the types of soils present and their engineering properties as defined in Section 1613.3.2.~~

**~~SITE COEFFICIENTS.~~**~~The values of~~*~~F~~~~a~~*~~and~~*~~F~~~~v~~*~~indicated in Tables 1613.3.3(1) and 1613.3.3(2), respectively.~~

**(S10036 AS)**

**SMOKE PROTECTIVE CURTAIN ASSEMBLY FOR HOISTWAY.**An automatic closing smoke and draft control curtain assembly.

**(SP10152 AS)**

**Decorative Cementitious Finish.** A skim coat, as defined in ASTM C926, of Portland cement-based plaster applied to concrete or masonry surfaces intended for cosmetic purposes.

**(S10164 AS)**

**TERMINATED STOPS.** Factory feature of a door frame where the stops of the door frame are terminated not more than 6 inches from the bottom of the door frame. Terminated stops are also known as "hospital stops" or "sanitary stops”.

**(F9981 AS)**

**Add new definitions as follows:**

**Automatic flush bolt.** Door locking hardware, installed on the inactive leaf of a pair of doors, which has a bolt that is extended automatically into the door frame or floor when the active leaf is closed after the inactive leaf, and which holds the inactive leaf in a closed position. When the active leaf is opened, the automatic flush bolt retracts the bolt or rod allowing the inactive leaf to be opened (see CONSTANT LATCHING BOLT, DEAD BOLT, MANUAL BOLT).

**Constant latching bolt.** Door locking hardware installed on the inactive leaf of a pair of doors, which has a bolt that automatically latches into the door frame or the floor, and which holds the inactive leaf in a closed position. The latch bolt is retracted manually to allow the inactive leaf to be opened (see AUTOMATIC FLUSH BOLT, DEAD BOLT, MANUAL BOLT).

**Dead bolt.** Door locking hardware with a bolt which is extended and retracted by action of the lock mechanism (see AUTOMATIC FLUSH BOLT, CONSTANT LATCHING BOLT, MANUAL BOLT).

**Manual bolt.** Door locking hardware operable from one side of the door, or from the edge of a door leaf, with a bolt or rod extended and retracted by manual movement of the bolt or rod, such as a manual flush bolt or manual surface bolt (see AUTOMATIC FLUSH BOLT, CONSTANT LATCHING BOLT, DEAD BOLT).

**(F10053 AS)**

**Revise as follows:**

**[BS] DANGEROUS.** Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.

2. There exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance or ornamentation of the building or structure under ~~service loads.~~ permanent, routine, or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake, or other environmental loads when such loads are imminent.

**(S9461/G2-19 AS)**

**Add new definition as follows:**

**DWELLING UNIT, EFFICIENCY.** A dwelling unit where all permanent provisions for living, sleeping, eating and cooking are contained in a single room.

**(F9441 / G131-18 AS)**

**Revise as follows:**

**[BS] DEAD LOAD.** The weight of materials of construction incorporated into the building, including but not limited to, walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding and other similarly incorporated architectural and structural items, and the weight of fixed service equipment, ~~such as~~ including cranes ~~, plumbing stacks and risers, electrical feeders, heating, ventilating and air-conditioning systems and~~ *~~automatic sprinkler systems~~*.and material handling systems.

**(S9462 / G3-19 AM)**

**EMERGENCY ESCAPE AND RESCUE OPENING.** An operable exterior window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

**(9345/G5-18 Part I)**

**Revise as follows:**

**[BF] CEILING RADIATION DAMPER.** A listed device installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening. Ceiling radiation dampers include air terminal units, ceiling dampers and ceiling air diffusers. Ceiling radiation dampers are classified for use in either static systems that will automatically shut down in the event of a fire, or in dynamic systems that continue to operate during a fire. A dynamic ceiling radiation damper is tested and rated for closure under elevated temperature airflow.

(**F9269 / FS62-18 AM)**

**Add new definition as follows:**

**EMITTANCE.** The ratio of radiant heat flux emitted by a specimen to that emitted by a blackbody at the same temperature and under the same conditions.

**(R9343 / G3-18 AS)**

**Revise as follows:**

**[BS] LIVE LOAD, ROOF**. A load on a roof produced:

1. During maintenance by workers, equipment and materials; or

2. During the life of the structure by movable objects such as planters or other similar small decorative appurtenances that are not occupancy related.~~; or~~

~~3. By the use and occupancy of the roof such as for roof gardens or assembly areas.~~

**(S9525 / S36-19 AS)**

**Revise as follows:**

**[BS] GYPSUM BOARD.** The generic name for a family of sheet products consisting of a noncombustible core primarily of gypsum with paper surfacing. ~~Gypsum wallboard, gypsum sheathing, gypsum base for gypsum veneer plaster, exterior gypsum soffit board, predecorated gypsum board and water-resistant gypsum backing board complying with the standards listed in Tables 2506.2, 2507.2 and Chapter 35 are types of gypsum board.~~

**[BS] GYPSUM PANEL PRODUCT.**  The general name for a family of sheet products consisting essentially of gypsum complying with the standards specified in Tables 2506.2 and 2507.2, and Chapter 35. Gypsum board and glass mat gypsum panels are examples of gypsum panel products.

**(S9465 / G5-19 AS)**

**Add new definition as follows:**

**GLASS MAT GYPSUM PANEL.** A gypsum panel consisting of a noncombustible core primarily of gypsum, surfaced with glass mat partially or completely embedded in the core.

**GYPSUM SHEATHING.** Gypsum panel products specifically manufactured with enhanced water resistance for use as a substrate for exterior surface materials.

**GYPSUM WALLBOARD.** A gypsum board used primarily as an interior surfacing for building structures.

**(S9463 / G4-19 Part I AS)**

**Revise as follows:**

**INTUMESCENT FIRE-RESISTIVE~~RESISTANT~~ MATERIALS~~COATINGS~~.**~~Thin film liquid~~Liquid mixture applied to substrates by brush, roller, spray or trowel which expands into a protective foamed layer to provide fire-resistive~~resistant~~ protection of the substrates when exposed to flame or intense heat.

**Delete without substitution:**

**~~MASTIC FIRE-RESISTANT COATINGS.~~**~~Liquid mixture applied to a substrate by brush, roller, spray or trowel that provides fire-resistant protection of a substrate when exposed to flame or intense heat.~~

**(S10466 AS)**

**POSITIVE ROOF DRAINAGE.**The drainage condition in which consideration has been made for all loading deflections of the roof deck, and ~~additional~~ sufficient slope has been provided to ensure drainage of the roof within 48 hours of precipitation.

**(R10134 AM)**

**Revise as follows:**

**SPRAYED FIRE-RESISTIVE~~RESISTANT~~ MATERIALS.**Cementitious or fibrous materials that are sprayed to provide fire-resistive~~resistant~~ protection of the substrates.

**(F10487 AS)**

**Add new definition as follows:**

**PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT (*PITMR*).** Restraint that is used to prevent local buckling of an individual truss chord or web member because of the axial forces in the individual truss member.

**PERMANENT INDIVIDUAL TRUSS MEMBER DIAGONAL BRACING (*PITMDB*).** Structural member or assembly intended to permanently stabilize the *PITMR*’s.

**INDIVIDUAL TRUSS MEMBER.** A truss chord or truss web.

**(S9609 / S168-19 AS)**

**Add new definition as follows:**

INSULATING SHEATHING A rigid panel or board insulation material having a thermal resistance of not less than R-2 of the core material with properties suitable for use on walls, floors, roofs, or foundations.

**(S9350 / G6-18 AS)**

**Add new definition as follows:**

**[BF] NAILABLE SUBSTRATE.** A product or material such as framing, sheathing or furring, composed of wood, wood-based materials or other materials providing equivalent fastener withdrawal resistance.

**(S9329 / FS2-19 AM)**

**202 Definitions.**

PROFESSIONAL SURVEYOR AND MAPPER. An individual who is licensed or registered to engage in the practice of surveying and mapping under Chapter 472, Florida Statutes.

**(SP10349 AS)**

**Add new definition as follows:**

**SPECIAL EVENT STRUCTURE.** Any ground-supported structure, platform, stage, stage scaffolding or rigging, canopy, tower or similar structure supporting entertainment-related equipment or signage.

**(F9450 / G147-18 AM)**

**Delete without substitution:**

**~~[BS]~~ ~~SPECIAL STRUCTURAL WALL.~~** ~~See Section 1905.1.1.~~

**[BS] ~~DESIGN DISPLACEMENT.~~** ~~See Section 1905.1.1.~~

**(S9597 / S148-19 AM)**

**Add new definition as follows:**

**SPRAY-APPLIED FOAM PLASTIC.** Single- and multi-component, spray-applied foam plastic insulation used in nonstructural applications which are installed at locations wherein the material is applied in a liquid or frothed state, permitted to free rise and cure in situ.

**(F9324 / FS155-18 AS)**

**Revise as follows:**

**[BG] SMOKE COMPARTMENT.** A space within a building ~~enclosed by smoke barriers~~ ~~on all sides, including the top and bottom~~ separated from other interior areas of the building by smoke barriers, including interior walls and horizontal assemblies.

**(F9252 / FS38-18 AS)**

**Add new definition as follows:**

**VAPOR DIFFUSION PORT.** An assembly constructed or installed within a roof assembly at an opening in the roof deck to convey water vapor from an unvented attic to the outside atmosphere.

**(S9433 / G119-18 AS)**

**Add new definition as follows:**

**[BG] MECHANICAL-ACCESS ENCLOSED PARKING GARAGE.** An enclosed parking garage that employs parking machines, lifts, elevators or other mechanical devices for vehicle moving from and to street level and in which public occupancy in the garage is prohibited in all areas except the vehicle access bay.

**(F9376 / G39-18 AMPC1)**

**[BS] PORCELAIN TILE.** ~~Tile that conforms to the requirements of ANSI A137.1.3, Section 3.0 for ceramic~~ Ceramic tile having an absorption of 0.5 percent or less in accordance with ANSI A137.1, ~~Section 4.1 and Section 6.1 Table 10.~~Table 10 or ANSI A137.3, Tables 4 or 5.

**(S9328/FS1-19 AS)**

*Previous definitions remain unchanged. Some unchanged definitions below are shown for clarity.*

**ROOF ASSEMBLY**. ~~(For application to Chapter 15 only).~~A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering roof deck~~,~~ and may include a *vapor retarder*, ~~substrate~~ ~~or~~ thermal barrier, insulation or similar substrate ~~vapor retarder~~ ~~and roof covering~~..

**ROOF COVERING**. The covering applied to the roof deck for weather resistance, fire classification or appearance.

**~~ROOF COVERING SYSTEM~~**~~. See “Roof assembly.”~~

**ROOF DECK**. The flat or sloped surface not including its supporting members or vertical supports.

**ROOF RECOVER**. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

**ROOF REPAIR**. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

**ROOF REPLACEMENT**. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

**ROOF SECTION**. A separation or division of a roof area by existing joints, parapet walls, flashing (excluding valleys), difference of elevation (excluding hips and ridges), roof type or legal description; not including the roof area required for a proper tie-off with an existing system.

**ROOF SYSTEM**.  A roof system consists of a *roof covering* and other interacting roofing components and may include *vapor retarder*, thermal barrier, insulation or other similar substrate. The system does not include the roof deck unless it is part of a single component serving as the roof covering and the *roof deck*.

*Remaining definitions remain unchanged*

**(S9954 AS)**

**Revise as follows:**

**[BF] STEEP SLOPE.**  A roof slope ~~greater than~~ two units vertical in 12 units horizontal (17-percent slope) or greater.

**(R9467 / G9-19 AS)**

**Add new definition as follows:**

**Underpinning.** The alteration of an existing foundation to transfer loads to a lower elevation using new piers, piles, or other permanent structural support elements installed below the existing foundation.

**(S9469 / G11-19 AS)**

**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 an Exposure D condition exists upwind at the water line and 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*III health care facilities, the wind-borne 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).

**(S9956 AS)**

**202 ACCESSORY STRUCTURE.**A structure that is accessory to and incidental to that of a building or *dwelling*(*s*) and that is located on the same *lot*.

**202 Sun Control Structure.**An independently supported accessory structure consisting of columns or posts supporting an open roof of girders, beams, or cross rafters with or without fixed or operational louvers serving to direct sunlight. Sun Control Structures attached to and depending on a building for support are considered the same occupancy class as the supporting building.

**(S10388 AM A2)**

**Revise as follows:**

**ESSENTIAL FACILITIES.**Buildings and other structures that are intended to remain operational in the event of extreme environmental loading from *flood*, wind, tornado, snow or earthquakes.

**NOMINAL LOADS.**The magnitudes of the *loads*specified in Chapter 16 (dead, live, soil, wind, tornadoes, snow, rain, *flood*and earthquake).

**RISK CATEGORY.**A categorization of buildings and other structures for determination of *flood*, wind, tornado, snow, ice and earthquake *loads*based on the risk associated with unacceptable performance.

**(S10065 AM A1)**

**CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION**

**Revise as follows:**

**306.2 Moderate-hazard factory industrial, Group F-1.** Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

* Aircraft (manufacturing, not to include repair)
* Appliances
* Athletic equipment
* Automobiles and other motor vehicles
* Bakeries
* Beverages: over 16-percent alcohol content
* Bicycles
* Boats
* Brooms or brushes
* Business machines
* Cameras and photo equipment
* Canvas or similar fabric
* Carpets and rugs (includes cleaning)
* Clothing
* Construction and agricultural machinery
* Disinfectants
* Dry cleaning and dyeing
* Electric generation plants
* Electronics
* Energy storage systems (ESS) in dedicated use buildings
* Engines (including rebuilding)
* Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232 m2) in area.
* Furniture
* Hemp products
* Jute products
* Laundries
* Leather products
* Machinery
* Metals
* Millwork (sash and door)
* Motion pictures and television filming (without spectators)
* Musical instruments
* Optical goods
* Paper mills or products
* Photographic film
* Plastic products
* Printing or publishing
* Recreational vehicles
* Refuse incineration
* Shoes
* Soaps and detergents
* Textiles
* Tobacco
* Trailers
* Upholstering
* Wood; distillation
* Woodworking (cabinet)

**(F9358 / G17-18 AS)**

**306.2 Moderate-hazard factory industrial, Group F-1.** Factory industrial uses that are not classified as Factory

Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the

following:

Aircraft (manufacturing, not to include repair)

Appliances

Athletic equipment

Automobiles and other motor vehicles

Bakeries

Beverages: over 16-percent alcohol content

Bicycles

Boats

Brooms or brushes

Business machines

Cameras and photo equipment

Canvas or similar fabric

Carpets and rugs (includes cleaning)

Clothing

Construction and agricultural machinery

Disinfectants

Dry cleaning and dyeing

Electric generation plants

Electronics

Energy storage systems (ESS) in dedicated use buildings

Engines (including rebuilding)

Food processing establishments and commercial kitchens

not associated with restaurants, cafeterias and similar

dining facilities more than 2,500 square feet (232 m2)

in area

Furniture

Hemp products

Jute products

Laundries

Leather products

Machinery

Metals

Millwork (sash and door)

Motion pictures and television filming (without

spectators)

Musical instruments

Optical goods

Paper mills or products

Photographic film

Plastic products

Printing or publishing

Recreational vehicles

Refuse incineration

Shoes

Soaps and detergents

Textiles

Tobacco

Trailers

Upholstering

Water/sewer treatment facilities

Wood; distillation

Woodworking (cabinet)

**306.2.1 Aircraft manufacturing facilities.** Aircraft manufacturing facilities shall comply with Section 412.6.

**(F9359 / G18-18 AM)**

**Revise as follows:**

**310.5.1 Care facilities within a dwelling.** Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the International Residential Code provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *Florida Building Code, Residential*.

**310.5.2 Lodging houses.** Owner-occupied lodging houses with five or fewer guest rooms and 10 or fewer total occupants shall be permitted to be constructed in accordance with the International Residential Code provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.

**(F9360/G22-18 AS)**

**CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED**

**ON OCCUPANCY AND USE**

**402.4.2.2 Anchor building separation.** An anchor building shall be separated from the covered or open mall building by fire walls complying with Section 706.

**Exceptions:**

1. Anchor buildings of not more than three stories above grade plane that have an occupancy classification the same as that permitted for tenants of the mall building shall be separated by 2-hour fire-resistance-rated fire barriers complying with Section 707.

2. The exterior walls of anchor buildings separated from an open mall building by an open mall shall comply with Table ~~602~~705.5.

**402.4.2.3 Parking garages.** An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages shall be considered as a separate building where it is separated from the covered or open mall building or anchor building 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.

Parking garages, which are separated from covered mall buildings, open mall buildings or anchor buildings, shall comply with the provisions of Table ~~602.~~705.5.

*Pedestrian* walkways and tunnels that connect garages to mall buildings or anchor buildings shall be constructed in accordance with Section 3104.

**406.5.6 Fire separation distance.** Exterior walls and openings in exterior walls shall comply with Tables 601 and ~~602~~ 705.5. The distance to an adjacent lot line shall be determined in accordance with Table ~~602~~ 705.5 and Section 705.

**(F9241 / FS18-18 AM)**

**403.2.4 Sprayed fire-resistive~~resistant~~ materials (SFRM).**

The bond strength of the SFRM installed throughout the building shall be in accordance with Table 403.2.4.

**(F10493 AS)**

**403.2.2 Seismic considerations.**Reserved.  ~~For seismic considerations, see Chapter 16.~~

**Revise as follows:**

**403.3 Automatic sprinkler system.**Buildings and structures shall be equipped throughout with an *automatic sprinkler system*in accordance with Section 903.3.1.1 ~~and a secondary water supply where required by Section 403.3.3~~.

**Delete section in its entirety and show as Reserved:**

**403.3.3 Secondary water supply.**Reserved.  ~~An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for~~*~~highrise buildings~~*~~assigned to Seismic Design Category C, D, E or F as determined by Section 1613. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the~~*~~automatic sprinkler system~~*~~. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.~~

**(F10037 AS)**

**~~Revise as follows:~~**

**~~[F] 403.3.3 Secondary water supply.~~** ~~An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned to Seismic Design Category C, D, E or F as determined by Section 1613. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.~~

**(F9819 / F175-18 AS)**

**~~[F]~~ TABLE 414.5.1**

**EXPLOSION CONTROL REQUIREMENTSa, h**

|  |  |  |  |
| --- | --- | --- | --- |
| **MATERIAL** | **CLASS** | **EXPLOSION CONTROL METHODS** | |
| **Barricade construction** | **Explosion (deflagration) venting or explosion (deflagration) prevention systemsb** |
| HAZARD CATEGORY | | | |
| Combustible dustsc | — | Not Required | Required |
| Cryogenic flammables | — | Not Required | Required |
| Explosives | Division 1.1 | Required | Not Required |
| Division 1.2 | Required | Not Required |
| Division 1.3 | Not Required | Required |
| Division 1.4 | Not Required | Required |
| Division 1.5 | Required | Not Required |
| Division 1.6 | Required | Not Required |
| Flammable gas | Gaseous | Not Required | Required |
| Liquefied | Not Required | Required |
| Flammable liquid | IAd | Not Required | Required |
| IBe | Not Required | Required |
| Organic peroxides | U | Required | Not Permitted |
| I | Required | Not Permitted |
| Oxidizer liquids and solids | 4 | Required | Not Permitted |
| Pyrophoric gas | — | Not Required | Required |
| Unstable (reactive) | 4 | Required | Not Permitted |
| 3 Detonable | Required | Not Permitted |
| 3 Nondetonable | Not Required | Required |
| Water-reactive liquids and solids | 3 | Not Required | Required |
| 2g | Not Required | Required |
| SPECIAL USES |  |  |  |
| Acetylene generator rooms | — | Not Required | Required |
| Energy Storage Systemsi |  | Not Required | Required |
| Grain processing | — | Not Required | Required |
| Liquefied petroleum gas-distribution facilities | — | Not Required | Required |
| Where explosion hazards existf | Detonation | Required | Not Permitted |
| Deflagration | Not Required | Required |

a. See Section 414.1.3.

b. See the International Fire Code.

c. As generated during manufacturing or processing.

d. Storage or use.

e. In open use or dispensing.

f. Rooms containing dispensing and use of hazardous materials where an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.

g. A method of explosion control shall be provided where Class 2 water-reactive materials can form potentially explosive mixtures.

h. Explosion venting is not required for Group H-5 fabrication areas complying with Section 415.11.1 and the International Fire Code~~.~~

i. Where explosion control is required in Section 1206.

**(F9815 / F168-18 AS)**

**[BS] 403.2.3 Structural integrity of interior exit stairways and elevator hoistway enclosures.** For *high-rise buildings of Risk Category* III or IV in accordance with Section 1604.5, and for all buildings that are more than 420 feet (128 m) in *building height*, enclosures for *interior exit stairways* and elevator hoistway enclosures shall comply with Sections 403.2.3.1 through 403.2.3.4.

**Revise as follows:**

**[BS] 403.2.3.1 Wall assembly materials - Soft Body Impact.** The ~~wall assemblies~~ panels making up the enclosures for *interior exit stairways* and elevator hoistway enclosures shall meet or exceed Soft Body Impact Classification Level 2 as measured by the test method described in ASTM C1629/C1629M.

**[BS] 403.2.3.2 Wall assembly materials - Hard Body Impact.** The ~~face of the wall assemblies~~ panels making up the enclosures for *interior exit stairways* and elevator hoistway enclosures that are not exposed to the interior of the enclosures for *interior exit stairways* or elevator hoistway enclosure shall be ~~constructed~~ in accordance with one of the following ~~methods~~:

1. The wall assembly shall incorporate ~~not~~ no fewer than two layers of impact-resistant ~~construction board~~ panels, each of which meets or exceeds Hard Body Impact Classification Level 2 as measured by the test method described in ASTM C1629/C1629M.

2. The wall assembly shall incorporate ~~not~~ no fewer than one layer of impact-resistant ~~construction material~~ panels that meets or exceeds Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C1629/C1629M.

3. The wall assembly incorporates multiple layers of any material, tested in tandem, that meets or exceeds Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C1629/C1629M.

**[BS] 403.2.3.3 Concrete and masonry walls.** Concrete or masonry walls shall be deemed to satisfy the requirements of Sections 403.2.3.1 and 403.2.3.2.

**Revise as follows:**

**[BS] 403.2.3.4 Other wall ~~assemblies~~ materials.** Any other wall ~~assembly~~ materials that ~~provides~~ provide impact resistance equivalent to that required by Sections 403.2.3.1 and 403.2.3.2 for Hard Body Impact Classification Level 3, as measured by the test method described in ASTM C1629/C1629M, shall be permitted.

**(S9475 / G13-19 AS)**

**Revise as follows:**

**[BS] 403.2.3.1 Wall assembly.** The wall assemblies making up the enclosures for *interior exit stairways* and elevator hoistway enclosures shall meet or exceed Soft Body Impact Classification Level 2 as measured by the test method described in ASTM C1629/1629M when tested from the exterior side of the enclosures.

**[BS] 403.2.3.2 Wall assembly materials.** The face of the wall assemblies making up the enclosures for *interior exit stairways* and elevator hoistway enclosures that are not exposed to the interior of the enclosures ~~for~~ *~~interior exit stairways~~* ~~or elevator hoistway enclosure~~ shall be constructed in accordance with one of the following methods:

1. The wall assembly shall incorporate not fewer than two layers of impact-resistant construction board each of which meets or exceeds Hard Body Impact Classification Level 2 as measured by the test method described in ASTM C1629/C1629M.

2. The wall assembly shall incorporate not fewer than one layer of impact-resistant construction material that meets or exceeds Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C1629/C1629M.

3. The wall assembly incorporates multiple layers of any material, tested in tandem, that meets or exceeds Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C1629/C1629M.

**[BS] 403.2.3.4 Other wall assemblies.** Any other wall assembly that provides impact resistance equivalent to that required by Sections 403.2.3.1 for Soft Body Impact Classification Level 2 and 403.2.3.2 for Hard Body Impact Classification Level 3, as measured by the test method described in ASTM C1629/C1629M, shall be permitted.

**(S9476 / G14-19 AMPC1)**

|  |
| --- |
| Inset text as shown.  **407.5.3 Horizontal assemblies.**  *Horizontal assemblies* supporting *smoke barriers*required by this section shall be designed to resist the movement of smoke. Elevator lobbies shall be in accordance with Section 3006.2.  **407.6 Automatic-closing doors.** Automatic-closing doors with hold-open devices shall comply with Sections 709.5 and 716.5.  **407.6.1 Activation of automatic-closing doors.** Automatic-closing doors on hold-open devices in accordance with Section 716.5.9.4 shall also close upon activation of a fire alarm system, an automatic sprinkler system, or both. The automatic release of the hold open device on one door shall release all such doors within the same smoke compartment.    **407.~~6~~7 Automatic sprinkler system.**  *Smoke compartments* containing sleeping rooms shall be equipped throughout with an *automatic sprinkler*system in accordance with Sections 903.3.1.1 and 903.3.2.  **407.~~7~~8 Fire alarm system.**  A *fire alarm* system shall be provided in accordance with Section 907.2.6.  **407.~~8~~9 Automatic fire detection.**  *Corridors*in Group I-2, Condition 1 occupancies and spaces permitted to be open to the *corridors*by Section 407.2 shall be equipped with an automatic fire detection system.  Group I-2, Condition 2 occupancies shall be equipped with smoke detection as required in Section 407.2.  **Exceptions:**  1. *Corridor* smoke detection is not required where sleeping rooms are provided with *smoke detectors* that comply with UL 268. Such detectors shall provide a visual display on the *corridor* side of each sleeping room and an audible and visual alarm at the care provider’s station attending each unit.  2. *Corridor* smoke detection is not required where sleeping room doors are equipped with automatic door-closing devices with integral *smoke detectors* on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.  **407.~~9~~10 Secured yards.**  Grounds are permitted to be fenced and gates therein are permitted to be equipped with locks, provided that safe dispersal areas having 30 net square feet (2.8 m2) for bed and stretcher care recipients and 6 net square feet (0.56 m2) for ambulatory care recipients and other occupants are located between the building and the fence. Such provided safe dispersal areas shall be located not less than 50 feet (15 240 mm) from the building they serve.  **407.~~10~~11 Electrical systems.**  In Group I-2 occupancies, 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. |
|  |

**(F9982 AS)**

**412.3.1.3 Sprayed fire-resistive~~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.

**(F10496 AS)**

**Revise as follows:**

**412.8.3 Means of egress.** The means of egress from heliports and helistops shall comply with the provisions of Chapter 10. Landing areas located on buildings or structures shall have two or more ~~means of egress.~~ exits or access to exits. For landing areas less than 60 feet (18 288 mm) in length or less than 2,000 square feet (186 m2) in area, the second means of egress is permitted to be a fire escape, alternating tread device or ladder leading to the floor below.

**(F9132 / E28-18 AS)**

**402.6.3 ~~Children's play~~ Play structures.** ~~Children's play~~ Play structures located within ~~the mall of~~ a ~~covered mall~~ building or within the perimeter line of an open mall building shall comply with Section 424. The horizontal separation between ~~children's~~ play structures, kiosks and similar structures within the mall shall be not less than 20 feet (6096 mm).

**(F9244/CCCIBC2-20 AS)**

**SECTION 402**

**COVERED MALL AND OPEN MALL BUILDINGS**

**Revise as follows:**

**~~[F]~~ 402.7 Emergency systems.** Covered and open mall buildings, anchor buildings and associated parking garages shall be provided with emergency systems complying with Sections 402.7.1 through 402.7.5.

**402.7.2 Smoke control.** ~~Where a covered mall building~~ ~~contains an atrium,~~ Atriums connecting three or more stories in covered mall buildings shall be provided with a smoke control system ~~shall be provided~~ in accordance with Section 909 ~~404.5~~.

**~~Exception:~~** ~~A smoke control system is not required in covered mall buildings~~ ~~where an atrium~~ ~~connects only two stories.~~

**(F9362 / G26-18 AS)**

**Delete without substitution:**

**~~403.2.2 Seismic considerations.~~**~~For seismic considerations, see Chapter 16.~~

**(S9363 / G27-18 AS)**

**Revise as follows:**

**404.1 General.** In other than Group H occupancies, ~~and where permitted by Section 712.1.7~~ , the provisions of Sections 404.1 through 404.10 shall apply to buildings or structures containing vertical openings defined as "Atriums."

**Exception:** Vertical openings that comply with Sections 712.1.1 through 712.1.3, and Sections. 712.1.9 through 712.1.14.

**(F9366 / G30-18 AS)**

**Revise as follows:**

**404.5 Smoke control.** A smoke control system shall be installed in accordance with Section 909.

**Exceptions:**

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for atriums that connect only two stories.

2. A smoke control system is not required for atriums connecting more than two stories when all of the following are met:

2.1. Only the 2 lowest stories shall be permitted to be open to the atrium.

2.2. All stories above the lowest 2 stories shall be separated from the atrium in accordance with the provision for a shaft in Section 713.4.

**(F9368 / G32-18 AM)**

**404.6Enclosure of atriums.**

*Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

**Exceptions:**

1. A *fire barrier*is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:

    1.1 Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The        sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829        mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;

    1.2 The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system     operates; and

     1.3 Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.

2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a 3/4-hour *fire protection rating* is provided.

3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium*provided such spaces are accounted for in the design of the     smoke control system.

4.     A horizontal assembly is not required between the atrium and openings for escalators complying with Section 712.1.3.

5.    A horizontal assembly is not required between the atrium and openings for exit access stairways and ramps complying with Item4 of Section 1019.3.

**(F10160 AS)**

**Add new text as follows:**

**404.10 Exit stairways in an atrium.** Where an *atrium* contains an *interior exit stairway* all the following shall be

met:

1. The entry to the exit stairway is the edge of the closest riser of the exit stairway.

2. The entry of the exit stairway shall have access from a minimum of two directions.

3. The distance between the entry to an exit stairway in an atrium and the entrance to a minimum of one exit

stairway enclosed in accordance with Section 1023.2 shall comply with the separation required by Section

1007.1.1.

4. Exit access travel distance shall be measured to the closest riser of the exit stairway.

5. Not more than 50 percent of the exit stairways shall be located in the same atrium.

**404.~~10~~11 Interior exit stairways discharge.** A maximum of 50 percent of interior exit stairways are permitted to egress through an atrium on the level of exit discharge in accordance with Section 1028.

**404.9 Exit access travel distance.** *Exit access* travel distance for areas open to an *atrium* shall comply with the

requirements of Section 1017.

**(F9374 / G35-18 AMPC1)**

**Add new text as follows:**

**406.6.4 Mechanical-access enclosed parking garages.** *Mechanical-access enclosed parking garages* shall be in

accordance with Sections 406.6.4.1 through 406.6.4.4.

**406.6.4.1 Separation.** *Mechanical-access enclosed parking garages* shall be separated from other occupancies

and accessory uses by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or

by not less than 2-hour *horizontal assemblies* constructed in accordance with Section 711, or both.

**406.6.4.2 Smoke removal.** A mechanical smoke removal system, installed in accordance with Section

910.4, shall be provided for all areas containing a *mechanical-access enclosed parking garage*.

**406.6.4.3 Fire control equipment room.** Fire control equipment, consisting of the *fire alarm* control unit,

mechanical *ventilation* controls and an emergency shutdown switch, shall be provided in a room located

where the equipment is able to be accessed by the fire service from a secured exterior door of the building.

The room shall be not less than 50 square feet (4.65 m2) in area and shall be in a location that is approved

by the fire code official.

**406.6.4.3.1 Emergency shutdown switch.** The mechanical parking system shall be provided with a

manually activated emergency shutdown switch for use by emergency personnel. The switch shall be

clearly identified and shall be in a location approved by the fire code official.

**406.6.4.4 Fire department access doors.** Access doors shall be provided in accordance with ~~Section~~

~~3206.7~~ of the  *Florida Fire Prevention Code.*

**TABLE 508.4**

**REQUIRED SEPARATION OF OCCUPANCIES (HOURS)f**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OCCUPANCY** | **A, E** |  | **I-1a, I-3, I-4** |  | **I-2** |  | **Ra** |  | **F-2, S-2b, U** |  | **Be, F-1, M,S-1** |  | **H-1** |  | **H-2** |  | **H-3, H-4** |  | **H-5** |  |
|  | S | NS | S | NS | S | NS | S | NS | S | NS | S | NS | S | NS | S | NS | S | NS | S | NS |
| A, E | N | N | 1 | 2 | 2 | NP | 1 | 2 | N | 1 | 1 | 2 | NP | NP | 3 | 4 | 2 | 3 | 2 | NP |
| I-1a, I-3, I-4 | — | — | N | N | 2 | NP | 1 | NP | 1 | 2 | 1 | 2 | NP | NP | 3 | NP | 2 | NP | 2 | NP |
| I-2 | — | — | — | — | N | N | 2 | NP | 2 | NP | 2 | NP | NP | NP | 3 | NP | 2 | NP | 2 | NP |
| Ra | — | — | — | — | — | — | N | N | 1c | 2c | 1 | 2 | NP | NP | 3 | NP | 2 | NP | 2 | NP |
| F-2, S-2b, U | — | — | — | — | — | — | — | — | N | N | 1 | 2 | NP | NP | 3 | 4 | 2 | 3 | 2 | NP |
| Be, F-1, M, S-1 | — | — | — | — | — | — | — | — | — | — | N | N | NP | NP | 2 | 3 | 1 | 2 | 1 | NP |
| H-1 | — | — | — | — | — | — | — | — | — | — | — | — | N | NP | NP | NP | NP | NP | NP | NP |
| H-2 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | N | NP | 1 | NP | 1 | NP |
| H-3, H-4 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1d | NP | 1 | NP |
| H-5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | N | NP |

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.

NP = Not Permitted.

a See Section 420.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but not to less than 1 hour.

c. See Section ~~406.3.2.~~ 406.3.2 and 406.6.4.

d. Separation is not required between occupancies of the same classification.

e. See Section 422.2 for ambulatory care facilities.

f. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring fire protection systems shall also comply with Section 707.3.10 and Table 707.3.10 in accordance with Section 901.7.

**(F9376 / G39-18 AMPC1)**

|  |
| --- |
| **407.2.6 Nursing home cooking facilities.**  In Group I-2, Condition 1, occupancies, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted to be open to the corridor where all of the following criteria are met:  1.      The number of care recipients housed in the smoke compartment is not greater than 30.  2.      The number of care recipients served by the cooking facility is not greater than 30.  3.      Only one cooking facility area is permitted in a smoke compartment.  ~~4.~~~~The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.~~  4.      The corridor is a clearly identified space delineated by construction or floor pattern, material or color.  5.      The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.  6.     ~~A domestic cooking hood installed and constructed in accordance with Section 505 of the~~*~~Florida Building Code, Mechanical~~*~~is provided over the cooktop or range.~~ The cooking appliances shall comply with Section 407.2.7  ~~7.  The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and~~*~~listed~~*~~and~~*~~labeled~~*~~for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer’s instructions.~~  ~~8.       A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.~~  ~~9.       An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.~~  ~~10.   A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.~~  ~~11.   A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.~~  ~~12.~~ ~~A portable fire extinguisher shall be installed in accordance with the~~*~~Florida Fire Prevention Code~~*~~.~~  Add new text as follows:  **407.2.7   Domestic cooking appliances**  In Group I-2, Condition 1, occupancies, installation of cooking appliances used in domestic cooking facilities shall comply with all of the following:  The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.  2.       A domestic cooking hood installed and constructed in accordance with Section 505 of the *Florida Building Code, Mechanical* is provided over the cooktop or range.  3.   The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Pre-engineered automatic extinguishing systems shall be tested in accordance with UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer’s instructions.  4.       A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.  5.       An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.  6.       A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.  7.       A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.  8.       A portable fire extinguisher shall be installed in accordance with the *Florida Fire Prevention Code*. |
|  |

(**F10486 AM A1)**

**Revise as follows:**

**407.4.4 Group I-2 care suites.** Care suites in Group I-2 shall comply with Sections 407.4.4.1 through 407.4.4.4 and either Section 407.4.4.5 or 407.4.4.6.

**407.4.4.1 Exit access through care suites.** Exit access from all other portions of a building not classified as a care suite shall not pass through a care suite. ~~In a~~ ~~care suite~~ ~~required to have more than one~~ ~~exit, one~~ ~~exit access~~ ~~is permitted to pass through an adjacent~~ ~~care suite~~ ~~provided that all of the other requirements of~~ ~~Sections 407.4~~ ~~and~~ ~~1016.2~~ ~~are satisfied.~~

**407.4.4.2 Separation.** Care suites shall be separated from other portions of the building, including other care suites, by a smoke partition complying with Section 710.

**407.4.4.3 Access to corridor.** Every care suite shall have a door leading directly to an exit access corridor or horizontal exit. Movement from habitable rooms within the care suite shall not require ~~passage through~~ more than ~~three doors and~~ 100 feet (30 480 mm) ~~distance of travel within the~~ of travel within the care suite to a door leading to the exit access corridor or horizontal exit. Where a care suite is required to have more than one exit access door by Section 407.4.4.5.2 or 407.4.4.6.2, the additional door shall lead directly to an exit access corridor, exit or an adjacent suite.

**~~Exception:~~**

~~1. The distance of travel shall be permitted to be increased to 125 feet (38 100 mm) where an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72.~~

**(F9380 / G43-18 AMPC1)/** **(F9381 / G44-18 AS)**

**Revise as follows:**

**[F] TABLE 414.5.1**

**EXPLOSION CONTROL REQUIREMENTSa, h**

|  |  |  |  |
| --- | --- | --- | --- |
| **MATERIAL** | **CLASS** | **EXPLOSION CONTROL METHODS** | |
| **Barricade construction** | **Explosion (deflagration) venting or explosion (deflagration) prevention systemsb** |
| HAZARD CATEGORY |  |  |  |
| Combustible dustsc | — | Not Required | Required |
| Cryogenic flammables | — | Not Required | Required |
| Explosives | Division 1.1 | Required | Not Required |
| Division 1.2 | Required | Not Required |
| Division 1.3 | Not Required | Required |
| Division 1.4 | Not Required | Required |
| Division 1.5 | Required | Not Required |
| Division 1.6 | Required | Not Required |
| Flammable gas | Gaseous | Not Required | Required |
| Liquefied | Not Required | Required |
| Flammable liquid | IAd | Not Required | Required |
| IBe | Not Required | Required |
| Organic peroxides | U | Required | Not Permitted |
| I | Required | Not Permitted |
| Oxidizer liquids and solids | 4 | Required | Not Permitted |
| Pyrophoric gas | — | Not Required | Required |
| Unstable (reactive) | 4 | Required | Not Permitted |
| 3 Detonable | Required | Not Permitted |
| 3 Nondetonable | Not Required | Required |
| Water-reactive liquids and solids | 3 | Not Required | Required |
| 2g | Not Required | Required |
| SPECIAL USES |  |  |  |
| Acetylene generator rooms | — | Not Required | Required |
| Grain processing | — | Not Required | Required |
| Liquefied petroleum gas-distribution facilities | — | Not Required | Required |
| Where explosion hazards existf | Detonation | Required | Not Permitted |
| Deflagration | Not Required | Required |

a. See Section 414.1.3.

b. See the International Fire Code.

c. ~~As generated during manufacturing or processing.~~Combustible dusts where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 104.7.2. See definition of "Combustible dust" in Chapter 2.

d. Storage or use.

e. In open use or dispensing.

f. Rooms containing dispensing and use of hazardous materials where an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.

g. A method of explosion control shall be provided where Class 2 water-reactive materials can form potentially explosive mixtures.

h. Explosion venting is not required for Group H-5 fabrication areas complying with Section 415.11.1 and the International Fire Code.

**(F9816 / F170-18 AS)**

**Revise as follows:**

**[F] 415.6 Fire separation distance.** Group H occupancies shall be located on property in accordance with the other provisions of this chapter. In Groups H-2 and H-3, not less than 25 percent of the perimeter wall of the occupancy shall be an exterior wall.

**~~Exceptions:~~**

~~1. Liquid use, dispensing and mixing rooms having a floor area of not more than 500 square feet (46.5 m~~~~2~~~~) need not be located on the outer perimeter of the building where they are in accordance with the International Fire Code and NFPA 30.~~

~~2. Liquid storage rooms having a floor area of not more than 1,000 square feet (93 m~~~~2~~~~) need not be located on the outer perimeter where they are in accordance with the International Fire Code and NFPA 30.~~

~~3. Spray paint booths that comply with the International Fire Code need not be located on the outer perimeter.~~

**Add new text as follows:**

**[F] 415.6.1 Rooms for flammable or combustible liquid use, dispensing or mixing in open systems.** Rooms for

*flammable or combustible liquid use*, dispensing or mixing in open systems having a floor area of not more

than 500 square feet (46.5 m2) need not be located on the outer perimeter of the building where they are in accordance

with the *International Fire Code* and NFPA 30.

**[F] 415.6.2 Liquid storage rooms and rooms for flammable or combustible liquid use in closed systems.**

*Liquid storage rooms* and rooms for *flammable or combustible liquid use* in closed systems, having a floor

area of not more than 1,000 square feet (93 m2) need not be located on the outer perimeter where they are in accordance

with the *International Fire Code* and NFPA 30.

**[F] 415.6.3 Spray paint booths.** Spray paint booths that comply with the *International Fire Code* need not be

located on the outer perimeter.

**(F9384 AM / G49-18 AM)**

**[F] ~~415.11.3.5~~415.11.4 Emergency alarm system.** Emergency alarm systems shall be provided in accordance with this section and Sections 415.5.1 and ~~415.5.2.~~ 415.5.2. The maximum allowable quantity per control area provisions shall not apply to emergency alarm systems required for HPM.

**[F] ~~415.11.3.5.1~~ 415.11.4.1 Service corridors.** An emergency alarm system shall be provided in service corridors, with not fewer than one alarm device in each service corridor.

**[F] ~~415.11.3.5.2~~ 415.11.4.2 Corridors and interior exit stairways and ramps.** Emergency alarms for corridors, interior exit stairways and ramps and exit passageways shall comply with Section ~~415.5.2.~~ 415.5.2.

**[F] ~~415.11.3.5.3~~ 415.11.4.3 Liquid storage rooms, HPM rooms and gas rooms.** Emergency alarms for liquid storage rooms, HPM rooms and gas rooms shall comply with Section ~~415.5.1.~~415.5.1.

**[F] ~~415.11.3.5.4~~ 415.11.4.4 Alarm-initiating devices.** An approved emergency telephone system, local alarm manual pull stations, or other approved alarm-initiating devices are allowed to be used as emergency alarm-initiating devices.

**[F] ~~415.11.3.5.5~~ 415.11.4.5 Alarm signals.** Activation of the emergency alarm system shall sound a local alarm and transmit a signal to the emergency control station.

**(F9387 / G52-18 AS)**

**[F] TABLE 415.11.1.1.1**

**QUANTITY LIMITS FOR HAZARDOUS MATERIALS IN A SINGLE FABRICATION AREA IN**

**GROUP H-5a**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **HAZARD CATEGORY** | | **SOLIDS (pounds per square foot)** | **LIQUIDS (gallons per square foot)** | **GAS (cubic feet @ NTP/square foot)** |
| **PHYSICAL-HAZARD MATERIALS** | | | | |
| Combustible dust | | Note b | Not Applicable | Not Applicable |
| Combustible fiber | Loose | Note b | Not Applicable | Not Applicable |
| Baled | Notes b and c |  |  |
| Combustible liquid | II | Not Applicable | 0.01 | Not Applicable |
| IIIA | 0.02 |
| IIIB | Not Limited |
| Combination Class | I, II and IIIA | 0.04 |
| Cryogenic gas | Flammable | Not Applicable | Not Applicable | Note d |
| Oxidizing | 1.25 |
| Explosives | | Note b | Note b | Note b |
| Flammable gas | Gaseous | Not Applicable | Not Applicable | Note d |
| Liquefied | Note d |
| Flammable liquid | IA | Not Applicable | 0.0025 | Not Applicable |
| IB | 0.025 |
| IC | 0.025 |
| Combination Class | IA, IB and IC | 0.025 |
| Combination Class | I, II and IIIA | 0.04 |
| Flammable solid | | 0.001 | Not Applicable | Not Applicable |
| Organic peroxide | Unclassified detonable | Note b | Not Applicable | Not Applicable |
| Class I | Note b |
| Class II | 0.025 |
| Class III | 0.1 |
| Class IV | Not Limited |
| Class V | Not Limited |
| Oxidizing gas | Gaseous | Not Applicable | Not Applicable | 1.25 |
| Liquefied | 1.25 |
| Combination of gaseous and liquefied | | 1.25 |
| Oxidizer | Class 4 | Note b | Note b | Not Applicable |
| Class 3 | 0.003 | 0.03 |
| Class 2 | 0.003 | 0.03 |
| Class 1 | 0.003 | 0.03 |
| Combination Class | 1, 2, 3 | 0.003 | 0.03 |
| Pyrophoric materials | | 0.01 | 0.00125 | Notes d and e |
| Unstable (reactive) | Class 4 | Note b | Note b | Note b |
| Class 3 | 0.025 | 0.0025 | Note b |
| Class 2 | 0.1 | 0.01 | Note b |
| Class 1 | Not Limited | Not Limited | Not Limited |
| Water reactive | Class 3 | ~~Note b~~ 0.01f | 0.00125 | Not Applicable |
| Class 2 | 0.25 | 0.025 |
| Class 1 | Not Limited | Not Limited |
| **HEALTH-HAZARD MATERIALS** | | | | |
| Corrosives | | Not Limited | Not Limited | Not Limited |
| Highly toxic | | Not Limited | Not Limited | Note d |
| Toxics | | Not Limited | Not Limited | Note d |

For SI: 1 pound per square foot = 4.882 kg/m2, 1 gallon per square foot = 40.7 L/m2, 1 cubic foot @ NTP/square foot = 0.305 m3 @ NTP/m2, 1 cubic foot = 0.02832 m3.

a. Hazardous materials within piping shall not be included in the calculated quantities.

b. Quantity of hazardous materials in a single fabrication shall not exceed the maximum allowable quantities per control area in Tables 307.1(1) and 307.1(2).

c. Densely packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.

d. The aggregate quantity of flammable, pyrophoric, toxic and highly toxic gases shall not exceed the greater of 0.2 cubic feet at NTP/square foot or 9,000 cubic feet at NTP.

e. The aggregate quantity of pyrophoric gases in the building shall not exceed the amounts set forth in Table 415.6.2.

f. Quantity of Class 3 water reactive solids in a single tool shall not exceed 1 pound.

**(F9823 / F232-18 AS)**

# ECTION 424 ~~CHILDREN'S~~ PLAY STRUCTURES

* 1. **General.** ~~Children's play~~ Play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height or 150 square feet (14 m2) in area shall comply with Sections 424.2 through 424.5.
  2. **Materials.** ~~Children's play~~ Play structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

………….

**~~[F]~~ 424.3 Fire protection.** ~~Children's play~~ Play structures shall be provided with the same level of approved fire suppression and detection devices required for other structures in the same occupancy.

* 1. **Separation.** ~~Children's play~~ Play structures shall have a horizontal separation from building walls, partitions and from elements of the means of egress of not less than 5 feet (1524 mm).

~~Children's~~ Playground structures shall have a horizontal separation from other ~~children's~~ play structures of not less than 20 feet (6090 mm).

* 1. **Area limits.** ~~Children's play~~ Play structures shall be not greater than ~~300~~ 600 square feet (~~28~~ 56 m2) in area, unless a special investigation, acceptable to the building official, has demonstrated adequate fire safety.

**(F9244/CCCIBC2-20)/ (F9397 / G68-18 AM)**

**[F] TABLE 415.6.2**

**DETACHED BUILDING REQUIRED**

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

For SI: 1 ton = 906 kg, 1 cubic foot = 0.02832 m3, 1 pound = 0.454 kg.

a. For materials that are detonable, the distance to other buildings or lot lines shall be in accordance with Section 415.6 of this code or Chapter 56 of the International Fire Code based on trinitrotoluene (TNT) equivalence of the material, whichever is greater.

b. "Maximum Allowable Quantity" means the maximum allowable quantity per control area set forth in Table 307.1(1).

c. Limited to Division 1.4 materials and articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF) regulations or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles, provided that the net explosive weight of individual articles does not exceed 1 pound.

d. Detached buildings are not required, for gases in gas rooms that support H-5 fabrication facilities where the gas room is separated from other areas by a fire barrier with a fire resistance rating of not less than 2 hours and the gas is located in a gas cabinet that is internally sprinklered, equipped with continuous leak detection, automatic shutdown and is not manifolded upstream of pressure controls. Additionally, the gas supply is limited to cylinders that do not exceed 125 lb (57 kg) water capacity in accordance with 49 CFR 173.192 for Hazard Zone A toxic gases.​

**(F9830 / F287-18 AS)**

**Revise as follows:**

**[F] 414.2.3 Number.** The maximum number of control areas within a building shall be in accordance with Table 414.2.2. For the purposes of determining the number of control areas within a building, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered a separate building.

**(F9831 / F288-18 AS)**

**Revise as follows:**

**[F] TABLE 414.2.5(1)**

**MAXIMUM ALLOWABLE QUANTITY PER INDOOR AND OUTDOOR CONTROL AREA IN GROUP M AND S OCCUPANCIES NONFLAMMABLE SOLIDS AND NONFLAMMABLE AND NONCOMBUSTIBLE LIQUIDSd, e, f**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONDITION** | | **MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA** | |
| **Materiala** | **Class** | **Solids pounds** | **Liquids gallons** |
| **A. Health-hazard materials—nonflammable and noncombustible solids and liquids** | | | |
| 1. Corrosivesb, c | Not Applicable | 9,750 | 975 |
| 2. Highly toxics | Not Applicable | 20b, c | 2b, c |
| 3. Toxicsb, c | Not Applicable | 1,000k | 100 |
| **B. Physical-hazard materials—nonflammable and noncombustible solids and liquids** | | | |
| 1. Oxidizersb, c | 4 | Not Allowed | Not Allowed |
| 3 | 1,350g | 115 |
| 2 | 2,250h | 225 |
| 1 | 18,000i, j | 1,800i, j |
| 2. Unstable (reactives)b, c | 4 | Not Allowed | Not Allowed |
| 3 | 550 | 55 |
| 2 | 1,150 | 115 |
| 1 | Not Limited | Not Limited |
| 3. Water reactives | 3b, c | 550 | 55 |
| 2b, c | 1,150 | 115 |
| 1 | Not Limited | Not Limited |

For SI: 1 pound = 0.454 kg, 1 gallon = 3.785 L.

a. Hazard categories are as specified in the International Fire Code.

b. Maximum allowable quantities shall be increased 100 percent in buildings that are sprinklered in accordance with Section 903.3.1.1. Where Note c also applies, the increase for both notes shall be applied accumulatively.

c. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, in accordance with the International Fire Code. Where Note b also applies, the increase for both notes shall be applied accumulatively.

d. See Table 414.2.2 for design and number of control areas.

e. Allowable quantities for other hazardous material categories shall be in accordance with Section 307.

f. Maximum quantities shall be increased 100 percent in outdoor control areas.

g. Maximum amounts shall be increased to 2,250 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.

h. Maximum amounts shall be increased to 4,500 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.

i. The permitted quantities shall not be limited in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

j. Quantities are unlimited in an outdoor control area.

k. Maximum allowable quantity of consumer products shall be increased to 10,000 pounds where individual packages are in the original sealed containers from the manufacturer and the toxic classification is exclusively based on the LC50threshold and no other hazardous materials classifications apply.

**(F9832 / F289-18 AS)**

**SECTION 427   
ARTIFICIAL DECORATIVE VEGETATION**

**427.1 Artificial decorative vegetation.** Artificial decorative vegetation exceeding 6 feet (1830 mm) in height and permanently installed outdoors within 5 feet (1524 mm) of a building, or on the roof of a building, shall comply with ~~Section 320.1 of~~ the Florida *Fire Prevention Code*.

**Exception:**Artificial decorative vegetation located more than 30 feet (9144 mm) from the exterior wall of a building.

**(F9781 / F92-18 Part II AMPC1)**

**Delete without substitution:**

**~~SECTION~~ ~~419~~   
~~LIVE/WORK UNITS~~**

**Revise as follows:**

**508.1 General.** Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 ~~or~~ , 508.4, 508.5, or a combination of these sections.

**Exceptions:**

1. Occupancies separated in accordance with Section 510.

2. Where required by Table 415.6.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a detached building or structure.

~~3. Uses within live/work units, complying with Section 419, are not considered separate occupancies.~~

**~~419.1~~ 508.5 ~~General~~ Live/Work Units.** A live/work unit shall comply with Sections ~~419.1~~ 508.5 through ~~419.9.~~508.5.11.

**Exception:** Dwelling or sleeping units that include an office that is less than 10 percent of the area of the dwelling unit are permitted to be classified as dwelling units with accessory occupancies in accordance with Section 508.2.

**~~419.1.1~~ 508.5.1 Limitations.** All of the following shall apply to live/work areas:

1. The live/work unit is permitted to be not greater than 3,000 square feet (279 m2) in area.

2. The nonresidential area is permitted to be not more than 50 percent of the area of each live/work unit.

3. The nonresidential area function shall be limited to the first or main floor only of the live/work unit.

4. Not more than five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.

**~~419.2~~ 508.5.2 Occupancies.** Live/work units shall be classified as a Group R-2 occupancy. Separation requirements found in Sections 420 and 508 shall not apply within the live/work unit where the live/work unit is in compliance with Section ~~419.~~ 508.5. Nonresidential uses that would otherwise be classified as either a Group H or S occupancy shall not be permitted in a live/work unit.

**Exception:** Storage shall be permitted in the live/work unit provided that the aggregate area of storage in the nonresidential portion of the live/work unit shall be limited to 10 percent of the space dedicated to nonresidential activities.

**~~419.3~~ 508.5.3 Means of egress.** Except as modified by this section, the means of egress components for a live/work unit shall be designed in accordance with Chapter 10 for the function served.

**~~419.3.1~~ 508.5.4 Egress capacity.** The egress capacity for each element of the live/work unit shall be based on the occupant load for the function served in accordance with Table 1004.5.

**~~419.3.2~~ 508.5.5 Spiral stairways.** Spiral stairways that conform to the requirements of Section 1011.10 shall be permitted.

**~~419.4~~ 508.5.6 Vertical openings.** Floor openings between floor levels of a live/work unit are permitted without enclosure.

**~~[F]~~ ~~419.5~~ 508.5.7 Fire protection.** The live/work unit shall be provided with a monitored fire alarm system where required by Section 907.2.9 and an automatic sprinkler system in accordance with Section 903.2.8.

**~~419.6~~ 508.5.8 Structural.** Floors within a live/work unit shall be designed for the live loads in Table 1607.1, based on the function within the space.

**~~419.7~~ 508.5.9 Accessibility.** Accessibility shall be designed in accordance with Chapter 11 for the function served.

**~~419.8~~ 508.5.10 Ventilation.** The applicable ventilation requirements of the International Mechanical Code shall apply to each area within the live/work unit for the function within that space.

**~~419.9~~ 508.5.11 Plumbing facilities.** The nonresidential area of the live/work unit shall be provided with minimum plumbing facilities as specified by Chapter 29, based on the function of the nonresidential area. Where the nonresidential area of the live/work unit is required to be accessible by Section 1107.6.2.1, the plumbing fixtures specified by Chapter 29 shall be accessible.

**(F9417 / G90-18 AS)**

**SECTION 449 HOSPITALS**

|  |
| --- |
| **449.4.2 Disaster preparedness construction standards.**  The following construction standards are in addition to the physical plant requirements described in Sections 49.2 through 449.3. |

These minimum standards are intended to increase the ability of the facility to be structurally capable of serving as a shelter for patients, staff and the family of patients and staff, ~~and~~ equipped to be self-supporting during and immediately following a disaster, and to be protected from damage so the facility can be reoccupied and used for its intended purpose immediately after any required building evacuation.

**(SP10335 AM)**

**449.3 Additional physical plant requirements for general, rehabilitation, and psychiatric hospitals, including intensive residential treatment facilities (IRTFs) for children and adolescents, and unless exempted by Chapter 395.0163, Florida Statutes, all hospital outpatient facilities and hospital mobile and transportable units.** In addition to the codes and standards referenced in Section 449.2 of this code, the following minimum standards of construction and specified minimum essential facilities, shall apply to all new hospitals and all additions, alterations or renovations to an existing licensed hospital, as described in Section 449.1 of this code and listed in Section 449.3 of this code. Where there are conflicting specific requirements between the Guidelines and this code, the requirements of this code shall take precedence.

**(SP10494 AS)**

449.3.3.3 This section shall apply to all mobile/transportable units regardless of the number of hours they are on site.

**(SP10491 AS)**

449.3.4.9 The use of pocket sliding or folding doors to ~~patient use toilet, baths, or shower rooms~~ any occupiable room shall not be permitted. A sliding door equipped with sliding door hardware located ~~on the patient room side of the wall~~ outside of the room and not equipped with a bottom door track shall be permitted

**(SP10332 AS)**

**~~449.3.6.5~~** ~~Variable air volume systems shall not be permitted for use in surgical departments, obstetrical departments, laboratories, isolation rooms and critical care units and rooms~~

**(SP10501 AS)**

449.3.11.6 There shall be documentation for ~~equipotential~~ grounding system testing of voltage and impedance measurements in all patient care areas, building service ground electrode systems, lightning protection ground terminals and special systems such as fire alarm, nurse call, paging, generator, emergency power, fault analysis and breaker coordination.

**(SP10497 AS)**

449.3.12.2 In all inpatient and outpatient 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.

**(SP10333 AS)**

**~~449.4.2.10 External emergency communications standards.~~**

~~Reference Chapter 59A-3.081~~*~~Florida Administrative Code~~*~~for requirements.~~

**(SP10507 AS)**

**449.4.2.2.1**

~~Except as permitted by Section 1612 of this code, the lowest floor of all new facilities shall be elevated to the base flood elevation as defined in Section 1612 of this code, plus 2 feet, or to the height of hurricane Category 3 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS), whichever is higher.~~

The lowest finished floor of all construction of new facilities and additions, substantial improvements to, or restoration of substantial damage to existing facilities, and their support utilities shall be located at or above the highest of the following elevations:

1. Two feet above the base flood elevation as defined in this code.
2. The height of a hurricane Category 5 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS)
3. The design flood elevation as defined in this code.
4. The 500-year flood elevation (elevation with a .02% chance of being equaled or exceeded in any given year) as described in ASCE 24.

**Exceptions:**

1. Fuel supply storage tanks located below ground and/or sufficiently ballasted or anchored to resist uplift due to buoyancy and designed to resist hydrostatic pressures exerted by a 500-year flood event or a category 5 hurricane storm surge inundation.
2. Additions that are not a substantial improvement to an existing facility that was designed and constructed in accordance with the Florida Building Code’s site standards for a hospital in effect at the time of construction shall be located at or above the finish floor elevation of the existing facility.
3. **~~449.4.2.2.2~~**

~~For all existing facilities, the lowest floor elevations of all additions, and all patient support areas including food service, and all patient support utilities, including mechanical, and electrical (except fuel storage as noted in Section 449.4.2.9.3 of this code) for the additions shall be at or above the elevation of the existing building, if the existing building was designed and constructed to comply with either the site standards of Section 449.4 of this code or local flood-resistant requirements, in effect at the time of construction, whichever requires the higher elevation, unless otherwise permitted by Section 1612 of this code. If the existing building was constructed prior to the adoption of either the site standards of Section 449.4 of this code or local flood-resistant requirements, then the addition and all patient support areas and utilities for the addition as described in this section shall either be designed and constructed to meet the requirements of Section 449.4.2.2.1 of this code or be designed and constructed to meet the dry flood proofing requirements of Section 1612 of this code.~~

**(SP10478 AM A3)**

449.4.2.2.1

~~Except as permitted by Section 1612 of this code,~~ ~~t~~The lowest floor of all new facilities shall be elevated to not lower than the base flood elevation as defined in ~~Section 1612 of~~ this code, plus 2 feet, the 500 year flood elevation as defined in ASCE 24, or to the height of hurricane Category ~~3~~5 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS), whichever is higher.

**(SP10338 AM A1)**

**449.4.2.6.1**

All new and replacement air-moving equipment, dx condensing units, through-wall units and other HVAC equipment located outside of, partially outside of, or on the roof of the facility at or below 30 feet above the finished grade of the building and providing service to the ~~new~~facility shall be permitted only when either of the following are met:

**449.4.2.5.4**

~~Critical s~~Systems and utilities identified in ~~this~~ ~~s~~Section 449.4.2 shall be protected from debris impact by an equipment housing or screening enclosure complying with the impact protection standards in accordance with Section~~s~~ 1626~~.2 through 16.26.4~~ when located at or below 30 feet above the finished grade of the building. Where screening enclosures are used, the height of the enclosure shall be not less than the height of the protected equipment and shall provide clearances required for the maintenance and continuous operation of the equipment. Where the housing and louvers are designed to provide the required equipment protection, sufficient standoff shall be provided to prevent damage to internal components from deflection of the cladding as a result of impact. Roof mounted equipment shall have fastening systems designed to meet the wind load requirements of the *Florida Building Code, Building*.

**(SP10505 AM A2)**

**SECTION 450 NURSING HOMES**

450.3.1.2 Skilled nursing units that are part of a hospital and licensed as a hospital bed but certified as a skilled nursing bed shall meet the requirements for an in-hospital skilled nursing patient care unit in the FGI Guidelines for Design and Construction of Hospitals as referenced in Chapter 35 of this code.

**(SP10342 AS)**

450.3.2 Resident rooms. In addition to the requirements of The Guidelines, Chapter 3.~~2~~1, each resident room shall meet the following minimum standards:

**(SP10343 AS)**

**450.4.2.2.1**

~~Except as permitted by Section 1612 of this code, the lowest floor of all new facilities shall be elevated to the base flood elevation as defined in Section 1612 of this code, plus 2 feet, or to the height of hurricane Category 3 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS), whichever is higher.~~

The lowest finished floor of all construction of new facilities and additions, substantial improvements to, or restoration of substantial damage to existing facilities, and their support utilities shall be located at or above the highest of the following elevations:

1. Two feet above the base flood elevation as defined in this code.
2. The height of a hurricane Category 5 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS)
3. The design flood elevation as defined in this code.
4. The 500-year flood elevation (elevation with a .02% chance of being equaled or exceeded in any given year) as described in ASCE 24.

**Exceptions:**

1. Fuel supply storage tanks located below ground and/or sufficiently ballasted or anchored to resist uplift due to buoyancy and designed to resist hydrostatic pressures exerted by a 500-year flood event or a category 5 hurricane storm surge inundation.
2. Additions that are not a substantial improvement to an existing facility that was designed and constructed in accordance with the Florida Building Code’s site standards for a hospital in effect at the time of construction shall be located at or above the finish floor elevation of the existing facility.

**~~450.4.2.2.2~~**

~~For all existing facilities, the lowest floor elevations of all additions, and all patient support areas including food service, and all patient support utilities, including mechanical, and electrical (except fuel storage as noted in Section 450.4.2.9.3 of this code) for the additions shall be at or above the elevation of the existing building, if the existing building was designed and constructed to comply with either the site standards of Section 450.4 of this code or local flood-resistant requirements, in effect at the time of construction, whichever requires the higher elevation, unless otherwise permitted by Section 1612 of this code. If the existing building was constructed prior to the adoption of either the site standards of Section 450.4 of this code or local flood-resistant requirements, then the addition and all patient support areas and utilities for the addition as described in this section shall either be designed and constructed to meet the requirements of Section 450.4.2.2.1 of this code or be designed and constructed to meet the dry flood proofing requirements of Section 1612 of this code.~~

**(SP10498 AM A1)**

450.3.2.1 In new construction and additions, the maximum room capacity of each resident room shall be two persons. In double occupancy resident rooms, sleeping areas shall be separated from each other by a full height wall or full height rigid sliding or foldable partition to increase acoustic and visual privacy. Each person lying in bed shall have direct visual access to an exterior window at all times. Either doors or cubicle curtains from the entry vestibule to these individual resident sleeping areas shall be provided.

**(SP10344 AS)**

450.3.2.2 ~~Each resident room shall have a minimum of 100 square feet (9.29 m2) of clear floor area per bed in a double occupancy resident room and 120 square feet (11.15 m2) of clear floor area in a single occupancy resident room, exclusive of the space consumed by the toilet room, closet(s), wardrobe(s), lavatory(ies), alcove(s), and~~ The clear floor area excludes either the space for the room entrance door swing~~(s)~~ into the room or the space for ~~entrance~~vestibule entry, whichever is greater. For the purpose of determining the minimum clear floor area, the ~~entrance~~ vestibule entry is defined as that floor area located between the room entrance door and the room floor area containing the resident bed(s).

**(SP10345 AS)**

450.3.3 Resident support areas and services. See The Guidelines for requirements.

~~450.3.3.1 Staff work area(s) (nurse station). See The Guidelines for requirements.~~

~~450.3.3.2 Clean utility room. See The Guidelines for requirements.~~

~~450.3.3.3 Soiled utility or soiled holding room(s). See The Guidelines for requirements.~~

~~450.3.3.4 Medication storage and distribution. See The Guidelines for requirements.~~

~~450.3.3.5 A nourishment room. See The Guidelines for requirements.~~

~~450.3.3.6 Ice for residents’ consumption. See The Guidelines for requirements. Where the icemaker unit is accessible to residents or the public, it shall be a self dispensing type~~.

**(SP10346 AS)**

450.3.5.3 The use of pocket sliding or folding doors to  any occupiable room shall not be permitted A sliding door equipped with sliding hardware located ~~on the resident room side of the wall~~ outside of the room and without a bottom track shall be permitted ~~on an individual resident toilet or bathroom~~. If a sliding door is used on a resident toilet or bathroom, a D-shaped handle at least 4 inches (10.16 cm) long shall be provided to open the door. A sliding door used for access to any room located on the exit access corridor may be manual or power operated and shall be smoke resistive and have latching hardware or other mechanism that prevents the door from rebounding to a partially open position if the door is forcefully closed.

**(SP10347 AS)**

450.3.13 Fire pump.

450.3.13.1 Where required by another section of this code, a new 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~~ nursing home. 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.

**(SP10356 AS)**

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| 450.3.14.7 There shall be documentation for ~~equipotential~~grounding system testing of voltage and impedance measurements only in areas defined as risk categories 1 or 2 in ~~patient~~ resident care areas. |
|  |

**(SP10359 AS)**

450.3.15.3 All indoor lighting in the resident use areas including corridors, shared spaces, treatment areas, sleeping areas, social/recreational areas and living areas shall be designed and constructed to meet Table A-1 ~~the recommendations~~of ANSI/IES RP-28-~~07~~ Recommended Practice: Lighting and the Visual Environment for ~~Senior Living~~ Older Adults and the Visually Impaired as referenced in ~~Chapter 35 of this code~~the Guidelines.

**(SP10360 AS)**

450.3.16.3 Carbon monoxide detector. See Section 915 of this code for requirements.

**(SP10361 AS)**

450.3.17 Nurse call systems. Reference The Guidelines only for ~~other~~requirements not specifically described in this section. Nurse call systems as described in NFPA 99 shall not apply.

**(SP10354 AS)**

450.3.17.4 Emergency call system. An emergency call~~ing~~ 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. The cord shall hang to within 2 to 6 inches (5.08 – 15.24 cm) of the floor for use by a resident lying on the floor. A portable wireless device shall satisfy this requirement.

(1) One emergency call station shall be installed in each separated room or area. Additional emergency call stations shall be located as determined by the facility in its Functional Program.

(2) If the emergency calling station is located ~~but not~~ inside of the shower ~~unless the nurse call device is~~ it shall be listed for wet locations.

(3) The call signal shall be the highest priority and shall be cancelled only at the emergency call~~ing~~ station.

(4) The emergency calli~~ng~~ 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.

**(SP10355 AS)**

450.4.2.2.1

~~Except as permitted by Section 1612 of this code,~~ ~~t~~The lowest floor of all new facilities shall be elevated to not lower than the base flood elevation as defined in ~~Section 1612 of~~ this code, plus 2 feet, the 500 year flood elevation as defined in ASCE 24, or to the height of hurricane Category ~~3~~5 (Saffir-Simpson scale) surge inundation elevation, as described by the Sea, Lake, and Overland Surge (SLOSH) from Hurricanes model developed by the Federal Emergency Management Agency (FEMA), United States Army Corps of Engineers (USACE), and the National Weather Service (NWS), whichever is higher. Strengthens the code by requiring elevation to above the 500 year flood elevation and removes language that can be misinterpreted to apply these requirements only to facilities located in the flood hazard area as defined by section 1612.

**(SP10362 AM A2)**

**SECTION 451 AMBULATORY SURGICAL CENTERS**

451.3.2 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 m2) as described in *The Guidelines*~~.~~ ~~Only this size or larger operating room(s)~~ Every operating room that meets the requirements of an outpatient operating room, as described in the Guidelines, shall be ~~listed~~ counted 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. All procedure rooms shall be counted for purposes of licensure.

**(SP10365 AS)**

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~~ area and the phase I recovery ~~suite~~area.

**(SP10366 AS)**

451.3.3 ~~Recovery~~ ~~area~~ Pre- and pos**t**-procedure patient care. Reference *The Guidelines* for other requirements not specifically described in this section.

451.3.3.1 ~~Only the phase I post-anesthesia recovery positions~~, All post-procedure patient care stations as described in *The Guidelines*, including Phase I Post-Anesthesia Recovery, whether or not combined with pre-procedure positions, and if provided, Phase II Recovery will be ~~listed~~ counted as recovery positions for purposes of licensure.

451.3.3.2 A Phase II Recover Room or Area is not required.

**(SP10367 AM)**

451.3.4.3 The use of ~~sliding~~pocket sliding or folding doors to ~~patient use toilets~~ any occupiable room shall not be permitted. A sliding door equipped with sliding door hardware located  outside of the room and not equipped with a bottom door track shall be permitted.

**(SP10368 AS)**

451.3.4.7

Where a fully sprinklered ambulatory surgical center is located in a single story unsprinklered building, a Fire Barrier designed and constructed in accordance with section 707 Fire Barriers and *paragraph 707.3.10  Fire areas*, of this Code, may be used to separate the sprinklered ambulatory surgical center Fire Area from the Fire Area of the remainder of the unsprinklered single story building only when all exits from the ambulatory surgical center lead directly to the exterior of the building or to an exit passageway designed and constructed in accordance with *Section 1024* *Exit Passageways* of this Code.

**(SP10369 AM A1)**

451.3.15 Medical gas. ~~There shall be a~~ A piped ~~medical~~ ~~gas~~ oxygen and vacuum system ~~installatio~~n shall be provided in the ~~licensed~~ operating rooms, of the , if required by the Guidelines, that ~~shall~~comply with the requirements of NFPA 99 Health Care Facilities Code for a Category 1 ~~p~~Piped ~~g~~Gas and ~~v~~Vacuum ~~s~~System.

**(SP10395 AS)**

451.3.16 As required by the Guidelines, a waste anesthetic gas disposal (WAGD) system, in accordance with NFPA 99, Health Care Facilities Code, shall be provided in operating rooms where nitrous oxide and/or inhalation anesthsia gas is intended to be administered.

**(SP10396 AM)**

**SECTION 453 STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES**

Revise 453.13.6 to read as follows:

**453.13.6 Hardware.** Doors and gates shall be equipped with hardware which will allow egress at all times without assistance. No padlock, chain, hasp, lock, deadbolt, or other device shall be installed at any time on any door used for exiting. Doors which by code require closers and other doors subject to wind exposure shall be equipped with closers to prevent slamming and uncontrolled opening.

All doors opening into smoke-tight exit access corridors shall be self-closing or automatic closing. Smoke

doors in walls used to divide corridors into separate atmospheres shall be provided with push-pull plates and are not required to have positive latching. As an exception to Section 1010.1.9.8, delayed egress locks may be used in media centers, alternative education centers, and exceptional

student education centers. ~~Delayed egress locks are prohibited at time-out rooms at all locations.~~

**453.26 ~~Time-out rooms.~~ Reserved.**

**~~453.26.1~~** ~~Locking an individual inside a space without a means of opening the door from within that space is contrary to the exiting philosophy of the~~ *~~Florida Building Code~~* ~~and the~~ *~~Florida Fire Prevention Code~~* ~~as adopted by the State Fire Marshal for educational facilities. The educational program which requires containment of the out-of- control student can be accommodated within this context only if the following are met:~~

**~~453.26.2 Electromagnetic locking device.~~** ~~When a timeout room is to be locked, an electromagnetic locking device may be used and shall have the following features:~~

**~~453.26.2.1~~** ~~The lock shall remain engaged only when a push button mounted outside the time-out room adjacent to the door frame is continuously depressed by hand. Upon release of pressure, the door shall unlock.~~

~~The locking device shall be designed so that it cannot be engaged by leverage of an inanimate object or in any other manner except by constant human contact.~~ **~~453.26.2.2~~** ~~The push button, or similar device, shall be recessed from the face of the unit housing, or in some other way designed to prevent taping or wedging the button in the engaged mode.~~

**~~453.26.2.3~~** ~~The device shall have an interface relay with the fire alarm system and shall automatically release upon activation of the fire alarm.~~

**~~453.26.2.4~~** ~~The locking device shall automatically disengage in the event of a power failure.~~

**~~453.26.2.5~~** ~~Timers shall not be used on the locking device.~~

**~~453.26.3 Door requirements.~~** ~~The door shall have only a push plate exposed on the interior of the room.~~

**~~453.26.3.1~~** ~~The door shall swing out of the room and shall be equipped with a fully concealed track-type~~

~~closer.~~

**~~453.26.3.2~~** ~~A vision panel shall be provided in the door, and it shall be no larger than 144 square inches (0.093 m2). The view panel shall consist of a clear 1/4-inchthick (6 mm) unbreakable plastic panel flush with the inside face of the door on the inside of the room. The panel shall be positioned in the door so that a staff member may continuously keep the student under surveillance.~~

**~~453.26.3.3~~** ~~The door frame and jamb/head reveal on the inside shall be minimal. If provided, a flat metal threshold shall be used.~~

**~~453.26.4 Finishes.~~** ~~The floor and walls shall be durable, vandal-resistant materials. The ceiling shall be of a solid and moisture-resistant material. There shall be no projections or protrusions from the walls, ceiling, or floor. All surfaces shall be smooth and no electrical outlets, switches, plumbing clean-outs or similar items shall be inside the room. The room shall not contain anything that can be set on fire, torn, shredded or otherwise used for self-harm.~~

**~~453.26.5 Minimum size.~~** ~~The room shall be designed for a single occupant only and shall be a minimum of 6 feet by 6 feet (1828 mm by 1828 mm).~~

**~~453.26.6 Lighting.~~** ~~The room shall have a recessed vandalproof light fixture in the ceiling capable of being dimmed. The light switch shall be located outside the room adjacent to the door jamb.~~

**~~453.26.7 HVAC required.~~** ~~Time-out rooms shall be mechanically heated and cooled. Registers shall be ceiling mounted and vandalproof.~~

**453.27.13 Reserved. ~~Time-out rooms.~~** ~~Time-out rooms are not recommended but, when provided, shall comply with the specific requirements for time-out rooms found elsewhere in these public educational facilities code requirements.~~

**(SP-FBC-B – Ch.4 – Errata #1)**

Revise 453.9.1 to read as follows:

**453.9.1 Loading requirements.** Structural design shall comply with code requirements and wind loads as stipulated

by the *Florida Building Code* and the *Florida Fire Prevention Code* as adopted by the State Fire Marshal.

Wind design shall be based on ASCE 7, with wind speeds determined from Figure 26.5-1~~B~~C and ICC 500, as appropriate.

**SP-FBC-B – Ch.4 – Errata #2**

**453.25.4.3 Exterior envelope.**The exterior envelope, louvers over air intakes and vents, and gooseneck-type intakes and vents of EHPAs shall be designed and installed to meet the wind load and missile impact criteria in accordance with ICC 500.

**(SP10197 AS)**

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

**454.1**

**“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, and 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 (8103 mm2) in area.  ~~and shall be equipped with a screen, or equivalent device, to prohibit entry by animals. The vent shall be designed to minimize rainwater entry into the tank.~~  A vent cap assembly shall be installed to minimize rainwater entry into the tank while still allowing for adequate air movement. The vent cap assembly shall be designed to prohibit entry by animals. The vent opening, where connected to the tank, must be set above the static water surface elevation and crown of the overflow piping, if installed. Tanks with vented lids shall not be required to be equipped with a separate vent. Tanks not located in a room or enclosure shall have a lockable lid. Tanks shall be constructed of concrete or other impervious and structurally rigid material, with adequate ~~manway~~ access for maintenance and cleaning, shall be watertight, shall befree from structural cracks and shall have a nontoxic smooth finish.

**(SW10320 AM A2)**

**454.1**

“Recreational Water Slide” means a flume that carries riders with more than 30 gallons per minute of flow down the flume.

…

“Swimming pool slide” is a slide designed by its manufacturer to discharge over the sidewall of a swimming pool, and which uses no more than 30 gallons per minute of water to carry the riders.

**(SW9863 AM) Comment post October 2022 TAC meeting**

454.1.2.2.2

...

The upper part of pool walls in areas 5 feet (1524 mm) deep or less shall be within 5 degrees ~~(4572 mm)~~vertical for a minimum depth of 21/2 feet (762 mm) from which point the wall may join the floor with a maximum radius equal to the difference between the pool depth and 21/2 feet.

No change to remaining text.

**(SW9936-AM)**

**454.1.2.2.3.1 Floor slope shall be uniform.** The floor slope shall be a maximum 1 unit vertical in 10 units horizontal in areas 5 feet (1524 mm) deep or less. The floor slope shall be a maximum 1 unit vertical in 3 units horizontal in areas more than 5 feet (1524 mm) deep.

**(SW9859 AS)**

**454.1.2.3 Markings.  
454.1.2.3.1 Depth and markings. Depth and markings shall meet the following criteria:  
1.      The minimum water depth shall be 3 feet (914 mm).**

No change to the remaining text

**(SW9860 AS)**

**454.1.2.6 Obstructions. The pool water area shall be unobstructed …  
Exceptions:  
…  
3.                  ... A sun shelf must have the same markings at the edge as a bench. …**

**(SW9858 AS)**

454.1

Add as new definition

|  |
| --- |
| **“Swim-up Bar” means a public pool used for the consumption of food and beverages by people, that may include a permanent bar or counter from which food and beverages are served to people in the pool.**  **…**  **454.1.3.1.7 Food or drink service facilities shall not be located within 12 feet (3658 mm) of the water’s edge.****Any pool with food or drink service within 12 feet (3658 mm) of the water’s edge must comply with 454.1.9.9 for Swim Up Bars.**  **…**  **454.1.9.9 Swim Up Bars**  **454.1.9.9.1 A swim-up bar shall be constructed within the limits of sound engineering practice. The maximum pool depth shall not exceed 5 feet (1524 mm) and the recirculation turnover time shall be 2 hours or less.The disinfection equipment shall be capable of feeding 12 mg/L of halogen to the continuous recirculation flow of the filtration system. Attendants or lifeguards shall be provided in accordance with a safety/lifeguard plan approved by the Department of Health.**  **454.1.9.9.2A rules sign complying with 454.1.2.3.5 shall be provided, except, the first rule shall read:**  **Food and Drink are consumed in this pool. All drinks shall be in plastic or aluminum containers.**  **454.1.9.9.3If the bar or counter is built into the edge of the pool, pool access complying with 454.1.2.5 shall be provided at both ends of the bar. Deck complying with 454.1.3.1 shall be provided, except, up to 50% of the pool perimeter may be obstructed by the bar. Gutters or skimmers are not required at or under the bar counter, however, they are required at the rest of the pool. An automatic water level controller shall be provided, and an overfill waste line with air gap shall be provided.**  **454.1.9.9.4 A swim up bar may be physically combined or connected with other pool types, however, food and drink must be permitted over the entire body of water and the requirements of 454.1.9.9.1 shall apply to the entire water volume. A swim up bar’s water must not mix with any body of water that is not a swim up bar and does not allow the consumption of food and beverages.**  **454.1.9.9.5 A swim up bar may include obstructions intended for seating. Any structure intended for seating in the pool shall have 2 inch (51 mm) horizontal and 2 inch (51 mm) vertical markings in contrasting color on every edge, and be structurally rigid, impervious, non-toxic, smooth, and slip resistant. The edges of such obstructions shall not overhang into the water by more than 1.5 inches (38 mm).** |
|  |

**(SW10382 AM A1)**

**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 [or 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 [or 3 if so approved using the procedure stated in Section 454.1.6.5.1] for Diatomaceous Earth (D.E.) or regenerative media type filters.

**(SW10389 AM A1)**

**454.1.6.5.9 Inlets. All inlets shall be adjustable with wall-type inlets being directionally adjustable and floor-type inlets having a means of flow adjustment. Floor inlets shall be designed and installed such that they do not protrude above the pool floor and all inlets shall be designed and installed so as not to constitute sharp edges or protrusions hazardous to pool bathers. Floor inlets for vinyl liner and fiberglass pools, shall be smooth with no sharp edges, and shall not extend more than 3/8 inch (9.5 mm) above the pool floor. Wall inlets shall be installed a minimum of 12 inches (305 mm) below the normal operating water level unless precluded by the pool depth or intended for a specific acceptable purpose. The spacing of inlets shall comply with one of the following:**

**~~454.1.6.5.9.~~1. The pool is 30 feet (9144 mm) in width or lessand has wall inletssuch that the inlet spacing does not exceed 20 feet (6096 mm) along the entire pool water perimeter.**

**2.      The pool has floor inlets such that the spacing between adjacent inlets does not exceed 20 feet (6096 mm) and the spacing between inlets and adjacent walls does not exceed 10 feet (3048 mm).**

**3.      The pool has a combination of wall and floor inlets such thatthe spacing between adjacent inlets of the same type does not exceed 20 feet (6096 mm), the spacing between a floor inlet and an adjacent wall without inlets does not exceed 10 feet ( 3048 mm), and the spacing between a floor inlet and an adjacent wall with inlets does not exceed 25 ft (7620 mm).**

**In each case, additional wall or floor inlets may be provided above and beyond these minimum requirements.**

**(SW9930 AM)**

**454.1.2.3.3 Lane markings. Pools that are not intended to be utilized for officially sanctioned competition may install lap lane markings provided they meet the following criteria: the markings must be 2 to 6 inches (51 to 152 mm) wide, they must terminate 5 feet (1524 mm) from the end wall in a “T” with the “T” bar at least 18 inches (457.2 mm) long, they must be placed at 7-foot (2134 mm) minimum intervals on center and be no closer than 4 feet (1219 mm) from any side wall, steps or other obstructions. Floating rope lines associated with lap lanes must not obstruct the entrance or exit from the pool and are prohibited when the pool is open for general use.  
…  
454.1.6.5.2 Volume. The recirculation system shall be designed to provide a minimum of four turnovers of the pool volume per day. Pools that are less than 1,000 square feet (93 m2) at health clubs shall be required to provide a minimum of eight turnovers per day.  
…**

**454.1.9.1 General. Water recreation attraction projects … all pools listed in this section shall provide a minimum of one turnover every 2 hours unless otherwise noted.**

**(SW9932 AM)**

454.1

Revise the following definition as follows:

**“Spa pool”** means a pool used in conjunction with high-velocity air or water coming from a nozzle in the back wall of a bench.

**454.1.8.1 General.** Spa pools shall meet the requirements of Sections 454.1.1 through 454.1.6.5, unless specifically indicated otherwise.

**454.1.8.2 Color, pattern, finish.** The color, pattern or finish of the pool interior shall not obscure the existence or presence of objects or surfaces within the pool.

**454.1.8.3 Water depths.** Spa-type pools shall have a minimum water depth of 21/2 feet (762 mm) and a maximum water depth of 4 feet (1219 mm), except that swim spa pools may have a maximum water depth of 5 feet (1524 mm). Depth markers and “NO DIVING” markers are not required on spa-type pools with 200 square feet (19 m2) or less of water surface area.

**454.1.8.4 Steps and handrails.** Steps or ladders shall be provided and shall be located to provide adequate entrance to and exit from the pool. The number of sets of steps or ladders required shall be on the basis of one for each 75 feet (22 860 mm), or major fraction thereof, of pool perimeter. Step sets for spa-type pools with more than 200-square-feet (19 m2) of pool water surface area shall comply with Section 454.1.2.5. Step sets for spa-type pools with 200 square feet (19 m2) or less of pool water surface area shall comply with the following: Step treads shall have a minimum width of 10 inches (254 mm) for a minimum continuous tread length of 12 inches (305 mm). Step riser heights shall not exceed 12 inches (305 mm). Intermediate treads and risers between the top and bottom treads and risers shall be uniform in width and height, respectively. Contrasting markings on the leading edges of the submerged benches and the intersections of the treads and risers are required to be installed in accordance with Section 454.1.2.5.

**454.1.8.4.1**

**454.1.8.5 Decks.** Spa pools that are 10 feet (3048 mm) wide or lessshall have a minimum 4-foot-wide (1219 mm) unobstructed continuous deck around a minimum of 50 percent of the pool perimeter, with all points on the water surface within 10 feet (3048 mm) horizontally of the deck. Decks shall not be more than 36 inches (914mm) below the top of the pool. For spa pools greater than 10 feet (3048 mm) in width, ~~10 percent of the deck along the pool perimeter may be obstructed~~ deck obstructions shall comply with 454.1.3.1.6.

**454.1.8.6 Therapy or jet systems.**

**454.1.8.6.1** The return lines of spa-type therapy or jet systems shall be independent of the recirculation filtration and heating systems.

**454.1.8.6.2** Therapy or jet pumps shall take suction from the collector tank. Collector tank sizing shall take this additional gallonage into consideration.

**454.1.8.7 Filtration system inlets.**Spa-type pools shall have a minimum of two equally spaced adjustable inlets.

**454.1.8.8 Filtration recirculation.** Spa-type pools shall have a minimum of one turnover every 30 minutes. The piping, fittings, and hydraulic requirements shall be in accordance with Section 454.1.6.5. All recirculation lines to and from the pool shall be individually valved with proportional flow-type valves in order to control the recirculation flow.

**454.1.8.9 Vacuuming.** Spa-type pools of over 200 square feet (19 m2) of pool water surface area shall have provisions for vacuuming.

 When spa pools are part of a conventional swimming pool, the spa pool area shall be the same water depth as the main pool area. The spa pool area shall meet 454.1.8.6 and 454.1.8.7, and the deck area shall be protected by connected 30-inch-high (762 mm) stanchions, or other approved obstruction to prevent entry, wherever there is a bench with high velocity nozzles producing air bubbles. The deck perimeter at the offset spa area shall not exceed 20 feet (6096 mm). All benches shall have contrasting markings on the leading edges of the intersection of the bench seats. If tile is used, it shall be slip resistant.

**(SW9934 AM)**

454.1.9.2 Recreational Water slides. Recreational Water slides shall terminate in either a plunge pool or run out lanes.

454.1.9.2.1 ~~Water slide p~~Plunge pool. Plunge pools shall be constructed…

...

454.1.9.2.1.6 Plunge pool decks.

454.1.9.2.1.6.1 Decking shall be provided at the entrance and exit points as necessary to provide safe patron access but shall not be smaller than 10 feet (3048 mm) in width and length. ~~Width. The minimum width of plunge pool decks along the exit side shall be 10 feet (3048 mm).~~

…

454.1.9.5.5 Decking shall comply with 454.1.9.2.1.6.1.~~Decking shall be provided at the entrance and exit points as necessary to provide safe patron access but shall not be smaller than 10 feet (3048 mm) in width and length.~~ Additional decking along the ride course is not required except that decking shall be required at lifeguard locations and emergency exit points.

**(SW9863 AM) Comment post October 2022 TAC meeting**

**454.1.9.2.1.1 Adequate space at terminus. The slide 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, exit location, 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. Only one entry or exit location shall be required, regardless of the plunge pool’s perimeter.**

**(SW9864 AS)**

**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 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.**

**…**

**454.1.9.2.3.3 Pump reservoir maintenance accessibility. Access decks or walkable grating shall be provided for the reservoir such that all areas are accessible for vacuuming, skimming, and maintenance. The decks shall have a minimum width of 3 feet (914 mm) and shall have a slope of 2-4% away from the reservoir. If any part of the pump reservoir has a permanent cover or roof, hatches or other openings for access to and observation of the floor must be provided with one hatch or openingper 150 square feet (13.9 m2) of tank floor area.**

**(SW9938 AM)**

454.1.

Add as a new definition

**“Vanishing edge”** means a pool wall structure that is designed in such a way that the top of the pool wall and adjacent deck are not visible from certain vantage points in the pool or from the opposite side of the pool. Water from the pool flows over the edge and is captured and reused through the normal pool circulation system.**Includes overflowing edge swimming pools with a lowered deck.** Also referred to as an infinity edge, negative edge, **overflowing edge,** or zero edge.

**(SW10204 AM)**

**454.1.1.1 Sizing.**

**Thepublic pools provided at a transient facility shall ~~be able to accommodate one bather~~have a minimum 6 square feet (0.56 m2) of surface area and a minimum of 1 gpm (0.063 L/s) of recirculation flow per ~~five~~living unit~~s,~~.~~while~~The public pools provided at nontransient facilities shall have a minimum 4.5 square feet (0.42 m2) of surface area and a minimum of .75 gpm (0.047 L/s) of recirculation flow per living unit ~~the bathing load at a nontransient 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 ~~bathing load~~ surface area and recirculation rate of all swimming pools, spas, wading pools and interactive water features. If the only pools at a facility are spa pools or interactive water features, this requirement does not apply.The bathing load for conventional swimming pools, wading pools, interactive water features, water activity pools 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 (1.9 m~~~~2~~~~) 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. ~~Where a pool’s turnover rate is calculated to be less than 3 hours, that pool shall comply with Section 454.1.7.9 for automated controllers.~~**

**(SW10181 AS)**

**454.1.2.3.1**

**…**

**2.                  Permanent depth markings followed by the appropriate full or abbreviated words “FEET,” “FT,” or “INCHES,” “IN,” shall be installed in minimum 4-inch-high (102 mm) numbers and letters on a contrasting background. Depth markers shall indicate the actual pool depth, within 3 inches (76 mm), at normal operating water level when measured 3 feet (914 mm) from the pool wall.**

**(SW9926 AS)**

**454.1.2.3.2 Designs or logos.**Any design or logo on the pool floor or walls shall be such that it will not hinder the detection of a human in distress, algae, sediment, or other objects in the pool. 

**454.1.3.3.1**All swimming pools shall be installed with a shepherd’s hook securely attached to a one piece pole not less than 16 feet (4880 mm) in length, and at least one 16-24 ~~18~~-inch (~~457~~ mm) diameter lifesaving ring, approved or certified under a nationally recognized water safety device standard, with sufficient rope attached to reach all parts of the pool from the pool deck. Safety equipment shall be mounted in a conspicuous place and be readily available for use. Pools greater than 50 feet (15 250 mm) in length shall have multiple units with at least one shepherd’s hook and one lifesaving ring located along each of the longer sides of the pools. Spa pools under 200 square feet (1.86 m2) of surface area, and interactive water features or wading pools with 2 feet (610 mm) or less of water depth are exempt from this requirement.

**454.1.6.5.16.2 Hypohalogenation and electrolytic chlorine generators.**The hypohalogenation-type feeder and electrolytic chlorine generators shall be adjustable from 0 to full range. A rate of flow indicator is required on erosion-type feeders. The feeders shall be capable of continuously feeding a dosage of 6 mg/L to the minimum required turnover flow rate of the filtration systems. Solution feeders shall be capable of feeding the above dosage using a 10-percent sodium hypochlorite solution, or 5-percent calcium hypochlorite solution, whichever disinfectant is to be utilized at this facility. To prevent the disinfectant from siphoning or feeding directly into the pool or pool piping under any type failure of the recirculation equipment, an electrical interlock with the recirculation pump shall be incorporated into the system for electrically operated feeders. The minimum size of the solution reservoirs shall be at least 50 percent of the maximum daily capacity of the feeder. The solution reservoirs shall be marked to indicate contents. The solution reservoirs shall be manufactured to accommodate corrosive and oxidizers liquid chemicals.

**454.1.6.5.16.3 Feeders for pH adjustment.**Feeders for pH adjustment shall be provided on all pools. pH adjustment feeders shall be positive displacement type, shall be adjustable from 0 to full range, and shall have an electrical interlock with the circulation pump to prevent discharge when the recirculation pump is not operating. When soda ash is used for pH adjustment, the maximum concentration of soda ash solution to be fed shall not exceed 1/2-pound (0.2 kg) soda ash per gallon of water. Feeders for soda ash shall be capable of feeding a minimum of 3 gallons (11 L) of the above soda ash solution per pound of gas chlorination capacity. The minimum size of the solution reservoirs shall not be less than 50 percent of the maximum daily capacity of the feeder. The solution reservoirs shall be marked to indicate the type of contents. The solution reservoirs shall be manufactured to accommodate corrosive and oxidizers liquid chemicals.

**(SW10465 AM) With comment post October 2022 TAC meeting**

**454.1.2.4 Color.**

Pool floors and walls shall be white or light pastel in color and shall have the characteristic of reflecting rather than absorbing light. Floors and walls in slide landing areas, and in pools with a maximum depth of 24 inches (610 mm) or less, are exempt from this color requirement. The interior finish coating floors and walls shall be comprised of a nonpigmented white cementitious binder component together with a sand/aggregate component. The finish coating 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, ASTM E1347. Pools constructed of fiberglass, thermoplastic, or stainless steel shall be subject to the same interior finish color requirements. 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 a 2-inch (51 mm) tile line, each tile a minimum size of 1 inch (25 mm) on all sides, along the pool wall edge of the gutter lip.

**(SW10187 AM)**

454.1

Add the following as new definition:

**"Elevated pool"**means any pool regulated under this section which is installed over a building (as defined in the Florida Building Code), including any associated troughs, gutters, or tanks.

**454.1.2.1 Pool structure.**

Pools shall be constructed of concrete or other impervious and structurally rigid material. All pools shall be watertight, shall be free from structural cracks and shall have a nontoxic smooth and slip-resistant finish.  All elevated pools constructed of concrete shall have waterproofing integral to the mix, or applied over the surface prior to the final surface application. 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.

**(SW10323 AM A2 plus comment post October TAC meeting)**

454.1.2.1 Pool structure.

Pools shall be constructed of concrete or other impervious and structurally rigid material. All pools shall be watertight, shall be 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) The grout line is allowed to be included when meeting the 1-inch (25  mm) square tile requirements, if the tile is sold and distributed as nominal or trade size tile.

**(SW10183 AS)**

**54.1.2.1 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 slipresistant 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~~3 feet (~~1524~~914 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.

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| **(SW10315 AM) Comment post October 2022 TAC meeting**  454.1.2.2 Dimensions.  Any dimensional requirement given in section 454.1 as a single dimension, with no range or tolerance specified, may have a final constructed tolerance of up to 3 inches (76 mm), or 5% of the specified dimension, whichever is less. All approved designs, plans and drawings must comply with all exact dimensional requirements specified in section 454.1. This construction tolerance may be positive or negative, except negative construction tolerances shall not be applied to any part of a diving bowl. Construction tolerances shall not be applied to dimensional requirements affecting the accessibility of the swimming pool to disabled bathers. |
|  |

**(SW10314 AM A1)**

454.1.2.2.1 Dimensional standards for competition-type pools shall be those published by the National Collegiate Athletic Association, ~~1990~~ 2019-20 and 2020-21; Federation Internationale de Natation Amateur (FINA), ~~1998–2000~~ 2021 Handbook; ~~1998–1999 Official Rules of Diving & Code Regulation of United States Diving Inc.~~; ~~1998 United States Swimming Rules and Regulations,~~ USA Swimming, 2022; and National Federation of State High School Associations, ~~1997–1998~~ 2021-22, which are incorporated by reference in this code.

**(SW9940 AS)**

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| **454.1.2.2.2 Walls and corners.** All pool walls shall have a clearance of 15 feet (4572 mm) perpendicular to the edge (as measured at design water level from gutter lip to gutter lip, or on skimmer pools, from vertical wall to vertical wall). Offset steps, spa pools and wading pools are exempt from this clearance requirement. Where interior steps or a sun shelf  protrude into the pool, the remaining width from the junction of the step or shelf riser and the floor to the opposite wall shall be 10 ft or more.  …  **454.1.2.6 Obstructions.**  **…**  **Exceptions:**  …  3. ...  A |
|  |

**(SW9857 AM A2)**

**454.1.2.2.4 Pool depths.**

The minimum water depth shall be 3 feet (914 mm) in shallow areas ~~and 4 feet (1219 mm) in deep areas~~ except in sun shelfs, wading pools, water activity pools, and zero entry areas.

**(SW10184 AM A1)**

454.1.2.3.1 Depth and markings shall meet the following criteria:

1. ~~The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.)~~

No change to the remaining text

**(SW10185 AS)**

**454.1.2.3.1 Depth and markings.**

Depth and markings shall meet the following criteria: …..

6. Those areas of the pool that are not part of an approved diving bowl shall have dark contrasting tile, 4-inch-high (102 mm) “NO DIVING” markings installed along the perimeter of the pool on the top of the pool curb or deck within 2 feet (610 mm) of the pool water with a maximum perimeter distance of 25 feet (7620 mm) between markings. A 6-inch (152 mm) tile with a 4-inch (102 mm) or larger red, international “NO DIVING” symbol may be substituted for the “NO DIVING” markings. “NO DIVING” markings are not required within the swimming pool.

No change to the remaining text

**(SW10318 AS)**

454.1.2.3.5 Rule and regulations signage.

8. If the pool includes a sun shelf, “WARNING: DROP OFF AT SUN SHELF EDGE IS \_\_\_ FEET DEEP” in 4-inch (102 mm) letters. Not required where sun shelfs transition to steps.

No change to the remaining text

**(SW10186 AS)**

**454.1.2.5 Access.**

**All pools shall have a means of access every 75 feet (22 860 mm) of pool perimeter with a minimum of two, located so as to serve both ends of the pool~~.~~, except for swimming pools with eight (8) or more lap lanes which shall have means of access every 90 feet (27432 mm) of pool perimeter in the lap lane area. In addition, an access point shall be provided at the deep portion, if the deep portion is not at one end of the pool. When the deep portion of the pool is over 30 feet (9144 mm) wide, both sides of this area shall have a means of access. Access shall consist of ladders, stairs, recessed treads or swimouts and may be used in combination. All treads shall have a slip-resistant surface.**

**(SW10188 AS)**

**454.1.2.5 Access.** All pools shall have a means of access every 75 feet (22 860 mm) of pool perimeter with a minimum of two, located so as to serve both ends of the pool. In addition, an access point shall be provided at the deep portion, if the deep portion is not at one end of the pool. When the deep portion of the pool is over 30 feet (9144 mm) wide, both sides of this area shall have a means of access. Access shall consist of ladders, stairs, recessed treads, sun shelves or swimouts and maybe used in combination. All treads shall have a slip resistant surface.

**(SW10189 AS)**

**454.1.2.5.5 Handrails and grabrails.**

Handrails shall be provided for all stairs, shall be anchored in the bottom step and the deck. Where “figure 4” deck-mounted-type handrails are used, they shall be anchored in the deck and extend laterally to any point vertically above the bottom step. Grabrails must be mounted in the pool deck at each side of recessed steps. Handrails and grabrails shall extend between 28 and 40 inches (711 mm and 1016 mm) above the step edge and deck. Where stairs are used as an access point between a sun shelf and pool area, a handrail shall be provided. The hand rail shall be anchored into the bottom step and the sun shelf floor. Where such stairs are inset into the sun shelf, a handrail shall be placed adjacent to each edge of the sun shelf.

**(SW10192 AS)**

454.1.2.5.6 Disabled access.  
Permanent or portable steps, ramps, handrails, lifts or other devices designed to accommodate handicapped individuals in swimming pools may be provided.  Excluding all ADA pool access area(s) and their clear deck area(s), the height of the pool wall above wet deck around the remainder of pool perimeter shall comply with sections 454.1.3.1.2. or 454.1.8.5.  Lifts mounted into the pool deck shall have a minimum 4-footwide (1219 mm) deck behind the lift mount.

**454.1.6.5.3.2.4 Wall-inlet fitting.**  
A wall-inlet fitting shall be provided directly across from each skimmer, or shall have a directional flow inlet across from the skimmer that directs flow toward the skimmer.

**(SW10509 AM) with comment post October 2022 TAC meeting**

454.1.2.6 Obstructions (Exception 3):

A sun shelf may be installed in pool areas with no more than 4 feet (1219 mm) of water depth, or less, except where**the entire** sun shelf transitions to steps, where the depth at the bottom of the steps can exceed 4 feet (1219 mm).

No change to the remaining text

**(SW10190 AM)**

**454.1.2.6**

454.1.2.3.5

…

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

…

454.1.2.6.4 Furniture that is non-corrosive, will not introduce contaminants into the pool water, and is acceptable to the health department may be placed in a pool. Means shall be taken to protect finish surfacing of the pool shell that is in contact with the furniture.

The original language proposed simply striking rule 9.  The A1 language is aiming to draw a distinction between acceptable and unacceptable furniture.  We think the adopted language should be as follows:

454.1.2.3.5

…

9.      If the pool includes a sun shelf or a zero depth entry area, “DO NOT PLACE FURNITURE IN POOL.” Not required when all movable furniture on the deck or in the pool is entirely made from UV-resistant, inert plastic.

**(SW9942 AM A1) with comment post October 2022 TAC meeting**

454.1.2.7 Diving areas.

Diving facilities shall meet the minimum requirements of the FINA dimensions for diving facilities in accordance with the ~~2005–2009~~ 2021 FINA Handbook and include the following.

No change to the remaining text

**(SW9941 AS)**

454.1.2.8.1

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 sloped at a maximum of 1 unit vertical in 60 units horizontal, or shall have uniform slope from a zero depth entry, and its maximum depth shall be between ~~8~~6 inches (~~203~~152 mm) and 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.~~

**(SW10191 AM A1)**

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| --- |
| 454.1.2.8.1 454.1.2.8.1 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) minimum  and 12 inches (254 mm) maximum below the water surface. In pools utilizing automatic recessed surface skimmers, there shall be at least one skimmer in each sun shelf area. |
|  |

**(SW10527 AS)**

**454.1.2.8.2 Depth markers at sun shelves.**

Where a sun shelf is installed, wet deck-located depth and no diving markers shall be placed every ~~20~~25 feet (~~6096~~7620mm) or less~~.~~, with at least two (2) markers per sunshelf. If the vertical distance between the coping or wet deck and the shelf floor adjacent to the wall is 12 inches (305 mm) or less, these markers shall indicate the water depth of the sun shelf. For open-type gutter pools, the vertical distance shall be measured from the gutter lip to the shelf floor. Where vertical distance between the coping or wet deck and the shelf floor adjacent to the wall is more than 12 inches (305 mm), “No-Entry” markers as described in Section 454.1.9.6.4 shall be provided in the deck. When the sun shelf does not use stairs as a transition, depth markers of the adjacent pool depth at the sun shelf edge and no-dive markers shall be placed on the sun shelf floor, every 10 feet (3048 mm) or less, along a line no more than 1 foot (305 mm) back from the edge of the sun shelf above the deeper pool. All markers shall comply with Items 2, 6 and 7 of Section 454.1.2.3.1, except the distance between them as described in this section (shall be followed.

**SW10199 AS)**

**454.1.2.8.3 Access to sun shelf.**

For the purposes of Section 454.1.2.5, a sun shelf area shall be considered an entrance to or exit from the pool. If the vertical distance between the coping and the shelf floor adjacent to the wall is more than 10 inches (254 mm), stairs up to the deck or coping shall be provided which shall comply with Sections 454.1.2.5.3 and 454.1.2.5.5; or a zero~~-~~ depth entry area complying with Section 454.1.9.6 may be provided instead of stairs. For open gutter pools, where the gutter is used as a step, additional steps shall not be required where the distance from the gutter lip to the shelf floor is 10 inches or less. At least one handrail that is compliant with Section 454.1.2.5.5 must be provided at the sun shelf.

**(SW9937 AS)**

454.1.3.3.5  
Swimming pool slides shall be installed in accordance with manufacturer’s specifications and sound engineering practice, to include water depth, height above water, distance from pool structure, and isolation of landing area from other pool patrons.  If an unenclosed ladder is used, it shall have handrails beginning at the bottom step and be no taller than 6 feet.  Pools with slides designed for swimming pools are not required to satisfy those of slide plunge pools in Section 454.1.9.2.1.

**(SW9863 AM) Post October 2022 TAC meeting**

454.1.3.3.4 A room or space shall be provided for chemicals to be stored and the area shall be inaccessible to the public.  
…  
454.1.6.5.16.1.1.1 Chlorine gas rooms shall have: continuous forced draft ventilation capable of a minimum of one air change per minute with an exhaust at floor level to the outside, a minimum of 30 footcandles (300 lux) of illumination with the switch located outside and the door shall open out and shall not be located adjacent to the filter room entrance or the pool deck. A shatterproof gas-tight inspection window shall be provided.  
454.1.6.5.16.1.1.2 Chlorine gas areas shall have a roof and shall be enclosed by a chain-link-type fence at least 6 feet (1829 mm) high to allow ventilation and prevent vandalism.

**(SW9931 AS)**

**454.1.3.3.7**

To reduce the possibility of injury, removable padding may be installed over the walls and floors of the pool, in areas where impacts are likely, so long as the surface of the padding is impervious, non-toxic, smooth, and slip resistant. Such padding shall be installed and maintained according to the manufacturer’s specifications. The surface underneath the padding must be structurally rigid, impervious, non-toxic, smooth, and slip resistant.  The padding may be white or a contrasting color.

**(SW10209 AS)**

**454.1.4.2.3Underwater lighting.**

Underwater luminaires shall comply with Chapter 27 of the *Florida Building Code, Building*. The location of the underwater luminaires shall be such that the underwater illumination is as uniform as possible. Underwater lighting requirements can be waived when the overhead lighting provides at least 15 footcandles (150 lux) of illumination at the pool water surface and pool wet deck surface. If signage clearly indicates that night swimming is prohibited, underwater lights supplying less than minimum illumination required for night swimming may be installed for safety and decorative purposes. Nothing in this section exempts swimming pools located in coastal areas, as specified in Section 3109 of this code, from compliance with all applicable local and state wildlife and environmental lighting requirements.

**(SW10310 AM) Comment post October 2022 TAC meeting**

**454.1.6.5.3 System design.**

The design pattern of recirculation flow shall be 100 percent through the main drain piping and 100 percent through the perimeter overflow system or 60 percent through the skimmer system. Except when a bottom drain is used in conjunction with a wall main drain carrying 100% of the recirculation flow.

**(SW10327 AS)**

**454.1.6.5.3.1.1**

Either recessed-type or open type gutters shall be used. Special designs can be approved provided they are within limits of sound engineering practice. Recessed-type gutter~~s~~ open areasshall be at least 4 inches (102 mm) deep and 4 inches (102 mm) wide, with a minimum 4 inches (102 mm) clearance for cleaning. ~~No part of~~ ~~t~~The open area of the recessed gutter, excluding the gutter front dam wall, shall not be visible from a position directly above the gutter sighting vertically down the edge of the deck or curb. Open-type gutters shall be at least 6 inches (150 mm) deep and 12 inches (305 mm) wide. The gutter shall slope 2 inches (51 mm), +/-1/4inch (+/-6 mm), from the lip to the drains. The gutter drains shall be located at the deepest part of the gutter.

**(SW10322 AS)**

454.1.6.5.3.2.3 Equalizers. If installed, an equalizer valve shall be a spring-loaded vertical check valve that will not allow direct suction on the equalizer line. Float valves are prohibited. If installed, the equalizer line outlet shall be installed at least 1 foot (305 mm) below the normal pool water level and the equalizer line outlet shall be protected by an ASME/ANSI A112.19.8 compliant cover/grate. . Any equalizer line shall be 2 inches or larger.

**(SW9929 AS)**

**454.1.6.5.3.2.4Wall-inlet fitting.**

A wall-inlet fitting shall be provided directly across from each skimmer~~.~~ within a tolerance of 5 feet (304.8 mm) measured along the perimeter in either direction from center.

**(SW10319 AS)**

**454.1.6.5.12Cleaning 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 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 that will not allow direct suction on the equalizer line. Float valves are prohibited.~~ The equalizer line ~~inlet~~outlet shall be installed at least 1 foot (305 mm) below the normal pool water level and the equalizer line ~~inlet~~outlet 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.

**(SW10232 AS)**

**454.1.6.5.13 Rate of flow indicators.**A rate of flow indicator, reading in gpm, shall be installed on the return line ~~after all other equipment and diversions including the heater(s)~~ following filtration and prior to chemical injection. The rate of flow indicator shall be properly sized for the design flow rate and shall be capable of measuring from ~~one-half~~ three-quarters (0.75) to at least one-and one-~~half~~ quarter (1.25) times the design flow rate. The flow measuring device shall have an operating range appropriate for the anticipated flow rates and be installed where it is readily accessible to read and for routine maintenance. The clearances upstream and downstream from the rate of flow indicator shall comply with manufacturer’s installation specifications.

**(SW10492 AM A1)**

**454.1.6.5.16.1.1.4**

After December 31, 2023, new pools may not use chlorine gas.

**(SW10235 AS)**

454.1.6.5.16.6

Ultraviolet (UV) light disinfectant equipment may be used ~~as supplemental water treatment on public pools [and additional treatment on interactive water features (IWFs)]~~subject to the conditions of this paragraph and manufacturer’s specifications. UV is encouraged to be used to eliminate or reduce chlorine-resistant pathogens, especially the protozoan cryptosporidium.

1.UV equipment and electrical components and wiring shall comply with     the requirements of the National Electrical Code and the manufacturer     shall provide a certification of conformance to the jurisdictional building     department.

2.UV equipment shall meet UL standards and shall be electrically     interlocked with recirculation pump(s) on all pools and with feature     pumps(s) on an IWF such that when the UV equipment fails to produce     the required dosage as measured by an automated sensor, the feature     pump(s) are disabled so the water features do not operate.

3.UV equipment ~~used in higher risk facilities such as interactive water~~    ~~features, wading pools, and activity pools~~shall be certified forsecondary or     supplemential disinfection per NSF 50 – 2020.~~validated by a capable~~    ~~party that it delivers the required and predicted UV dose at the validated~~    ~~flow, lamp power and water UV transmittance conditions, and has~~    ~~complied with all professional practices summarized in the USEPA~~    ~~Ultraviolet Disinfectant Guidance Manual dated November 2006, which is~~    ~~publication number EPA 815-R-06-007 available from the department at~~    [~~http://www.floridashealth.org/Environment/water/swim/index.html~~](http://www.floridashealth.org/Environment/water/swim/index.html)~~or at~~    [~~http://www.epa.gov/safewater/disinfection/lt2/pdfs/guideit2\_uguidance.pdf~~](http://www.epa.gov/safewater/disinfection/lt2/pdfs/guideit2_uguidance.pdf)~~.~~

~~Exception: Not applicable when Section 454.1.9.8.6.1 alternative is used.~~

4.UV equipment that is not cetifed for secondary disinfection per NSF 50 – 2020 shall be installed and configured to constantly produce a validated     dosage of at least 40 mJ/cm2 (millijoules per square centimeter) at     the     end of lamp life, , and other third party validation criteria in accordance with USEPA Ultraviolet Disinfectant Guidance Manual dated November 2006, publication number EPA 815-R-06-007 whenever these devices are used in high risk pools for secondary disinfection.

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.

**(SW10241 AM A1) with comment post October 2022 TAC meeting**

**454.1.6.5.17 Up to 50 percent of the return water that has passed through the filter and received the addition of chemicals may be diverted to w~~W~~ater features such as waterfalls or fountains in pools ~~may use up to percent of the return water~~, however, all waters used in the feature shall not be counted toward attaining the minimum turnover rate specified in 454.1.1.1, 454.1.6.5.2, or elsewhere in this Code. The return piping system shall be designed and capable of handling the additional feature flow when the feature is turned off, otherwise the pump speed shall be reduced automatically. All water features that utilize water from the pool shall be designed to return the water to the pool...**

Where a pool’s feature flow is greater than 20 percent, that pool shall comply with Section 454.1.7.9 for automated controllers, and with Section 454.1.9.2.7 for 12 mg/L disinfectant capacity by the halogen feeder equipment.

**(SW9868 AM A2) With comment post October 2022 TAC meeting**

**454.1.6.5.19**

**Automated oxidation reduction potential (ORP) and pH controllers with sensing probes shall be provided on all newly built public swimming pools to assist in maintaining proper disinfection and pH levels.**

**(SW10326 AS)**

**454.1.7.3 Recirculation Wading pools shall have a minimum of one turnover every hour.**

**454.1.7.3.1 Skimmer equalizer lines, when installed, shall be plumbed into the main drain.**

**…**

**454.1.7.6Reserved**

**(SW9933 AS)**

Amend:

**~~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 perimeter wet deck may be obstructed where deck level to pool floor vertical distance is over 5 feet (1524mm). No lowered portion of the wet 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 (10668 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).~~

Add as 454.1.8.6.3

|  |
| --- |
| Heated systems shall incorporate a 15-minute patron activated timer on the therapy  pump circuit. |

**(SW10528 AM)**

**454.1.6.1 Sanitary facilities.** Restrooms shall include a water closet, a diaper change table, a urinal and a lavatory. 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.

454.1.6.1.1 Required fixtures. Fixtures shall be provided as indicated on Table 454.1.6.1, rounded up to the next whole number. The fixture count on this chart is deemed to be adequate for the pool and pool deck area that is up to three times the area of the pool surface provided.

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**TABLE 454.1.6.1**

**PUBLIC SWIMMING POOL—REQUIRED FIXTURE COUNT PER SQUARE FOOT OF POOL SURFACE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S**  **(** | **MEN’S RESTROOM** | | | **WOMEN’S RESTROOM** | |
| **U** | **WC** | **Lavatory** | **WC** | **Lavatory** |
| 0 | 1 | 1per 2,500 for first 10,000, 1 per 5,000 for remainder exceeding 10,000 | 1 per 5,000 for first 10,000, 1 per 10,000 for remainder exceeding 10,000 | 1 per 1,250 for first 10,000, 1 per 2,500 for remainder exceeding 10,000 | 1per 5,000 for first 10,000, 1 per 10,000 for remainder exceeding 10,000 |
| 2 | 2 | 1 | 1 | 5 | 1 |
| 5 | 2 | 2 | 2 | 6 | 2 |
| 7 | 3 | 2 | 3 | 8 | 3 |

For SI: 1 square foot = 0.0929 m2.

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W

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**(SW10211 AM A1)**

454.1.7.5 Emergency drainage.

All wading pools shall have drainage to waste without a cross connection through a quick opening valve to facilitate emptying the wading pool should accidental bowel or other discharge occur. This can also be achieved utilizing a pump taking suction from the collector tank drain with immediate discharge to waste. The pump must be capable of draining all water in the pool and tank.

**(SW10194 AS)**

**454.1.9.2.2.1** Run out lanes may be utilized in lieu of or within a plunge pool system, provided they are constructed to the slide manufacturer’s specifications and are approved by the design engineer of record.

**454.1.9.2.2.2** Five-foot-wide (1524 mm) walkways shall be provided adjacent to run out lanes, as either dry deck or as part of a pool with up to 12 inches (305 mm) of water depth in this area. The five foot walkway need only be on one side of the run out lane.

**(SW10385 AM A1) with comment post October 2022 TAC meeting**

**454.1.9.2.2.4** Attendants or lifeguards shall be provided at the top of the slides and at the run out in accordance with a safety/lifeguard plan approved by the Department of Health. If night operation is proposed, 3 footcandles (30 lux) of light shall be provided at the top of the slides and at the run outs.

**...**

**454.1.9.8.4**If night operation is proposed, ~~3~~ 6 footcandles (~~30~~ 60 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.

**(SW9935 AM A1)**

454.1.9.2.6.2 Filter performance.  
~~The filtration system shall be capable of returning the pool water turbidity to 5/10 (0.50) NTU within 8 hours or less after peak bather load.~~ A continuous readout/electronic recording in-line turbidity meter shall be installed per manufacturer's specifications and used to determine compliance with ~~this NTU~~ Florida Administrative Code 64E-9 water quality criteria for clarity.~~,~~ ~~o~~Otherwise if not installed, the recirculation turnover rate ~~in~~ of the plunge pool’s~~total~~ water volume~~,~~ as defined in Section 454.1.9.2.6.1, must be enhanced to 1 hour or less.

**(SW10305 AM)**

**454.1.9.2.3.6**

~~The pump reservoir shall be fed by main drains within the plunge pool itself (either in the floor or side wall). They shall have the maximum flow velocity of 11/2 feet per second (457 mm/s) through the main drain grating and 3 feet per second (3962 mm/s) through the reservoir piping.~~Reserved.

**(SW10242 AS)**

454.1.9.6.4

“No Entry~~, Shallow Water~~” ~~signs~~markers shall be provided along the pool wall edge where the water depth is more than 10 inches (254 mm) but less than 3 feet (914 mm) deep~~.~~unless stairs and handrails are provided. No entry ~~signs~~markers shall be slip-resistant, shall have~~4~~2-inch high (~~102~~51 mm) letters, shall be located within 2 feet (610 mm) of the pool edge and shall be spaced no more than 8 feet (2438 mm) apart, or 15 feet (4572 mm) apart~~.~~ if 4 inch high (102 mm) letters are provided. “NO DIVING” markers are not required around the zero entry area.

**(SW10306 AM A1)**

454.1.9.7

454.1

'Epsom salt float tanks' are special purpose pools leased by the public for a brief period of time to float quietly immersed in water with dissolved Epsom salt. Florida Building Code sections in 454.1 through 454.1.10 apply to these pools, and only the following code sections do not apply to these pools as these code requirements are not necessary for health or safety in these special purpose pools: 454.1.2.1 (a); 454.1.2.2.4, 454.1.3.1.2, 454.1.3.2, 454.1.4.2.2, 454.1.6.1, 454.1.6.5.10.5, 454.1.6.5.11, 454.1.6.5.14, 454.1.6.5.16.6(3), and 454.1.6.5.3.2.5

454.1

**"Resistance exercise pools"** are special purpose pools used by bathers with or without supervision to perform low impact exercises and physical therapy with circulated water resistance.

454.1.9.7.3 Resistance exercise pools shall comply with the requirements of sections 454.1 through 454.1.6.5 of this code unless exempted or modified by section 454.1.9.7.3 of this code.

454.1.9.7.3.1 Resistance exercise pools shall be circular or oval in shape with a center island that creates a channel to direct the flow of circulated water. Resistance exercise pools shall have a recirculation rate of 5gpm per bather, shall have a gutter type recirculation system, and shall have a maximum bathing load of 20 persons.

454.1.9.7.3.2 Resistance exercise pool dimensions and depth

The distance from the outer vertical pool wall to the inner island vertical wall of a resistance exercise pools shall be a minimum of 8.5 feet (2591mm) and maximum of 10 feet (3048mm), measured at the designed water level.

The water depth of resistance exercise pools shall be a minimum of 3 feet (914mm) and a maximum of 3 feet 5 inches (1041mm).

454.1.9.7.3.3 Grabrails and handrails

The inner island of resistance exercise pools shall have grab rails mounted on the entire top circumference of the island for use has handholds by bathers while in the pool.

454.1.9.7.3.4 Non applicable requirements

The following code provisions do apply to resistance exercise pool: 454.1.1.1, 454.1.2.2.3.1; 454.1.2.6; 454.1.2.2.4.

**(SW10516 AM A3)**

454.1.6.5.1Equipment testing.

Recirculation and treatment equipment such as filters, recessed automatic surface skimmers, ionizers, ozone generators, disinfection feeders and chlorine generators shall be tested and approved using the ~~NSF/ANSI Standard 50, Circulation System Components and Related Materials for Swimming Pool, Spas/Hot Tubs, dated April 2007~~NSF/ANSI 50 – 2020 Equipment and Chemicals for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities, which is incorporated by reference.

**(SW10237 AM A1)**

454.1

Revise definition as follows:

**“Precoat pot”** means a container with a valved connection to the suction side of the recirculation pump of a pressure diatomaceous earth (D.E.) type filter system used for coating the filter with D. E. powder or NSF/ANSI Standard 50-20~~07~~ 19 and manufacturer approved substitute filter aid.

**454.1.6.5.1 Equipment testing**.

Recirculation and treatment equipment such as filters, recessed automatic surface skimmers, ionizers, ozone generators, disinfection feeders and chlorine generators shall be tested and approved using the NSF/ANSI Standard 50, Circulation System Components and Related Materials for Swimming Pool, Spas/Hot Tubs, dated April 2019 ~~2007~~, which is incorporated by reference.

**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 61-20~~17~~ 19, 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, FL 32399-0250.

No change to the remaining text

**(SW10455 AS)**

**454.1.9.2.5 Perimeter overflow gutters or skimmers.**

Plunge pools ~~and pump reservoirs~~shall have perimeter overflow gutter system or skimmer which shall be an integral part of the filtration system

**(SW10302 AS)**

**454.1.9.2.5.2 Surface skimmers.**

Surface skimmers may be used in lieu of perimeter overflow gutters. The provisions of 454.1.6.5.3.2 shall apply, except no maximum width or maximum area shall apply to plunge pools. ~~and shall be appropriately spaced and located according to the structural design. Unless an overflow gutter system is used, surface skimmers shall be provided in the plunge pool and in the pump reservoir and the skimmer system shall be designed to carry 60 percent of the filtration system design flow rate with each skimmer carrying a minimum 30 gpm (2 L/s). All surface skimmers shall meet the requirements for NSF commercial approval as set forth in NSF/ANSI Standard 50, Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs, which is incorporated by reference in these rules, including an equalizer valve in the skimmer and an equalizer line to the pool wall on systems with direct connection to pump suction.~~

**(SW10303 AS)**

**454.1.9.2.6.1 Recirculation rate.**

The recirculation-filtration system of water slide~~s~~ plunge pools shall ~~recirculate and filter a water volume equal to the total water volume of the facility~~turn the water over in a period of 2 hours or less. The turnover rate for slides with runout lanes shall be one hour or less. For swimming pools that are not dedicated as plunge pools, but include a recreational water slide as part of the design, the total water volume shall include the water in the plunge pool dimensions stipulated by code, plus the slide water.

**(SW10304 AS)**

**454.1.9.6.5**

Additional inlets shall be provided in areas of less than 18 inches (457 mm) deep. The numbers and location shall be such as to ~~double the flow rate into this area~~ensure a 1 hour turnover in this area.

**(SW10307 AS)**

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| --- |
| **454.1.9.8.6.1**  ~~All (100 percent of the water from the collector tank must be first filtered, treated by an NSF Standard 50 certified UV disinfection unit with a minimum 40 mJ/cm2 dose, and then final treatment provided by disinfectant adjustment chemicals before any of this treated water is piped to the water features.~~  All water discharged to the spray features must first be treated with UV disinfection as described in 454.1.6.5.16.6, with final treatment provided by disinfectant adjustment chemicals, before any of this treated water is piped to the spray features.  The recirculation system shall be sized to treat the contained volume of water in the tank and piping system based upon a 30 minute turnover with chlorine feeder/generators capable of producing a dosage of at least 12ppm.  The UV disinfection equipment shall be electrically interconnected such that whenever it fails to produce the required UV dosage, the water spray features pump(s) will be immediately stopped. All pumps must draw suction from the collector tank.  **454.1.9.8.6.2**  ~~In the design above and the alternative below: excess water not required by the water features shall be returned to the collector tank;~~~~the recirculation system shall be sized to treat the contained volume of water based upon a 30 minute turnover with a chlorine feeder/generator capable of producing a dosage of at least 12ppm; and the UV disinfection equipment shall be electrically interconnected such that whenever it fails to produce the required UV dosage, the water spray features pump(s) and flow will be immediately stopped.~~  All IWFs must comply with one of three options for filtration and disinfection systems as follows:  Option 1: A single pump may be used for water treatment and to supply the water features. Flow must be filtered, treated by a UV unit certified for supplemental disinfection per NSF Standard 50, then treated with disinfectant adjustment chemicals prior to discharge to the spray features. Excess flow not required by the features must be directed back to the collector tank following UV treatment and must be treated with disinfectant and pH adjustment chemicals prior to discharge to the tank.  Option 2: Separate filter and feature pumps may be utilized. The filter flow must be filtered and treated with disinfectant and pH adjustment chemicals prior to discharge to the tank. All feature flow must be filtered, treated by a unit certified for supplemental disinfection per NSF Standard 50, then treated with disinfectant adjustment chemicals prior to discharge to the spray features. UV flow capacity must meet the feature pump(s) flow capacity, and a rate of flow indicator complying with 454.1.6.5.13 shall be provided for each UV system.  Option 3: Separate filter and feature pumps may be utilized. The filter flow must be filtered and treated with disinfectant and pH adjustment chemicals prior to discharge to the tank. All feature flow must be treated by a UV disinfection certified for secondary disinfection per NSF Standard 50, then treated with disinfectant adjustment chemicals prior to discharge to the water features. UV flow capacity must meet the feature pump(s) flow capacity, and a rate of flow indicator complying with 454.1.6.5.13 shall be provided for each UV system.  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 by a validated UV disinfectant unit with a minimum 40 mJ/cm~~~~2~~~~dose described in Section 454.1.6.5.16.6 on each feature pump and then final treatment with disinfectant and pH adjustment chemicals, before any of this treated water is piped to the water features. UV flow capacity must meet the feature pump(s) flow capacity.~~  Reserved.  **(SW10200 AM A2)**  **454.1.3.1.2**  …  WUp to 40 percent or 65 feet (19812 mm), whichever is less, of the wet deck may be lowered. Lowered portions of wet deck shall be at least 10 inches (254 mm) but not more than 36 inches (914 mm) below the pool water level or curb height. Lowered portions of wet deck shall adjoin the rest of the wet deck via a set of stairs or a ramp at each end. If the lowered deck is adjacent to a transfer wall per 1009.4 of the *Florida Building Code, Accessibility,* one end of the lowered deck must be connected to the rest of the wet deck via an accessible route as described in 402 of the *Florida Building Code, Accessibility.*  **…**  **454.1.6.5.3 System design.** The design pattern of recirculation flow shall be 100 percent of the minimum turnover rate through the main drain piping and 100 percent of the minimum turnover rate through the perimeter overflow system, or at least 60 percent of the minimum turnover rate through the skimmer system.  **…**  **454.1.9.10 Vanishing edge pools**  454.1.9.10.1 Vanishing edge pools shall be designed and constructed within the limits of sound engineering practice and shall meet the requirements of Sections 454.1.1 through 454.1.6.5, unless specifically indicated otherwise.  454.1.9.10.2  Vanishing edges and associated discharge trough or catch basin shall be constructed of concrete or other structurally rigid impervious materials with a non-toxic, smooth and slip-resistant finish.  454.1.9.10.3  The vanishing edge shall discharge into a trough or basin. The trough or basin must be covered with a lid or secure grating that has the capacity to support a responder attending to a bather in distress on the opposite side of the vanishing edge. The trough or basin must be designed to deter access. The maximum height of the trough or basin wall above surrounding grade shall be 10 inches (254 mm). A lowered wet deck in accordance with 454.1.3.1 must be provided around the trough or basin and immediately adjacent to it.  454.1.9.10.4  The vanishing edge length shall not exceed 65 feet (19 812 mm) or 40 percent of the pool perimeter, whichever is less. The maximum vertical distance from the top of the vanishing edge wall to the trough or catch basin cover or adjacent grade shall be 36 inches (914 mm). The maximum water depth in the pool at the vanishing edge wall shall be 4 feet (1219 mm). The vanishing edge wall shall not be considered as a perimeter deck obstruction. Water line tile at the top of the edge wall as required by 454.1.2.1(a) is not required to be non-skid.  454.1.9.10.5  Depth markings for vanishing edges shall be in accordance with 454.1.2.3.1(5).  454.1.9.10.6  The remainder of the pool perimeter must have perimeter overflow gutters per 454.1.6.5.3.1 or recessed automatic surface skimmers in accordance with 454.1.6.5.3.2.  Alternatively, a combination of recessed automatic surface skimmers and perimeter overflow gutters may be used along the remainder of the perimeter, such that parts of the perimeter without perimeter overflow gutters or vanishing edges shall have skimmers spaced every 20 feet (6096 mm) or less, regardless of the width or area of the pool. |
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**(SW10202 AM A3) with comment post October 2022 TAC meeting**

454.1.3.1.6

~~Twenty percent~~20%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 wet 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).

**(SW10206 AM A1)**

**454.1.10.1.1**

The lip of the gutter must be leveled to within 1/4 inch (6.4 mm) between the highest and lowest point and the downward slope from the lip to the drain must be maintained as originally designed or increased, but shall not exceed new construction standards. The gutter surfaces shall be made to comply with 454.1.6.5.3.1.3.

**(SW10311 AS)**

**454.1.10.1.10**

All elevated above-grade concrete pool walls and floors shall have waterproofing/dampproofing installed prior to the final surface application.

**(SW10324 AS)**

**454.1.10.1.8** Handrails and Grabrails that do not meet the requirements of 454.1.2.5.5 shall be brought into compliance with 454.1.2.5.5 or removed if not needed for compliance with 454.1.2.5.

**(SW10312 AS)**

**454.1.10.1.9**

If gutter grates are replaced, the new gutter grates shall have a total open surface area to meet or exceed the designed flow rate of the pool.

**(SW10313 AS)**

**454.1.12- Surf Pools**

**454.1.12.1 General.**A surf pool 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-quarter acre (    m2) 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. Such surf pools shall be designed and constructed within the limits of sound engineering practice and the provisions of Section 454.1.12.

**454.1.12.2 Sizing and sanitary facilities**The maximum bathing load for a surf pool with a disinfection system approved by the local authority shall be limited by total square footage of the entire area that allows for surfing with 100 square feet (   m2) in water more than 4 feet deep.  Sanitary facilities serving patrons of an artificial lagoon shall meet the Florida Building Code, Plumbing, 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 surfing area(s) as prudent to ensure patron use, but not more than 200 feet (61 m) walking distance from the designated surfing area(s).

**454.1.12.3 Construction standards**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 61-2021, Drinking Water System Components—Health Effects, dated April 14, 2021, 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, FL 32399-0250. The liner or artificial bottom, the 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 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 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 surfing area, or portion thereof, is designed with swimming pool features, including concrete vertical walls and floors, such areas of the pool shall be designed in compliance with Sections 454.1.2.2.2, 454.1.2.2.3 and 454.1.2.2.4.

**454.1.12.4 Access**Points of access shall be provided as needed to provide adequate entrance to and exit from the surf pool. 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 surf pool. 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.

**454.1.12.5 Decks and walkways.**Decks and walkways, if utilized to access a designated surfing 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 15 feet (   mm), as measured from the water’s edge outward. Beyond this area, the deck or other surface shall slope away from the surf pool at a minimum of 2 percent to a maximum of 4 percent, and shall be ADA compliant.

**454.1.12.6 Safety.**The portion(s) designated for surfing shall meet the safety requirements in Section 454.1.3.3.The depth at the deepest point in any designated swimming/surfing 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 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 Section 454.1.2.3.1, except that markers are not required on inside vertical walls. Signage may be substituted for markers if approved by the local authority, and such markers or signs are required only along the accessible perimeter. Markings shall be of such materials that will not fade over time. A lifeguard safety plan shall be submitted to the health department for prior approval and implemented by the owner/operator.

**454.1.12.7 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.

**454.1.12.8 Equipment rooms.**Equipment rooms shall comply with Section 454.1.5.

**454.1.12.9 Treatment systems.**The design of the treatment system is the responsibility of a professional engineer licensed in Florida. Chemical disinfection of recirculated water immediately following the filtration process shall achieve a measurable residual in the surf pool water that is continuously protective of public health and shall be in compliance with section 454.1.6.5.16 .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 an NSF/ANSI Standard 60 certified chemical, or a US EPA registered microbial biocide. Any other chemical 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 surf 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.

**(SW10529 AM A1)**

**454.2.17.1.15**

A mesh safety barrier meeting the requirements of Section 454.2.17, installed in accordance with the manufacturer’s instructions and complying with ASTM F2286, ~~and the following minimum requirements~~ shall be considered a barrier as defined in this section. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 454.2.17.1.8. Mesh fences shall not be installed on top of above-ground/on-ground private swimming pools.~~:~~

~~1.      Individual component vertical support posts shall be capable of resisting a minimum of 52 pounds (24 kg) of horizontal force prior to breakage when measured at a 36 inch (914 mm) height above grade. Vertical posts of the child safety barrier shall extend a minimum of 3 inches (76 mm) below deck level and shall be spaced no greater than 36 inches (914 mm) apart.~~

~~2.      The mesh utilized in the barrier shall have a minimum tensile strength according to ASTM D 5034 of 100 lbf, and a minimum ball burst strength according to ASTM D 3787 of 150 lbf. The mesh shall not be capable of deformation such that a 1/4-inch (6.4 mm) round object could not pass through the mesh. The mesh shall receive a descriptive performance rating of no less than "trace discoloration" or "slight discoloration" when tested according to ASTM G 53, Weatherability, 1,200 hours.~~

~~3.      When using a molding strip to attach the mesh to the vertical posts, this strip shall contain, at a minimum, #8 by ½ inch (12.7 mm) screws with a minimum of two screws at the top and two at the bottom with the remaining screws spaced a maximum of 6 inches (152 mm) apart on center.~~

4.      ~~Patio deck sleeves (vertical post receptacles) placed inside the patio surface shall be of a nonconductive material.~~

~~5.      A latching device shall attach each barrier section at a height no lower than 45 inches (1143 mm) above grade. Common latching devices that include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye-type latch incorporating a spring actuated retaining lever (commonly referred to as a safety gate hook).~~

~~6.      The bottom of the mesh safety barrier shall not be more than 1 inch (25 mm) above the deck or installed surface (grade).~~

**(SW10438 AS)**

**454.2.20.1.1 Approved types.**

**…**The circulation system and backwash piping shall be adequate for proper backwashing of said filter and shall provide backwash flow rates of at least 12 gpm per square foot (0.8 L/s) for rapid sand filters or 15 gpm per square foot (0.9 L/s) for high rate sand filters.

**(SW9939 AS)**

458.3.1 Inspections shall be conducted ~~at the manufacturing facility~~ by an appropriately licensed representative of an agency selected by the manufacturer. The inspections shall ensure that the buildings are being manufactured in compliance with the applicable codes and the approved plans. Once an agency has inspected a manufactured building, the manufacturer shall not seek to have the building inspected by another agency, nor shall any agency inspect a building that has already been inspected by another agency unless the subsequent inspection is at the direction of the department or unless the building or modification thereto is being inspected for recertification by the department.

**(SP10177 AS)**

464.4.2.2 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 in all normally occupied resident areas including sleeping, dining, recreational, and social areas, life safety systems, lighting, 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~~relocatable alternate power source to operate at least the equipment necessary to maintain safe indoor air temperatures in all normally occupied resident areas including sleeping, dining, recreational, and social areas, life safety systems, lighting, 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. The relocatable alternate power source shall be stored onsite of the facility and maintained in accordance with the manufacturer’s instructions.

See Chapter 59A-36.025, Florida Administrative Code, “Emergency Environmental Control for Assisted Living Facilities” for additional requirements.

**(SP10413 AS)**

**468.3.5.6 Floor drains and hose bibbs.**All group toilet rooms shall be provided with at least one floor drain and one easily accessible hose bibb or wall hydrant. The floor shall be sloped down to the drain.

**(SP10207 AS)**

469.4.3 Operating room(s).

469.4.3.1 There shall be at a minimum one operating room in each office surgery suite. The size and location of the operating room(s) shall be dependent on the level of care provided and equipment utilized based on the functional program.

469.4.3.2 The size of the operating room(s) shall be ~~as defined by the American College of Surgeons Classes as adapted from the American College of Surgeons publication 04GR-0001: Guidelines for Optimal Ambulatory Surgical Care and Office-Based Surgery, which was developed by the Board of Governors Committee on Ambulatory Surgical Care and published in May 2000.~~ as follows:

469.4.3.2.1   An operating room shall have a minimum clear floor area of 255 square feet (23.69 square meters).

469.4.3.2.2   An operating room where anesthetics will be administered using an anesthesia machine and supply cart shall have a minimum clear floor area of 270 square feet (25.08 square meters).

469.4.3.2.3   An operating room where surgery that may require additional staff and equipment will be performed shall have a minimum clear floor area of 400 square feet (37.16 square meters).

~~469.4.3.2.1 Class A: To be used for Level I Office Surgery as defined Rule 64B8-9.009, Florida Administrative Code.~~

~~s~~

~~469.4.3.2.1.1 Class A operating rooms shall have a minimum clear floor area of 150 square feet (45.72 m2) with a minimum clear dimension of 12 feet (3.65 m).~~

~~469.4.3.2.1.2 There shall be a minimum clear distance of 3 feet 6 inches (1.07 m) at each side, the head, and the foot of the operating table.~~

~~469.4.3.2.2 Class B: To be used for Levels I, II and IIA Office Surgery as defined in Rule 64B8-9.009, Florida Administrative Code.~~

~~469.4.3.2.2.1 Class B operating rooms shall have a minimum clear dimension of 15 feet (4.57 m).~~

~~469.4.3.2.2.2 Room arrangement shall permit a minimum clear dimension floor area of 250 square feet (23.23 m2) with a minimum of 3 feet 6 inches (1.07 m) at each side, the head, and the foot of the operating table.~~

~~469.4.3.2.3 Class C: To be used for Levels I, II, IIA and III Office Surgery as defined in Rule 64B8- 9.009, Florida Administrative Code.~~

~~469.4.3.2.3.1 Class C operating rooms shall have a minimum clear floor area of 400 square feet (37.16 m2) and a minimum clear dimension of 18 feet (5.49 m).~~

~~469.4.3.2.3.2 Room arrangement shall permit a minimum clear dimension of 4 feet (1.22 m) at each side, the head, and the foot of the operating table. 469.4.3.3 The Class B and C operating room(s) shall be located within the semirestricted area within the office surgery suite.~~

469.4.3.3~~The Class B and C operating room(s) shall be located within the semirestricted area within the office surgery suite.~~ See the Guidelines, Chapter 2.1, Common  Elements of Outpatient Facilities, for design details regarding clearances and space requirements for operating rooms.

**(SP10411 AS)**

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| 469.2.1.3 The architectural, mechanical, and electrical design criteria and processes as specified in the physical plant standards in this section shall take precedence over those in the Guidelines with no additional requirements. |
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**(SP9928 AS)**

**CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS**

**Revise as follows:**

**Table 504.4**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **OCCUPANCY  CLASSIFICATION** | **TYPEOFCONSTRUCTION** | | | | | | | | | | | | | | | | | | | SeeFoot-notes | **TypeI** | | | **TypeII** | | | | **TypeIII** | | | | **TypeIV** | | | **TypeV** | | | | A | | B | | A | | B | | A | | B | | HT | | A | | B | | A-1 | NS | UL | 5 | | 3 | | 2 | | 3 | | 2 | | 3 | | 2 | | 1 | | | S | UL | 6 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | A-2 | NS | UL | 11 | | 3 | | 2 | | 3 | | 2 | | 3 | | 2 | | 1 | | | S | UL | 12 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | A-3 | NS | UL | 11 | | 3 | | 2 | | 3 | | 2 | | 3 | | 2 | | 1 | | | S | UL | 12 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | A-4 | NS | UL | 11 | | 3 | | 2 | | 3 | | 2 | | 3 | | 2 | | 1 | | | S | UL | 12 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | A-5 | NS | UL | UL | | UL | | UL | | UL | | UL | | UL | | UL | | UL | | | S | UL | UL | | UL | | UL | | UL | | UL | | UL | | UL | | UL | | | B | NS | UL | 11 | | 5 | | 3 | | 5 | | 3 | | 5 | | 3 | | 2 | | | S | UL | 12 | | 6 | | 4 | | 6 | | 4 | | 6 | | 4 | | 3 | | | E | NS | UL | 5 | | 3 | | 2 | | 3 | | 2 | | 3 | | 1 | | 1 | | | S | UL | 6 | | 4 | | 3 | | 4 | | 3 | | 4 | | 2 | | 2 | | | F-1 | NS | UL | 11 | | 4 | | 2 | | 3 | | 2 | | 4 | | 2 | | 1 | | | S | UL | 12 | | 5 | | 3 | | 4 | | 3 | | 5 | | 3 | | 2 | | | F-2 | NS | UL | 11 | | 5 | | 3 | | 4 | | 3 | | 5 | | 3 | | 2 | | | S | UL | 12 | | 6 | | 4 | | 5 | | 4 | | 6 | | 4 | | 3 | | | H-1 | NSc,d | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | NP | | | S | | H-2 | NSc,d | UL | 3 | | 2 | | 1 | | 2 | | 1 | | 2 | | 1 | | 1 | | | S | | H-3 | NSc,d | UL | 6 | | 4 | | 2 | | 4 | | 2 | | 4 | | 2 | | 1 | | | S | | H-4 | NSc,d | UL | 7 | | 5 | | 3 | | 5 | | 3 | | 5 | | 3 | | 2 | | | S | UL | 8 | | 6 | | 4 | | 6 | | 4 | | 6 | | 4 | | 3 | | | H-5 | NSc,d | 4 | 4 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 2 | | | S | | I-1  Condition1 | NSd,e | UL | 9 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | S | UL | 10 | | 5 | | 4 | | 5 | | 4 | | 5 | | 4 | | 3 | | | I-1  Condition2 | NSd,e | UL | 9 | | 4 | | 3 | | 4 | | 3 | | 4 | | 3 | | 2 | | | S | UL | 10 | | 5 | | | I-2 | NSd,f | UL | 4 | | 2 | | 1 | | 1 | | NP | | 1 | | 1 | | NP | | | S | UL | 5 | | 3 | | | I-3 | NSd,e | UL | 4 | | 2 | | 1 | | 2 | | 1 | | 2 | | 2 | | 1 | | | S | UL | 5 | | 3 | | 2 | | 3 | | 2 | | 3 | | 3 | | 2 | | | I-4 | NSd,g | UL | 5 | | 3 | | 2 | | 3 | | 2 | | 3 | | 1 | | 1 | | | S | UL | 6 | | 4 | | 3 | | 4 | | 3 | | 4 | | 2 | | 2 | | | M | NS | UL | 11 | | 4 | | 2 | | 4 | | 2 | | 4 | | 3 | | 1 | | | S                         S | UL | 12 | | 5 | | 3 | | 5 | | 3 | | 5 | | 4 | | 2 | | | R-1h | NSd | UL | 11 | | 4 | | 4 | | 4 | | 4 | | 4 | | 3 | | 2 | | | S13R | 4 | 4 | | 4 | | 3 | | | S | UL | 12 | | 5 | | 5 | | 5 | | 5 | | 5 | | 4 | | 3 | | | R-2h | NSd | UL | 11 | | 4 | | 4 | | 4 | | 4 | | 4 | | 3 | | 2 | | | S13R | 4 | 4 | | 4 | | 4 | | 3 | | | S | UL | 12 | | 12 | | 5 | | 5 | | 5 | | 5 | | 4 | | 3 | | | R-3h | NSd | UL | 11 | | 4 | | 4 | | 4 | | 4 | | 4 | | 3 | | 3 | | | S13D | 4 | 4 | | 3 | | 3 | | | S13R | 4 | 4 | | 4 | | 4 | | | S | UL | 12 | | 5 | | 5 | | 5 | | 5 | | 5 | | 4 | | 4 | | | R-4h | NSd | UL | 11 | | 4 | | 4 | | 4 | | 4 | | 4 | | 3 | | 2 | | | S13D | 4 | 4 | | 3 | | 2 | | | S13R | 4 | 4 | | 4 | | 3 | | | S | UL | 12 | | 5 | | 5 | | 5 | | 5 | | 5 | | 4 | | 3 | | | S-1 | NS | UL | 11 | | 4 | | 2 | | 3 | | 2 | | **~~4~~5** | | 3 | | 1 | | | S | UL | 12 | | 5 | | 3 | | 4 | | 3 | | **~~5~~ 6** | | 4 | | 2 | | | S-2 | NS | UL | 11 | | 5 | | 3 | | 4 | | 3 | | 5 | | 4 | | 2 | | | S | UL | 12 | | 6 | | 4 | | 5 | | 4 | | 5 | | 5 | | 3 | | | U | NS | UL | 5 | | 4 | | 2 | | 3 | | 2 | | 4 | | 2 | | 1 | | | S | UL | 6 | | 5 | | 3 | | 4 | | 3 | | 5 | | 3 | | 2 | | |

**(F10373 AS)**

**507.8.1.1.1 ~~Liquid use, dispensing and mixing rooms~~ Rooms for flammable or combustible liquid use, dispensing or mixing in open systems.**~~Liquid use, dispensing and mixing rooms~~ Rooms for flammable or combustible liquid use, dispensing or mixing in open systems having a floor area of not more than 500 square feet (46.5 m2) need not be located on the outer perimeter of the building where they are in accordance with the International Fire Code and NFPA 30.

**507.8.1.1.2 Liquid storage rooms and rooms for flammable or combustible liquid use in closed systems.**Liquid storage rooms and rooms for flammable or combustible liquid use in closed systems, having a floor area of not more than 1,000 square feet (93 m2) need not be located on the outer perimeter where they are in accordance with the International Fire Code and NFPA 30.

**(F9384 AM / G49-18 AM)**

**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 Section 506. An occupied roof shall not be included in the *building height* or number of *stories* as regulated by Section 504, provided that the *penthouses* and other enclosed *rooftop structures* comply with Section 1511.

**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~~ in accordance Sections 907.5.21 and 907.5.2.3 is provided in the area of the occupied roof. Emergency voice/alarm communication system notification per Section 907.5.2.2 shall also be provided in the area of the occupied roof where such system is required elsewhere in the building.

2. Assembly occupancies shall be permitted on roofs of open parking spaces of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.

**503.1.4.1 Enclosures over occupied roof areas.** Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches (1220 mm) 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.

**(F9400 / G73-18 AS)**

**TABLE 504.4a, b**

**ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OCCUPANCY CLASSIFICATION** | **TYPE OF CONSTRUCTION** | | | | | | | | | |
| **SEE FOOTNOTES** | **TYPE I** | | **TYPE II** | | **TYPE III** | **TYPE IV** | | **TYPE V** | |
| **A** | **B** | **A** | **B** | **A** | **B** | **HT** | **A** | **B** |
| A-1 | NS | UL | 5 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| S | UL | 6 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| A-2 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| S | UL | 12 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| A-3 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| S | UL | 12 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| A-4 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| S | UL | 12 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| A-5 | NS | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| S | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| B | NS | UL | 11 | 5 | 3 | 5 | 3 | 5 | 3 | 2 |
| S | UL | 12 | 6 | 4 | 6 | 4 | 6 | 4 | 3 |
| E | NS | UL | 5 | 3 | 2 | 3 | 2 | 3 | 1 | 1 |
| S | UL | 6 | 4 | 3 | 4 | 3 | 4 | 2 | 2 |
| F-1 | NS | UL | 11 | 4 | 2 | 3 | 2 | 4 | 2 | 1 |
| S | UL | 12 | 5 | 3 | 4 | 3 | 5 | 3 | 2 |
| F-2 | NS | UL | 11 | 5 | 3 | 4 | 3 | 5 | 3 | 2 |
| S | UL | 12 | 6 | 4 | 5 | 4 | 6 | 4 | 3 |
| H-1 | NSc, d | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | NP |
| S |  |  |  |  |
| H-2 | NSc, d | UL | 3 | 2 | 1 | 2 | 1 | 2 | 1 | 1 |
| S |  |  |  |  |
| H-3 | NSc, d | UL | 6 | 4 | 2 | 4 | 2 | 4 | 2 | 1 |
| S |  |  |  |  |
| H-4 | NSc, d | UL | 7 | 5 | 3 | 5 | 3 | 5 | 3 | 2 |
| S | UL | 8 | 6 | 4 | 6 | 4 | 6 | 4 | 3 |
| H-5 | NSc, d | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 |
| S |  |  |  |  |
| I-1 Condition 1 | NSd, e | UL | 9 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| S | UL | 10 | 5 | 4 | 5 | 4 | 5 | 4 | 3 |
| I-1 Condition 2 | NSd, e | UL | 9 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| S | UL | 10 | 5 |  |  |  |  |
| I-2 | NSd, f | UL | 4 | 2 | 1 | 1 | NP | 1 | 1 | NP |
| S | UL | 5 | 3 |  |  |  |  |
| I-3 | NSd, e | UL | 4 | 2 | 1 | 2 | 1 | 2 | 2 | 1 |
| S | UL | 5 | 3 | 2 | 3 | 2 | 3 | 3 | 2 |
| I-4 | NSd, g | UL | 5 | 3 | 2 | 3 | 2 | 3 | 1 | 1 |
| S | UL | 6 | 4 | 3 | 4 | 3 | 4 | 2 | 2 |
| M | NS | UL | 11 | 4 | 2 | 4 | 2 | 4 | 3 | 1 |
| S | UL | 12 | 5 | 3 | 5 | 3 | 5 | 4 | 2 |
| R-1 | NSd, h | UL | 11 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| S13R | 4 | 4 |  |  | 4 | 3 |
| S | UL | 12 | 5 | 5 | 5 | 5 | 5 | 4 | 3 |
| R-2 | NSd, h | UL | 11 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| S13R | 4 | 4 | 4 |  |  | 4 | 3 |
| S | UL | 12 | 5 | 5 | 5 | 5 | 5 | 4 | 3 |
| R-3 | NSd, h | UL | 11 | 4 | 4 | 4 | 4 | 4 | 3 | 3 |
| S13R | 4 | 4 |  |  | 4 | 4 |
| S | UL | 12 | 5 | 5 | 5 | 5 | 5 | 4 | 4 |
| R-4 | NSd, h | UL | 11 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| S13R | 4 | 4 |  |  | 4 | 3 |
| S | UL | 12 | 5 | 5 | 5 | 5 | 5 | 4 | 3 |
| S-1 | NS | UL | 11 | 4 | 2 | 3 | 2 | 4 | 3 | 1 |
| S | UL | 12 | 5 | 3 | 4 | 3 | 5 | 4 | 2 |
| S-2 | NS | UL | 11 | 5 | 3 | 4 | 3 | ~~4~~ 5 | 4 | 2 |
| S | UL | 12 | 6 | 4 | 5 | 4 | ~~5~~ 6 | 5 | 3 |
| U | NS | UL | 5 | 4 | 2 | 3 | 2 | 4 | 2 | 1 |
| S | UL | 6 | 5 | 3 | 4 | 3 | 5 | 3 | 2 |

**Note:** UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

a.See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b.See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c.New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d.The NS value is only for use in evaluation of existing building height in accordance with the *Florida Building Code, Existing Building*.

e.New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f.New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and the *Florida Fire Prevention Code*.

g.For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h.New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

**TABLE 506.2a, b**

**ALLOWABLE AREA FACTOR (*At* = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OCC-**  **UPANCY CLASS-IFICATION** | **SEE FOOT**  **NOTES** | **TYPE OF CONSTRUCTION** | | | | | | | | |
| **TYPE I** | | **TYPE II** | | **TYPE III** | | **TYPE IV** | **TYPE V** | |
| **A** | **B** | **A** | **B** | **A** | **B** | **HT** | **A** | **B** |
| A-1 | NS | UL | UL | 15,500 | 8,500 | 14,000 | 8,500 | 15,000 | 11,500 | 5,500 |
| S1 | UL | UL | 62,000 | 34,000 | 56,000 | 34,000 | 60,000 | 46,000 | 22,000 |
| SM | UL | UL | 46,500 | 25,500 | 42,000 | 25,500 | 45,000 | 34,500 | 16,500 |
| A-2 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-3 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-4 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-5 | NS | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| S1 |  |  |  |  |
| SM |
| B | NS | UL | UL | 37,500 | 23,000 | 28,500 | 19,000 | 36,000 | 18,000 | 9,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 76,000 | 144,000 | 72,000 | 36,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 57,000 | 108,000 | 54,000 | 27,000 |
| E | NS | UL | UL | 26,500 | 14,500 | 23,500 | 14,500 | 25,500 | 18,500 | 9,500 |
| S1 | UL | UL | 106,000 | 58,000 | 94,000 | 58,000 | 102,000 | 74,000 | 38,000 |
| SM | UL | UL | 79,500 | 43,500 | 70,500 | 43,500 | 76,500 | 55,500 | 28,500 |
| F-1 | NS | UL | UL | 25,000 | 15,500 | 19,000 | 12,000 | 33,500 | 14,000 | 8,500 |
| S1 | UL | UL | 100,000 | 62,000 | 76,000 | 48,000 | 134,000 | 56,000 | 34,000 |
| SM | UL | UL | 75,000 | 46,500 | 57,000 | 36,000 | 100,500 | 42,000 | 25,500 |
| F-2 | NS | UL | UL | 37,500 | 23,000 | 28,500 | 18,000 | 50,500 | 21,000 | 13,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 72,000 | 202,000 | 84,000 | 52,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 54,000 | 151,500 | 63,000 | 39,000 |
| H-1 | NSc | 21,000 | 16,500 | 11,000 | 7,000 | 9.500 | 7,000 | 10,500 | 7,500 | NP |
| S1 |  |  |  |  |
| H-2 | NSc | 21,000 | 16,500 | 11,000 | 7,000 | 9.500 | 7,000 | 10,500 | 7,500 | 3,000 |
| S1 |  |  |  |  |
| SM |
| H-3 | NSc | UL | 60,000 | 26,500 | 14,000 | 17,500 | 13,000 | 25,500 | 10,000 | 5,000 |
| S1 |  |  |  |  |
| SM |
| H-4 | NSc, d | UL | UL | 37,500 | 17,500 | 28,500 | 17,500 | 36,000 | 18,000 | 6,500 |
| S1 | UL | UL | 150,000 | 70,000 | 114,000 | 70,000 | 144,000 | 72,000 | 26,000 |
| SM | UL | UL | 112,500 | 52,500 | 85,500 | 52,500 | 108,000 | 54,000 | 19,500 |
| H-5 | NSc, d | UL | UL | 37,500 | 23,000 | 28,500 | 19,000 | 36,000 | 18,000 | 9,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 76,000 | 144,000 | 72,000 | 36,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 57,000 | 108000 | 54,000 | 27,000 |
| I-1 | NSd, e | UL | 55,000 | 19,000 | 10,000 | 16,500 | 10,000 | 18,000 | 10,500 | 4,500 |
| S1 | UL | 220,000 | 76,000 | 40,000 | 66,000 | 40,000 | 72,000 | 42,000 | 18,000 |
| SM | UL | 165,000 | 57,000 | 30,000 | 49,500 | 30,000 | 54,000 | 31,500 | 13,500 |
| I-2 | NSd, f | UL | UL | 15,000 | 11,000 | 12,000 | NP | 12,000 | 9,500 | NP |
| S1 | UL | UL | 60,000 | 44,000 | 48,000 | NP | 48,000 | 38,000 | NP |
| SM | UL | UL | 45,000 | 33,000 | 36,000 | NP | 36,000 | 28,500 | NP |
| I-3 | NSd, e | UL | UL | 15,000 | 10,000 | 10,500 | 7,500 | 12,000 | 7,500 | 5,000 |
| S1 | UL | UL | ~~45,000~~   60,000 | 40,000 | 42,000 | 30,000 | 48,000 | 30,000 | 20,000 |
| SM | UL | UL | 45,000 | 30,000 | 31,500 | 22,500 | 36,000 | 22,500 | 15,000 |
| I-4 | NSd, g | UL | 60.500 | 26,500 | 13,000 | 23,500 | 13,000 | 25,500 | 18,500 | 9,000 |
| S1 | UL | 121,000 | 106,000 | 52,000 | 94,000 | 52,000 | 102,000 | 74,000 | 36,000 |
| SM | UL | 181,500 | 79,500 | 39,000 | 70,500 | 39,000 | 76,500 | 55,500 | 27,000 |
| M | NS | UL | UL | 21,500 | 12,500 | 18,500 | 12,500 | 20,500 | 14,000 | 9,000 |
| S1 | UL | UL | 86,000 | 50,000 | 74,000 | 50,000 | 82,000 | 56,000 | 36,000 |
| SM | UL | UL | 64,500 | 37,500 | 55,500 | 37,500 | 61,500 | 42,000 | 27,000 |
| R-1 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| R-2 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| R-3 | NSd, h | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| S13R |  |  |  |  |
| S1 |
| SM |
| R-4 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| S-1 | NS | UL | 48,000 | 26,000 | 17,500 | 26,000 | 17,500 | 25,500 | 14,000 | 9,000 |
| S1 | UL | 192,000 | 104,000 | 70,000 | 104,000 | 70,000 | 102,000 | 56,000 | 36,000 |
| SM | UL | 144,000 | 78,000 | 52,500 | 78,000 | 52,500 | 76,500 | 42,000 | 27,000 |
| S-2 | NS | UL | 79,000 | 39,000 | 26,000 | 39,000 | 26,000 | 38,500 | 21,000 | 13,500 |
| S1 | UL | 316,000 | 156,000 | 104,000 | 156,000 | 104,000 | 154,000 | 84,000 | 54,000 |
| SM | UL | 237,000 | 117,000 | 78,000 | 117,000 | 78,000 | 115,500 | 63,000 | 40,500 |
| U | NS | UL | 35,500 | 19,000 | 8,500 | 14,000 | 8,500 | 18,000 | 9,000 | 5,500 |
| S1 | UL | 142,000 | 76,000 | 34,000 | 56,000 | 34,000 | 72,000 | 36,000 | 22,000 |
| SM | UL | 106,500 | 57,000 | 25,500 | 42,000 | 25,500 | 54,000 | 27,000 | 16,500 |

**Note:**UL = Unlimited; NP = Not permitted;

For SI: 1 square foot = 0.0929 m2.

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

a.See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b.See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c.New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d.The NS value is only for use in evaluation of existing building area in accordance with the *Florida Building Code, Existing Building*.

e.New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f.New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and the *Florida Fire Prevention Code*.

g.New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.

h.New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

**(F10532 AS)**

**TABLE 506.2a, b**

**ALLOWABLE AREA FACTOR (*At* = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OCCUPANCY**  **CLASS-**  **IFICATION** | **SEE FOOT**  **NOTES** | **TYPE OF CONSTRUCTION** | | | | | | | | |
| **TYPE I** | | **TYPE II** | | **TYPE III** | | **TYPE IV** | **TYPE V** | |
| **A** | **B** | **A** | **B** | **A** | **B** | **HT** | **A** | **B** |
| A-1 | NS | UL | UL | 15,500 | 8,500 | 14,000 | 8,500 | 15,000 | 11,500 | 5,500 |
| S1 | UL | UL | 62,000 | 34,000 | 56,000 | 34,000 | 60,000 | 46,000 | 22,000 |
| SM | UL | UL | 46,500 | 25,500 | 42,000 | 25,500 | 45,000 | 34,500 | 16,500 |
| A-2 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-3 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-4 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| A-5 | NS | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| S1 |  |  |  |  |  |  |  |
| SM |
| B | NS | UL | UL | 37,500 | 23,000 | 28,500 | 19,000 | 36,000 | 18,000 | 9,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 76,000 | 144,000 | 72,000 | 36,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 57,000 | 108,000 | 54,000 | 27,000 |
| E | NS | UL | UL | 26,500 | 14,500 | 23,500 | 14,500 | 25,500 | 18,500 | 9,500 |
| S1 | UL | UL | 106,000 | 58,000 | 94,000 | 58,000 | 102,000 | 74,000 | 38,000 |
| SM | UL | UL | 79,500 | 43,500 | 70,500 | 43,500 | 76,500 | 55,500 | 28,500 |
| F-1 | NS | UL | UL | 25,000 | 15,500 | 19,000 | 12,000 | 33,500 | 14,000 | 8,500 |
| S1 | UL | UL | 100,000 | 62,000 | 76,000 | 48,000 | 134,000 | 56,000 | 34,000 |
| SM | UL | UL | 75,000 | 46,500 | 57,000 | 36,000 | 100,500 | 42,000 | 25,500 |
| F-2 | NS | UL | UL | 37,500 | 23,000 | 28,500 | 18,000 | 50,500 | 21,000 | 13,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 72,000 | 202,000 | 84,000 | 52,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 54,000 | 151,500 | 63,000 | 39,000 |
| H-1 | NSc | 21,000 | 16,500 | 11,000 | 7,000 | 9.500 | 7,000 | 10,500 | 7,500 | NP |
| S1 |  |  |  |  |  |  |  |
| H-2 | NSc | 21,000 | 16,500 | 11,000 | 7,000 | 9.500 | 7,000 | 10,500 | 7,500 | 3,000 |
| S1 |  |  |  |  |  |  |  |
| SM |
| H-3 | NSc | UL | 60,000 | 26,500 | 14,000 | 17,500 | 13,000 | 25,500 | 10,000 | 5,000 |
| S1 |  |  |  |  |  |  |  |
| SM |
| H-4 | NSc, d | UL | UL | 37,500 | 17,500 | 28,500 | 17,500 | 36,000 | 18,000 | 6,500 |
| S1 | UL | UL | 150,000 | 70,000 | 114,000 | 70,000 | 144,000 | 72,000 | 26,000 |
| SM | UL | UL | 112,500 | 52,500 | 85,500 | 52,500 | 108,000 | 54,000 | 19,500 |
| H-5 | NSc, d | UL | UL | 37,500 | 23,000 | 28,500 | 19,000 | 36,000 | 18,000 | 9,000 |
| S1 | UL | UL | 150,000 | 92,000 | 114,000 | 76,000 | 144,000 | 72,000 | 36,000 |
| SM | UL | UL | 112,500 | 69,000 | 85,500 | 57,000 | 108000 | 54,000 | 27,000 |
| I-1 | NSd, e | UL | 55,000 | 19,000 | 10,000 | 16,500 | 10,000 | 18,000 | 10,500 | 4,500 |
| S1 | UL | 220,000 | 76,000 | 40,000 | 66,000 | 40,000 | 72,000 | 42,000 | 18,000 |
| SM | UL | 165,000 | 57,000 | 30,000 | 49,500 | 30,000 | 54,000 | 31,500 | 13,500 |
| I-2 | NSd, f | UL | UL | 15,000 | 11,000 | 12,000 | NP | 12,000 | 9,500 | NP |
| S1 | UL | UL | 60,000 | 44,000 | 48,000 | NP | 48,000 | 38,000 | NP |
| SM | UL | UL | 45,000 | 33,000 | 36,000 | NP | 36,000 | 28,500 | NP |
| I-3 | NSd, e | UL | UL | 15,000 | 10,000 | 10,500 | 7,500 | 12,000 | 7,500 | 5,000 |
| S1 | UL | UL | ~~45,000~~  60,000 | 40,000 | 42,000 | 30,000 | 48,000 | 30,000 | 20,000 |
| SM | UL | UL | 45,000 | 30,000 | 31,500 | 22,500 | 36,000 | 22,500 | 15,000 |
| I-4 | NSd, g | UL | 60.500 | 26,500 | 13,000 | 23,500 | 13,000 | 25,500 | 18,500 | 9,000 |
| S1 | UL | 121,000 | 106,000 | 52,000 | 94,000 | 52,000 | 102,000 | 74,000 | 36,000 |
| SM | UL | 181,500 | 79,500 | 39,000 | 70,500 | 39,000 | 76,500 | 55,500 | 27,000 |
| M | NS | UL | UL | 21,500 | 12,500 | 18,500 | 12,500 | 20,500 | 14,000 | 9,000 |
| S1 | UL | UL | 86,000 | 50,000 | 74,000 | 50,000 | 82,000 | 56,000 | 36,000 |
| SM | UL | UL | 64,500 | 37,500 | 55,500 | 37,500 | 61,500 | 42,000 | 27,000 |
| R-1 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| R-2 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| R-3 | NSd, h | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| S13R |  |  |  |  |  |  |  |
| S1 |
| SM |
| R-4 | NSd, h | UL | UL | 24,000 | 16,000 | 24,000 | 16,000 | 20,500 | 12,000 | 7,000 |
| S13R |  |  |  |  |  |  |  |
| S1 | UL | UL | 96,000 | 64,000 | 96,000 | 64,000 | 82,000 | 48,000 | 28,000 |
| SM | UL | UL | 72,000 | 48,000 | 72,000 | 48,000 | 61,500 | 36,000 | 21,000 |
| S-1 | NS | UL | 48,000 | 26,000 | 17,500 | 26,000 | 17,500 | 25,500 | 14,000 | 9,000 |
| S1 | UL | 192,000 | 104,000 | 70,000 | 104,000 | 70,000 | 102,000 | 56,000 | 36,000 |
| SM | UL | 144,000 | 78,000 | 52,500 | 78,000 | 52,500 | 76,500 | 42,000 | 27,000 |
| S-2 | NS | UL | 79,000 | 39,000 | 26,000 | 39,000 | 26,000 | 38,500 | 21,000 | 13,500 |
| S1 | UL | 316,000 | 156,000 | 104,000 | 156,000 | 104,000 | 154,000 | 84,000 | 54,000 |
| SM | UL | 237,000 | 117,000 | 78,000 | 117,000 | 78,000 | 115,500 | 63,000 | 40,500 |
| U | NS | UL | 35,500 | 19,000 | 8,500 | 14,000 | 8,500 | 18,000 | 9,000 | 5,500 |
| S1 | UL | 142,000 | 76,000 | 34,000 | 56,000 | 34,000 | 72,000 | 36,000 | 22,000 |
| SM | UL | 106,500 | 57,000 | 25,500 | 42,000 | 25,500 | 54,000 | 27,000 | 16,500 |

**(F10375 AS)**

**Revise as follows:**

**504.4 Number of stories.**The maximum number of *stories* above grade plane of a building shall not exceed the limits specified in Table 504.4.

**(F9402 / G77-18 AS)**

**Revise as follows:**

**506.3 Frontage increase.** Every building shall adjoin or have access to a public way to receive an area factor increase based on frontage. Area factor increase shall be determined in accordance with Sections 506.3.1 through 506.3.3.

**506.3.1 Minimum percentage of perimeter.** To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter on a public way or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane.

**506.3.2 Minimum frontage distance.** To qualify for an area factor increase based on frontage, the public way or open space adjacent to the building perimeter shall have a minimum distance ~~(W)~~ of 20 feet (6096 mm) measured at right angles from the building face to any of the following:

1. The closest interior lot line.

2. The entire width of a street, alley or public way.

3. The exterior face of an adjacent building on the same property.

~~Where the value of~~ ~~W~~ ~~is greater than 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the~~ ~~building area~~ ~~increase based on frontage, regardless of the actual width of the~~ ~~public way~~ ~~or open space. Where the value of~~ ~~W~~ ~~varies along the perimeter of the building, the calculation performed in accordance with Equation 5-5 shall be based on the weighted average calculated in accordance with Equation 5-4.~~

~~W = (L1×w1+L2×w2+L3×w3…)/F~~ **~~(Equation 5-4)~~**

~~where:~~

~~W~~ ~~(Width: weighted average)~~ ~~=~~ ~~Calculated width of~~ ~~public way~~ ~~or open space (feet).~~

~~L~~~~n~~ ~~=~~ ~~Length of a portion of the exterior perimeter wall.~~

~~w~~~~n~~ ~~=~~ ~~Width (≥ 20 feet) of a~~ ~~public way~~ ~~or open space associated with that portion of the exterior perimeter wall.~~

~~F~~ ~~=~~ ~~Building perimeter that fronts on a~~ ~~public way~~ ~~or open space having a width of 20 feet (6096 mm) or more.~~

**~~Exception:~~** ~~Where a building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm)~~ ~~public way~~ ~~or~~ ~~yard~~ ~~requirement, and the value of~~ ~~W~~ ~~is greater than 30 feet (9144 mm), the value of~~ ~~W~~ ~~shall not exceed 60 feet (18 288 mm).~~

The frontage increase shall be based on the smallest public way or open space that is 20 feet (6096 mm) or greater, and the percentage of building perimeter having a minimum 20 feet (6096 mm) public way or open space.

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance withTable 506.3.3. ~~Equation 5-5:~~

~~I~~~~f~~~~=[F/P-0.25]W/30~~ **~~(Equation 5-5)~~**

~~where:~~

~~I~~~~f~~ ~~=~~ ~~Area factor increase due to frontage.~~

~~F~~ ~~=~~ ~~Building perimeter that fronts on a~~ ~~public way~~ ~~or open space having minimum distance of 20 feet (6096 mm).~~

~~P~~ ~~=~~ ~~Perimeter of entire building (feet).~~

~~W~~ ~~= Width of~~ ~~public way~~ ~~or open space (feet) in accordance with Section 506.3.2.~~

~~I~~~~f~~ ~~= [F/P - 0.25]W/30~~

**Add new text as follows:**

**506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with Table 506.3.3.**

**TABLE 506.3.3**

**FRONTAGE INCREASE FACTOR**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Open Space** | | | |
| **Percentage (%) of Perimeter** | **0 to less than 20 Feet** | **20 to less than 25 Feet** | **25 to less than 30 Feet** | **30 Feet or greater** |
| 0 to less than 25 | 0 | 0 | 0 | 0 |
| 25 to less than 50 | 0 | ​​​​​​​0.17 | ​​​​​​​0.21 | ​​​​​​​0.25 |
| 50 to less than 75 | ​​​​​​​0 | 0.33 | 0.42 | ​​​​​​​0.50 |
| 75 to 100 | 0 | ​​​​​​​0.5 | ​​​​​​​0.63 | ​​​​​​​0.75 |

Interpolation is permitted.

**506.3.3.1 Section 507 Buildings.** Where a building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) public way or yard requirement, The area factor increase based on frontage shall be determined in accordance with Table 506.3.3.1.

**TABLE 506.3.3.1**

**SECTION 507 BUILDINGS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Open Space** | | | | | |
| **% perimeter** | **30 to less than 35 feet** | **35 to less than 40 feet** | **40 feet to less than 45 feet** | **45 feet to less than 50 feet** | **50 feet to less than 55 feet** | **55 feet to less than 60 feet** |
| 0 to less than 25 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 to less than 50 | 0.29 | 0.33 | 0.38 | 0.42 | 0.46 | 0.5 |
| 50 to less than 75 | 0.58 | 0.67 | 0.75 | 0.83 | 0.92 | 1.00 |
| 75 to 100 | 0.88 | 1.00 | 1.13 | 1.25 | 1.38 | 1.5 |

Interpolation is permitted.

**(F9414/ G86-18 AMPC1)**

**Revise as follows:**

**510.3 Group S-2 enclosed parking garage with Group S-2 open parking garage above.**A Group S-2 enclosed parking garage with not more than one *story above grade plane* and located below a Group S-2 open *parking garage* shall be classified as a separate and distinct building for the purpose of determining the type of construction where all of the following conditions are met:

1. The allowable area of the building shall be such that the sum of the ratios of the actual area divided by the allowable area for each separate occupancy shall not exceed 1.

2. The Group S-2 enclosed parking garage is of Type I or II construction and is at least equal to the *fire-resistance* requirements of the Group S-2 *open parking garage*.

3. The height and the number of tiers of the Group S-2 *open parking garage* shall be limited as specified in Table 406.5.4.

4. The floor assembly separating the Group S-2 enclosed parking garage and Group S-2 *open parking garage* shall be protected as required for the floor assembly of the Group S-2 enclosed parking garage. Openings between the Group S-2 enclosed parking garage and Group S-2 *open parking garage*, except *exit* openings, shall not be required to be protected.

5. The Group S-2 enclosed parking garage is used exclusively for the parking or storage of private motor vehicles, but shall be permitted to contain an office, waiting room and toilet room having a total area of not more than 1,000 square feet (93 m2) and mechanical equipment rooms ~~incidental to~~associated with the operation of the building.

**(F9420 / G96-18 AS)**

**Revise as follows:**

**510.5 Group R-1 and R-2 buildings of Type IIIA construction.** ~~The height limitation for~~ For buildings of Type IIIA construction in Groups R-1 and R-2 the maximum allowable height in Table 504.3 shall be increased ~~to six stories~~ ~~and 75 feet (22 860 mm)~~ by 10 feet and the maximum allowable number of stories in Table 504.4 shall be increased by one where the first floor assembly above the basement has a fire-resistance rating of not less than 3 hours and the floor area is subdivided by 2-hour fire-resistance-rated fire walls into areas of not more than 3,000 square feet (279 m2).

**(F9836 / G98-18 AS)**

**Revise as follows:**

**510.8 Group B or M buildings with Group S-2 open parking garage above.**Group B or M occupancies located below a Group S-2*open parking garage* of a lesser type of construction shall be considered as a separate and distinct building from the Group S-2 *open parking garage* for the purpose of determining the 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 2 hours.

2. The occupancies in the building below the *horizontal assembly* are limited to Groups B and M.

3. The occupancy above the *horizontal assembly* is limited to a Group S-2 *open parking garage*.

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

**Exception:** The building below the *horizontal assembly* shall be permitted to be of Type IB or II construction, but not less than the type of construction required for the Group S-2 *open parking garage* above, where the building below is not greater than *one story* in height above grade plane.

5. The height and area of the building below the *horizontal assembly* does not exceed the limits set forth in Section 503.

6. The height and area of the Group S-2 *open parking garage* does not exceed the limits set forth in Section 406.5. The height, in both feet and *stories*, of the Group S-2 *open parking garage* shall be measured from *grade plane* and shall include the building below the *horizontal assembly*.

7. *Exits* serving the Group S-2 *open parking garage* ~~discharge directly~~shall discharge at grade with direct and unobstructed access to a street or *public way* and are separated from the building below the *horizontal assembly* by 2-hour *fire barriers* constructed in accordance with Section 707 or 2-hour horizontal assemblies constructed in accordance with Section 711, or both.

**(F9422 / G99-18 AS)**

**CHAPTER 6 TYPES OF CONSTRUCTION**

**602.1 General.** Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table ~~602.~~ 705.5. Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

**TABLE 601**

**FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BUILDING ELEMENT** | **TYPE I** | | **TYPE II** | | **TYPE III** | | **TYPE IV** | **TYPE V** | |
| **A** | **B** | **A** | **B** | **A** | **B** | **HT** | **A** | **B** |
| Primary structural framef (see Section 202) | 3a, b | 2a, b | 1b | 0 | 1b | 0 | HT | 1b | 0 |
| Bearing walls     Exteriore, f     Interior | 3  3a | 2  2a | 1  1 | 0  0 | 2  1 | 2  0 | 2  1/HT | 1  1 | 0  0 |
| Nonbearing walls and partitionsExterior | See Table 705.5 | | | | | | | | |
| Nonbearing walls and partitions Interiord | 0 | 0 | 0 | 0 | 0 | 0 | See Section 2304.11.2 | 0 | 0 |
| Floor construction and associated secondary members (see Section 202) | 2 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| Roof construction and associated secondary members (see Section 202) | 11/2b | 1b,c | 1b,c | 0c | 1b,c | 0 | HT | 1b,c | 0 |

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

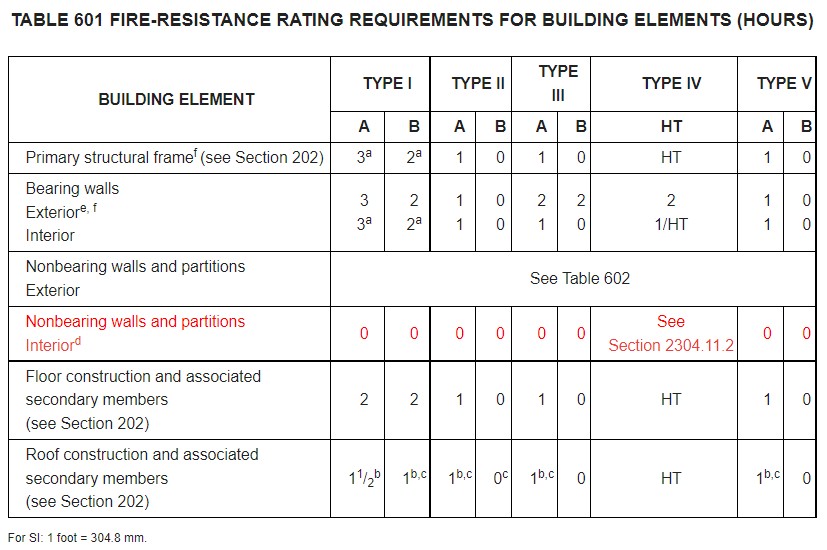
c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

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

e. Not less than the fire-resistance rating based on fire separation distance (see Table ~~602~~705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

**(F9241/FS18-18 AM)**

****

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

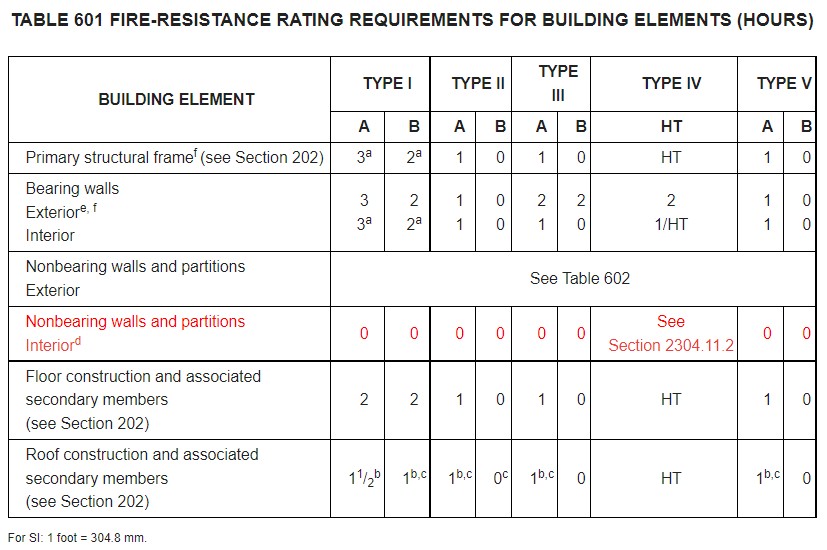
  c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

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

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

f. Not less than the fire-resistance rating as referenced in Section 704.10.

**(F10425 AS)**

****

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. ~~Except in Group F-1, H, M and S-1 occupancies,~~Where every part of the roof construction is 20 ft or more above the floor immediately below, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking ~~where every part of the roof construction is 20 feet or more above any floor immediately below.~~, except where any of the following conditions apply:

1.        In Group F-1, H, M and S-1 occupancies.

2.        Where the roof is an occupiable space.

Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

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.

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

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

f. Not less than the fire-resistance rating as referenced in Section 704.10.

**(F10451 AS)**

Table 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

**Table

Description automatically generated with low confidence**

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

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

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

f. Not less than the fire-resistance rating as referenced in Section 704.10.

**(F10100 AS)**

Modify Table 601 to include footnote "b" in the first row (Primary Structural Frame) for Construction Types I, II, III, and IV.  This will make it consistent with IBC Table 601. Updating footnote b.

**(F10157 AM A1)**

**Revise as follows:**

**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 ianches (152 mm) in thickness~~ with a 2-hour rating or less.

**602.4.2 Cross-laminated timber in exterior walls.** Cross-laminated timber not less than 4 inches (102 mm) in thickness 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.

**(F9428 / G110-18 AS)**

**602.4.2 Cross-laminated timber in exterior walls.**Cross-laminated timber not less than 4 inches (102 mm) in thickness complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less.~~, provided the~~ Heavy timber structural members appurtenant to the CLT exterior wall shall meet the requirements of Table 2304.11 and be fire-resistance rated as required for the exterior wall. The  ~~provided the~~ exterior surface of the cross-laminated ~~timberis~~ timber and heavy timber elements shall be protected by one the following:

1. 1.*Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;
2. 2.*Gypsum board* not less than 1/2 inch (12.7 mm) thick; or
3. 3.A noncombustible material.

**(F10113 AS)**

**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:

1. *Fire-retardant-treated wood* shall be permitted in:

1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.

1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.

1.3. Roof construction, including girders, trusses, framing and decking.

**Exception:**In buildings of Type IA construction exceeding two *stories above grade plane, fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 2

**Exceptions:**

1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.

2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.

4. Roof coverings that have an A, B or C classification.

5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.

6. Millwork such as doors, door frames, window sashes and frames.

7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.

8. *Trim* installed in accordance with Section 806.

9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.

10. Finish flooring installed in accordance with Section 805.

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

12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.

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

14. Blocking such as for handrails, millwork, cabinets and window and door frames.

15. Light-transmitting plastics as permitted by Chapter 26.

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

17. Exterior plastic veneer installed in accordance with Section 2605.2.

18. Nailing or furring strips as permitted by Section 803.13.

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

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

21. Sprayed fire-resistant materials and *intumescent ~~and mastic~~fire-resistive~~resistant~~ materials~~coatings~~*, determined on the basis of *fire resistance* tests in accordance with Section 703.2.

22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.

23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.

24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.

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

26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with = Section 903.3.1.1.

**(F10468 AS)**

|  |
| --- |
| **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:  1. *Fire-retardant-treated wood* shall be permitted in:  1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.  1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.  1.3. Roof construction, including girders, trusses, framing and decking.  **Exception:**In buildings of Type IA construction exceeding two *stories above grade plane, fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).  2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.  **Exceptions:**  1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.  2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.  3. Foam plastics in accordance with Chapter 26.  4. Roof coverings that have an A, B or C classification.  5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.  6. Millwork such as doors, door frames, window sashes and frames.  7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.  8. *Trim* installed in accordance with Section 806.  9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.  10. Finish flooring installed in accordance with Section 805.  11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.  12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.  13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.  14. Blocking such as for handrails, millwork, cabinets and window and door frames.  15. Light-transmitting plastics as permitted by Chapter 26.  16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.  17. Exterior plastic veneer installed in accordance with Section 2605.2.  18. Nailing or furring strips as permitted by Section 803.13.  19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.3 and 1406.3.  20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.  21. *Sprayed fire-resistive~~resistant~~ materials* and *intumescent and masticfire-resistant coatings*, determined on the basis of *fire resistance* tests in accordance with Section 703.2.  22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.  23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.  24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.  25. Materials exposed within plenums complying with Section 602 of the *Florida Building Code, Mechanical*.  26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. |
|  |

**(F10499 AS)**

**CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES**

**Delete without substitution:**

**~~703.4 Automatic sprinklers.~~** ~~Under the prescriptive fire-resistance requirements of this code, the fire-resistance rating of a building element, component or assembly shall be established without the use of automatic sprinklers or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the building official allowed by Sections 104.10 and 104.11.~~

**703.2 Fire-resistance ~~ratings~~.**The fire-resistance ~~rating~~ of building elements, components or assemblies shall be determined in accordance with Sections 703.2.1 or 703.2.2 without the use of automatic sprinklers or any other fire suppression system being incorporated, or in accordance with Section 703.2.3.

**703.2.1 Tested assemblies.** A fire-resistance rating of building elements, components or assemblies shall be determined by the test procedures set forth in ASTM E119 or UL 263~~, without the use of automatic sprinklers or any other fire suppression system being incorporated as part of the test, or in accordance with Section 703.3~~. The fire-resistance rating of penetrations and fire-resistant joint systems shall be determined in accordance Sections 714 and 715, respectively.

**~~703.3~~703.2.2 ~~Methods for determining fire resistance~~ Analytical methods.**The fire resistance of building elements, components or assemblies established by an analytical method shall be by ~~The application of~~any of the methods listed in this section ~~shall be~~ based on the fire exposure and acceptance criteria specified in ASTM E119 or UL 263. ~~The required fire resistance of a building element, component or assembly shall be permitted to be established by any of the following methods or procedures:~~

1. Fire-resistance designs documented in approved sources.

2. Prescriptive designs of fire-resistance-rated building elements, components or assemblies as prescribed in Section 721.

3. Calculations in accordance with Section 722.

4. Engineering analysis based on a comparison of building element, component or assemblies designs having fire-resistance ratings as determined by the test procedures set forth in ASTM E119 or UL 263.

~~5. Alternative protection methods as allowed by Section 104.11.~~

~~6~~5. Fire-resistance designs certified by an approved agency.

**703.2.6 Approved alternative method.**The fire resistance of building elements, components or assemblies not complying with Sections 703.2.1 or 703.2.2 shall be permitted to be established by an alternative protection method in accordance with Section 104.11.

**703.2.1.1 Nonsymmetrical wall construction.** Interior walls and partitions of nonsymmetrical construction 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 conducted in compliance with ASTM E119 or UL 263. 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 (see Section 705.5 for exterior walls).

**703.2.1.2 Combustible components.** Combustible aggregates are permitted in gypsum and Portland cement concrete mixtures for fire-resistance-rated construction. Any component material or admixture is permitted in assemblies if the resulting tested assembly meets the fire-resistance test requirements of this code.

**(F9233 / FS1-18 AM)**

**703.5 Noncombustibility tests.** The tests indicated in ~~Sections~~ Section 703.5.~~2~~.1 ~~and 703.5.2~~ shall serve as criteria for acceptance of

building materials as set forth in Sections 602.2, 602.3 and 602.4 in Types I, II, III and IV construction. The term

“noncombustible” does not apply to the *flame spread* characteristics of *interior finish* or *trim* materials. A material shall not be classified as a noncombustible building construction material if it is subject to an increase in combustibility or *flame spread* beyond the limitations herein established

through the effects of age, moisture or other atmospheric conditions.

**703.5.1 ~~Elementary~~ Noncombustible materials.** Materials required to be noncombustible shall be tested in accordance with

ASTM E136. Alternately, materials required to be noncombustible shall be tested in accordance with ASTM

E2652 using the acceptance criteria prescribed by ASTM E136.

**Exception:** Materials having a structural base of noncombustible material as determined in accordance

with ASTM E136, or with ASTM E2652 using the acceptance criteria prescribed by ASTM E136, with a

surfacing of not more than 0.125 inch (3.18 mm) in thickness having a flame spread index not greater than

50 when tested in accordance with ASTM E84 or UL 723 shall be acceptable as noncombustible.

**~~703.5.2~~ ~~Composite materials.~~** ~~Materials having a structural base of noncombustible material as determined in accordance with~~ ~~Section 703.5.1~~ ~~with a surfacing not more than 0.125 inch (3.18 mm) thick that has a~~ ~~flame spread index~~ ~~not greater than 50 when tested in accordance with~~ ~~ASTM E84~~ ~~or~~ ~~UL 723~~ ~~shall be acceptable as noncombustible materials.~~

**(F9235 / FS3-18 AMPC1)/ (F9234 / FS2-18 AM)**

**Revise as follows:**

**707.4 Exterior walls.** Where exterior walls serve as a part of a required fire-resistance-rated shaft or ~~stairway~~ separation or ~~ramp~~ enclosure for a stairway, ramp or ~~separation~~ exit passageway, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure or separation requirements shall not apply.

**Exception:** Exterior walls required to be fire-resistance rated in accordance with Section 1021 for exterior egress balconies, Section 1023.7 for interior exit stairways and ramps, Section 1024.8 for exit passageways and Section 1027.6 for exterior exit stairways and ramp.

**(F9201 / E102-18 AS)**

**Revise as follows:**

**715.2 Installation.** ~~A fire-resistant joint system~~ Systems or materials protecting joints and voids shall be securely installed in accordance with the manufacturer's installation instructions ~~and the listing criteria~~ in or on the joint or void for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases. Fire-resistant joint systems or systems used to protect voids at exterior curtain walls and fire-resistance-rated floor intersections shall also be installed in accordance with the listing criteria.

**715.4.2 Exterior curtain wall/vertical fire barrier intersections.** Voids created at the intersection of nonfire-resistance-rated exterior curtain wall assemblies and vertical fire barriers shall be ~~filled. An~~ filled with an approved material or system ~~shall be used to fill the void and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and~~ to retard the ~~passage~~ interior spread of fire and hot gases.

**(F9260 / FS52-18 AS)**

**704.6 Attachments to structural members.** The edges of lugs, brackets, rivets and bolt heads attached to structural members shall be permitted to extend to within 1 inch (25 mm) of the surface of the fire protection.

**Add new text as follows:**

**704.6.1 Secondary attachments to structural members.** Where primary and secondary structural steel

members require fire protection, secondary steel attachments to those structural members shall be protected with

the same fire-resistive material and thickness as required for the structural member. The protection shall extend

away from the structural member a distance of not less than 12 inches (305 mm), or shall be applied to the entire

length where the attachment is less than 12 inches (305 mm) long. Where an attachment is hollow and the ends

are open, the fire-resistive material and thickness shall be applied to both exterior and interior of the hollow steel

attachment.

**(F9238 / FS8-18 AMPC1)**

|  |
| --- |
| **Revise new Section 704.6.1 developed under Modification No. 9238 as follows:**  **704.6.1 Secondary attachments to structural members.**Where primary and secondary structural steel members require fire protection, ~~secondary steel attachments to those structural members~~any additional structural steel members having direct connection to the primary structural frame or secondary structural members shall be protected with the same fire-resistive material and thickness as required for the structural member. The protection shall extend away from the structural member a distance of not less than 12 inches (305 mm), or shall be applied to the entire length where the attachment is less than 12 inches (305 mm) long. Where an attachment is hollow and the ends are open, the fire-resistive material and thickness shall be applied to both exterior and interior of the hollow steel attachment.  **(F10512 AS)**  **Delete section in its entirety and show as Reserved:**  **704.12 Seismic isolation systems.**Reserved.  *~~Fire-resistance ratings~~*~~for the isolation system shall meet the~~*~~fire-resistance rating~~*~~required for the columns, walls or other structural elements in which the isolation system is installed in accordance with Table 601. Isolation systems required to have a~~*~~fire-resistance rating~~*~~shall be protected with~~*~~approved~~*~~materials or construction assemblies designed to provide the same degree of~~*~~fire resistance~~*~~as the structural element in which the system is installed when tested in accordance with ASTM E119 or UL 263 (see Section 703.2).~~  ~~Such isolation system protection applied to isolator units shall be capable of retarding the transfer of heat to the isolator unit in such a manner that the required gravity load-carrying capacity of the isolator unit will not be impaired after exposure to the standard time-temperature curve fire test prescribed in ASTM E119 or UL 263 for a duration not less than that required for the~~*~~fire-resistance rating~~*~~of the structure element in which the system is installed.~~  ~~Such isolation system protection applied to isolator units shall be suitably designed and securely installed so as not to dislodge, loosen, sustain damage or otherwise impair its ability to accommodate the seismic movements for which the isolator unit is designed and to maintain its integrity for the purpose of providing the required fire-resistance protection.~~ |
|  |

**(F10038 AS)**

**704.13 Sprayed fire-resistive~~resistant~~ materials (SFRM).**

*Sprayed fire-resistive~~resistant~~ materials* (SFRM) shall comply with Sections 704.13.1 through 704.13.5.

**(F10500 AS)**

**Revise as follows:**

**TABLE 705.2**

**MINIMUM DISTANCE OF PROJECTION**

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

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

**(F9239 / FS14-18 AS)**

**Delete and substitute as follows:**

**~~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, heavy timber construction, complying with Section 2304.11, fire-retardant-treated wood or as permitted by Section 705.2.3.1.~~

**~~Exception:~~** ~~Type VB construction shall be allowed for combustible projections in Group R-3 and U~~

**705.2.3 Projection Protection.** Projections extending to within 5 feet (1524 mm) of the line used to determine the fire separation distance shall be one of the following:

1. Noncombustible materials.

2. Combustible materials of not less than 1 hour fire resistance rated construction.

​​​​​​​3. Heavy timber construction complying with Section 2304.11.

​​​​​​​4. Fire-retardant treated wood.

​​​​​​​5. As permitted by Section 705.2.3.1.

**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).

**(F9240 / FS16-18 AS)**

**707.8 Joints.**

Joints made in or between *fire barriers*, and joints made at the intersection of *fire barriers* with the underside of a fire-resistance-rated floor or roof sheathing, slab or deck above, and ~~the exterior vertical wall intersection 715~~with other fire-resistance-rated wall assemblies shall comply with Section 715.

**(F10461 AS)**

**Revise as follows:**

**715.4 Exterior curtain wall/floor intersection.** Where fire-resistance-rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies shall be sealed with an approved system to prevent the interior spread of fire. Such systems shall be securely installed and tested in accordance with ASTM E2307 to provide an F rating for a time period not less than the fire-resistance rating of the floor assembly. ~~Height and~~ ~~fire-resistance~~ ~~requirements for curtain wall spandrels shall comply with~~ ~~Section 705.8.5.~~

**Exception:** Voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies where the vision glass extends to the finished floor level shall be permitted to be sealed with an approved material to prevent the interior spread of fire. Such material shall be securely installed and capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E119 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (0.254 mm) of water column (2.5 Pa) for the time period not less than the fire-resistance rating of the floor assembly.

**715.5 ~~Spandrel wall.~~ Curtain wall spandrels.** Height and fire-resistance requirements for curtain wall spandrels shall comply with Section 705.8.5. Where Section 705.8.5 does not require a fire-resistance-rated spandrel wall, the requirements of ~~Section~~ Sections 715.4 and 715.4.1 shall still apply to the intersection between the spandrel wall and the floor.

**(F9263 / FS54-18 AMPC1)**

**Revise as follows:**

**715.6 ~~Fire-resistant joint systems~~ Joints and voids in smoke barriers.** Fire-resistant joint systems protecting joints in smoke barriers, and ~~joints~~ systems protecting voids at the intersection of a horizontal smoke barrier and an exterior curtain wall, shall be tested in accordance with the requirements of UL 2079 for air leakage. The L rating of the joint system shall not exceed 5 cfm per linear foot (0.00775 m3/s m) of joint at 0.30 inch (~~7.47~~ 74.7 Pa) of water for both the ambient temperature and elevated temperature tests.

**(F9264 / FS55-18 AS)**

**Revise as follows:**

**705.5 Fire-resistance ratings.** Exterior walls shall be fire-resistance rated in accordance with Tables 601 ~~and 602~~ ~~and this section.~~ based on the Type of Construction and Table 705.5 based on the Fire Separation Distance. The required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside. The required fire-resistance rating of exterior walls with a fire separation distance of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides.

**TABLE ~~602~~ 705.5**

**FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCEa, d, g**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FIRE SEPARATION DISTANCE =X (feet) | TYPE OF CONSTRUCTION | OCCUPANCY GROUP He | OCCUPANCYGROUP F-1, M, S-1f | OCCUPANCYGROUP A, B, E, F-2, I, Ri, S-2, Uh |
| X < 5b | All | 3 | 2 | 1 |
| 5 ≤ X < 10 | IA  Others | 3  2 | 2  1 | 1  1 |
| 10 ≤ X < 30 | IA, IB  IIB, VB  Others | 2  1  1 | 1  0  1 | 1c  0  1c |
| X ≥ 30 | All | 0 | 0 | 0 |

For SI: 1 foot = 304.8 mm.

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

b. See Section 706.1.1 for party walls.

c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

d. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e. For special requirements for Group H occupancies, see Section 415.6.

f. For special requirements for Group S aircraft hangars, see Section 412.3.1.

g. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

h. For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

i. For a Group R-3 building of Type II-B or Type V-B construction, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

**705.6 Structural stability.** Exterior walls shall extend to the height required by Section 705.11. Interior structural elements that brace the exterior wall but that are not located within the plane of the exterior wall shall have the minimum fire-resistance rating required in Table 601 for that structural element. Structural elements that brace the exterior wall but are located outside of the exterior wall or within the plane of the exterior wall shall have the minimum fire-resistance rating required in Tables 601 and ~~602~~ 705.5 for the exterior wall.

**704.10 Exterior structural members.** Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

1. As required by Table 601 for the type of building element based on the type of construction of the building.

2. As required by Table 601 for exterior bearing walls based on the type of construction.

3. As required by Table ~~602~~705.5 for exterior walls based on the fire separation distance.

**705.11 Parapets.** Parapets shall be provided on exterior walls of buildings.

**Exceptions:** A parapet need not be provided on an exterior wall where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Table ~~602~~705.5 because of fire separation distance.

2. The building has an area of not more than 1,000 square feet (93 m2) on any floor.

3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.

4. One-hour fire-resistance-rated exterior walls that terminate at the underside of the roof sheathing, deck or slab, provided that:

4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.

4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.

4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated exterior wall for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.

4.4. The entire building shall be provided with not less than a Class B roof covering.

5. In Groups R-2 and R-3 where the entire building is provided with a Class C roof covering, the exterior wall shall be permitted to terminate at the underside of the roof sheathing or deck in Types III, IV and V construction, provided that one or both of the following criteria is met:

5.1. The roof sheathing or deck is constructed of approved noncombustible materials or of fire-retardant-treated wood for a distance of 4 feet (1220 mm).

5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).

**(F9241 / FS18-18 AM)**

Note: change consist of the original modification plus the committee modification – use table from the 2021 IBC for consistency)

**Revise as follows:**

**TABLE 716.~~1(2)~~ 5**

**OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TYPE OF**  **ASSEMBLY** | **REQUIRED**  **WALL**  **ASSEMBLY**  **RATING**  **(hours)** | | **MINIMUM FIRE DOOR AND FIRE**  **SHUTTER ASSEMBLY RATING**  **(hours)** | **DOOR VISION**  **PANEL SIZEb** | **FIRE-RATED**  **GLAZING MARKING**  **DOOR VISION PANELc, e** | **MINIMUM SIDELIGHT/TRANSOM ASSEMBLY**  **RATING (hours)** | | **FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL** | |
| **Fire**  **protection** | **Fire**  **resistance** | **Fire**  **protection** | **Fire**  **resistance** |
| Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour | 4 | | 3 | See Note b | D-H-W-240 | Not Permitted | 4 | Not Permitted | W-240 |
| 3 | | 3a | See Note b | D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| 2 | | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90 | Not Permitted | 2 | Not Permitted | W-120 |
| 11/2 | | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90 | Not Permitted | 11/2 | Not Permitted | W-90 |
|  | Single wall assembly rating (hours) | Each wall of the double wall assembly (hours) |  |  |  |  |  |  |  |
| Double Fire walls constructed in accordance with NFPA 221 | 4 | 3 | 3 | See Note b | D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| 3 | 2 | 1 1/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in. = D-H-W-90 | ​​​​​​​Not Permitted | ​​​​​​​2 | ​​​​​​​Not Permitted | ​​​​​​​W-120 |
| 2 | 1 | 1 | ​​​​​​​100 sq. in. | ≤100 sq. in. = D-H-60 >100 sq. in. = D-H-W-60 | ​​​​​​​Not Permitted | ​​​​​​​1 | ​​​​​​​Not Permitted | ​​​​​​​W-60 |
| Enclosures for shafts, interior exit stairways and interior exit ramps. | 2 | | 11/2 | 100 sq. in.c | ≤100 sq. in. = D-H-90 > 100 sq. in.= D-H-T-W-90 | Not Permitted | 2 | Not Permitted | W-120 |
| Horizontal exits in fire wallsd | 4 | | 3 | 100 sq. in. | ≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240 | Not Permitted | 4 | Not Permitted | W-240 |
| 3 | | 3a | 100 sq. in. | ≤100 sq. in. = D-H-180> 100 sq. in.=D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls | 1 | | 1 | 100 sq. in. | ≤100 sq. in. = D-H-60>100 sq. in.=D-H-T-W-60 | Not Permitted | 1 | Not Permitted | W-60 |
|  | | | | |  | Fire protection | |  | |
| Other fire barriers | 1 | | 3/4 | Maximum size tested | D-H | 3/4 | | D-H | |
| Fire partitions: Corridor walls | 1 0.5 | | 1/3b 1/3b | Maximum size tested Maximum size tested | D-20 D-20 | 3/4b 1/3 | | D-H-OH-45 D-H-OH-20 | |
| Other fire partitions | 1 0.5 | | 3/41/3 | Maximum size tested Maximum size tested | D-H-45D-H-20 | 3/41/3 | | D-H-45 D-H-20 | |
| Exterior walls | 3 | | 11/2 | 100 sq. in.b | ≤100 sq. in. = D-H-90 > 100 sq. in = D-H-W-90 | Not Permitted | 3 | Not Permitted | W-180 |
| 2 | | 11/2 | Maximum size tested | D-H 90 or D-H-W-90 | 11/2 | 2 | D-H-OH-90 | W-120 |
|  | | | |  | Fire protection | |  | |
| 1 | | 3/4 | Maximum size tested | D-H-45 | 3/4 | | D-H-45 | |
| Smoke barriers |  | | | |  | Fire protection | |  | |
| 1 | | 1/3 | Maximum size tested | D-20 | 3/4 | | D-H-OH-45 | |

For SI: 1 square inch = 645.2 mm.

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 E119 in accordance with Section 716.1.2.3 shall be permitted, in the maximum size tested.

c. Under the column heading "Fire-rated glazing marking door vision panel,” W refers to the fire-resistance rating of the glazing, not the frame.

d. See Section 716.2.5.1.2.1.

e. See Section 716.1.2.2.1 and Table 716.1(1) for additional permitted markings.

Committee – modify as follows:

**Modify proposal as follows:**

(In the 5th line of the table in the column labeled:  Required Wall Assembly Ratings, the proposal creates 2 subcolumns  with their own headers.

For the left of the 2 subcolumns the header is amended as follows:

      Single wall assembly rating (hours)f

For the right of the 2 subcolumns the header is amended as follows:

      Each wall of the double wall assembly (hours)g)

Notes:

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 E119 in accordance with Section 716.1.2.3 shall be permitted, in the maximum size tested.

c.  Under the column heading "Fire-rated glazing marking door vision panel,” W refers to the fire-resistance rating of the glazing, not the frame.

d.  See Section 716.2.5.1.2.1.

e.  See Section 716.1.2.2.1 and Table 716.1(1) for additional permitted markings.

f. As required in Section 706.4.

g. As allowed in NFPA 221 Section 4.6.

**TABLE 716.~~1(2)~~ 5**

**OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS**

| **TYPE OF**  **ASSEMBLY** | **REQUIRED**  **WALL**  **ASSEMBLY**  **RATING (hours)** | | **MINIMUM FIRE DOOR AND FIRE**  **SHUTTER ASSEMBLY RATING**  **(hours)** | **DOOR VISION**  **PANEL SIZEb** | **FIRE-RATED**  **GLAZING MARKING**  **DOOR VISION PANELc, e** | **MINIMUM SIDELIGHT/TRANSOM ASSEMBLY RATING (hours)** | | **FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fire protection** | **Fire resistance** | **Fire protection** | **Fire resistance** |
| Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour | 4 | | 3 | See Note b | D-H-W-240 | Not Permitted | 4 | Not Permitted | W-240 |
| 3 | | 3a | See Note b | D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| 2 | | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90 | Not Permitted | 2 | Not Permitted | W-120 |
| 11/2 | | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90 | Not Permitted | 11/2 | Not Permitted | W-90 |
|  | Single wall assembly rating (hours) | Each wall of the double wall assembly (hours) |  |  |  |  |  |  |  |
| Double Fire walls constucted in accordance with NFPA 221 | 4 | 3 | 3 | See Note b | D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| 3 | 2 | 1 1/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in. = D-H-W-90 | ​​​​​​​Not Permitted | ​​​​​​​2 | ​​​​​​​Not Permitted | ​​​​​​​W-120 |
| 2 | 1 | 1 | ​​​​​​​100 sq. in. | ≤100 sq. in. = D-H-60 >100 sq. in. = D-H-W-60 | ​​​​​​​Not Permitted | ​​​​​​​1 | ​​​​​​​Not Permitted | ​​​​​​​W-60 |

**Use Table 716.1(2) of the 2021 IBC**

**(F9267 / FS59-18 AM)**

**Revise as follows:**

**707.4 Exterior walls.** Where exterior walls serve as a part of a required fire-resistance-rated shaft or stairway or ramp enclosure, or separation, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure or separation requirements shall not apply.

**~~Exception~~ Exceptions:**

1. Exterior walls required to be fire-resistance rated in accordance with Section 1021 for exterior egress balconies, Section 1023.7 for interior exit stairways and ramps and Section 1027.6 for exterior exit stairways and ramp.

2. Exterior walls required to be fire-resistance rated in accordance with Section 1206 of the International Fire Code for enclosure of energy storage systems.

**TABLE 716.~~1(2)~~ 5**

**OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS**

| **TYPE OF**  **ASSEMBLY** | **REQUIRED WALL**  **ASSEMBLY RATING(hours)** | **MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)** | **DOOR VISION PANEL SIZEb** | **FIRE-RATED GLAZING MARKINGDOOR VISION PANELc, e** | **MINIMUM SIDELIGHT/TRANSOM ASSEMBLY RATING (hours)** | | **FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fire protection | Fire resistance | Fire protection | Fire resistance |
| Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour | 4 | 3 | See Note b | D-H-W-240 | Not Permitted | 4 | Not Permitted | W-240 |
| 3 | 3a | See Note b | D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| 2 | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90 | Not Permitted | 2 | Not Permitted | W-120 |
| 11/2 | 11/2 | 100 sq. in. | ≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90 | Not Permitted | 11/2 | Not Permitted | W-90 |
| Enclosures for shafts, interior exit stairways and interior exit ramps. | 2 | 11/2 | 100 sq. in.c | ≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90 | Not Permitted | 2 | Not Permitted | W-120 |
| Horizontal exits in fire wallsd | 4 | 3 | 100 sq. in. | ≤100 sq. in. = D-H-180> 100 sq. in.=D-H-W-240 | Not Permitted | 4 | Not Permitted | W-240 |
| 3 | 3a | 100 sq. in. | ≤100 sq. in. = D-H-180> 100 sq. in.=D-H-W-180 | Not Permitted | 3 | Not Permitted | W-180 |
| Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls | 1 | 1 | 100 sq. in. | ≤100 sq. in. = D-H-60>100 sq. in.=D-H-T-W-60 | Not Permitted | 1 | Not Permitted | W-60 |
|  | | | | | **Fire protection** | |  | |
| Other fire barriers | 1 | 3/4 | Maximum size tested | D-H | 3/4f | | D-H f | |
| Fire partitions :Corridor walls | 1 0.5 | 1/3b 1/3b | Maximum size tested Maximum size tested | D-20 D-20 | 3/4b 1/3 | | D-H-OH-45 D-H-OH-20 | |
| Other fire partitions | 1 0.5 | 3/41/3 | Maximum size tested Maximum size tested | D-H-45D-H-20 | 3/41/3 | | D-H-45 D-H-20 | |
| Exterior walls | 3 | 11/2 | 100 sq. in.b | ≤100 sq. in. = D-H-90 > 100 sq. in = D-H-W-90 | Not Permitted | 3 | Not Permitted | W-180 |
| 2 | 11/2 | Maximum size tested | D-H 90 or D-H-W-90 | 1 1/2 f | 2 | D-H-OH-90 f | W-120 |
|  | | | | **Fire protection** | |  | |
| 1 | 3/4 | Maximum size tested | D-H-45 | 3/4 f | | D-H-45 f | |
| Smoke barriers |  | | | | **Fire protection** | |  | |
| 1 | 1/3 | Maximum size tested | D-20 | 3/4 | | D-H-OH-45 | |

For SI: 1 square inch = 645.2 mm.

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 E119 in accordance with Section 716.1.2.3 shall be permitted, in the maximum size tested.

c. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

d. See Section 716.2.5.1.2.1.

e. See Section 716.1.2.2.1 and Table 716.1(1) for additional permitted markings.

f. Fire-protection-rated glazing is not permitted for fire barriers required by Section 1206 of the International Fire Code to enclose energy storage systems. Fire-resistance-rated glazing assemblies tested to ASTM E119 or UL 263, as specified in Section 716.1.2.3 shall be permitted.

**TABLE 716.~~1(3)~~ 6**

**FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS**

|  |  |  |  |
| --- | --- | --- | --- |
| TYPE OF WALL ASSEMBLY | REQUIRED WALL ASSEMBLY RATING (hours) | MINIMUM FIRE WINDOW ASSEMBLY RATING (hours) | FIRE-RATED GLAZING MARKING |
| Interior walls |  |  |  |
| Fire walls | All | NPa | W-XXXb |
| Fire barriers | >1 | NPa | W-XXXb |
|  | 1 | NPa | W-XXXb |
| Atrium separations (Section 707.3.6), | 1 | 3/4 | OH-45 or W-60 |
| Incidental use areas (Section 707.3.7) c |
| Mixed occupancy separations (Section 707.3.9) |
| Fire partitions | 1 | 3/4 | OH-45 or W-60 |
| 0.5 | 0.5 | 1/3 | OH-20 or W-30 |
| Smoke barriers | 1 | 3/4 | OH-45 or W-60 |
| Exterior walls | >1 | 11/2 | OH-90 or W-XXXb |
|  | 1 | 3/4 | OH-45 or W-60 |
|  | 0.5 | 1/3 | OH-20 or W-30 |
| Party wall | All | NP | Not Applicable |

NP = Not Permitted.

a. Not permitted except fire-resistance-rated glazing assemblies tested to ASTM E119 or UL 263, as specified in Section 716.1.2.3.

b. XXX = The fire rating duration period in minutes, which shall be equal to the fire-resistance rating required for the wall assembly.

c. Fire-protection-rated glazing is not permitted for fire barriers required by Section 1206 of the International Fire Code to enclose energy storage systems. Fire-resistance-rated glazing assemblies tested to ASTM E119 or UL 263, as specified in Section 716.1.2.3 shall be permitted.

**716.~~2.5.4~~ 5.6 Fire door frames with transom lights and sidelights.** Fire-protection-rated glazing shall be permitted in door frames with transom lights, sidelights or both, where a 3/4-hour fire protection rating or less is required and in 2-hour fire-resistance-rated exterior walls in accordance with Table 716.~~1(2)~~ 5. Fire door frames with transom lights, sidelights, or both, installed with fire-resistance-rated glazing tested as an assembly in accordance with ASTM E119 or UL 263 shall be permitted where a fire protection rating exceeding 3/4 hour is required in accordance with Table 716.~~1(2)~~5~~.~~

**Add new text as follows:**

**716.~~2.5.4.1~~ 5.6.1 Energy storage system separation.** Fire-protection-rated glazing shall not be permitted in fire door frames with transom lights and sidelights in fire barriers required by Section 1206 of the International Fire Code to enclose energy storage systems.

**716.~~3.2.1~~ 6.7 Interior fire window assemblies.** Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in accordance with this section.

**716.~~3.2.1.1~~ 6.7.1 Where 3/4-hour-fire-protection window assemblies permitted.** Fire-protection-rated glazing requiring 45-minute opening protection in accordance with Table 716.~~1(3)~~ 6 shall be limited to fire partitions designed in accordance with Section 708 and fire barriers utilized in the applications set forth in Sections 707.3.6, 707.3.7 and 707.3.9 where the fire-resistance rating does not exceed 1 hour. Fire-resistance-rated glazing assemblies tested in accordance with ASTM E119 or UL 263 shall not be subject to the limitations of this section.

**716.~~3.2.1.1.1~~ 6.7.1.1 Energy storage system separation.** Fire-protection-rated glazing is not permitted for use in fire window assemblies in fire barriers required by Section 1206 of the International Fire Code to enclose energy storage systems.

Revise tables as per tables 716.1(2) and 716.1(3) of the 2021 IBC.

(**F9246 / FS26-18 AS)**

**Revise as follows:**

**707.5 Continuity.** Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9

**Exceptions:**

1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.

2. Interior exit stairway and ramp enclosures required by Section 1023 and exit access stairway and ramp enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.

3. An exit passageway enclosure required by Section 1024.3 that does not extend to the underside of the roof sheathing, slab or deck above shall be enclosed at the top with construction of the same fire-resistance rating as required for the exit passageway.

**(F9247 / FS27-18 AS)**

**716.5.3.1 Smoke and draft control.**

*Fire door* assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s ? m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Exception: Elevator hoistway door openings protected in accordance with Section 3006.3

**(F10379 AS)**

**Revise as follows:**

**708.1 General.** The following wall assemblies shall comply with this section:

1. Separation walls as required by Section 420.2 for Group I-1 and Group R occupancies.

2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.

3. *Corridor* walls as required by Section 1020.3.

4. Enclosed elevator lobby separation as required by Section 3006.3.

5. Egress balconies as required by Section 1021.2.

6. Walls separating *ambulatory care facilities* from adjacent spaces, *corridors* or tenant as required by

Section 422.2.

7. Walls separating *dwelling and sleeping units* in Groups R-1 and R-2 in accordance with Sections

907.2.8.1 and 907.2.9.1.

8. Vestibules in accordance with Section 1028.2.

**708.4.1 Supporting construction.** The supporting construction for a *fire partition* shall have a *fire-resistance*

*rating* that is equal to or greater than the required *fire-resistance rating* of the supported *fire partition*.

**Exception:** In buildings of Types IIB, IIIB and VB construction, the supporting construction requirement

shall not apply to *fire partitions* separating tenant spaces in *covered and open mall buildings, fire partitions*

separating *dwelling units*, *fire partitions* separating *sleeping units*, *fire partitions* serving as

*corridor* walls, *fire partitions* separating *ambulatory care facilities* from adjacent spaces or *corridors, fire*

*partitions* separating *dwelling and sleeping units* from Group R-1 and R-2 occupancies and *fire partitions*

separating vestibules from the *level of exit discharge.*

**(F9250 / FS33-18 AM)/ (F9249 / FS32-18 AS)**

**709.4.1 Smoke-barrier ~~walls~~ assemblies separating smoke compartments.** Smoke-barrier ~~walls~~ assemblies used to separate smoke compartments shall form an effective membrane enclosure that is continuous from outside wall or smoke barrier wall to outside wall or another smoke barrier wall and horizontal assemblies.

**(F9252 / FS38-18 AS)**

**Revise as follows:**

**710.5 Openings.** Openings in smoke partitions shall comply with Sections 710.5.1 ~~and 710.5.2.~~ through 710.5.3

**Add new text as follows:**

**710.5.3 Pass-through openings in Group I-2, Condition 2.** Where pass-through openings are provided in *smoke partitions* in Group I-2, Condition 2 occupancies, such openings shall comply with the following:

1. The smoke compartment in which the pass through openings occur does not contain a patient

care suite or sleeping room.

2. Pass-through openings are installed in a wall, door or vision panel that is not required to have a fire resistance rating.

3. The top of the pass-through opening is located a maximum of 48 inches (1219 mm) above the floor.

4. The aggregate area of all such pass-through openings within a single room shall not exceed 80 square inches (0.05 m2).

**(F9253 / FS39-18 AMPC1)**

**Revise as follows**

**713.12 Enclosure at top.** ~~A shaft enclosure that does not~~ The top of shaft enclosures shall comply with one of the following:

1. Extend to the underside of the roof sheathing, deck or slab of the building and the roof assembly shall comply with the requirements for the type of construction as specified in Table 601.
2. Terminate below the roof assembly and be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure.
3. Extend past the roof assembly and comply with the requirements of Section 1510.

**(F9254 / FS41-18 AM)**

**Revise as follows:**

**713.12 Enclosure at top.** A shaft enclosure that does not extend to the underside of the roof sheathing, deck or slab of the building shall be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure.

**Add new text as follows:**

**713.12.1 Penthouse mechanical rooms.** A fire/smoke damper shall not be required at the penetration of the rooftop structure where shaft enclosures extend up through the roof assembly into a rooftop structure conforming to Section 1510. All ductwork in the shaft shall be connected directly to HVAC equipment.

**(F9255 / FS42-18 AS)**

## 712.1.7 Atriums. Atriums complying with Section 404 that connect two or more stories in Groups I-2 or I-3 Occupancies or three stories in other occupancies shall be permitted.

**Exceptions:**

1. Atriums shall not be permitted within Group H Occupancies.

2. Balconies or stories within Groups A-1, A-4 and A-5, and mezzanines that comply with Section 505 shall not be considered a story as it applies to this section

~~In other than Group H occupancies, atriums complying with~~ ~~Section 404~~ ~~shall be permitted~~

**(F9342/G1-18 AMPC1)/ (F9256 / CCC-IBC4-20 AS)**

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* + 1. **Atriums.** Atriums complying with Section 404 that connect two or more stories in Groups I-2 or I-3 Occupancies or three stories in other occupancies shall be permitted.

**Exceptions:**

* + - 1. Atriums shall not be permitted within Group H Occupancies.
      2. Balconies or stories within Groups A-1, A-4 and A-5, and mezzanines that comply with Section 505 shall not be considered a story as it applies to this section

~~In other than Group H occupancies, atriums complying with Section 404 shall be permitted~~

**(F9256 / CCC-IBC4-20 / G1-17 / G-18)**

**Revise as follows:**

**714.5.2 Membrane penetrations.** Penetrations of membranes that are part of a horizontal assembly shall comply with Section 714.5.1.1 or 714.5.1.2. 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 714.5.1 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 that 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 1/8 inch (3.2 mm).

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 that 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 1/8 inch (3.2 mm) unless listed otherwise.

5. The annular space created by the penetration of a fire sprinkler, provided that 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~~ a maximum 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 714.5.1.1 or 714.5.1.2 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.

**(F9258 / FS50-18 AS)**

**Revise as f ollows:**

**SECT ION 715 ~~FIRE- RESIST ANT JOINT SYST EMS~~ JOINT S AND VOIDS**

**(F9149 / CCC-FS5-18 AS)**

**Revise as follows:**

**712.1.5.2 Joints in or between nonfire-resistance-rated floor assemblies.** Joints in or between floor assemblies without a required fire-resistance rating shall be permitted where they comply with one of the following:

1. The joint shall be concealed within the cavity of a wall.

2. The joint shall be located above a ceiling.

3. The joint shall be sealed, treated or covered with an approved material or system to resist the free passage of flame and the products of combustion.

**Exception:** Joints meeting one of the exceptions listed in Section ~~715.1.~~715.3.

**Add new text as follows:**

**715.1 General.** The provision of this section shall govern the materials and methods of construction used to protect joints and voids in or between horizontal and vertical assemblies.

**Revise as follows:**

**~~715.1~~715.3  ~~General.~~Fire-resistance-rated assembly intersections.** Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system 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 Section 715.3.~~

**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 Section 713.

3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.

4. Floors within malls.

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

6. Mezzanine floors.

7. Walls that are permitted to have unprotected openings.

8. Roofs where openings are permitted.

9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E119 or UL 263.

10. The intersection of exterior curtain wall assemblies and the roof slab or roof deck.

**Delete without substitution:**

**~~715.1.1~~ ~~Curtain wall assembly.~~** ~~The void created at the intersection of a floor/ceiling assembly and an exterior curtain wall assembly shall be protected in accordance with Section 715.4.~~

**Revise as follows:**

**~~715.3~~715.3.1  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 10 feet (3048 mm), the joint system shall be required to be tested for interior fire exposure only.

**~~715.4.1~~715.5 Exterior curtain wall/nonfire-resistance-rated floor assembly intersections.** Voids created at the intersection of exterior curtain wall assemblies and nonfire-resistance-rated floor or floor/ceiling assemblies shall be sealed with an approved material or system to retard the interior spread of fire and hot gases between stories.

**~~715.4.2~~715.6 Exterior curtain wall/vertical fire barrier intersections.** Voids created at the intersection of nonfire-resistance-rated exterior curtain wall assemblies and fire barriers shall be filled. An approved material or system shall be used to fill the void and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

**~~715.5~~ 715.7 Spandrel wall.** Height and fire-resistance requirements for curtain wall spandrels shall comply with Section 705.8.5. Where Section 705.8.5 does not require a fire-resistance-rated spandrel wall, the requirements of Section 715.4 shall still apply to the intersection between the spandrel wall and the floor.

**~~715.6~~715.8 Fire-resistant joint systems in smoke barriers.** Fire-resistant joint systems in smoke barriers, and joints at the intersection of a horizontal smoke barrier and an exterior curtain wall, shall be tested in accordance with the requirements of UL 2079 for air leakage. The L rating of the joint system shall not exceed 5 cfm per linear foot (0.00775 m3/s m) of joint at 0.30 inch (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.

**(F9259 / FS51-18 AS)**

**Revise as follows:**

**716.5.3.1 Smoke and draft control.**

*Fire door* assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s ? m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105. Terminated stops shall be prohibited on doors required by Section 405.4.3 to comply with Section 716.5.3 and prohibited on doors required by Sections 3006.3 Item 3, 3007.6.3, or 3008.6.3 to comply with Section 716.5.3.1.

**(F9981 AS)**

**717.2 Installation.** Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers located within air distribution and smoke control systems shall be installed in accordance with the ~~requirements of this section, the~~ manufacturer's instructions ~~and~~ , the dampers~~' listing.~~' listing and Sections 717.2.1 through 717.2.3.

**Add new text as follows:**

**717.2.3 Static dampers.** Fire dampers and ceiling radiation dampers that are listed for use in static systems shall only be installed in heating, ventilation and air-conditioning systems that are automatically shut down in the event of a fire.

**Revise as follows:**

**717.3.1 Damper testing.**

1. Dampers shall be listed and labeled in accordance with the standards in this section.

2. Fire dampers shall comply with the requirements of UL 555.~~Only fire dampers~~ ~~labeled for use in~~ ~~dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.~~

3. Smoke dampers shall comply with the requirements of UL 555S.

4. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S.

5. Ceiling radiation dampers shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E119 or UL 263. ~~Only ceiling radiation dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.~~

6. Corridor dampers shall comply with requirements of both UL 555 and UL 555S. Corridor dampers shall demonstrate acceptable closure performance when subjected to 150 feet per minute (0.76 mps) velocity across the face of the damper during the UL 555 fire exposure test.

(**F9269 / FS62-18 AM)**

**Revise as follows:**

**717.5.2 Fire barriers.** Ducts and air transfer openings of fire barriers shall be protected with 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.

**Exception:** Fire dampers are not required at penetrations of fire barriers where any of the following apply:

1. Penetrations are tested in accordance with ASTM E119 or UL 263 as part of the fire-resistance-rated assembly.

2. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire damper would interfere with the operation of a smoke control system.

3. Such walls are penetrated by fully ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals. Flexible air connectors shall be permitted in the following locations:

3.1. Non-metal flex connections shall be permitted at the duct connection to the air handling unit or equipment located within the mechanical room in accordance with Section 603.9 of the International Mechanical Code.

3.1. Non-metal flex connections shall be permitted from an overhead metal duct to a ceiling diffuser within the same room in accordance with Section 603.6.2 of the International Mechanical Code.

**(F9277 / FS67-18 AS)**

**Revise as follows:**

**717.5.3 Shaft enclosures.** Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with listed fire and smoke dampers installed in accordance with their listing.

**Exceptions:**

1. Fire dampers are not required at penetrations of shafts where any of the following criteria are met:

1.1. Steel exhaust subducts having a wall thickness of not less than 0.0187 inch (0.4712 mm) are extended not less than 22 inches (559 mm) vertically in exhaust shafts, ~~provided that there is a continuous airflow upward to the outside.~~and an exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with Section 909.11, so as to maintain a continuous upward airflow to the outdoors.

1.2. Penetrations are tested in accordance with ASTM E119 or UL 263 as part of the fire-resistance-rated assembly.

1.3. Ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system.

1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

2. In Group B and R occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where all of the following criteria are met:

2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a ~~minimum~~ wall thickness of not less than 0.0187-inch (0.4712 mm~~) (No. 26 gage~~).

2.2. The subducts extend not less than 22 inches (559 mm) vertically.

2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the ~~outside.~~outdoors.

3. Smoke dampers are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

4. Smoke dampers are not required at penetrations of shafts where ducts are used as part of an approved mechanical smoke control system designed in accordance with Section 909 and where the smoke damper will interfere with the operation of the smoke control system.

5. Fire dampers and combination fire/smoke dampers are not required in kitchen and clothes dryer exhaust systems where dampers are prohibited by the International Mechanical Code.

**Add new text as follows:**

**717.5.3.1 Continuous upward airflow.** Fire dampers and smoke dampers shall not be installed in shafts that are required to maintain a continuous upward airflow path where closure of the damper would result in the loss of the airflow.

**(F9278 / FS70-18 AS)**

**Revise as follows:**

**718.2.1 Fireblocking materials.** Fireblocking shall consist of the following materials:

1. Two-inch (51 mm) nominal lumber.

2. Two thicknesses of 1-inch (25 mm) nominal lumber with broken lap joints.

3. One thickness of 0.719-inch (18.3 mm) wood structural panels with joints backed by 0.719-inch (18.3 mm) wood structural panels.

4. One thickness of 0.75-inch (19.1 mm) particleboard with joints backed by 0.75-inch (19 mm) particleboard.

5. One-half-inch (12.7 mm) gypsum board.

6. One-fourth-inch (6.4 mm) cement-based millboard.

7. Batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place.

8. Cellulose insulation installed as tested for the specific application.

9. Mass timber complying with Section 2304.11.

**(F9280 / FS73-18 AS)**

**Revise as follows:**

**TABLE 721.1(3)**

**MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMSa, q**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **FLOOR OR ROOF CONSTRUCTION** | **ITEM NUMBER** | **CEILING CONSTRUCTION** | **THICKNESS OF**  **FLOOR OR ROOF SLAB(inches)** | | | | **MINIMUM**  **THICKNESS OF CEILING**  **(inches)** | | | |
| **4 hours** | **3 hours** | **2 hours** | **1 hour** | **4 hours** | **3 hours** | **2 hours** | **1 hour** |
| 5. Reinforced concrete | 5-1.1 | Slab with suspended ceiling of vermiculite gypsum plaster over metal lath attached to 3/4" cold-rolled channels spaced12" on center. Ceiling located 6" minimum below joists. | 3 | 2 | — | — | 1 | 3/4 | — | — |
| 5-2.1 | ~~3~~~~/~~~~8~~5/8" Type X gypsum wallboardc attached to 0.018 inch (No.25 carbon sheet steel gage) by 7/8" deep by 25/8" hat-shaped galvanized steel channels with 1"-long No. 6 screws. The channels are spaced 24" on center, span 35" and are sup-ported along their length at 35" intervals by 0.033" (No. 21galvanized sheet gage) galvanized steel flat strap hangers having formed edges that engage the lips of the channel. The strap hangers are attached to the side of the concrete joists with 5/32" by 11/4" long power-driven fasteners. The wallboard is installed with the long dimension perpendicular to the channels. End joints occur on channels and supplementary channels are installed parallel to the main channels, 12" each side, at end joint occurrences. The finished ceiling is located approximately 12" below the soffit of the floor slab. | — | — | 21/2 | — | — | — | 5/8 | — |

*(Portions of table not shown remain unchanged.)*

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 cubic foot = 0.0283 m3,

1 pound per square inch = 6.895 kPa, 1 pound per linear foot = 1.4882 kg/m.

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

b. Where the slab is in an unrestrained condition, minimum reinforcement cover shall be not less than 15/8 inches for 4 hours (siliceous aggregate only); 11/4 inches for 4 and 3 hours; 1 inch for 2 hours (siliceous aggregate only); and 3/4 inch for all other restrained and unrestrained conditions.

c. For all of the construction with gypsum wallboard described in this table, gypsum base for veneer plaster of the same size, thickness and core type shall be permitted to be substituted for gypsum wallboard, provided that attachment is identical to that specified for the wallboard, and the joints on the face layer are reinforced and the entire surface is covered with not less than 1/16-inch gypsum veneer plaster.

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

e.

(a) The maximum allowable stress level for H-Series joists shall not exceed 22,000 psi.

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

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

g. Gypsum wallboard ceilings attached to steel framing shall be permitted to be suspended with 11/2-inch cold-formed carrying channels spaced 48 inches on center, that are suspended with No. 8 SWG galvanized wire hangers spaced 48 inches on center. Cross-furring channels are tied to the carrying channels with No. 18 SWG galvanized wire hangers spaced 48 inches on center. Cross-furring channels are tied to the carrying channels with No. 18 SWG galvanized wire (double strand) and spaced as required for direct attachment to the framing. This alternative is applicable to those steel framing assemblies recognized under Note q.

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

i. Four-inch hollow clay tile with 11/2-inch concrete slab above.

j. Thickness measured to bottom of steel form units.

k. Five-eighths inch of vermiculite gypsum plaster plus 1/2 inch of approved vermiculite acoustical plastic.

l. Furring channels spaced 12 inches on center.

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

(a) Subfloor of 1-inch nominal boarding, a layer of asbestos paper weighing not less than 14 pounds per 100 square feet and a layer of 1-inch nominal tongue-and-groove finished flooring.

(b) Subfloor of 1-inch nominal tongue-and-groove boarding or 15/32-inch wood structural panels with exterior glue and a layer of 1-inch nominal tongue-and-groove finished flooring or 19/32-inch wood structural panel finish flooring or a layer of Type I Grade M-1 particleboard not less than 5/8-inch thick.

n. The ceiling shall be permitted to be omitted over unusable space, and flooring shall be permitted to be omitted where unusable space occurs above.

o. For properties of cooler or wallboard nails, see ASTM C514, ASTM C547 or ASTM F1667.

p. Thickness measured on top of steel deck unit.

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

**(F9281 / FS76-18 AS)**

**Revise as follows:**

**722.1 General.** The provisions of this section contain procedures by which the fire resistance of specific materials or combinations of materials is established by calculations. These procedures apply only to the information contained in this section and shall not be otherwise used. The calculated fire resistance of ~~concrete~~ specific materials or combinations of materials shall be established by one of the following:

1. Concrete, concrete masonry and clay masonry assemblies shall be permitted in accordance with ACI 216.1/TMS 0216.

2. Precast and precast, prestressed concrete assemblies shall be permitted in accordance with PCI 124.

3. ~~The calculated fire resistance of~~ Steel assemblies shall be permitted in accordance with Chapter 5 of ASCE 29.

4. ~~The calculated fire resistance of~~ Exposed wood members and wood decking shall be permitted in accordance with Chapter 16 of ANSI/AWC National Design Specification for Wood Construction (NDS).

**722.2.3.1 Slab cover.** The minimum thickness of concrete cover to the positive moment reinforcement shall comply with Table 722.2.3(1) for reinforced concrete and Table 722.2.3(2) for prestressed concrete. These tables are applicable for solid or hollow-core one-way or two-way slabs with flat undersurfaces. These tables are applicable to slabs that are either cast in place or precast. For precast prestressed concrete not covered elsewhere, the procedures contained in PCI ~~MNL~~ 124 shall be acceptable.

**(F9282 / FS77-18 AS)**

**Add new text as follows:**

**722.2.2.1.4 Flat plate concrete slabs with uniformly spaced hollow voids.** Table 722.2.2.1 shall be used to determine the fire-resistance of 1 hour and 2 hours for flat plate concrete slabs with uniformly spaced hollow voids. The equivalent thickness of the slab shall be determined by dividing the net concrete volume of the slab by the floor area. The net concrete volume of the slab shall be equal to the volume of concrete of a solid slab minus the average concrete volume displaced by the hollow voids.

**(F9283 / FS79-18 AS)**

**722.5.2.3 Structural steel trusses.**

The *fire resistance* of structural steel trusses protected with fire-resistant materials sprayed to each of the individual truss elements shall be permitted to be determined in accordance with this section. The thickness of the fire-resistant material shall be determined in accordance with Section 722.5.1.3. The weight-to-heated-perimeter ratio (*W/D*) of truss elements that can be simultaneously exposed to fire on all sides shall be determined on the same basis as columns, as specified in Section 722.5.1.1. The weight-to-heated-perimeter ratio (*W/D*) of truss elements that directly support floor or roof assembly shall be determined on the same basis as beams and girders, as specified in Section 722.5.2.1.

The *fire resistance* of structural steel trusses protected with *intumescent ~~or mastic~~fire-resistive~~resistant~~ materials~~coatings~~* shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

**(S10472 AS)**

**722.5.1.3 Sprayed fire-resistant materials.**

The *fire resistance* of wide-flange structural steel columns protected with sprayed fire-resistant materials, as illustrated in Figure 722.5.1(5), shall be permitted to be determined from the following expression:

R = [C1(W/D) + C2]h

(Equation 7-13)

where:

*R* = Fire resistance (minutes).

*H* = Thickness of sprayed fire-resistant material (inches).

*D* = Heated perimeter of the structural steel column (inches).

*C*1 and *C*2 = Material-dependent constants.

*W* = Weight of structural steel columns (pounds per linear foot).

The *fire resistance* of structural steel columns protected with *intumescent ~~or mastic~~fire-resistive~~resistant~~ materials~~coatings~~* shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

**(F10469 AS)**

**722.5.2.2 Sprayed fire-resistant materials.**

The provisions in this section apply to structural steel beams and girders protected with sprayed fire-resistant materials. Larger or smaller beam and girder shapes shall be permitted to be substituted for beams specified in *approved* unrestrained or restrained fire-resistance-rated assemblies, provided that the thickness of the fire-resistant material is adjusted in accordance with the following expression:

H2 = h1[W1/D1) + 0.60]/[(W2/D2) + 0.60]

(Equation 7-17)

where:

*h* = Thickness of sprayed fire-resistant material in inches.

*W* = Weight of the structural steel beam or girder in pounds per linear foot.

*D* = Heated perimeter of the structural steel beam in inches.

Subscript 1 refers to the beam and fire-resistant material thickness in the *approved* assembly.

Subscript 2 refers to the substitute beam or girder and the required thickness of fire-resistant material.

The *fire resistance* of structural steel beams and girders protected with *intumescent ~~or mastic~~fire-resistive~~resistant~~ materials~~coatings~~* shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

**(F10471 AS)**

**CHAPTER 8 INTERIOR FINISHES**

**Revise as follows:**

**CHAPTER 8  
INTERIOR FINISHES AND DECORATIVE MATERIALS**

**SECTION 801   
SCOPE**

**801.1 Scope.** The provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

**[F] ~~802.3~~ 801.4 Decorative materials and trim.** Decorative materials and trim shall be restricted by combustibility, fire performance or flame propagation performance criteria in accordance with Section 806 for the interior of the building and Section 809 for the exterior of the building.

**SECTION ~~807~~ 809  
ARTIFICIAL DECORATIVE VEGETATION ON BUILDINGS AND IN OUTDOOR OCCUPANCIES**

**809.1 General.** Fixed artificial decorative vegetation placed in outdoor occupancies or on an occupied roof of a building shall comply with this section.

**809.2 Testing.** Artificial decorative vegetation shall meet the flame propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701. Meeting such criteria shall be documented and certified by the manufacturer in an approved manner. Alternatively, the artificial decorative vegetation shall be tested in accordance with NFPA 289, using the 20 kW ignition source, and shall have a maximum heat release rate of 100 kW.

**809.3 Electrical fixtures and wiring.** The use of unlisted electrical wiring and lighting on artificial decorative vegetation shall be prohibited. The use of electrical wiring and lighting on artificial trees constructed entirely of metal shall be prohibited.

**809.4 Ignition sources and maintenance.** Ignition sources and maintenance of outdoor artificial vegetation shall be in accordance with Section 808.4 and 808.5 of the IFC.

**(F9781 / F92-18 Part II AMPC1)**

**Revise as follows:**

**803.10 Site-fabricated stretch systems.** Where used as interior wall or interior ceiling finish materials, site-fabricated stretch systems containing all three components described in the definition in Chapter 2 shall be tested in the manner intended for use, and shall comply with the requirements of Section 803.1.1 ~~803.1.2.~~ or with the requirements of Class A in accordance with Section 803.1.2. If the materials are tested in accordance with ASTM E84 or UL 723, specimen preparation and mounting shall be in accordance with ASTM E2573.

**(F9285 / FS84-18 AS)**

**Revise as follows:**

**[F] 806.9 Combustible lockers.** Where lockers constructed of combustible materials are used, the lockers shall be considered to be interior finish and shall comply with Section 803.

**Exception:** Lockers constructed entirely of wood and noncombustible materials shall be permitted to be used wherever interior finish materials are required to meet a Class C classification in accordance with Section 803.1.2.

**(F9286 / FS86-18 AS)**

**CHAPTER 9 FIRE PROTECTION SYSTEMS**

**Revise as follows:**

**909.20 Smokeproof enclosures.** Where required by Section 1023.11, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an interior exit stairway or ramp that is enclosed in accordance with the applicable provisions of Section 1023 and an open exterior balcony ~~or~~ ,ventilated vestibule or pressurized stair and pressurized entrance vestibule meeting the requirements of this section. Where access to the roof is required by the International Fire Code, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

**Add new text as follows:**

**909.20.6 Pressurized stair and vestibule alternative.** The provisions of Sections 909.20.6.1 through 909.20.6.3 shall apply to smokeproof enclosures using a pressurized stair and pressurized entrance vestibule.

**909.20.6.1 Vestibule doors.** The door assembly from the building into the vestibule shall be a fire door assembly complying with Section 716.2.2.1. The door assembly from the vestibule to the stairway shall not have less than a 20-minute fire protection rating and meet the requirements for a smoke door assembly in accordance with Section 716.2.2.1. The door shall be installed in accordance with NFPA 105.

**909.20.6.2 Pressure difference.** The stair enclosure shall be pressurized to a minimum of 0.05 inch of water gage (12.44 Pa) positive pressure relative to the vestibule with all stairway doors closed under the maximum anticipated stack pressures. The vestibule, with doors closed, shall have a minimum of 0.05 inch of water gage (12.44 Pa) positive pressure relative to the fire floor. The pressure difference across doors shall not exceed 30 lbs (133-N) maximum force to begin opening the door.

**909.20.6.3 Dampered relief opening.** A controlled relief vent capable of discharging a minimum of 2,500 cfm (1180 L/s) of air at the design pressure difference shall be located in the upper portion of the pressurized exit enclosure.

**Revise as follows:**

**~~909.20.6~~ 909.20.7 Ventilating equipment.** The activation of ventilating equipment required by the alternatives in Sections 909.20.4, 909.20.5 and ~~909.20.5~~ 909.20.6 shall be by smoke detectors installed at each floor level at an approved location at the entrance to the smokeproof enclosure. When the closing device for the stairway and ramp shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

**(F9287 / FS90-18 AS)**

**[F] 907.2.~~12~~ 13.2 Fire department communication system.** Where a wired communication system is approved in lieu of an emergency ~~responder radio~~ communication coverage system in accordance with Section 510 of the International Fire Code, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside interior exit stairways. The fire department communication device shall be provided at each floor level within the interior exit stairway.

**Revise as follows:**

**[F] 903.3.1.2.2 ~~Open-ended corridors.~~ Corridors and balconies in the means of egress.** Sprinkler protection shall be provided in corridors and for balconies in the means of egress where any of the following conditions apply:

1. Corridors with combustible floor or walls.

2. Corridors with an interior change of direction exceeding 45 degrees (0.79 rad).

3. Corridors that are less than 50 percent open to the outside atmosphere at the ends.

4. Open-ended corridors and associated exterior stairways and ramps as specified in Section 1027.6, Exception 3.

5. Egress balconies not complying with Sections 1021.2 and 1021.3

**(F9787 / F119-18 AS)**

**Revise as follows:**

**[F] 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 an automatic sprinkler system.

2. Where fuel-fired equipment is installed in an unsprinklered attic, not fewer than 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 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 needed to meet the provisions in Section 503:

3.1. Provide automatic sprinkler system protection.

3.2. Construct the attic using noncombustible materials.

3.3. Construct the attic using fire-retardant-treated wood complying with Section 2303.2 of the International Building Code.

3.4. 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:

4.1. Provide automatic sprinkler system protection.

4.2. Provide a heat detection system throughout the attic that is arranged to activate the building fire alarm system.

4.3. Construct the attic using noncombustible materials.

4.4. Construct the attic using fire-retardant-treated wood complying with Section 2303.2 of the International Building Code.

4.5. Fill the attic with noncombustible insulation.

**(F9788 / F120-18 AS)**

**Revise as follows:**

**[F] 905.9 Valve supervision.** Valves controlling water supplies shall be supervised in the open position so that a change in the normal position of the valve will generate a supervisory signal at the supervising station required by Section 903.4. Where a fire alarm system is provided, a signal shall be transmitted to the control unit.

**Exceptions:**

1. Valves to underground key or hub valves in roadway boxes ~~provided by the municipality or public utility~~ do not require supervision.

2. Valves locked in the normal position and inspected as provided in this code in buildings not equipped with a fire alarm system.

**(F9796 / F128-18 AMPC1)**

Revise as follows:

**[F] 906.1 Where required.** Portable fire extinguishers shall be installed in all of the following locations:

1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

**Exceptions:**

1. In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.

2. In Group E occupancies. portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B:C.

3. In storage areas of Group S Occupancies where forklift, powered industrial truck or powered cart operators are the primary occupants, fixed extinguishers, as specified in NFPA 10, shall not be required where in accordance with all of the following:

3.1. Use of vehicle-mounted extinguishers shall be approved by the fire code official.

3.2. Each vehicle shall be equipped with a 10-pound, 40A:80B:C extinguisher affixed to the vehicle using a mounting bracket approved by the extinguisher manufacturer or the fire code official for vehicular use.

3.3. Not less than two spare extinguishers of equal or greater rating shall be available on site to replace a discharged extinguisher.

3.4. Vehicle operators shall be trained in the proper operation, use and inspection of extinguishers.

3.5. Inspections of vehicle-mounted extinguishers shall be performed daily.

2. Within 30 feet (9144 mm) distance of travel from commercial cooking equipment and from domestic

cooking equipment in Group I-1; I-2, Condition 1; and R-2 college *dormitory* occupancies.

3. In areas where flammable or *combustible liquids* are stored, used or dispensed.

4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3315.1 of the *International Fire Code*.

5. Where required by the *International Fire Code* sections indicated in Table 906.1.

6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

**Exception:** Portable fire extinguishers are not required at normally unmanned Group U occupancy buildings or

structures where a portable fire extinguisher suitable to the hazard of the location is provided on the vehicle of

visiting personnel.

**(F9797 / F131-18 AM)/ (F9798 / F132-18 AMPC2)**

**Revise as follows:**

**[F] 907.2.2 Group B.** A manual fire alarm system, that activates the occupant notification system in accordance with Section 907.5, shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load of all floors is 500 or more.

2. The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge.

3. The fire area contains an ambulatory care facility.

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

**(F9799 / F136-18 AS)**

**Revise as follows:**

**[F] 907.2.3 Group E.** A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. Where automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

**Exceptions:**

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.

2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

3. Manual fire alarm boxes ~~are~~ shall not be required in Group E occupancies where all of the following apply:

3.1. Interior corridors are protected by smoke detectors.

3.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.

3.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.

3.4. Manual activation is provided from a normally occupied location.

4. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:

4.1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

4.2. The emergency voice/alarm communication system will activate on sprinkler water flow.

4.3. Manual activation is provided from a normally occupied location.

**(F9800 / F139-18 AS)**

**Add new text as follows:**

**[F] 907.2.10 Group S.** A manual fire alarm system that activates the occupant notification system in accordance

with Section 907.5 shall be installed in Group S public and self-storage occupancies three stories or greater in

height for interior corridors and interior common areas. Visible notification appliances are not required within

storage units.

**Exception**: Manual fire alarm boxes are not required where the building is equipped throughout with an

automatic sprinkler system installed in accordance with Section 903.3.1.1, and the occupant notification

appliances will activate throughout the notification zones upon sprinkler water flow.

**(F9801 / F141-18 AM)**

**Revise as follows:**

**[F] 907.4 Initiating devices.** Where ~~manual or automatic alarm initiation is required as part of a fire alarm system, the initiating~~ a fire alarm system is required by another section of this code, occupant notification in accordance with Section 907.5 shall be initiated by one or more of the following. Initiating devices shall be installed in accordance with Sections 907.4.1 through 907.4.3.1.

1. Manual fire alarm boxes.

2. Automatic fire detectors.

3. Automatic sprinkler system waterflow devices.

4. Automatic fire-extinguishing systems.

**[F] 907.5 Occupant ~~notification systems~~ notification.** ~~A fire alarm system shall annunciate at the fire alarm control unit and shall initiate occupant notification upon activation,~~ Occupant notification by fire alarms shall be in accordance with Sections 907.5.1 through 907.5.2.3.3. Occupant notification by smoke alarms in Groups R-1 and R-2 Occupancies shall comply with Section 907.5.2.1.3.2.~~Where a fire alarm system is required by another section of this code, it shall be activated by:~~

~~1. Automatic fire detectors.~~

~~2. Automatic sprinkler system waterflow devices.~~

~~3. Manual fire alarm boxes.~~

~~4. Automatic fire-extinguishing systems.~~

**~~Exception:~~** ~~Where notification systems are allowed elsewhere in~~ ~~Section 907~~ ~~to annunciate at a constantly attended location.~~

**Add new text as follows:**

**[F] 907.5.1 Alarm activation and annunciation.** Upon activation, fire alarm systems shall initiate occupant notification and shall annunciate at the fire alarm control unit, or where allowed elsewhere in Section 907, at a constantly attended location.

**Revise as follows:**

**~~907.5.1~~ [F]907.5.1.1 Presignal feature.** A presignal feature shall ~~not~~ only be ~~installed unless~~ provided where ~~approved~~ ~~by the~~ ~~fire code official. Where a presignal feature is provided, a signal~~ approved. The presignal shall be annunciated at an approved ~~at a~~ constantly attended location ~~approved~~ ~~by the~~ ~~fire code official, so that occupant notification can be activated in~~ having the capability to activate the occupant notification system in the event of fire or other emergency.

**Add new text as follows:**

**[F] 907.5.2.1.3 Audible signal frequency in Groups R-1 and R-2 sleeping rooms.** Aubible signal frequency in Groups R-1 and R-2 occupancies shall be in accordance with Sections 907.5.2.1.3.1 and 907.2.1.3.2.

**Revise as follows:**

**[F] 907.5.2.1.3.1 Fire alarm system signal.** In sleeping rooms of Groups R-1 and R-2 Occupancies, the audible alarm activated by a fire alarm system shall be a 520 Hz low-frequency signal complying NFPA 72.

**[F] 907.5.2.1.3.2 Smoke alarm signal in sleeping rooms.** In sleeping rooms of Groups R-1 and R-2 Occupancies that are required by Sections 907.2.8 or 907.2.9 to have a fire alarm system, the audible alarm signal activated by single- or multiple-station smoke alarms in the dwelling unit or sleeping unit shall be a 520 Hz signal complying NFPA 72.

Where a sleeping room smoke alarm is unable to produce a 520 Hz signal, the 520 Hz alarm signal shall be provided by a listed notification appliance or a smoke detector with an integral 520 Hz sounder.

**(F9802 / F144-18 AS)**

**Revise as follows:**

## [F] 907.4.2.4 Signs. Where fire alarm systems are not monitored by ~~a~~ an approved supervising station in accordance with Section 907.6.6, an approved permanent sign shall be installed adjacent to each manual fire alarm box that reads: WHEN ALARM SOUNDS ~~-~~ CALL FIRE DEPARTMENT.

**Exception:** Where the manufacturer has permanently provided this information on the manual fire alarm box.

**(F9803 / F146-18 AM)**

**Revise as follows:**

**[F] 907.5.2.1.2 Maximum sound pressure.** The ~~maximum~~ total sound pressure level ~~for audible alarm~~ produced by combining the ambient sound pressure level with all audible notification appliances operating shall ~~be~~ not exceed 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than ~~95~~ 105 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

**(F9805 / F148-18 AS)**

**Revise as follows:**

**[F] 907.5.2.2.5 Standby Emergency power.** Emergency voice/ alarm communications systems shall be provided with ~~emergency~~ standby power in accordance with ~~Section 1203. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in~~ ~~NFPA 72~~ 2702.

**(F9806/ F149-18 AM)**

**907.6.6.1 ~~Automatic telephone-dialing devices.~~ Transmission of alarm signals.** ~~Automatic telephone-dialing devices used to transmit an emergency alarm shall not be connected to any fire department telephone number unless~~ *~~approved~~* ~~by the fire chief.~~ Transmission of alarm signals to a supervising station shall be in accordance with NFPA 72.

**(F9808 / F154-18 AS)**

**Add new text as follows:**

**908.3 Fire alarm system interface.** Where an emergency alarm system is interfaced with a building's fire alarm system, the signal produced at the fire alarm control unit shall be a supervisory signal.

**(F9810 / F159-18 AS)**

**Revise as follows:**

**[F] 909.17 System response time.** Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as dampers and fans) in the sequence necessary to prevent physical damage to the fans, dampers, ducts and other equipment. For purposes of smoke control, the fire fighter's control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for detection, shutdown of operating equipment and smoke control system startup, shall allow for full operational mode to be achieved before the conditions in the space exceed the design smoke. Upon receipt of an alarm condition at the fire alarm control panel, fans, dampers and automatic doors shall have achieved their proper operating state and final status shall be indicated at the smoke control panel within 90 seconds. The system response time for each component and their sequential relationships shall be detailed in the required rational analysis and verification of their installed condition reported in the required final report.

**(F9811 / F161-18 AS)**

**Add new text as follows:**

**910.3.4 Vent Operation.** Smoke and heat vents shall be capable of being operated by approved automatic and manual means.

**(F9813 / F165-18 AS)**

**Add new text as follows:**

**910.3.5 Fusible link temperature rating.** Where vents are installed in areas provided with automatic fire sprinklers and the vents operate by fusible link, the fusible link shall have a temperature rating of 360° F (182° C).

**(F9814 / F166-18 AS)**

**Revise as follows:**

**913.1 General.** Where provided, fire pumps, for fire protection systems, shall be installed in accordance with this section and NFPA 20.

**Exception:** Pumps for automatic sprinkler systems installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.

**(F9817 / F172-18 AS)**

**913.2 Protection against interruption of service.**The fire pump, driver and controller shall be protected in accordance with NFPA 20 against possible interruption of service through damage caused by explosion, fire, flood, ~~earthquake,~~ rodents, insects, windstorm, freezing, vandalism and other adverse conditions.

**(F10039 AS)**

**[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.

4. The cable or raceway is encased in a minimum of 2 inches (50 mm) of concrete.

**Exception:** This section shall not apply to cables, or portions of cables, located within a fire pump room or generator room which is separated from the remainder of the occupancy with fire-resistance-rated construction.

**(F9818 / F174-18 AS)**

**CHAPTER 10 MEANS OF EGRESS**

**1003.3.1 Headroom.**

Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 where a minimum headroom of 80 inches (2032 mm) is provided over any walking surface, including walks, *corridors*, *aisles* and passageways. Not more than 50 percent of the ceiling area of a *means of egress* shall be reduced in height by protruding objects.

**Exception:** Door closers, overhead door stops, frame stops, power door operators, and electromagnetic door locks shall be permitted to project into the opening height not lower than 78 inches (1981 mm).

A barrier shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the floor.

**(F9975 AS)**

**Revise as follows:**

**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 the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an exit or exit access doorway. An increase in exit access travel distance is permitted in accordance with Section 1017.1.

Exit and exit access doorways shall swing in the direction of egress travel and shall be equipped with panic hardware, regardless of the occupant load served. Exit and exit access doorways shall be tight fitting and self-closing.

**(F9345/ E15-18 Part I AMPC2)**

**Revise as follows:**

**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 Table1006.2.1. The cumulative occupant load from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

**Exceptions:**

1. 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.

3. Unoccupied mechanical rooms and penthouses are not required to comply with the common path of egress travel distance measurement.

**(F9122 / E11-18)**

**Revise as follows:**

**1006.2.2 Egress based on use.**  The numbers, configuration and types of components of *exits* or access to *exits* shall be provided in the uses described in Sections 1006.2.2.1 through 1006.2.2.6.

**(F9123 AMPC1 / E13-18 AMPC1)**

**Add new text as follows:**

**1006.2.2.4 Electrical rooms.** The location and number of exit or exit access doorways shall be provided for electrical rooms in accordance with Section 110.26 of NFPA 70 for electrical equipment rated 1000V or less, and Section 110.33 of NFPA 70 for electrical equipment rated over 1000V. Panic hardware shall be provided where required in accordance with Section 1010.1.10.1.

**(F9128 / E17-18 AS)**

**Revise as follows:**

**1008.2.1 Illumination level under normal power.** The means of egress illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along exit access stairways, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles at the walking surface when the stairway is in use.

**Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' fire alarm system:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).

2. Steps, landings and the sides of ramps shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems listed in accordance with UL 1994.

**(F9131 / E27-18 AS)**

**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). The clear opening width of doorways with swinging doors shall be measured between the face of the door and the frame 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 411/2 inches (1054 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. 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, the minimum and maximum width shall not apply to door openings that are not part of the required *means of egress*.

2.     In Group I-3, door openings to resident *sleeping units* that are not required to be an Accessible unit shall have a minimum clear opening width of 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.     The maximum width of door leaves in *power-operated doors* that comply with Section 1010.1.4.2 shall not be limited.

6.     Door openings within a *dwelling unit* or *sleeping unit* shall have a minimum clear opening height of 78 inches (1981 mm).

7.     In dwelling and sleeping units that are not required to be Accessible units, exterior door openings other than the required *exit* door shall have a minimum clear opening height of 76 inches (1930 mm).

8.     In Group I-1, R-2, R-3 and R-4 occupancies, in dwelling and sleeping units that are not required to be Accessible units, the minimum clear opening widths shall not apply to interior egress doors.

9.     Door openings required to be *accessible* intended for user passage shall have a minimum clear opening width of 31.75 inches (806 mm).

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.

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.

The minimum clear opening width shall not apply to doors for nonaccessible showers or sauna compartments.

The minimum clear opening width shall not apply to the doors for nonaccessible toilet stalls.

**1010.1.1.1 Projections into clear opening.**

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, overhead door stops, frame stops, power door operators, and electromagnetic door locks shall be permitted to project into the opening height not lower than 78 inches (1980 mm) minimum above the floor.

**(F9976 AS)**

**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). 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 411/2 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, the minimum width shall not apply to door openings that are not part of the required *means of egress*.

2.   In Group I-3, door openings to resident *sleeping units* that are not required to be an Accessible unit shall have a minimum clear opening width of 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.     The maximum width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.

5.     The maximum width of door leaves in *power-operated doors* that comply with Section 1010.1.4.2 shall not be limited.

6.     Door openings within a *dwelling unit* or *sleeping unit* shall have a minimum clear opening height of 78 inches (1981 mm).

7.     In dwelling and sleeping units that are not required to be Accessible units, exterior door openings other than the required *exit* door shall have a minimum clear opening height of 76 inches (1930 mm).

8.   In Group I-1, R-2, R-3 and R-4 occupancies, in dwelling and sleeping units that are not required to be Accessible units, the minimum clear opening widths shall not apply to interior egress doors.

9.     Door openings required to be *accessible* intended for user passage shall have a minimum clear opening width of 31.75 inches (806 mm).

10. 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.

11. 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.

12. The minimum clear opening width shall not apply to doors for nonaccessible showers or sauna compartments.

13. The minimum clear opening width shall not apply to the doors for nonaccessible toilet stalls.

**(F9925 AS)**

**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 73/4 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 be allowed at a height necessary to comply with the water resistance requirements of Section 1709.5. ~~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 Table 1010.1.7.~~

~~TABLE 1010.1.7 EXTERIOR FLOOR LEVEL DIFFERENCE~~

(*Delete table without substitution)*

**(F10427 AS)**

**1010.1.9.8 Delayed egress.**

Delayed egress locking systems shall be permitted to be installed on doors serving Group B, 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.     In courtrooms in Group A-3 and B occupancies, ~~Delayed~~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.

**(F9977 AS)**

|  |
| --- |
| **1010.1.9.13 Elevator lobby exit access doors**. In other than high-rise buildings and Group I-3, R-3, and ?R-4 occupancies, electrically ~~Electrically~~ locked exit access doors providing egress from elevator lobbies shall be permitted where all the following conditions are met:  1.     For all occupants of the floor, the path of exit access travel to not less than two exits is not required to pass through the elevator lobby.  2.     The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, and a fire alarm system in accordance with Section 907. Elevator lobbies shall be provided with an *automatic smoke detection system* in accordance with Section 907.  3.     Activation of the building fire alarm system by other than a manual fire alarm box shall automatically unlock the electric locks providing exit access from the elevator lobbies, and the electric locks shall remain unlocked until the system is reset.  4.     The electric locks shall unlock on loss of power to the electric lock or electrical locking system.  5.     The electric locks shall have the capability of being unlocked by a switch located at the fire command center, security station, or other approved location.  6.     A two-way communication system complying with Chapter 7 of the *Florida Building Code, Accessibility*, shall be located in the elevator lobby adjacent to the electrically locked exit access door and connected to an approved constantly attended station. This constantly attended station shall have the capability of unlocking the electric locks of the elevator lobby exit access doors.  7.     Emergency lighting shall be provided in the elevator lobby on both sides of the electrically locked door.  8.     The door locking system units shall be listed in accordance with UL 294.  **(F10061 AM Original plus A1)**  **1010.1.10 Panic and fire exit hardware.**  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 1010.1.9.4, Item 2.  2. Doors provided with panic hardware or fire exit hardware serving a Group A or E occupancy shall be permitted to be electronically locked in accordance with Section 1010.1.9.9 or 1010.1.9.10.  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.  4.     Courtrooms shall be permitted to be locked in accordance with Section 1010.1.9.8, Exception 2.  5. Exit access doors serving occupied exterior areas shall be permitted to be locked in accordance with Section 1010.1.9.4, Item 7.  **1010.2.9.1 Refrigeration machinery room.** Refrigeration machinery rooms larger than 1,000 square feet (93 m2) shall have not less than two exit or exit access doorways that swing in the direction of egress travel and shall be equipped with *panic hardware* or *fire exit hardware*.  **1010.1.10.1 Rooms with electrical equipment.**Exit or exit access doors serving transformer vaults, rooms designated for batteries or energy storage systems, or modular data centers shall be equipped with panic hardware or ?re exit hardware. Rooms containing electrical equipment rated 800 amperes or more and that contain overcurrent devices, switching devices or control devices and where the exit or exit access door is less than 25 feet from the equipment working space as required by NFPA 70, such doors shall not be provided with a latch or lock other than panic hardware or ?re exit hardware. The doors shall swing in the direction of egress travel.  **1010.1.10.2 Installation.**  Where *pani*c or *fire exit hardware* is installed, it shall comply with the following:  1. *Panic hardware*shall be *listed*in accordance with UL 305.  2. *Fire exit hardware*shall be *listed*in accordance with UL 10C and UL 305.  3. The actuating portion of the releasing device shall extend not less than one-half of the door leaf width.  4. The maximum unlatching force shall not exceed 15 pounds (67 N).  **1010.1.10.3 Balanced doors.**  If *balanced doors* are used and *panic hardware*is required, the *panic hardware*shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side. |
|  |

**(F9980 AS)/ (F9978 AS)/** (F9345/ E15-18 Part I AMPC2)/

**(F9154 / E53-18 AMPC1)**

**1008.3.1 General.** In the event of power supply failure in rooms and spaces that require two or more ~~means of egress~~ exits or access to exits, an emergency electrical system shall automatically illuminate all of the following areas:

1. Aisles.

2. Corridors.

3. Exit access stairways and ramps.

**1008.3.2 Buildings.** In the event of power supply failure in buildings that require two or more ~~means of egress~~ exits or access to exits, an emergency electrical system shall automatically illuminate all of the following areas:

1. Interior exit access stairways and ramps.
2. Interior and exterior exit stairways and ramps.
3. Exit passageways.
4. Vestibules and areas on the level of discharge used for exit discharge in accordance with Section 1028.1.
5. Exterior landings as required by Section 1010.1.6 for exit doorways that lead directly to the exit discharge.

**1010.1.4.5 Security grilles.** In Groups B, F, M and S, horizontal sliding or vertical security grilles are permitted at the main exit and shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grilles shall remain secured in the full-open position during the period of occupancy by the general public. Where two or more ~~means of egress~~ exits or access to exits are required, not more than one-half of the exits or exit access doorways shall be equipped with horizontal sliding or vertical security grilles.

**(F9132 / E28-18 AS)**

**Revise as follows:**

**SECTION 1010   
DOORS, GATES AND TURNSTILES**

**1010.1 ~~Doors~~ General.** ~~Means~~ Doors in the means of egress shall comply with the requirements of Sections 1010.1.1 through 1010.3.4. Exterior exit doors shall ~~meet~~ also comply with the requirements of ~~this section. Doors serving a~~ Section 1022.2. Gates in the means of egress shall comply with the requirements of Section 1010.4 through 1010.4.1. Turnstiles in the means of egress ~~system~~ shall ~~meet~~ comply with the requirements of ~~this section and~~ ~~Section 1022.2. Doors~~ Section 1010.5 through 1010.5.4.

Doors, gates and turnstiles provided for egress purposes in numbers greater than required by this code shall ~~meet~~ comply with the requirements of this section.

Doors in the ~~Means~~ means of egress ~~doors~~ shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

For accessibility provisions related to doors, refer to the *Florida Building Code, Accessibility*

**1010.1.1 Size of doors.** (No change to text)

**1010.1.1.1 Projections into clear width.** (No change to text)

**1010.1.2 Door swing.** (No change to text)

**1010.1.2.1 Direction of swing.** (No change to text)

**1010.1.3 Door opening force.** (No change to text)

**1010.1.3.1 Location of applied forces.** (No change to text)

**~~1010.1.5~~ 1010.1.4 Floor elevation.** (No change to text)

**~~1010.1.6~~ 1010.1.5 Landings at doors.** (No change to text)

**~~1010.1.7~~ 1010.1.6 Thresholds.** (No change to text)

**~~1010.1.8~~ 1010.1.7 Door arrangement.** (No change to text)

**~~1010.1.9~~ 1010.2 Door operations.** (No change to text)

**~~1010.1.9.6~~ 1010.2.1 Unlatching.** (No change to text)

**~~1010.1.9.1~~ 1010.2.2 Hardware.** (No change to text)

**~~1010.1.9.2~~ 1010.2.3 Hardware height.** (No change to text)

**~~1010.1.9.4~~ 1010.2.4 Locks and latches.** (No change to text)

**~~1010.1.9.5~~ 1010.2.5 Bolt locks.** (No change to text)

**~~1010.1.9.6.1~~ 1010.2.6 Closet doors.**

**~~1010.1.9.12~~ 1010.2.7 Stairway doors.** (No change to text)

**~~1010.1.4.4~~ 1010.2.8 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 1010.2.

~~3~~. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.

**~~1010.1.4.4.1~~ 1010.2.8.1 Remote operation of locks.** (No change to text)

**~~1010.1.10~~ 1010.2.9 Panic and fire exit hardware.** (No change to text)

**~~1010.1.10.1~~ 1010.2.9.1 Installation.** (No change to text)

**~~1010.1.10.2~~ 1010.2.9.2 Balanced doors.** (No change to text)

**~~1010.1.9.3~~ 1010.2.10 Monitored or recorded egress.** (No change to text)

**~~1010.1.9.10~~ 1010.2.11 Door hardware release of electrically locked egress doors.** (No change to text)

**~~1010.1.9.9~~ 1010.2.12 Sensor release of electrically locked egress doors.** (No change to text)

**~~1010.1.9.8~~ 1010.2.13 Delayed egress.** (No change to text)

**~~1010.1.9.8.1~~ 1010.2.13.1 Delayed egress locking system.** (No change to text)

**~~1010.1.9.7~~ 1010.2.14 Controlled egress doors in Groups I-1 and I-2.** (No change to text)

**~~1010.1.9.11~~ 1010.2.15 Locking arrangements in buildings within correctional facilities.** (No change to text)

**~~1010.1.4~~ 1010.3 Special doors.** (No change to text)

**~~1010.1.4.1~~ 1010.3.1 Revolving doors.** (No change to text)

**TABLE ~~1010.1.4.1(1)~~ 1010.3.1(1)**

**MAXIMUM DOOR SPEED MANUAL REVOLVING DOORS**

|  |  |
| --- | --- |
| **REVOLVING DOOR MAXIMUM NOMINAL DIAMETER (FT-IN)** | **MAXIMUM ALLOWABLE REVOLVING DOOR SPEED (RPM)** |
| 6-0 | 12 |
| 7-0 | 11 |
| 8-0 | 10 |
| 9-0 | 9 |
| 10-0 | 8 |

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

**TABLE ~~1010.1.4.1~~ 1010.3.1(2)**

**MAXIMUM DOOR SPEED AUTOMATIC OR POWER-OPERATED REVOLVING DOORS**

|  |  |
| --- | --- |
| **REVOLVING DOOR MAXIMUM NOMINAL DIAMETER (FT-IN)** | **MAXIMUM ALLOWABLE REVOLVING DOOR SPEED (RPM)** |
| 8-0 | 7.2 |
| 9-0 | 6.4 |
| 10-0 | 5.7 |
| 11-0 | 5.2 |
| 12-0 | 4.8 |
| 12-6 | 4.6 |
| 14-0 | 4.1 |
| 16-0 | 3.6 |
| 17-0 | 3.4 |
| 18-0 | 3.2 |
| 20-0 | 2.9 |
| 24-0 | 2.4 |

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

**~~1010.1.4.1.1~~ 1010.3.1.1 Egress component.** (No change to text)

**~~1010.1.4.1.2~~ 1010.3.1.2 Other than egress component.** (No change to text)

**~~1010.1.4.2~~ 1010.3.2 Power-operated doors.** (No change to text)

**~~1010.1.4.3~~ 1010.3.3 Special purpose horizontal sliding, accordion or folding doors.** (No change to text)

**~~1010.1.4.5~~ 1010.3.4 Security grilles.** (No change to text)

**~~1010.2~~ 1010.4 Gates.** (No change to text)

**~~1010.2.1~~ 1010.4.1 Stadiums.** (No change to text)

**~~1010.3~~ 1010.5 Turnstiles and similar devices.** (No change to text)

**~~1010.3.1~~ 1010.5.1 Capacity.** (No change to text)

**~~1010.3.1.1~~ 1010.5.1.1 Clear width.** (No change to text)

**~~1010.3.2~~ 1010.5.2 Security access turnstiles.** (No change to text)

**~~1010.3.3~~ 1010.5.3 High turnstile.** (No change to text)

**~~1010.3.4~~ 1010.5.4 Additional door.** (No change to text)

**(F9138 / E37-18 AM)**

**Revise as follows:**

**1011.15 Ships ladders.** Ships ladders are permitted to be used in Group I-3 as a component of a *means of egress* to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m2) with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the *handrails* shall be 20 inches (508 mm). Ships ladders shall be designed for the live loads indicated in Section 1607.16

**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 International Mechanical Code and designed for the live loads indicated in Section 1607.16. 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 in accordance with Section 306.5 of the International Mechanical Code.

**(S9538 / S56-19 AS)**

**Revise as follows:**

**1010.1 Doors ~~General~~.***Means of egress* doors shall meet the requirements of this section. Doors~~, gates and turnstiles~~ serving a *means of egress* system shall meet the ~~applicable~~ requirements of this section and Section 1022.2. Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section. *Means of egress* doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on *means of egress* doors. *Means of egress* doors shall not be concealed by curtains, drapes, decorations or similar materials.

**Add new text as follows:**

**1020.1 General.** Corridors serving as an exit access component in a means of egress system shall comply with the requirements of this section.

**Revise as follows:**

**1024.1 ~~Exit passageways~~ General.** Exit passageways serving as an exit component in a means of egress system shall comply with the requirements of this section. An exit passageway shall not be used for any purpose other than as a means of egress and a circulation path.

**1026.1 ~~Horizontal exits~~ General.** Horizontal exits serving as an exit in a means of egress system shall comply with the requirements of this section. A horizontal exit shall not serve as the only exit from a portion of a building, and where two or more exits are required, not more than one-half of the total number of exits or total exit minimum width or required capacity shall be horizontal exits.

**Exceptions:**

1. Horizontal exits are permitted to comprise two-thirds of the required exits from any building or floor area for occupancies in Group I-2.

2. Horizontal exits are permitted to comprise 100 percent of the exits required for occupancies in Group I-3. Not less than 6 square feet (0.6 m2) of accessible space per occupant shall be provided on each side of the horizontal exit for the total number of people in adjoining compartments.

**1027.1 ~~Exterior exit stairways and ramps~~ General.** Exterior exit stairways and ramps serving as an ~~element of~~ exit component in a ~~required~~ means of egress system shall comply with the requirements of this section.

**Add new text as follows:**

**1028.1 General.** The exit discharge shall comply with Sections 1028 and 1029 and the applicable requirements of Sections 1003 through 1015.

**SECTION 1029   
EGRESS COURTS**

**Revise as follows:**

**~~1028.4~~ 1029.1 ~~Egress courts~~ General.** Egress courts serving as ~~a portion of the~~ an exit discharge component in the means of egress system shall comply with the requirements ~~of Sections 1028.4.1 and 1028.4.2.~~in this section.

**~~1028.4.1~~ 1029.2 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).

The width of the egress court shall be not less than the required capacity.

**Exception:** Encroachments complying with Section 1005.7.

**Revise as follows:**

**~~1028.4.2~~ 1029.3 Construction and openings.** Where an egress court serving a building or portion thereof is less than 10 feet (3048 mm) in width, the egress court walls shall have not less than 1-hour fire-resistance-rated construction for a distance of 10 feet (3048 mm) above the floor of the egress court. Openings within such walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour.

**Exceptions:**

1. Egress courts serving an occupant load of less than 10.

2. Egress courts serving Group R-3.

**(F9139 / E38-18 AMPC1)**

**Revise as follows:**

**1010.1.2 ~~Door swing~~ Egress door types.** Egress doors shall be of the ~~pivoted or~~ side-hinged swinging ~~type.~~door, pivoted door, or balanced door types.

**Exceptions:**

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.

2. Group I-3 occupancies used as a place of detention.

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

4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.

5. In other than Group H occupancies, revolving doors complying with Section 1010.1.4.1.

6. In other than Group H occupancies, special purpose horizontal sliding, accordion or folding door assemblies complying with Section 1010.1.4.3.

7. Power-operated doors in accordance with Section 1010.1.4.2.

8. Doors serving a bathroom within an individual sleeping unit in Group R-1.

9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.

**1010.1.2.1 Direction of swing.** ~~Pivot or side~~Side-hinged swinging doors, pivoted doors, and balanced doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy.

**(F9143 / E42-18 AS)**

**Delete and substitute as follows:**

**~~1010.1.3~~ ~~Door opening force.~~** ~~The force for pushing or pulling open interior swinging egress doors, other than fire doors, shall not exceed 5 pounds (22 N). These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. For other swinging doors, as well as sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full-open position when subjected to a 15-pound (67 N) force.~~

**1010.1.3 Forces to unlatch and open doors.** The forces to unlatch doors shall comply with the following:

1. Where door hardware operates by push or pull, the operational force to unlatch the door shall not exceed 15 pounds (66.7N).

2. Where door hardware operates by rotation, the operational force to unlatch the door shall not exceed 28 inch-pounds (315 N-cm).

The forces to open doors shall comply with the following:

1. For interior swinging egress doors that are manually operated, other than doors required to be fire rated, the force for pushing or pulling open the door shall not exceed 5 pounds (22 N).

2. For other swinging doors, sliding doors, or folding doors, and doors required to be ~~fire-resistance-rated~~fire rated, the door shall require not more than a 30-pound (133 N) force to be set in motion and shall move to a full-open position when subjected to not more than a 15-pound (67 N) force.

**(F9144 / E44-18 AMPC1)**

**Add new text as follows:**

**1010.1.3.2 Manual horizontal sliding doors.** Where a manual horizontal sliding door is required to latch, the latch or other mechanism shall prevent the door from rebounding into a partially open positio**n when the door is closed.**

**(F9146 / E45-18 AS)**

**Revise as follows:**

**1010.1.4.1 Revolving doors.** Revolving doors shall comply with the following:

1. Revolving doors shall comply with BHMA A156.27 and shall be installed in accordance with the manufacturer's instructions.

2. Each revolving door shall be capable of breakout in accordance with BHMA A156.27 and shall provide an aggregate width of not less than 36 inches (914 mm).

3. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of stairways or escalators. A dispersal area shall be provided between the stairways or escalators and the revolving doors.

4. The revolutions per minute (rpm) for a revolving door shall not exceed the maximum rpm as specified in BHMA A156.27. Manual revolving doors shall comply with Table 1010.1.4.1(1). Automatic or power-operated revolving doors shall comply with Table 1010.1.4.1(2).

5. An emergency stop switch shall be provided near each entry point of power or automatic operated revolving doors within 48 inches (1220 mm) of the door and between ~~24~~ 34 inches (~~610~~ 864 mm) and 48 inches (1220 mm) above the floor. The activation area of the emergency stop switch button shall be not less than 1 inch (25 mm) in diameter and shall be red.

6. Each revolving door shall have a side-hinged swinging door that complies with Section 1010.1 in the same wall and within 10 feet (3048 mm) of the revolving door.

7. Revolving doors shall not be part of an accessible route required by Section 1009 and Chapter 11.

**(F9147 / E46-18 AS)**

**1010.1.4.3 Special purpose horizontal sliding, accordion or folding doors.** In other than Group H occupancies, special purpose horizontal sliding, accordion orfolding door assemblies permitted to be a component of a means of egress in accordance with Exception 6 to Section 1010.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.

2. The doors shall be openable by a simple method ~~from both sides~~ without special knowledge ~~or effort~~ or effort from the egress side or sides.

3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.

4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.

5. The door assembly shall comply with the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 716.2.6.6, shall be installed in accordance with NFPA 80 and shall comply with Section 716.

6. The door assembly shall have an integrated standby power supply.

7. The door assembly power supply shall be electrically supervised.

8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

**(F9148 / E47-18 AS)**

**Revise as follows:**

**1010.1.4.4 Locking arrangements in educational occupancies.** In Group E ~~and~~ occupancies, Group B educational occupancies and Group I-4 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~~ shall comply with 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. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.

4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

Remote locking or unlocking of doors from an approved location shall be permitted in addition to the unlocking operation in Item 1.

**Delete without substitution:**

**~~1010.1.4.4.1 Remote operation of locks.~~** ~~Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.~~

**(F9151 / E48-18 AS)**

**Revise as follows:**

**1010.1.9.4 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 Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.

3. 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:

3.1. The locking device is readily distinguishable as locked.

3.2. 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.

3.3. The use of the key-operated locking device is revocable by the building official for due cause.

4. ~~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.~~ Manual bolts, automatic flush bolts, and constant latching bolts on the inactive leaf of a pair of doors in accordance with Table 1010.1.9.4, provided the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.

5. 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.

6. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.

8. Other than egress courts, where occupants must egress from an exterior space through the building for means of egress, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

8.1. The maximum occupant load shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.

8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m2 ) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.

8.6. The occupant load of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual dwelling or sleeping units.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m2 ) or less serving a private office space.

**(F9154 / E53-18 AMPC1)/ (F9152 / E52-18 AMPC1)/ (F10053 AS)**

**Insert Table:**

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Revise as follows:

1010.1.9.6 Unlatching.

The unlatching of any door or leaf for egress shall require not more than one motion in a single linear or rotation direction to release all latching and all locking devices. Manual bolts are not permitted.

**Exceptions:**

1. Places of detention or restraint.
2. ~~Where manually operated bolt locks are permitted by Section 1010.1.9.5.~~
3. ~~Doors with automatic flush bolts as permitted by Section 1010.1.9.4, Item 3.~~

2.     Doors with *manual bolts,* *automatic flush bolts, and constant latching bolts* as permitted by Section 1010.1.9.4, Item 4.

~~4~~3.     Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.1.9.4, Item ~~4~~5.

**(F10053 AS)/**

**(F9155 / E54-18 AM)**

**Revise as follows:**

**1010.1.9.7 Controlled egress doors in Groups I-1 and I-2.** Electric locking systems, including electro-mechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is 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, provided that the doors are installed and operate in accordance with all of the following:

1. The door locks shall unlock on actuation of the automatic sprinkler system or automatic ~~fire~~ smoke detection system.

2. The door locks shall unlock on loss of power controlling the lock or lock mechanism.

3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an exit.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by

of the International Fire Code.

6. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

7. Emergency lighting shall be provided at the door.

8. The door locking system units shall be listed in accordance with UL 294.

**Exceptions:**

1. Items 1 through 4 shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area.

2. Items 1 through 4 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

**(F9157 / E55-18 AS)**

**Revise as follows:**

**1010.1.9.7 Controlled egress doors in Groups I-1 and I-2.** Electric locking systems, including electro-mechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is 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, provided that the doors are installed and operate in accordance with all of the following:

1. The door locks shall unlock on actuation of the automatic sprinkler system or automatic fire detection system.

2. The door locks shall unlock on loss of power controlling the lock or lock mechanism.

3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an exit.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.

6. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

7. Emergency lighting shall be provided at the door.

8. The door locking system units shall be listed in accordance with UL 294.

**Exceptions:**

1. Items 1 through 4 shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric or cognitive treatment area.

2. Items 1 through 4 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

**(F9158 / E57-18 AS)**

**Revise as follows:**

**1010.1.9.8.1 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.

**Exceptions:**

1. In Group I-1, Condition 2, 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 that the combined delay does not exceed 30 seconds.

2. In Group I-1, Condition 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 15 [30] 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.

**(F9160 / E59-18 AS)**

**Revise as follows:**

**1011.5.2 Riser height and tread depth.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads or between the stairway landing and the adjacent tread. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

**Exceptions:**

1. Spiral stairways in accordance with Section 1011.10.

2. Stairways connecting stepped aisles to cross aisles or concourses shall be permitted to use the riser/tread dimension in Section 1029.14.2.

3. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 73/4 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than 3/4 inch (19.1 mm) but not more than 11/4 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).

4. See Section 503.1 of the International Existing Building Code for the replacement of existing stairways.

5. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

**(F9173 / E66-18 AS)**

**Revise as follows:**

**1011.11 Handrails.** *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. Flights of stairways within 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.

5. Where a platform lift is in a stationary position and the floor of the platform lift serves as the upper landing of a stairway, handrails shall not be required on the stairway, provided that all of the following criteria are met:

5.1. The stairway contains no more than two risers.

5.2. A handhold, positioned horizontally or vertically, is located on one side of the stairway adjacent to the top landing.

5.3. The handhold is located not less than 34 inches (864 mm) and not more than 42 inches (1066 mm) above the bottom landing of the stairway.

5.4. The handhold gripping surface complies with Section 1014.3, and is not less than 4.5 inches (144 mm) in length.

**(F9177/ E71-18 AMPC1)**

**Revise as follows:**

**1013.4 Raised character and braille exit signs.** A sign stating EXIT in visual characters, raised characters and braille and complying with ICC A117.1 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, a horizontal exit and the exit discharge.

**(F9179 / E73-18 AS)**

**Revise as follows:**

**1015.2 Where required.** Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, aisles, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.8.

**Exception:** Guards are not required for the following locations:

1. On the loading side of loading docks or piers.

2. On the audience side of stages and raised platforms, including stairs leading up to the stage and raised platforms.

3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations.

4. At vertical openings in the performance area of stages and platforms.

5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.

6. Along vehicle service pits not accessible to the public.

7. In assembly seating areas at cross aisles in accordance with Section 1029.17.2.

8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.

**(F9180 / E77-18 AS)**

**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~~ Where access to two or more exits or exit access doorways is required in Section 1006.2.1, 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 1007.6, 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

**(F9944 AS)**

**Revise as follows:**

**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. 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.

2. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

Exception: Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy where the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

3. An exit access shall not pass through a room that can be locked to prevent egress.

Exception: An electrically locked *exit access* door providing egress from an elevator lobby shall be permitted in accordance with Section 1010.1.9.13.

4. Means of egress from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.

5. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

Exceptions:

1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.

2. Means of egress are not prohibited through stockrooms in Group M occupancies where all of the following are met:

2.1. The stock is of the same hazard classification as that found in the main retail area.

2.2. Not more than 50 percent of the exit access is through the stockroom.

2.3. The stockroom is not subject to locking from the egress side.

2.4. There is a demarcated, minimum 44- inch-wide (1118 mm) aisle defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

**(F10061 AM original plus A1)**

**Revise as follows:**

## SECTION 1017 EXIT ACCESS TRAVEL DISTANCE

## 

## 1017.3 Measurement. Exit access travel distance shall be measured from the most remote point of each room, area or space along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit. Where more than ~~one exit~~ is required, exit access travel distance shall be measured to the nearest 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.

**(F9186/E86-18 AM)**

**TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE**a

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY** | **WITHOUTSPRINKLERSYSTEM(feet)** | **WITHSPRINKLERSYSTEM(feet)** |
| A,E,F-1,M,R,S-1 | 200 | 250b |
| I-1 | NotPermitted | 250b |
| B | 200 | 300c |
| F-2,S-2,U | 300 | 400c |
| H-1 | NotPermitted | 75d |
| H-2 | NotPermitted | 100d |
| H-3 | NotPermitted | 150d |
| H-4 | NotPermitted | 175d |
| H-5 | NotPermitted | 200c |
| I-2,I-3,I-4 | NotPermittede | 200c |
| ~~S-1~~ | ~~200~~ | ~~400b~~ |

For SI: 1 foot = 304.8 mm.

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

Section 402.8: For the distance limitation in malls.

Section 404.9: For the distance limitation through an atrium space.

Section 407.4: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

Section 411.4: For the distance limitation in special amusement buildings.

Section 412.7: For the distance limitations in aircraft manufacturing facilities.

Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.

Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.

Section 1006.3.3: For buildings with one exit.

Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.

Section 1029.7: For increased limitation in assembly seating.

Section 3103.4: For temporary structures.

Section 3104.9: For pedestrian walkways.

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.

Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

Group I-4 day care facilities for which an automatic sprinkler system is not required in accordance with Section 903.2.6, exception 2.

**(F10153 AS)**

**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.

**Exceptions:**

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 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.

**(F9187 / E88-18 AS)**

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

**Exceptions:**

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.

2. A fire-resistance rating is not required for corridors contained within a dwelling unit or sleeping unit in an occupancy in Groups I-1 and R.

3. A fire-resistance rating is not required for corridors in open parking garages.

4. A fire-resistance rating is not required for corridors in an occupancy in Group B that is a space requiring only a single means of egress complying with Section 1006.2.

5. Corridors adjacent to the exterior walls of buildings shall be permitted to have unprotected openings on unrated exterior walls where unrated walls are permitted by Table ~~602~~705.5 and unprotected openings are permitted by Table 705.8.

**(F9241 / FS18-18 AM)**

**Revise as follows:**

**1020.4 Dead ends.** Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet (6096 mm) in length.

**Exceptions:**

1. In Group I-3, Condition 2, 3 or 4, occupancies, 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, 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.

4. In Group I-2, Condition 2 occupancies, the length of dead end corridors that do not serve patient rooms or patient treatment spaces shall not exceed 30 feet (9144 mm).

**(F9189 / E91-18 AS)**

**Revise as follows:**

**1020.5 Air movement in corridors.** Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

**Exceptions:**

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.

2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.

3. Where located within tenant spaces of 1,000 square feet (93 m2) or less in area, utilization of corridors for conveying return air is permitted.

4.  ~~Incidental air movement from pressurized rooms within health care facilities, provided that the corridor is not the primary source of supply or return to the room.~~ Transfer air movement required to maintain pressurization difference within health care facilities​​​​​​​ in accordance with ASHRAE 170.

**(F9190 / E92-18 AMPC1)**

**Revise as follows:**

**1023.2 Construction.** Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Enclosures for ~~Interior~~ interior exit stairways and ramps shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

**Exceptions:**

1. Interior exit stairways and ramps in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.

2. Interior exit stairways within an atrium enclosed in accordance with Section 404.6.

**(F9191 / E94-18 AS)**

**Add new text as follows:**

**1024.9 Exit passageway exterior walls.** Exterior walls of the exit passageway shall comply with Section 705. Where nonrated walls or unprotected openings enclose the exterior of the exit passageway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a fire-resistance rating of not less than 1 hour. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor of the exit passageway, or to the roof line, whichever is lower.

**(F9201 / E102-18 AS)**

**Revise as follows:**

**1017.3 Measurement.** Exit access travel distance shall be measured from the most remote point 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~~ Exceptions:**

1. 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.

2. In smoke protected seating and open air assembly seating, exit access travel distance shall be measured in accordance with Section 1029.7.

**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, Section 1029.6.2 where smoke-protected assembly seating is provided and Section 1029.6.3 where open-air assembly seating is provided.

**Revise as follows:**

**1029.6.2 Smoke-protected assembly seating.** The required capacity in inches (mm) of the aisle for smoke-protected assembly seating shall be not less than the occupant load served by the egress element multiplied by the appropriate factor in Table 1029.6.2. The total number of seats specified shall be those within the space exposed to the same smoke-protected environment. Interpolation is permitted between the specific values shown. A life safety evaluation, complying with NFPA 101, shall be done for a facility utilizing the reduced width requirements of Table 1029.6.2 for smoke-protected assembly seating.

**~~Exception:~~** ~~For open-air assembly seating with an occupant load not greater than 18,000, the required capacity in inches (mm) shall be determined using the factors in Section 1029.6.3.~~

**TABLE 1029.6.2**

**CAPACITY FOR AISLES FOR SMOKE-PROTECTED ASSEMBLY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED ASSEMBLY SEATING** | **INCHES OF CAPACITY PER SEAT SERVED** | | | |
| **Stepped aisles with handrails within 30 inches** | **Stepped aisles without handrails within 30 inches** | **Level aisles or ramped aisles not steeper than 1 in 10 in slope** | **Ramped aisles steeper than 1 in 10 in slope** |
| Equal to or less than 5,000 | 0.2 | 0.25 | 0.15 | 0.165 |
| 10,000 | 0.13 | 0.163 | 0.1 | 0.11 |
| 15,000 | 0.096 | 0.12 | 0.07 | 0.077 |
| 20,000 | 0.076 | 0.095 | 0.056 | 0.062 |
| Equal to or greater than 25,000 | 0.06 | 0.075 | 0.044 | 0.048 |

For SI: 1 inch = 25.4 mm.

**1029.6.2.3 Automatic sprinklers.** Enclosed areas with walls and ceilings in buildings or structures containing smoke-protected assembly seating shall be protected with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

**Exceptions:**

1. The floor area used for contests, performances or entertainment provided that the roof construction is more than 50 feet (15 240 mm) above the floor level and the use is restricted to low fire hazard uses.

2. Press boxes and storage facilities less than 1,000 square feet (93 m2) in area.

~~3. Outdoor seating facilities where seating and the~~ ~~means of egress~~ ~~in the seating area are essentially open to the outside.~~

**1029.6.3 Open-air assembly seating.** 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 open-air assembly seating where Section 1029.6.2 permits less capacity.

**1029.6.3.1 Automatic sprinklers.** Enclosed areas with walls and ceilings in buildings or structures containing open-air assembly seating shall be protected with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

**Exceptions:**

1. The floor area used for contests, performances or entertainment provided the roof construction is more than 50 feet (15 240 mm) above the floor level and the use is restricted to low fire hazard uses.

2. Press boxes and storage facilities less than 1,000 square feet (93 m2) in area.

3. Open-air assembly seating facilities where seating and the means of egress in the seating area are essentially open to the outside.

**(F9202 / E104-18 AS)**

**Revise as follows:**

**TABLE 1029.13.2.1**

**SMOKE-PROTECTED OR OPEN-AIR ASSEMBLY AISLE ACCESSWAYS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **~~TOTAL~~ NUMBER OF SEATS IN THE SMOKE-PROTECTED OR OPEN-AIR ASSEMBLY SEATING** | **MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TOHAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY** | | | |
| **Aisle or doorway at both ends of row** | | **Aisle or doorway at one end of row only** | |
| **Seats with backrests** | **Seats without backrests** | **Seats with backrests** | **Seats without backrests** |
| Less than 4,000 | 14 | 21 | 7 | 10 |
| 4,000 to 6,999 | 15 | 22 | 7 | 10 |
| 7,000 to 9,999 | 16 | 23 | 8 | 11 |
| 10,000 to 12,999 | 17 | 24 | 8 | 11 |
| 13,000 to 15,999 | 18 | 25 | 9 | 12 |
| 16,000 to 18,999 | 19 | 26 | 9 | 12 |
| 19,000 to 21,999 | 20 | 27 | 10 | 13 |
| 22,000 and greater | 21 | 28 | 11 | 14 |

For SI: 1 inch = 25.4 mm.

**(F9203 / E105-18 AS)**

**Revise as follows:**

**1029.16 Handrails.** Ramped aisles having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and stepped aisles shall be provided with handrails in compliance with Section 1014 located either at one or both sides of the aisle or within the aisle width. Where the stepped aisle have seating on one side and the aisle width is 74 inches (1880 mm) or greater, two handrails are required. Where two handrails are required, one of the handrails shall be within 30 inches horizontally of side of the tiered floor adjacent to the stepped the aisle.

**Exceptions:**

1. Handrails are not required for ramped aisles with seating on both sides.

2. Handrails are not required where, at the side of the aisle, there is a guard with a top surface that complies with the graspability requirements of handrails in accordance with Section 1014.3.

3. Handrail extensions are not required at the top and bottom of stepped aisles and ramped aisles to permit crossovers within the aisles.

**1029.16.1 Discontinuous handrails.** Where there is seating on both sides of the aisle, the mid-aisle handrails shall be ~~discontinuous with~~ discontinuous. Where the stepped aisle is required to have two handrails, the mid-aisle handrails shall be discontinuous. The gaps or breaks at intervals shall not ~~exceeding~~ exceed five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of not less than 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the mid-aisle handrail shall have rounded terminations or bends.

**1029.16.2 Handrail termination.** Handrails located on the side of stepped aisles shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stepped aisle flight.

**1029.16.3 Mid-aisle termination.** Mid-aisle handrails shall not extend beyond the lowest riser and shall terminate within 18 inches (381 mm), measured horizontally, from the lowest riser. Handrail extensions are not required.

**Exception:** Mid-aisle handrails shall be permitted to extend beyond the lowest riser where the handrail extensions do not obstruct the width of the cross aisle.

(F9204 / E106-18 AMPC1,2)

**Revise as f ollows:**

**1029.16.1 Discontinuous mid- aisle handrails.** Where there is seating on both sides of the aisle, the mid-aisle *handrails* shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the *aisle* to the other. These gaps or breaks shall have a clear width of not less than 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the mid-aisle *handrail* shall have rounded terminations or bends.

**(F9145 / CCC-E5-18 AS)**

**Add new text as follows:**

**1030.3.1 Emergency escape and rescue doors.** Where a door is provided as the required emergency escape and rescue opening, it shall be a swinging door or a sliding door.

**(F9206 / E110-18 AS)**

**1030.4 Operational constraints.**

*Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. Window-opening control devices and fall prevention devices complying with ASTM F2090 shall be permitted for use on windows serving as a required *emergency escape and rescue opening*. Bars, grilles, grates or similar devices are permitted to be placed over *emergency escape and rescue openings* provided the minimum net clear opening size complies with Section 1030.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the *emergency escape and rescue opening*. Where such bars, grilles, grates or similar devices are installed in existing buildings, *smoke alarms* shall be installed in accordance with Section 907.2.11 regardless of the valuation of the *alteration*.

**F10415 AS**

**Add new text as follows:**

**1030.5.2.1 Steps.** Steps shall have an inside width of not less than 12 inches (305 mm), shall have treads greater than 5 inches (127 mm) in depth and a riser height not greater than 18 inches (457 mm) for the full height of the area well.

**(F9208 / E112-18 AS)**

**CHAPTER 11 ACCESSIBILITY**

No change

**CHAPTER 12 INTERIOR ENVIRONMENT**

**Revise as follows:**

**1203.3 Unvented attic and unvented enclosed rafter assemblies.** Unvented attics and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all of the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.

2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.

3. Where wood shingles or shakes are used, not less than a 1/4-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. In Climate Zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Insulation shall ~~be located in accordance with the following:~~comply with either Item 5.1 or 5.2, and additionally Item 5.3

5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

5.1.1. Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R-values in Table 1202.3 for condensation control.

5.1.3. Where both air-impermeable and air-permeable insulation are provided, the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the R-values in Table 1202.3 for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2. In climate zones 1, 2, and 3 air-permeable insulation installed in unvented attics shall meet the following requirements:

5.2.1. A vapor diffusion port shall be installed not more than 12 inches (305mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

5.2.2. The port area shall be ≥ 1:600 of the ceiling area. Where there are multiple ports in the attic, the sum of the port areas shall be greater than or equal to the area requirement.

5.2.3. The vapor permeable membrane in the vapor diffusion port shall have a vapor permeance rating of ≥20 perms when tested in accordance with Procedure A of ASTM E96.

5.2.4. The vapor diffusion port shall serve as an air barrier between the attic and the exterior of the building.

5.2.5. The vapor diffusion port shall protect the attic against the entrance of rain and snow.

5.2.6. Framing members and blocking shall not block the free flow of water vapor to the port. Not less than a 2-inch (50 mm) space shall be provided between any blocking and the roof sheathing. Air-permeable insulation shall be permitted within that space.

5.2.7. The roof slope shall be ≥3:12 (vertical/horizontal).

5.2.8. Where only air-permeable insulation is used, it shall be installed directly below the structural roof sheathing, on top the attic floor, or on top of the ceiling.

5.2.9. Where only air-permeable insulation is used and is installed directly below the structural roof sheathing, air shall be supplied at a flow rate ≥50 CFM (23.6 L/s) per 1000 ft2of ceiling. ​​​​​

5.3. The air shall be supplied from ductwork providing supply air to the occupiable space when the conditioning system is operating. Alternatively, the air shall be supplied by a supply fan when the conditioning system is operating. Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

**Exceptions:**

1. Section 1202.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.

2. Section 1202.3 does not apply to enclosures in Climate Zones 5 through 8 that are humidified beyond 35 percent during the three coldest months.

**(S9433/G119-18 AS)**

**Revise as shown:**

**1203.2 Ventilation required.**Enclosed *attics*and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than 1/150 of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer’s installation instructions.

**Exception:**The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided ~~both of the following conditions are met:~~

~~1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.~~

~~2. At~~ at least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the *attic*or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation*provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

**(S9904 AS)**

**Revise as shown:**

**1203.2 Ventilation required.**Enclosed *attics*and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking, ~~and~~bridging, and insulation shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than 1/150 of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer’s installation instructions.

[Remainder of section unchanged]

**(S9985 AS)**

**Revise as follows:**

**1207.2 Airborne 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 where tested in accordance with ASTM E90, or have a Normalized Noise Isolation Class (NNIC) rating of not less than 45 if field tested ~~, for airborne noise where tested~~ in accordance with ASTM ~~E90.~~ E336, for airborne noise. 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 E90. 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.

**(S9435 / G123-18 AM)/ (S9436 / G126-18 AM)**

**Revise as follows:**

**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 within the structure shall have an impact insulation class rating of not less than 50 where tested in accordance with ASTM E492, or have an apparent IIC (AIIC) of not less than 45 if field tested ~~, where tested~~in accordance with ASTM ~~E492~~ E1007. 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 in ASTM E492.

**(S9436 / G126-18 AM)**

**Add new text as follows:**

**SECTION 1211**

**ENHANCED CLASSROOM ACOUSTICS**

**12011.1 General.**Enhanced classroom acoustics, where required in this section, shall comply with Section 808 of ICC A117.1.

**12011.2 Where required.**In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet or less.

**(S9437 / G127-18 AS)**

**Revise as follows:**

**1208.4 Efficiency dwelling units.**An efficiency living unit shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 220 square feet (20.4 m2) of floor area. ~~An additional 100 square feet (9.3 m~~~~2~~~~) of floor area shall be provided for each occupant of such unit in excess of two.~~

2. The unit shall be provided with a separate closet.

3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and *ventilation* conforming to this code shall be provided.

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower

**(F9438 / G128-18 AS)**

**Revise as follows:**

**1208.4 Efficiency dwelling units.** An efficiency living unit shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than ~~220~~ 190 square feet (~~20.4~~ 17.7 m2) of floor area. An additional 100 square feet (9.3 m2) of floor area shall be provided for each occupant of such unit in excess of two.

2. The unit shall be provided with a separate closet.

3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and ventilation conforming to this code shall be provided.

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

**(F9439 / G129-18 AS)**

**Revise as follows:**

**1208.4 Efficiency dwelling units.** ~~An efficiency living unit~~ Efficiency dwelling units shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 220 square feet (20.4 m2) of floor area. An additional 100 square feet (9.3 m2) of floor area shall be provided for each occupant of such unit in excess of two.

2. The unit shall be provided with a separate closet.

3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and ventilation conforming to this code shall be provided.

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

**(F9441/G131-18 AS)**

**Revise as follows:**

**[P] 1210.3 Privacy.** Public restrooms shall be visually screened from outside entry or exit doorways to ensure user privacy within the restroom. This provision shall also apply where mirrors would compromise personal privacy. Privacy at water closets and urinals shall be provided in accordance with Sections 1209.3.1 and 1209.3.2.

**Exception:** Visual screening shall not be required for single-occupant toilet rooms with a lockable door.

**(P9442 / G132-18 AS)**

## [P] 2903 INSTALLATION OF FIXTURES

## [P] 2903.1 Setting. Fixtures shall be set level and in proper alignment with reference to adjacent walls.

## [P] 2903.1.1 Water closets, urinals, lavatories and bidets. A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction. Where partitions or other obstructions do not separate adjacent fixtures, fixtures shall not be set closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of a water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floor-mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall-hung water closets.

**Exception:** An accessible children's water closet shall be set not closer than 12 inches (305 mm) from its center to the required partition or to the wall on one side.

## [P] 2903.1.2 Public Lavatories. In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet.

## [P] 2903.1.3 Location of fixtures and piping. Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings.

## [P] 2903.1.4 Water closet compartment. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

**Exceptions:**

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

## [P] 2903.1.5 Urinal Partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

**Exceptions:**

1. Urinal partitions shall not be required in a single-occupant or family/assisted-use toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

**(P9443 / G133-18 AMPC1)**

**CHAPTER 13 ENERGY EFFICIENCY**

**No change**

**CHAPTER 14 EXTERIOR WALLS**

**Delete without substitution:**

**~~1403.5~~ ~~Vertical and lateral flame propagation.~~** *~~Exterior walls~~* ~~on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible~~ *~~water-resistive barrier~~* ~~shall be tested in accordance with and comply with the acceptance criteria of~~ ~~NFPA 285. For the purposes of this section,~~ *~~fenestration~~* ~~products, flashing of~~ *~~fenestration~~* ~~products and~~ *~~water-resistive-barrier~~* ~~flashing and accessories at other locations, including through wall flashings, shall not be considered part~~ ~~of the~~ *~~water-resistive barrier~~*~~.~~

**~~Exceptions:~~**

~~1. Walls in which the~~ *~~water-resistive barrier~~* ~~is the only combustible component and the~~ *~~exterior wall~~* ~~has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1404.2.~~

~~2. Walls in which the~~ *~~water-resistive barrier~~* ~~is the only combustible component and the~~ *~~water-resistive barrier~~* ~~has a peak heat release rate of less than 150 kW/m~~2~~, a total heat release of less than 20 MJ/m~~2 ~~and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with~~ ~~ASTM E1354~~ ~~and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with~~ ~~ASTM E84~~ ~~or~~ ~~UL 723. The~~ ~~ASTM E1354~~ ~~test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m~~2~~.~~

**1403.5 Water-resistive barriers.** *Exterior walls* on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.Combustibility shall be determined in accordance with Section 703.3. For the purposes of this section, *fenestration* products, flashing of *fenestration* products and *water-resistive-barrier* flashing and accessories at other locations, including through wall flashings, shall not be considered part of the *water-resistive barrier*.

**Exceptions:**

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall*

has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in

accordance with Table 1404.2.

2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive*

*barrier* complies with the following:

2.1. A peak heat release rate of less than 150 kW/m2, a total heat release of less than 20 MJ/m2 and an effective heat of combustion of less than 18 MJ/kg when tested on specimens at the thickness intended for use, in accordance with ASTM E1354, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m2.

2.2. A flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, with test specimen preparation and mounting in accordance with ASTM

E2404.

**(F9421 / FS98-18 AS)/ F9290 / FS105-18 AM)**

**Revise as follows:**

**1404.2 Water-resistive barrier.** Not fewer than one layer of water-resistive barrier material ~~No.15 asphalt felt, complying with ASTM D226 for Type 1 felt or other approved materials~~ shall be attached to the studs or sheathing, with flashing as described in Section 1404.4, in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer. Water-resistive barriers shall comply with one of the following:

1. No. 15 felt complying with ASTM D226, Type 1,

2. ASTM E2556, Type I or II,

3. ASTM E331 in accordance with Section 1402.2, or

4. Other approved materials installed in accordance with the manufacturer's installation instructions.

**(S9291/ FS108-18 AM)**

1403.3 **Structural.** Exterior walls, components and claddings and the associated openings, shall be designed and constructed to resist safely the superimposed loads required by Chapter 16.

**(S10279 AS)**

**BS] 1404.14 Vinyl siding.** Vinyl siding conforming to the requirements of this section and complying with ASTM D3679 shall be permitted on *exterior walls* ~~of buildings located in areas where~~ *~~V~~~~asd~~* ~~as~~ where the design wind pressure determined in accordance with Section 1609~~.3.1~~ does not exceed ~~100 miles per hour (45 m/s) and the~~ *~~building height~~* ~~is less than or equal to 40 feet (12 192 mm) in Exposure C. Where construction is located in areas where~~ *~~V~~~~asd~~* ~~as determined in accordance with Section 1609.3.1 exceeds 100 miles per hour (45 m/s), or building heights are in excess of 40 feet (12 192 mm),~~ 30 psf. Where the design wind pressure exceeds 30 psf, tests or calculations indicating compliance with Chapter 16 shall be submitted. Vinyl siding shall be secured to the building so as to provide weather protection for the *exterior walls* of the building.

**[BS] 1404.14.1 Application.** The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied over a ~~to conform to the~~ *water-resistive barrier* in accordance with requirements in Section 140~~2~~5. Siding and accessories shall be installed in accordance with *~~approved~~* ~~manufacturer’s instructions. Unless otherwise specified in the~~ *~~approved~~* ~~manufacturer’s instructions, nails used to fasten the siding and accessories shall have a minimum 0.313-inch (7.9 mm) head diameter and~~ ~~1~~~~/~~~~8~~~~-inch (3.18 mm) shank diameter. The nails shall be corrosion resistant and shall be long enough to penetrate the studs or nailing strip not less than~~ ~~3~~~~/~~~~4~~ ~~inch (19 mm). For cold-formed steel light-frame construction, corrosion-resistant fasteners shall be used. Screw fasteners shall penetrate the cold-formed steel framing not fewer than three exposed threads. Other fasteners shall be installed in accordance with the~~ *~~approved~~* ~~construction documents and manufacturer’s instructions. Where the siding is installed horizontally, the fastener spacing shall not exceed 16 inches (406 mm) horizontally and 12 inches (305 mm) vertically. Where the siding is installed vertically, the fastener spacing shall not exceed 12 inches (305 mm) horizontally and 12 inches (305 mm) vertically~~ the approved manufacturer's instructions.

**1405.14.1.1 Fasteners and fastener penetration for wood construction.**Unless otherwise specified in the approved manufacturer's instructions, nails used to fasten the siding and accessories shall be corrosion resistant and have a minimum 0.313-inch (7.9 mm) head diameter and 1/8-inch (3.18 mm) shank diameter. The penetration into nailable substrate shall be ~~not less than~~ at least 1 ¼inches (32 mm).

**1405.14.1.2 Fasteners and fastener penetration for cold-formed steel light frame construction.**For cold-formed steel light-frame construction, corrosion resistant fasteners shall be used. Screw fasteners shall penetrate through the steel with a minimum of three exposed threads. Other fasteners shall be installed in accordance with the approved construction documents and manufacturer's instructions.

**1405.14.1.3 Fastener spacing.**Unless specified otherwise by the approved manufacturer's instructions, fasteners shall be installed in the middle third of the slots of the nail hem and maximum spacing between fasteners shall be 16 inches (406 mm) for horizontal siding and 12 inches (305 mm) for vertical siding.

**(S9330 / FS3-19 AM)/ (S9329/ FS2-19 AM)/(S9899 AS)**

**Add new text as follows:**

**1405.14.2.1Accessories.**

Accessories must be installed in accordance with the *approved*manufacturer’s instructions.

**1405.14.2.1.1Starter Strip.**

Horizontal siding shall be installed with a starter strip at the initial course at any location.

**1405.14.2.1.2 Utility Trim.**

Under windows, and at top of walls, utility trim shall be used with snap locks.

**(S9899 AS)**

**Add new text as follows:**

**1404.15 Attachments through Insulation.** Exterior wall coverings attached to the building structure through foam plastic insulating sheathing shall comply with the attachment requirements of Section 2603.11, 2603.12, or 2603.13.

**(S9294 / FS113-18 AS)**

**TABLE 1405.2**

**MINIMUM THICKNESS OF WEATHER COVERINGS**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **COVERING TYPE** | **MINIMUM THICKNESS (inches)** |
| Porcelain tile | ~~0.25~~ 0.125 nominal |

For SI: 1 inch = 25.4 mm, 1 ounce = 28.35 g, 1 square foot = 0.093 m2.

a. Wood siding of thicknesses less than 0.5 inch shall be placed over sheathing that conforms to Section 2304.6.

b. Exclusive of texture.

c. As measured at the bottom of decorative grooves.

d. 16 ounces per square foot for cold-rolled copper and lead-coated copper, 12 ounces per square foot for copper shingles, high-yield copper and lead-coated high-yield copper.

## [BS] 1404.10.2 Exterior adhered masonry veneers—porcelain tile. Adhered units weighing more than 3.5 pounds per square foot (0.17 kN/m2) shall not exceed ~~5~~~~/~~~~8~~ ~~inch (15.8 mm) thickness and 24 inches (610~~ 48 inches (1219 mm) in any face dimension nor more than ~~3~~ 9 square feet ~~(0.28~~ (0.8 m2) in total face area and shall not weigh more than ~~9 pounds psf (0.43~~ 6 pounds per square foot (0.29 kN/m2). Adhered units weighing less than or equal to 3.5 pounds per square foot (0.17 kN/m2) shall not exceed 72 inches (1829 mm) in any face dimension nor more than 17.5 square feet (1.6 m2) in total face area. *Porcelain tile* shall be adhered to an approved backing system.

**(S9328/FS1-19 AS)**

**1405.3 Vapor retarders.** Vapor retarder materials shall be classified in accordance with Table 1404.3(1). A vapor retarder ~~as described in Section 1405.3.3~~ shall be provided on the interior side of frame walls in accordance with ~~Sections 1405.3.1 and 1405.3.2~~ Tables 1404.3(2) and 1404.3(3), or an approved design using accepted engineering practice for hygrothermal analysis. The appropriate climate zone shall be selected in accordance with Chapter 3 of the International Energy Conservation Code.

**~~1405.3.1 Class I and II vapor retarders.~~** ~~Class I and II vapor retarders shall not be provided on the interior side of frame walls in Zones 1 and 2. Class I vapor retarders shall not be provided on the interior side of frame walls in Zones 3 and 4. Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. The appropriate zone shall be selected in accordance with Chapter 3 [CE] of the Florida Building Code, Energy Conservation—Commercial Provisions.~~

**1405.3.1 Class I and II vapor retarders**. Where a Class II vapor retarder is used in combination with foam plastic insulating sheathing installed as continuous insulation on the exterior side of frame walls, the continuous insulation shall comply with Table 1404.3.1 and the Class II vapor retarder shall have a vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B). Use of a Class I interior vapor retarder in frame walls with a Class I vapor retarder on the exterior side shall require an approved design.

Exceptions:

1. Basement walls.

2. Below-grade portion of any wall.

3. Construction where ~~moisture~~ accumulation, condensation or ~~its~~ freezing of moisture will not damage the materials.

4. Class I and II vapor retarders with vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B) shall be allowed on the interior side of any frame wall in all climate zones.

**Add new text as follows:**

**TABLE 1405.3(1)**

**VAPOR RETARDER MATERIALS AND CLASSES**

|  |  |
| --- | --- |
| **VAPOR RETARDER CLASS** | **ACCEPTABLE MATERIALS** |
| I | Sheet polyethylene, nonperforated aluminum foil, or other approved materials with a perm rating of less than or equal to 0.1 |
| II | Kraft-faced fiberglass batts, paint, or other approved materials with a perm rating greater than 0.1 and less than or equal to 1.0 |
| III | Latex paint, enamel paint, or other approved materials with a perm rating of greater than 1.0 and less than or equal to 10 |

**TABLE 1405.3(2)**

**VAPOR RETARDER OPTIONS**

|  |  |  |  |
| --- | --- | --- | --- |
| **CLIMATE ZONE** | **VAPOR RETARDER CLASS** | | |
|  | I | II | IIIa |
| 1, 2 | Not permitted | Not Permitted | Permitted |
| 3, 4 (except Marine 4) | Not permitted | Permitted | Permitted |
| Marine 4, 5, 6, 7, 8 | Permitted | Permitted | See Table 1404.3(3) |

a. Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with a perm rating of less than 1 is applied in accordance with Table 1404.3(3) on the exterior side of the frame wall.

**Delete without substitution:**

**~~1405.3.2~~ ~~Class III vapor retarders.~~** ~~Class III vapor retarders shall be permitted where any one of the conditions in Table 1404.3.2 is met. Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with a perm rating of less than 1 is applied in accordance with Table 1404.3.2 on the exterior side of the frame wall.~~

**~~1405.3.3~~ ~~Material vapor retarder class.~~** ~~The vapor retarder class shall be based on the manufacturer’s certified testing or a tested assembly.~~

~~The following shall be deemed to meet the class specified:~~

|  |  |
| --- | --- |
| ~~Class I:~~ | ~~Sheet polyethylene, nonperforated aluminum foil with a perm rating of less than or equal to 0.1.~~ |
| ~~Class II:~~ | ~~Kraft-faced fiberglass batts or paint with a perm rating greater than 0.1 and less than or equal to 1.0.~~ |
| ~~Class III:~~ | ~~Latex or enamel paint with a perm rating of greater than 1.0 and less than or equal to 10.0.~~ |

**~~1405.3.4 Minimum clear airspaces and vented openings for vented cladding.~~** ~~For the purposes of this section, vented cladding shall include the following minimum clear airspaces:~~

~~1. Vinyl, polypropylene or horizontal aluminum siding applied over a weather-resistive barrier as specified in this chapter.~~

~~2. Brick veneer with a clear airspace as specified in this code.~~

~~3. Other approved vented claddings.~~

**(S9298 / FS117-18 AS) (S9299 / FS118-18 AM)/ (S9300 / FS119-18 AS)/ (S9301/ FS120-18 AM)/ (S9302 / FS121-18 AS)/ (S9303/ FS122-18 AM) (S9304 / FS125-18 AS)**

**/**

**Revise as follows:**

**Add new text as follows:**

**TABLE 1405.3.1**

**CONTINUOUS INSULATION WITH CLASS II VAPOR RETARDER**

|  |  |
| --- | --- |
| **CLIMATE ZONE** | **PERMITTED CONDITIONSa** |
| 3 | Continuous insulation with R-value ≥2. |
| 4, 5, and 6 | Continuous insulation with R-value ≥ 3 over 2x4 wall.  Continuous insulation with R-value ≥ 5 over 2x6 wall. |
| 7 | Continuous insulation with R-value ≥ 5 over 2x4 wall.  Continuous insulation with R-value ≥ 7.5 over 2x6 wall. |
| 8 | Continuous insulation with R-value ≥ 7.5 over 2x4 wall.  Continuous insulation with R-value ≥ 10 over 2x6 wall. |

a. In addition to the vapor retarder, spray foam with a maximum permeance of 1.5 perms at the installed thickness, applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum is deemed to comply with the continuous insulation requirement only for the moisture control purposes of this table where the spray foam R-value plus any continuous insulation R-value provided equals or exceeds the specified continuous insulation R-value.

**(S9301/ FS120-18 AM)**

**Add new text as follows:**

**Add new text as follows:**

**1405.3.2.1 Spray foam plastic insulation for moisture control with Class III vapor retarders**. For purposes of compliance with Table 1404.3(3), spray foam with a maximum permeance of 1.5 perms at the installed thickness applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum shall be deemed to meet the continuous insulation R-value requirement where the spray foam R-value meets or exceeds the specified continuous insulation R-value.

**1405.3.2.1.1 Hybrid insulation for moisture control with Class III vapor retarders**. For the purposes of compliance with Table 1404.3(3), the combined R-values of spray foam plastic insulation and continuous insulation shall be permitted to be counted toward the continuous R-value requirement.

**1405.3.2 Class III vapor retarders.** Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with a perm rating of less than 1 is applied in accordance with Table 1404.3(3) on the exterior side of the frame wall.

**(S9303/ FS122-18 AM)**

**Revise as follows:**

**TABLE 1405.3~~.2~~ (3)**

**CLASS III VAPOR RETARDERS**

|  |  |
| --- | --- |
| **ZONE** | **CLASS III VAPOR RETARDERS PERMITTED FOR:a, b** |
| Marine 4 | Vented cladding over wood structural panels  Vented cladding over fiberboard  Vented cladding over gypsum  Continuous insulation with R-value ≥ R2.5 over 2 × 4 wall  Continuous insulation with R-value ≥ R3.75 over 2 × 6 wall |
| 5 | Vented cladding over wood structural panels  Vented cladding over fiberboard  Vented cladding over gypsum  Continuous insulation with R-value ≥ R5 over 2 × 4 wall  Continuous insulation with R-value ≥ R7.5 over 2 × 6 wall |
| 6 | Vented cladding over fiberboard  Vented cladding over gypsum  Continuous insulation with R-value ≥ R7.5 over 2 × 4 wall  Continuous insulation with R-value ≥ R11.25 over 2 × 6 wall |
| 7 ~~and 8~~ | Continuous insulation with R-value ≥ R10 over 2 × 4 wall  Continuous insulation with R-value ≥ R15 over 2 × 6 wall |
| 8 | Continuous insulation with R-value ≥ R12.5 over 2 × 4 wall  Continuous insulation with R-value ≥ R20 over 2 × 6 wall |

~~For SI: 1 pound per cubic foot = 16 kg/m~~~~3~~~~.~~

* 1. The requirements in this table apply only to insulation used to control moisture in order to permit the use of Class III vapor retarders. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of the International Energy Conservation Code.
  2. Vented cladding shall include vinyl lap siding, polypropylene, or horizontal aluminum siding, brick veneer with clear airspace as specified in this code, and other approved vented claddings.

**(S9307 / FS128-18 AS)/** **(S9305 / FS127-18 AS)/ (S9304 / FS125-18 AS)/ (S9303/ FS122-18 AM)/**

**(S9308 / FS130-18 AS)/(S9300 / FS119-18 AS)/ (S9300 / FS119-18 AS)/ (S9298 / FS117-18 AS)**

**Revise as follows:**

**1405.3.3 Material vapor retarder class.** The vapor retarder class shall be based on the manufacturer's certified testing or a tested assembly.

The following shall be deemed to meet the class specified:

|  |  |
| --- | --- |
| Class I: | Sheet polyethylene, nonperforated aluminum foil with a perm rating of less than or equal to 0.1. |
| Class II: | Kraft-faced fiberglass batts or vapor retarder paint applied in accordance with the manufacturer's instructions for a perm rating greater than 0.1 and less than or equal to 1.0. |
| Class III: | Latex or enamel paint applied in accordance with the manufacturer's instructions for a perm rating of greater than 1.0 and less than or equal to 10.0. |

**(S9309 / FS131-18 AS)**

**Revise as follows:**

**1405.3.4 Minimum ~~clear~~ airspaces and vented openings for vented cladding.** For the purposes of this section, vented cladding shall include the following minimum ~~clear~~ airspaces:

1. Vinyl, polypropylene or horizontal aluminum siding applied over a weather-resistive barrier as specified in this chapter.

2. Brick veneer with ~~a clear~~ an airspace as specified in this code.

3. Other approved vented claddings.

**(S9310/ FS132-18 AM)**

**1405.4 Flashing.**

Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting *trim*. When self-adhered membranes are used as flashing in wall assemblies, those self-adhered flashings shall comply with AAMA-711. When fluid applied membranes are used as flashing for exterior wall openings, those fluid applied membrane flashings shall comply with AAMA 714. Approved corrosion-resistant flashing shall be applied at the following locations:

1. Exterior window and door openings. Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage. Flashing at exterior window  and door openings shall be installed in accordance with one or more of the following:

1.1 The fenestration manufacturer’s installation and flashing instructions, or for applications not addressed in the fenestration manufacturer’s instructions, in accordance with the flashing or water-resistive barrier manufacturer’s instructions. Where flashing instructions or details are not provided, pan flashing shall be installed at the sill of exterior window and door openings. Pan flashing shall be sealed or sloped in such a manner as to direct water to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage. Openings using pan flashing shall also incorporate flashing or protection at the head and sides.

1.2  In accordance with the flashing design or method of a registered design professional.

1.3  In accordance with other approved methods.

1.4  In accordance with FMA/AAMA 100, FMA/AAMA 200, FMA/WDMA 250, FMA/AAMA/WDMA 300, ~~o~~r FMA/AAMA/WDMA 400,  or FMA/AAMA/WDMA 2710.

2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.

   3. Under and at the ends of masonry, wood or metal copings and sills.

   4. Continuously above all projecting wood trim.

   5. Where exterior porches, decks or stairs attach to a wall or floor assembly of wood-frame construction.

   6.  At wall and roof intersections.

   7. At built-in gutters.

**(S10391 AM)**

**Delete section in its entirety:**

**~~1405.6.2 Seismic requirements.~~**~~Anchored masonry veneer located in Seismic Design Category C, D, E or F shall conform to the requirements of Section 12.2.2.10 of TMS 402.~~

**(S10040 AS)**

|  |
| --- |
| **Add new text as follows:**  **[BS]1405.19.1Installation.**  Unless otherwise specified in the approved manufacturer’s instructions, *Polypropylene siding*and accessories shall be installed over and attached to wood structural panel sheathing with a minimum thickness of 7/16 inch (11.1 mm), or another nailable substrate.  **[BS]1405.19.1.1Accessories.**  Accessories shall be installed in accordance with the approved manufacturer’s instructions.  **[BS]1405.19.1.1.1Starter Strip.**  Horizontal siding shall be installed with a starter strip at the initial course at any location.  **[BS]1405.19.1.1.2Under Windows and Top of Walls.**  Where nail hem is removed such as under windows and at top of walls, nail slot punch or predrilled holes shall be constructed.  **[BS]1405.19.2Fastener requirements.**  Unless otherwise specified in the approved manufacturer’s instructions, nails shall be corrosion resistant, with a minimum 0.120-inch (3 mm) shank and minimum 0.313-inch (8 mm) head diameter. Nails shall be a minimum of 1 1/4 inches (32 mm) long or as necessary to penetrate sheathing or nailable substrate not less than 3/4 inch (19.1 mm). Where the nail fully penetrates the sheathing or nailable substrate, the end of the fastener shall extend not less than 1/4 inch (6.4 mm) beyond the opposite face of the sheathing or nailable substrate. The spacing of fasteners shall conform to the approved manufacturer’s instructions. |
|  |

**(S9900 AM A2)**

|  |
| --- |
| Add to 1405.2 Weather Protection:  1405.2Weather protection.  Exterior walls shall provide weather protection for the building. The materials of the minimum nominal thickness specified in Table 1405.2 shall be acceptable as approved weather coverings. Where the windspeed is greater than 115 Vult, claddings listed in Table 1405.2 must be of adequate strength to resist the wind loads for cladding specified in Chapter 16. |
|  |

**(S10280 AM A1)**

**Revise as follows:**

**1407.8 Fire-resistance rating.** Where MCM systems are used on exterior walls required to have a fire-resistance rating in accordance with Section 705, evidence shall be submitted to the building official that the required fire-resistance rating is maintained.

**Exception:**  MCM systems which are part of an exterior wall envelope not containing foam plastic insulation~~, which~~ and are installed on the outer surface of a fire-resistance-rated exterior wall in a manner such that the attachments do not penetrate through the entire exterior wall assembly, shall not be required to comply with this section.

**(F9313 / FS137-18 AS)**

**Revise as follows:**

**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 1406.10.1 through ~~1406.10.4, or Section 1406.11.~~1406.10.3, for installations up to 40 feet (12 192 mm) above grade plane. Where installed on buildings of Type I, II, III and IV construction, MCMs and MCM systems shall comply with Sections 1406.10.1 through 1406.10.4, for installations greater than 40 feet (12 192 mm) above grade plane.

**Delete without substitution:**

**~~1407.11 Alternate conditions.~~** ~~MCM and MCM systems shall not be required to comply with Sections 1406.10.1 through 1406.10.4 provided that such systems comply with Section 1406.11.1, 1406.11.2, 1406.11.3 or 1406.11.4.~~

**~~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 1406.11.1.1 and 1406.11.1.2.~~

**~~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), the area of exterior wall surface coverage using MCM shall not be limited.~~

**~~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 1406.11.2.1 and 1406.11.2.2.~~

**~~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 1406.11.3.1 through 1406.11.3.5.~~

**~~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. MCM shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

~~2. MCM shall conform to one of the following combustibility classifications when tested in accordance with ASTM D635:~~

~~3. 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.~~

~~4. 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 1406.11.3.4. The maximum percentage of exterior wall area of any story covered with MCM panels shall not exceed that indicated in Table 1406.11.3.4 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~~**

**~~AREA LIMITATION AND SEPARATION REQUIREMENTS FOR MCM PANELS~~**

~~For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m~~~~2~~~~.~~

~~a. For reductions in the minimum vertical separation, see Section 1406.11.3.4.~~

**~~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 1406.11.3.4 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 705.8 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 1406.11.4.1 through 1406.11.4.4.~~

**~~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:~~

~~Class CC2:~~

~~1. MCM shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

~~2. MCM shall conform to one of the following combustibility classifications when tested in accordance with ASTM D635:~~

~~3. 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.~~

~~4. 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.~~

**(F9315 / F139-18 AS) [This code change is already covered by the 2020 FBC – no change needed]**

**Revise as follows:**

**1407.13 Foam plastic insulation.** Where MCM systems are included in an exterior wall envelope containing foam plastic insulation, the exterior wall envelope shall also comply with the requirements of Section 2603.

**(F9318 / FS146-18 AS)**

**Revise as follows:**

**1409.10.2 Thermal barriers.** HPL shall be separated from the interior of a building by an approved thermal barrier consisting of 1/2-inch (12.7 mm) gypsum wallboard 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.

**1409.10.3 Thermal barrier not required.** The thermal barrier specified for HPL in Section 1409.10.2 is not required where:

1. The HPL system is specifically approved based on tests conducted in accordance with NFPA 286, and with the acceptance criteria of Section 803.1.2.1, or with UL 1040 or UL 1715. Such testing shall be performed with the HPL in the minimum and maximum thicknesses intended for use. The HPL system shall include seams, joints and other typical details used in the installation and shall be tested in the manner intended for use.

2. The HPL is used as elements of balconies and similar projections, architectural trim or embellishments.

**(F9319 / FS147-18 AS)**

**Revise as follows:**

**1409.11 Alternate conditions.** HPL and HPL systems shall not be required to comply with Sections 1409.10.1 through 1409.10.4 provided that such systems comply with Section 1409.11.1 ~~or 1408.11.2~~.

**1409.11.1 Installations up to 40 feet in height.** HPL shall ~~not~~ be ~~installed more than~~ permitted to be installed up to 40 feet (12 190 mm) in height above grade plane where installed in accordance with ~~Sections 1408.11.1.1~~ ~~and 1408.11.1.2.~~ Section 1409.11.1.1 or with Section 1409.11.1.2.

**1409.11.1.1 Fire separation distance of 5 feet or less.** Where the fire separation distance is 5 feet (1524 mm) or less, the area of HPL shall not exceed 10 percent of the exterior wall surface.

**1409.11.1.2 Fire separation distance greater than 5 feet.** Where the fire separation distance is greater than 5 feet (1524 mm), the area of exterior wall surface coverage using HPL shall not be limited.

**Delete without substitution:**

**~~1409.11.2 Installations up to 50 feet in height.~~** ~~HPL shall not be installed more than 50 feet (15 240 mm) in height above grade plane where installed in accordance with Sections 1409.11.2.1 and 1409.11.2.2.~~

**~~1409.11.2.1 Self-ignition temperature.~~** ~~HPL shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.~~

**~~1409.11.2.2 Limitations.~~** ~~Sections of HPL shall not exceed 300 square feet (27.9 m~~~~2~~~~) in area and shall be separated by a minimum 4 feet (1219 mm) vertically.~~

**(F9320 / FS150-18 AS)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Revise as follows:**  **1401.1 Scope.**The provisions of this chapter shall establish the minimum requirements for exterior walls; *exterior wall*coverings; *exterior wall*openings; exterior windows and doors; exterior soffits and fascias; architectural *trim*; balconies and similar projections; and bay and oriel windows.    **1403.3 ~~Structural~~ Wind resistance.***Exterior walls*, exterior wall coverings, exterior soffits and fascias, and the associated openings, shall be designed and constructed to resist safely the superimposed loads required by Chapter 16.    **Add new text as follows:**    **1405.1.1 Soffits and fascias.**Soffits and fascias installed at roof overhangs shall comply with Section 1410.    **Add new text as follows:**    **SECTION 1410**  **SOFFITS AND FASCIAS AT ROOF OVERHANGS.**  **1410.1 General.**Soffits and fascias at roof overhangs shall be designed and constructed in accordance with the applicable provisions of this section.  **1410.2 General wind requirements.**Soffits and fascias shall be capable of resisting the component and cladding loads for walls determined in accordance with Chapter 16 using an effective wind area of 10 square feet (0.93 m2).    **1410.3 Vinyl and aluminum soffit panels.**Vinyl and aluminum soffit panels shall comply with Section 1410.2 and shall be installed using fasteners specified by the manufacturer and shall be fastened at both ends to a supporting component such as a nailing strip, fascia or subfascia component in accordance with Figure 1410.3.1(1). Where the unsupported span of soffit panels is greater than 12 inches (406 mm), intermediate nailing strips shall be provided in accordance with Figure 1410.3.1(2) unless a larger span is permitted in accordance with the manufacturer’s product approval specification and limitations of use.Vinyl andaluminum soffit panels shall be installedinaccordance withthe manufacturer’sproduct approval specification and limitations of use. Fastenersshall becorrosion resistant.  Fascias shall comply with Section 1410.7 and the manufacturer’sproduct approval specification and limitations of use. In the HVHZ, vinyl and aluminum soffit panels shall also comply with TAS 202 and TAS 203.    **FIGURE 1410.3(1)**  **TYPICAL SINGLE-SPAN VINYL OR ALUMINUM SOFFIT PANEL SUPPORT**    **FIGURE 1410.3(2)**  **TYPICAL MULTI-SPAN VINYL OR ALUMINUM SOFFIT PANEL SUPPORT**  **1410.4 Fiber-cement soffit panels.**Fiber-cement soffit panels shall comply with Section 1410.2 and shall be a minimum of 1/4 inch (6.4 mm) in thickness and comply with the requirements of ASTM C1186, Type A, minimum Grade II, or ISO 8336, Category A, minimum Class 2. Panel joints shall occur over framing or over wood structural panel sheathing. Soffit panels shall be installed with spans and fasteners in accordance with the manufacturer’s product approval specification and limitations of use. Fasteners shall be corrosion resistant. In the HVHZ, fiber-cement soffit panels shall also comply with TAS 202 and TAS 203.  **1410.5 Hardboard soffit panels.**Hardboard soffit panels shall comply with Section 1410.2 and shall be not less than 7/16 inch (11.11 mm) in thickness and fastened to framing or nailing strips to meet the required design wind pressures. Where the design wind pressure is 30 and less, hardboard soffit panels are permitted to be attached to wood framing with 2 1/2-inch by 0.113-inch (64 mm by 2.9 mm) siding nails spaced not more than 6 inches (152 mm) on center at panel edges and 12 inches (305 mm) on center at intermediate supports.  Where the design wind pressure is greater than 30 psf, hardboard soffit panels shall be installed in accordance with the manufacturer’s product approval specification and limitations of use. Fasteners shall be corrosion resistant. In the HVHZ, hardboard soffit panels shall also comply with TAS 202 and TAS 203.  **1410.6 Wood structural panel soffit.**Wood structural panel soffits shall comply with Section 1410.2 and shall have a minimum panel performance category of 3/8. Fasteners shall be corrosion resistant.  Alternatively, wood structural panel soffits are permitted to attached to wood framing in accordance with Table 1410.6.  **TABLE 1410.6**  **PRESCRIPTIVE ALTERNATE FOR WOOD STRUCTURAL PANEL SOFFITb,c,d,e**     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **MAXIMUM DESIGN PRESSURE (- or + psf)** | **MINIMUM PANEL SPAN RATING** | **MINIMUM PANEL PERFORMANCE CATEGORY** | **NAIL TYPE AND SIZE (inches)** | **FASTENERa SPACING ALONG EDGES AND INTERMEDIATE SUPPORTS (inches** | | | **GALVANIZED STEEL** | **STAINLESS STEEL** | | 30 | 24/0 | 3/8 | 6d box (2 x 0.099 x 0.266 head diameter) | 6f | 4 | | 40 | 24/0 | 3/8 | 6d box (2 x 0.099 x 0.266 head diameter) | 6 | 4 | | 50 | 24/0 | 3/8 | 6d box (2 x 0.099 x 0.266 head diameter) | 4 | 4 | | 8d common (2 ½ x 0.131 x 0.281 head diameter) | 6 | 6 | | 60 | 24/0 | 3/8 | 6d box (2 x 0.099 x 0.266 head diameter) | 4 | 3 | | 8d common (2 ½ x 0.131 x 0.281 head diameter) | 6 | 4 | | 70 | 24/16 | 7/16 | 8d common (2 ½ x 0.131 x 0.281 head diameter) | 4 | 4 | | 10d box (3 x 0.128 x 0.312 head diameter) | 6 | 4 | | 80 | 24/16 | 7/16 | 8d common (2 ½ x 0.131 x 0.281 head diameter) | 4 | 4 | | 10d box (3 x 0.128 x 0.312 head diameter) | 6 | 4 | | 90 | 32/16 | 15/32 | 8d common (2 ½ x 0.131 x 0.281 head diameter) | 4 | 3 | | 10d box (3 x 0.128 x 0.312 head diameter) | 6 | 4 |   a. Fasteners shall comply with Section 1410.6.  b. Maximum spacing of soffit framing members shall not exceed 24 inches.  c. Wood structural panels shall be of an exterior exposure grade.  d. Wood structural panels shall be installed with strength axis perpendicular to supports with a minimum of two continuous spans.  e. Wood structural panels shall be attached to soffit framing members with specific gravity of at least 0.42. Framing members shall be minimum 2x3 nominal with the larger dimension in the cross section aligning with the length of fasteners to provide sufficient embedment depths.  f. Spacing at intermediate supports is permitted to be 12 inches on center.  **1410.7 Aluminum Fascia.** Aluminum fascia shall have a minimum thickness of 0.019 inches and be installed per the manufacturer’s instructions and this code. Fasteners shall be aluminum or stainless steel. Aluminum fascia shall be attached in accordance with Section 1410.7.1, 1410.7.2 or 1410.7.3. The drip edge shall comply with 1507.2.9.3, and the thickness of the drip edge shall be in accordance with Table 1503.2.  **1410.7.1 Fascia installation where the design wind pressure is 30 psf or less.**Where the design wind pressure is 30 pounds per square foot (1.44kPA) or less, aluminum fascia shall be attached as follows:  **1.** Finish nails shall be provided in the return leg (1 ¼" x 0.057" x 0.177" head diameter) spaced a maximum of 24 inches (610 mm) on center, and  **2.** The fascia shall be inserted under the drip edge with not less than half the height of the drip edge or 1.0 inch (25 mm), whichever is greater, of the fascia material covered by the drip edge. One finish nail shall be centered in the face of the fascia from each end of the fascia material section located no more than 1 inch below the drip edge.  **1410.7.2 Fascia installation where the design wind pressure exceeds 30 psf but is 60 psf or less.**Where the design wind pressure exceeds 30 pounds per square foot but is 60 pounds per square foot (2.88kPA) or less, aluminum fascia shall be attached in accordance with Section 1410.7.2.1 or Section 1410.7.2.2.  **1410.7.2.1.**Where the height of the fascia from the top of the roof sheathing to the bottom of the sub-fascia plus any thickness of soffit material below the sub-fascia is less than or equal to 6.5 inches (165 mm) or less, aluminum fascia shall be attached as follows:  **1.** Finish nails shall be provided in the return leg (1 ¼" x 0.057" x 0.177" head diameter) spaced a maximum of 24 inches (610 mm) on center.  **2.** The fascia shall be inserted under the drip edge with not less than half the height of the drip edge or 1.0 inch (25 mm), whichever is greater, of the fascia material covered by the drip edge. One finish nail shall be centered in the face of the fascia from each end of the fascia material section located no more than 1 inch below the drip edge.  **1410.7.2.2** Where the height of the fascia from the top of the roof sheathing to the bottom of the sub-fascia plus any thickness of soffit material below the sub-fascia is greater than 6.5 inches (165 mm), the top edge of the fascia shall be secured using utility trim installed beneath the drip edge with snap locks punched into the fascia spaced no more than 6 inches on center.  **1410.7.3 Fascia installation where the design wind pressure exceeds 60 psf.**Where the design wind pressure is greater than 60 pounds per square foot (2.88kPA), aluminum fascia shall be attached in accordance with Section 1410.7.3.1 or Section 1410.7.3.2.  **1410.7.3.1.** Where the height of the fascia from the top of the roof sheathing to the bottom of the sub-fascia plus any thickness of soffit material below the sub-fascia is less than or equal to 4.5 inches (114 mm) or less aluminum fascia shall be attached as follows:  **1.** Finish nails shall be provided in the return leg (1 ¼" x 0.057" x 0.177" head diameter) spaced a maximum of 16 inches on center, and  **2.**The fascia shall be inserted under the drip edge with not less than half the height of the drip edge or 1.0 inch (25 mm), whichever is greater, of the fascia material covered by the drip edge. One finish nail shall be centered in the face of the fascia from each end of the fascia material section located no more than 1 inch below the drip edge.  **1410.7.3.2** Where the height of the fascia from the top of the roof sheathing to the bottom of the sub-fascia plus any thickness of soffit material below the sub-fascia is greater than 4.5 inches (114 mm), the top edge of the fascia shall be secured using utility trim installed beneath the drip edge with snap locks punched into the fascia spaced no more than 6 inches on center.  **1410.7.4 Corners on Hip Roofs.** Fascia shall be bent around corners and extend at least 12 inches beyond the corner. The next fascia material section shall overlap the extension a minimum of 3” and be fastened through the return leg at the overlap.  **1410.7.5 Corners on Gable Roofs.** Fascia shall be wrapped (tabbed) around and extend at least 1 inch beyond the corner. The gable fascia material section shall overlap the tab and be fastened through the fascia cover and the tab at the end with two face nails (1 ¼" x 0.057" x 0.177" head diameter) for a 2x4-inch sub fascia and three face nails for 2x6-inch and greater sub fascia.  *(renumber existing Section 1410 as Section 1411)* |
|  |

**(S10090 AM A1) With comment post October 2022 TAC meeting**

**CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

**Section 1502 Definitions**

*Previous definitions remain unchanged. Some unchanged definitions below are shown for clarity.*

**ROOF ASSEMBLY**. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering roof deck, and may include a vapor retarder, ~~substrate or~~ thermal barrier, insulation or similar substrate ~~and roof covering~~.

*~~The definition of “Roof assembly” is limited in application to the provisions of Chapter 15.~~*

**ROOF COVERING**. The covering applied to the roof deck for weather resistance, fire classification or appearance.

**~~ROOF COVERING SYSTEM~~**~~. See “Roof assembly.”~~

**ROOF DECK**. The flat or sloped surface not including its supporting members or vertical supports.

**ROOF RECOVER**. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

**ROOF REPAIR**. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

**ROOF REPLACEMENT**. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

**ROOF SECTION**. A separation or division of a roof area by existing joints, parapet walls, flashing (excluding valleys), difference of elevation (excluding hips and ridges), roof type or legal description; not including the roof area required for a proper tie-off with an existing system.

**ROOF SYSTEM**.  A roof system consists of a roof covering and other interacting roofing components and may include vapor retarder, thermal barrier, insulation or other similar substrate. The system does not include the roof deck unless it is part of a single component serving as the roof covering and the roof deck.

*Remaining definitions remain unchanged*

**(R9955 AS)**

**Revise as follows:**

**1503.3 Coping.**Parapet walls shall be properly sealed ~~coped~~with~~noncombustible,~~weatherproof materials.  When coping is used, it shall be of noncombustible materials of a width no less than the thickness of the parapet wall.

**(R10117 AS)**

**1504.2.1 Testing.**

**Testing of underlayment or underlayment assembly for clay and concrete tile roof coverings shall be in accordance with section 1504.2.1.1.**

**1504.2.1.1 Underlayment testing.**

Adhered or mechanically attached tile underlayment or underlayment assemblies shall be tested in accordance with FM 4474 or UL 1897.

**Testing of concrete and clay roof tiles shall be in accordance with Section 1504.2.1.~~1~~2 and 1504.2.1.~~2~~3.**

**1504.2.1.~~1~~2 Overturning resistance.**

Concrete and clay roof tiles shall be tested to determine their resistance to overturning due to wind in accordance with SBCCI SSTD 11 and Chapter 15.

**1504.2.1.~~2~~ 3 Wind tunnel testing.** Where concrete and clay roof tiles do not satisfy the limitations in Chapter 16 for rigid tile, a wind tunnel test shall be used to determine the wind characteristics of the concrete or clay tile roof covering in accordance with Chapter 15 and either SBCCI SSTD 11 ~~and Chapter 15~~ or ASTM C1569.

**Add new text as follows:**

**1504.2.1.4 Air permeability testing.** The lift coefficient for concrete and clay tile shall be 0.2 or shall be determined in accordance with SBCCI SSTD 11 or ASTM C1570.

**Add new standard(s) as follows:**

**(R9953 AS)/** **(R9508 / S14-19)**

**1504.4 Ballasted low-slope single-ply roof systems.**Ballasted low-slope (roof slope < 2:12) single-ply roof system coverings installed in accordance with Sections 1507.12 and 1507.13 shall be designed in accordance with ~~Section~~ ~~1504.8~~ ~~and~~ ANSI/SPRI RP-4.

**(R10121 AS)**

**1504.5 Edge ~~securement~~ systems for low-slope roofs.**~~Low-slope~~ Metal edge systems, except gutters and counterflashing, installed on built-up, modified bitumen and single-ply roof ~~system metal edge securement, except gutters,~~systems having a slope less than 2:12, 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), 1609.3(3) or 1609.3(4) as applicable.

**(R10118 AM with A1)**

**Add new text as follows:**

**1504.5.1 Gutter securement for low-slope roofs.** Gutters that are used to secure the perimeter edge of the roof membrane on low-slope (less than 2:12 slope) built-up, modified bitumen, and single ply roofs, shall be designed, constructed and installed to resist wind loads in accordance with Section 1609 and shall be tested in accordance with Test Methods G-1 and G-2 of SPRI GT-1.

**(R9511 / S17-19 AMPC2)**

**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 or the “Resistance to Foot Traffic Test” ~~in Section 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.

**(R9889 AS)**

**[BF] 1505.1 General.**Fire classification of *roof assemblies*shall be in accordance with Section 1505. ~~Roof assemblies shall be divided into the classes defined below.~~The minimum fire classification of *roof assemblies*installed on buildings shall comply with Table 1505.1 based on type of construction of the building. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E108 or UL 790. In addition, *fire-retardant-treated wood*roof coverings shall be tested in accordance with ASTM D2898. ~~The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.~~

**Exception:**Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

**TABLE 1505.1a, b**

**MINIMUM ROOF ASSEMBLY ~~COVERING~~CLASSIFICATION**

**FOR TYPES OF CONSTRUCTION**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IA | IB | IIA | IIB | IIIA | IIIB | IV | VA | VB |
| B | B | B | Cc | B | Cc | B | B | Cc |

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 assemblies*~~roof coverings~~shall be permitted on buildings of 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.

**(R9893 AS)**

Revise 1505.9 to read as follows:

**1505.9 Rooftop-mounted photovoltaic panel systems.** Rooftop-mounted *photovoltaic panel systems* shall be tested,

*listed* and identified with a fire classification in accordance with UL 1703 or UL ~~2073~~ 2703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

**R-FBC-B-Ch. 15 – Errata #3**

Revise Table 1507.2.7.1 to read as follows:

**TABLE 1507.2.7.1**

**CLASSIFICATION OF ASPHALT SHINGLES**

|  |  |  |  |
| --- | --- | --- | --- |
| **MAXIMUM BASIC WIND SPEED FROM FIGURE ~~1609A, B or C~~1609.3(1),1609.3.(2), 1609.3(3), 1609.3(4) or ASCE 7** | ***Vasd*** | **ASTM D7158** | **ASTM D3161** |
| 110 | 85 | D, G or H | D or F |
| 116 | 90 | D, G or H | D or F |
| 129 | 100 | G or H | D or F |
| 142 | 110 | G or H | F |
| 155 | 120 | G or H | F |
| 168 | 130 | H | F |
| 181 | 140 | H | F |
| 194 | 150 | H | F |

**R-FBC-B-Ch. 15 – Errata #2**

Revise Table 1507.1.1.1 to read as follows:

TABLE 1507.1.1.1

UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS

|  |  |  |  |
| --- | --- | --- | --- |
| Roof Covering | Underlayment Type | Underlayment Attachment | |
| Roof Slope 2:12 and Less Than 4:12 | Roof Slope 4:12 and Greater |
| 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. | Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches; 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 o.c., and one row at the end and side laps fastened 6 inches 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. The minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. The 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. |
| Metal Roof Shingles, Mineral-Surface Roll Roofing, Slate and Slate-type Shingles, Wood Shingles, Wood Shakes | ASTM D226Type II ASTM D4869   Type III or IV |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **R-FBC-B/R –Ch. 15/9 – Errata #1**  **1507.1 Scope.**  Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer’s installation instructions.  **1507.1.1 Underlayment.**  Underlayment 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 and ASTM D8257 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated. 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.  Exceptions:  1. For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer’s installation instructions.  2. Compliance with Section 1507.1.1.1 is not required for structural metal panels that do not require a substrate or underlayment.  **1507.1.1.1 Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes, wood shingles**  Underlayment for asphalt shingles, metal roof panels or ~~roof~~ shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes, wood shingles ~~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.  Exceptions:  1. This method is not permitted for wood shingles or shakes.  2. An existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. 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 existing self-adhered modified bitumen underlayment.  2. A minimum ~~4~~3-3/4 -inch-wide (~~102~~ 95 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970 or selfadhering flexible flashing tape complying with AAMA 711, 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)~~ membrane strips.  ~~Exception: A synthetic underlayment that is approved as an alternative 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-inchwide (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.~~  ~~3. A minimum~~~~3-3/4-inch-wide (96 mm) strip of selfadhering flexible flashing tape complying with AAMA 711, 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-inchwide (102 mm) flashing strips.~~  ~~Exception: A synthetic underlayment that is approved as an alternative 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-inchwide (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~~ 3. Two layers of ASTM D226 Type II or ASTM D4869 Type III ~~or~~ ,Type IV, or ASTM D8257 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-inch-wide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm); end laps shall be 6 inches (152 mm) and shall be offset by 6 feet (1829 mm). 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 (25.4 mm). 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 (0.254 mm). The minimum thickness of the outside edge of plastic caps shall be 0.035 inch (0.889 mm). The cap nail shank shall be not less than 0.083 inch (2.1082 mm) for ring shank cap nails. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch (19.05 mm) into the roof sheathing.~~  ~~5. Two layers of a synthetic underlayment that has a product approval as an alternative 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, shall have 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 for the first course 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 a full sheet~~s~~ of ~~reinforced synthetic~~ underlayment, for the second course. Apply the third course of underlayment overlapping the second course ~~successive sheets~~ half the width of a full sheet plus 2 inches. Overlap all successive courses half the width of a full sheet plus 1 inch. ~~the width of the manufacturer’s single-ply overlap~~. End laps shall be 6 inches (152 mm) and shall be offset by 6 feet (1829 m). ~~Synthetic~~ ~~u~~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~~ ~~u~~ 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 (25.4 mm). 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 (0.254 mm).~~ The minimum thickness of the outside edge of plastic caps shall be 0.035 inch (0.889 mm). The cap nail shank shall be not less than 0.083 inch (2.1082 mm) for ring shank cap nails. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch (19.05 mm) into the roof sheathing.  **Exception:**            1. Use of ASTM D8257 underlayment is not permitted for wood shingles or shakes.  TABLE 1507.1.1.1 UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS   |  |  |  |  | | --- | --- | --- | --- | | Roof Covering | Underlayment Type | Underlayment Attachment | | | Roof Slope 2:12 and Less Than 4:12 | Roof Slope 4:12 and Greater | | Asphalt Shingles, Metal Roof Panels, Photovoltaic Shingles | ASTM D226Type IIASTM D4869Type III or IV  ASTM D 6757  ASTM D8257 | Apply in accordance with Section 1507.1.1.1, Item ~~4~~ 3 ~~or Section 1507.1.1.3, Item 3 as applicable to the type of roof covering~~ | Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches; 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 o.c.~~.  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 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. The minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4inch into the roof sheathing. | | Metal Roof Shingles, Mineral-Surface Roll Roofing, Slate and Slate-type Shingles, ~~Wood Shingles, Wood Shake~~  ~~-------~~  Wood Shingles, Wood Shakes | ASTM D226Type II ASTM D4869 Type III or IV  ASTM D8257  ASTM D226 Type II ASTM D4869 Type III or IV |   For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s  1507.1.1.2Underlayment for concrete and clay tile.  Underlayment for concrete and clay tile shall comply with Section 1507.3.3.  ~~1507.1.1.3Underlayment 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 selfadhering 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 33/4-inch-wide (96 mm) strip of selfadhering flexible flashing tape complying with AAMA 711, 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-inch-wide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm); end laps shall be 6 inches (152 mm) and shall be offset by 6 feet (1829 mm). 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 (25.4 mm). 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. Powerdriven metal caps shall have a minimum thickness of 0.010 inch (0.254 mm). The minimum thickness of the outside edge of plastic caps shall be 0.035 inch (0.889 mm). The cap nail shank shall be not less than 0.083 inch (2.1082 mm) for ring shank cap nails. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch (19.05 mm) into the roof sheathing.~~ |
|  |
|  |
|  |

**1507.2.2 Slope.** Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal (17-percent slope) or greater. ~~For roof slopes from two units vertical in 12 units horizontal (17-percent slope) up to four units vertical in 12 units horizontal (33-percent slope), double underlayment application is required in accordance with Section 1507.2.8.~~

**(R10071 AM)/ (R9882 AM) (R10071 A5 and A3)**

**1507.2.7 Attachment.**Asphalt shingles shall have the minimum number of fasteners required by the manufacturer and Section 1504.1. Asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12), asphalt shingles shall be installed in accordance with the manufacturer’s ~~printed~~installation instructions for steep-slope roof applications.

**Revise as shown:**

**1507.2.9 Flashings.**Flashing for asphalt shingles shall comply with this section or RAS 111. Flashing shall be applied in accordance with this section, the asphalt shingle manufacturer’s ~~printed~~instructions or RAS 111.

**(R9885 AS)**

**1507.2.9.2 Valleys.**Valley linings shall be installed in accordance with the manufacturer’s instructions before applying shingles. Valley linings of the following types shall be permitted:

1. For open valleys (valley lining exposed) lined with metal, the valley lining shall be at least 16 inches (406 mm) wide and of any of the corrosion-resistant metals in Table 1503.2.

2. For open valleys, valley lining of two plies of mineral-surfaced roll roofing complying with ASTM D3909 or ASTM D6380 Class M~~-03~~ shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914 mm) wide.

3. For closed valleys (valleys covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D6380 Class S~~-03~~, and at least 36 inches (914 mm) wide or types as described in Item 1 or 2 above shall be permitted. Self-adhering polymer modified bitumen underlayment complying with ASTM D1970 and not less than 36 inches (914 mm) wide shall be permitted in lieu of the lining material.

**(R9901 AS)/ (R9905 AS)**

|  |
| --- |
| 1507.2.9.3 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap is 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 be permitted to be installed either over or under the underlayment~~. ~~If installed over the underlayment~~, Self-adhering, ASTM D1970 underlayment may be installed over a primed drip edge flange. ~~t~~There shall be a minimum 4 inches (51 mm) width of roof cement installed over the drip edge flange or the self-adhering underlayment. 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. |
|  |

**(R9990 AM A3)**

**1507.2.4 RESERVED.~~Self-adhering polymer modified bitumen sheet.~~**~~Self-adhering polymer modified bitumen sheet shall comply with ASTM D1970.~~

**(R9888 AS)**

**1507.2.5 Asphalt shingles.**Asphalt shingles shall have self-seal strips or be interlocking and comply with ~~ASTM D225 or~~ ASTM D3462. ~~Shingles shall also comply with Table 1507.2.7.1. Asphalt shingle packaging shall bear labeling indicating compliance with one of the required classifications as shown in Table 1507.2.7.1.~~

**1507.2.7.1 Wind resistance of asphalt shingles.**Asphalt shingles shall be tested and classified in accordance with ASTM D3161, ASTM D7158 or TAS 107 and shall meet the required classification in accordance with Table 1507.2.7.1 to resist the applicable wind speed per Figure 1609.3(1), 1609.3(2), 1609.3(3), or 1609.3(4) based on the Risk Category.~~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.

**TABLE 1507.2.7.1**

**CLASSIFICATION OF ASPHALT SHINGLES**

|  |  |  |  |
| --- | --- | --- | --- |
| **MAXIMUM BASIC WIND SPEED FROM FIGURE 1609.3(1), 1609.3.(2), 1609.3(3), 1609.3(4) or ASCE 7** | ***Vasd* as determined in accordance with Section 1609.3.1** | **ASTM D7158** | **ASTM D3161** |
| 110 | 85 | D, G or H | D or F |
| 116 | 90 | D, G or H | D or F |
| 129 | 100 | G or H | D or F |
| 142 | 110 | G or H | F |
| 155 | 120 | G or H | F |
| 168 | 130 | H | F |
| 181 | 140 | H | F |
| 194 | 150 | H | F |

**(R9896 AM)**

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, Sixth Edition where the Vasd is 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, 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, Sixth Edition 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.~~

Clay and Concrete Tile Attachment

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, 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, 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.~~

**(R9998 AS)**

**1507.3 Clay and concrete tile.**

The installation of clay and concrete tile shall comply with the provisions of this section.

**1507.3.1 Deck requirements.**

Concrete and clay tile shall be installed only over solid sheathing except where the roof covering is specifically designed and tested in accordance with Section 1609.5.2 to be applied over structural spaced sheathing boards

**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, ~~Sixth~~ Seventh Edition where the Vasd is 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, ~~Sixth~~ Seventh 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, ~~Sixth~~ Seventh Edition 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.

**1507.3.3.2 High-slope roofs.**

Reserved.

**1507.3.3.3 High wind attachment.**

Reserved.

**1507.3.4 Clay tile.**

Clay roof tile shall comply with ASTM C1167.

**1507.3.5 Concrete tile.**

Concrete roof tile shall comply with ASTM C1492.

**1507.3.6 Fasteners.**

Tile fasteners shall be corrosion resistant and not less than 11-gage, 5/16-inch (8.0 mm) head, and of sufficient length to penetrate the deck a minimum of 3/4 inch (19.1 mm) or through the thickness of the deck, whichever is less. Attaching wire for clay or concrete tile shall not be smaller than 0.083 inch (2.1 mm). Perimeter fastening areas include three tile courses but not less than 36 inches (914 mm) from either side of hips or ridges and edges of eaves and gable rakes.

**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, ~~Sixth~~ Seventh Edition where the basic wind speed, Vasd, is determined in accordance with Section 1609.3.1.

**Table 1507.3.7 Clay and Concrete Tile Attachment.**

Reserved.

**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, ~~Sixth~~ Seventh 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, ~~Sixth~~ Seventh 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.

**(R9949 AS)**

**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, 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.

Exception: Where an existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing of the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with a two-ply system as described in the FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Sixth Edition shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

**(R9961 AS)**

1507.15.3 Application.  Liquid-applied roofing shall be installed in accordance with the approved manufacturer's installation instructions.

1507.15.4 Flashings. Flashing shall be applied in accordance with 1507.15 and the liquid-applied roofing manufacturer's installation instructions.

**(R10514 AS)**

**Revise as follows:**

**[BF] 1508.1 General.** The use of above-deck thermal insulation shall be permitted provided that such insulation is covered with an approved roof covering and passes the tests of NFPA 276 or UL 1256 when tested as an assembly.

**Exceptions:**

1. Foam plastic roof insulation shall conform to the material and installation requirements of Chapter 26.

2. Where a concrete or composite metal and concrete roof deck is used and the above-deck thermal insulation is covered with an approved roof covering.

**(R9490 / S9-18 AS)**

**Revise as follows:**

**1507.3.6 Fasteners.** Tile fasteners shall be corrosion resistant and not less than 11-gage, [0.120 inch (3 mm)], 5/16-inch (8.0 mm) head, and of sufficient length to penetrate the deck not less than 3/4 inch (19.1 mm) or through the thickness of the deck, whichever is less. Attaching wire for clay or concrete tile shall not be smaller than 0.083 inch (2.1 mm). Perimeter fastening areas include three tile courses but not less than 36 inches (914 mm) from either side of hips or ridges and edges of eaves and gable rakes.

**(R9517 / S28-19 AS)**

**Revise as follows:**

**1507.12 ~~Thermoset single-ply~~ Single-ply roofing.** The installation of ~~thermoset~~ single-ply roofing shall comply with the provisions of this section.

**1507.12.1 Slope.** ~~Thermoset single-ply~~ Single-ply membrane roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

**1507.12.2 Material standards.** ~~Thermoset single-ply~~ Single-ply roof coverings shall comply with ~~ASTM D4637 or ASTM D5019.~~the material standards in Table 1507.12.2.

**Add new text as follows:**

**TABLE 1507.12.2**

**SINGLE-PLY ROOFING MATERIAL STANDARDS**

|  |  |
| --- | --- |
| **MATERIAL** | **MATERIAL STANDARD** |
| Chlorosulfanted polyethylene (CSPE) or polyisobutylene (PIB) | ASTM D5019 |
| Ethylene propylene diene monomer (EPDM) | ASTM D4637 |
| Ketone Ethylene Ester (KEE) | ASTM D6754 |
| Polyvinyl Chloride (PVC) or (PVC/KEE) | ASTM D4434 |
| Thermoplastic polyolfin (TPO) | ASTM D6878 |

**Revise as follows:**

**1507.12.3 Ballasted ~~thermoset~~ low-slope roofs.** Ballasted ~~thermoset~~ low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and Section 1504.4. Stone used as ballast shall comply with ASTM D448 or ASTM D7655.

**Delete without substitution**

**~~1507.13~~ ~~Thermoplastic single-ply roofing.~~** ~~The installation of thermoplastic single-ply roofing shall comply with the provisions of this section.~~

**~~1507.13.1~~ ~~Slope.~~** ~~Thermoplastic single-ply membrane roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope).~~

**~~1507.13.2 Material standards.~~** ~~Thermoplastic single-ply roof coverings shall comply with~~ [~~ASTM D4434~~](file:///C:\Users\dbroadnax\Downloads\proposal_4944.docx#X7e1429d1a4f406c9481aaa0f8b4865ba0aee77e)~~, [ASTM D6754](file:///C:\\Users\\dbroadnax\\Downloads\\proposal_4944.docx" \l "Xbd3321945818f82bb6eccec42f978c75f093080) or~~ [~~ASTM D6878~~](file:///C:\Users\dbroadnax\Downloads\proposal_4944.docx#X4b22121fa5e42c432aea46b6f71551edf280b55)~~.~~

**~~1507.13.3 Ballasted thermoplastic low-slope roofs.~~** ~~Ballasted thermoplastic low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and~~ [~~Section 1504.4~~](file:///C:\Users\dbroadnax\Downloads\proposal_4944.docx#IBC2018_Ch15_Sec1504.4)~~. Stone used as ballast shall comply with~~ [~~ASTM D448~~](file:///C:\Users\dbroadnax\Downloads\proposal_4944.docx#IBC2018_Ch35_PromASTM_RefStdD448_2012) ~~or~~ [~~ASTM D7655~~](file:///C:\Users\dbroadnax\Downloads\proposal_4944.docx#Xd2a23d63513e9dd95e300cc550f322479267d2f)

**(R9518 / S31-19 AM)**

**1507.15 Liquid-applied roofing.** The installation of liquid-applied roofing shall comply with the provisions of this section.

**1507.15.1 Slope.** Liquid-applied roofing shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope).

**Revise as follows:**

**1507.15.2 Material standards.** Liquid-applied roofing shall comply with ASTM C836, ASTM C957~~, ASTM D1227~~ or ASTM ~~D3468, ASTM D6083, ASTM D6694 or ASTM D6947~~ D3468.

**(R9519 / S32-19 AS)**

**1508.2 Material standards.**

Above-deck thermal insulation board shall comply with the standards in Table 1508.2.

**TABLE 1508.2**

**MATERIAL STANDARDS FOR ROOF INSULATION**

|  |  |
| --- | --- |
| Cellular glass board | ASTM C552 or ASTM C1902 |
| Composite boards | ASTM C1289, Type III, IV, V or VII |
| Expanded polystyrene | ASTM C578 |
| Extruded polystyrene | ASTM C578 |
| Fiber-reinforced gypsum board | ASTM C1278 |
| Glass-faced gypsum board | ASTM C1177 |
| High-density polyisocyanurate board | ASTM C1289, Type II, Class 4 |
| Mineral fiber insulation board | ASTM C726 |
| Perlite board | ASTM C728 |
| Polyisocyanurate board | ASTM C1289, Type I or II |
| Wood fiberboard | ASTM C208, Type II |

**(R10474 AS)**

**Add new text as follows:**

**~~SECTION 1509~~**

**~~RADIANT BARRIERS INSTALLED ABOVE DECK~~**

**~~[BF] 1509.1 General.~~** ~~Reserved.~~

**~~[BF] 1509.2 Fire testing.~~** ~~Reserved.~~

**~~[BF] 1509.3 Installation.~~** ~~Reserved.~~

**~~[BF] 1509.4 Material standards.~~** ~~Reserved.~~

**SECTION 1509   
ROOF COATINGS**

**1509.1 General.** The installation of a *roof coating* on a *roof covering* shall comply with the requirements of Section 1505 and this section.

**1509.2 Material standards.** Roof coating materials shall comply with the standards in Table 1509.2.

**TABLE 1509.2**

**ROOF COATING MATERIAL STANDARDS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| Acrylic coating | ASTM D6083 |
| Asphaltic emulsion coating | ASTM D1227 |
| Asphalt coating | ASTM D2823 |
| Asphalt roof coating | ASTM D4479 |
| Aluminum-pigmented asphalt coating | ASTM D2824 |
| Silicone coating | ASTM D6694 |
| Moisture-cured polyurethane coating | ASTM D6947 |

**(R9524 / S35-19 AM)**

**1510.12 Lines, pipes, conduit and cables under roof decks**

Lines, pipes, conduit and cables installed below the roof deck shall have a minimum clearance of 1-1/2” from the lowest surface of the roof deck except where they penetrate the roof deck.

Exclusion: Lines, pipes, conduit and cables installed under structural concrete decks.

**(R10046 AS)**

**[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~~705.5 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.~~ 705.5. 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 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.

**(F9241 / FS18-18 AM)**

**[**

Revise section 1511.1.1 to read as follows:

**706.1.1**

|  |
| --- |
| Not more than 25 percent of the total roof area or roof section of any existing building or structure shall be repaired, replaced or recovered in any 12-month period unless the roof covering on the entire existing roof~~ing~~ system or roof section is replaced or recovered to conform to the requirements of this code. |

**Exception:** If an existing roofing system or roof section was built, repaired, or replaced in compliance with the requirements of the 2007 Florida Building Code, or any subsequent editions of the Florida Building Code, and 25 percent or more of such roofing system or roof section is being repaired, replaced, or recovered, only the repaired, replaced, or recovered portion is required to be constructed in accordance with the Florida Building Code in effect, as applicable. Pursuant to s. 553.844(5), Florida Statutes, a local government may not adopt by ordinance an administrative or technical amendment to this exception.

**(Code language for consistency with SB 4-D)/(R9870 AM A1)/comment post October 2022 TAC meeting**

**1512.2 Application.**These high-velocity hurricane zone roofing requirements with associated roofing application standards (RAS) and testing application standards (TAS) are to be implemented in the HVHZ, or where the jurisdiction having authority has adopted their use in accordance with Section 553.73 of the Florida Statutes.

**(R9918 AS)**

**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** | **31/2:12** |
| **Wood** |  |
| **Shakes** | **4:12** |
| **Shingles** | **31/2:12** |

1.Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test 1.Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of ~~FM 4471, Appendix G or~~ ASTM E2140 shall be permitted to be installed to a minimum slope of 1:12.

**G1**

**This change should be included in FBC Sec 1523.6.5.2.4.1.1 and TAS 110 Sec 15.**

**(R9952 AM with G1)**

**1518.1 General.**

~~Prepared roof coverings shall be as defined in Section 1513 and in general limited to application over sloped roof decks capable of receiving mechanical fasteners. Prepared roof coverings may be mechanically fastened or, in specific limited cases when noted in the product approval, set in with an adhesive bond.~~

Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer’s installation instructions.

**1518.2 Underlayments.**

~~Underlayment shall be as defined in Section 1513. Underlayment shall be installed in compliance with the roofing component product approval and shall be in compliance with the following minimum requirements:~~

Underlayment 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, D6757 and ASTM D8257 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section 1518.1, 1518.2, 1518.5, 1518.6, 1518.7, 1518.8, 1518.9, 1518.10, or 1518.11 as applicable.

**Exceptions:**

1. For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer’s installation instructions.

2. Compliance with Section 1507.1.1.1 is not required for structural metal panels that do not require a substrate or underlayment.

**1518.2.1**

~~Underlayment described in 1518.4 (1), (2) and (3) shall be attached to a nailable deck in a grid pattern of 12 inches (305 mm) between the overlaps, with 6-inch (152 mm) spacing at the overlaps~~.

**Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles~~.~~**

Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles 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.

**Exception:**

1. An existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. 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 existing self-adhered modified bitumen underlayment.

2. A minimum 3-3/4 -inch-wide (102 96 mm) strip of selfadhering polymer-modified bitumen membrane complying with ASTM D1970 or selfadhering flexible flashing tape complying with AAMA 711, 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 1518.2.1 for the applicable roof covering shall be applied over the entire roof over the membrane strips.

 3. Two layers of ASTM D226 Type II or ASTM D4869 Type III, Type IV, or ASTM D8257 underlayment shall be installed as follows: Apply a strip of 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 underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 6 inches (152 mm) and shall be offset by 6 feet (1829 mm). 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. 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 (25.4 mm). 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. The minimum thickness of the outside edge of plastic caps shall be 0.035 inch (0.889 mm). The cap nail shank shall be not less than 0.083 inch (2.1082 mm) for ring shank cap nails. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch (19.05 mm) into the roof sheathing.

TABLE 1518.2.1UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS

|  |  |  |  |
| --- | --- | --- | --- |
| Roof Covering | Underlayment Type | Underlayment Attachment | |
| Roof Slope 2:12 and Less Than 4:12 | Roof Slope 4:12 and Greater |
| Asphalt Shingles, Metal Roof Panels, Photovoltaic Shingles | ASTM D226Type IIASTM D4869Type III or IV  ASTM D 675 | Apply in accordance with Section 1518.2.1, Item 3 | Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches; end laps shall be 6 inches and shall be offset by 6 feet. Underlayments shall be fastened with approved minimum 12 gage by 11/4 in. corrosion-resistant annular ring shank roofing nails fastened through minimum 32 gage by 15/8 in. diameter approved tin caps. Underlayment shall be attached to a nailable deck in a grid pattern of 12 inches (305 mm) between the overlaps, with 6-inch (152 mm) spacing at the overlaps. Nails shall be of sufficient length to penetrate through the sheathing or wood plank a minimum of 3/16 in. or penetrate 1 inch (25 mm) or greater thickness of lumber a minimum of 1 in., except where architectural appearance is to be preserved, in which case a minimum of 3/4 in. nail may be used. |
| Metal Roof Shingles, Mineral-Surface Roll Roofing, Slate and Slate-type Shingles, Wood Shingles, Wood Shake | ASTM D226Type II ASTM D4869 Type III or IV |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s

**1518.2.2**

Where the architectural appearance of the underside is to be preserved, the underlayment shall be secured in accordance with Section 1519.5.2.

**1518.2.3**

Tin caps and nails or cap nails shall be as defined in Section 1517.5.2.

**1518.2.4**

Underlayment nails shall be as defined in Section 1517.5.1.

**1518.3** **Reserved.**

~~If the underlayment is a self-adhering membrane, the membrane shall be applied over a mechanically attached anchor sheet, attached in compliance with Section 1518.2.1.~~

**1518.4 Reserved**

~~All underlayment applications for prepared roof coverings shall be applied in compliance with the manufacturer roofing assembly product approval, and shall be not less than one of the following:~~

~~(1) a double layer of an ASTM D226 Type I II, with a 19-inch (483 mm) headlap; or~~

~~(2) a single layer of an ASTM D226, Type II with a 4-inch (102 mm) headlap; or~~

~~(3) a single layer of an ASTM D2626 coated base sheet with a 4-inch (102 mm) headlap,~~

~~and (4 6) all endlaps shall be a minimum of 6 inches (152 mm).~~

**1518.8 Clay and concrete roof tile.**

Tile shall be clay, concrete or composition material of various configurations complying with the physical property requirements of this code. All tile and tile systems shall be tested in compliance with the provisions set forth in Section 1523.~~Tile shall have a product approval for a complete tile system, which shall include the tile, underlayment and all tile related accessories required to provide a waterproof system.~~

*Note: Remaining sections remain unchanged.*

**(R10176 AS)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1518.7 Asphalt~~ic~~ shingles.**Asphalt~~ic~~ shingles layout, alignment and placement of mechanical attachment shall be in compliance with the product approval, and shall be installed in accordance with RAS 115.  **1518.7.2**Installation of all asphalt~~ic~~ shingles shall be limited to a roof mean height of 33 feet (10 m), unless otherwise specifically noted in the product approval.  **1518.7.3**The asphalt~~ic~~ shingle product approval shall meet the following minimum requirements.  **1518.7.3.1**Where asphalt~~ic~~ shingles are to be installed over insulated roof deck, a suitable nailable substrate, in accordance with Section 1520.5.7 must be installed over the insulation prior to the installation of approved underlayment and shingles.  **1518.7.3.2**Asphalt~~ic~~ shingles shall be installed in compliance with the product approval, but in no case with less than six approved roofing nails or approved fastening devices which penetrate through the thickness of sheathing or wood plank a minimum of 3/16 inch (4.8 mm) or penetrate into a 1 inch (25 mm) or greater thickness of lumber a minimum of 1 inch (25 mm), except where architectural appearance is to be preserved, in which case a minimum of 3/4 inch (19 mm) ring shank roofing nail may be used.  **1518.7.3.3**Intersections, eaves, rakes, valleys, gable ends, and the starter course of asphalt~~ic~~ shingles shall be set in an 8-inch (203 mm) wide bed of approved cold adhesive or roofing cement. Application of adhesive or cement shall be in compliance with the application instructions of the product approval. Shingles shall not extend more than 1/4 inch (6.4 mm) beyond the eave drip.  **1518.7.3.5**Asphalt~~ic~~ shingles shall be tested in compliance with the provisions set forth in Section 1523.  **1518.9.3**Metal shingles may be applied as a recover over a single layer of asphalt~~ic~~ shingles or smooth surface roofing, providing the deck is solid sheathed and in compliance with the provisions of this code, the existing prepared roof covering is in compliance with provisions of this code and the entire metal shingle system is applied as set forth in the product approval.        **SECTION 1525**  **HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION**    ***Florida Building Code*7th Edition (2020)**  **High-Velocity Hurricane Zone Uniform Permit Application Form**    **INSTRUCTION PAGE**    **COMPLETE THE NECESSARY SECTIONS OF THE UNIFORM ROOFING PERMIT**  **APPLICATION FORM AND ATTACH THE REQUIRED DOCUMENTS AS NOTED BELOW:**     |  |  |  | | --- | --- | --- | | **Roof System** | **Required Sections of the Permit Application Form** | **Attachments Required See List Below** | | Low Slope Application | A,B,C | 1,2,3,4,5,6,7 | | Prescriptive BUR-RAS150 | A,B,C | 4,5,6,7 | | Asphalt~~ic~~ Shingles | A,B,D | 1,2,4,5,6,7 | | Concrete or Clay Tile | A,B,D,E | 1,2,3,4,5,6,7 | | Metal Roofs | A,B,D | 1,2,3,4,5,6,7 | | Wood Shingles and Shakes | A,B,D | 1,2,4,5,6,7 | | Other | As Applicable | 1,2,3,4,5,6,7 |           ***Florida Building Code*7th Edition (2020)**  **High-Velocity Hurricane Zone Uniform Permit Application Form**      **Section A (General Information)**  Master Permit No.                                                                                                                         Process No.    Contractor’s Name    Job Address    **ROOF CATEGORY**     Low Slope                                                  Mechanically Fastened Tile                   Mortar/Adhesive Set Tiles     Asphalt~~ic~~ Shingles                                    Metal Panel/Shingles                             Wood Shingles/Shakes   Prescriptive BUR-RAS150  **ROOFTYPE**     New roof                       Repair                       Maintenance                       Reroofing                    Recovering                                  **ROOF SYSTEM INFORMATION**    Low Slope Roof Area(SF)                    Steep Sloped Roof Area (SF)                     Total (SF) |
|  |

**(R9920 AS)**

**1518.7.3.3**Intersections, eaves, rakes, valleys, gable ends, and the starter course of asphaltic shingles shall be set in an 8-inch (203 mm) wide bed of approved cold adhesive or roofing cement. Application of adhesive or cement shall be in compliance with the application instructions of the product approval. Shingles shall not extend more than 1/4 inch (6.4 mm) beyond the eave and rake drip.

**(R9921 AS)**

|  |
| --- |
| **1518.7.3.2**Asphaltic shingles shall be installed in compliance with the product approval, but in no case with less than six approved roofing nails or approved fastening devices which penetrate through the thickness of sheathing or wood plank a minimum of ~~3/16~~ 1/8 inch (~~4.8~~ 3.2 mm) or penetrate into a 1 inch (25 mm) or greater thickness of lumber a minimum of 1 inch (25 mm), except where architectural appearance is to be preserved, in which case a minimum of 3/4 inch (19 mm) ring shank roofing nail may be used. |
|  |

**(R9910 AS)**

**1518.2 Underlayments.**Underlayment shall be as defined in   Section 1513. Underlayment shall be installed in compliance with the roofing component product approval and shall be in compliance with the following minimum requirements:

**1518.2.1**Underlayment shall be attached to a nailable deck in a grid pattern of maximum 12 inches (305 mm) ~~between the overlaps~~ horizontally and vertically, with 6-inch (152mm) spacing at the overlaps.

**1518.2.2**Where the architectural appearance of the under-side is to be preserved, the underlayment shall be secured in accordance with Section 1519.5.2.

**1518.2.3**Tin caps and nails or cap nails shall be as defined in Section1517.5.2.

**1518.2.4**Underlayment nails shall be as defined in Section1517.5.1.

**(R10142 AS)**

**1518.4**All underlayment applications for prepared roof coveringsshallbeappliedincompliancewiththemanufacturer roofing assembly product approval, and shall be not less thanone of the following: (1) a double layer of an ASTM D226TypeI,witha19-inch(483mm)headlap;or(2)asinglelayerof an ASTM D226, Type II with a 4-inch (102 mm) headlap;or (3) a single layer of an ASTM D2626 coated base sheetwitha4-inch(102mm)headlap, or (4) a single layer of an ASTM D8257 underlayment witha4-inch(102mm)headlap and(~~4~~5)allendlapsshallbeaminimumof6inches(152mm).

**(R10143 AS)**

Revise section 1521.4 to read as follows:

**706.1.1**

|  |
| --- |
| Not more than 25 percent of the total roof area or roof section of any existing building or structure shall be repaired, replaced or recovered in any 12-month period unless the roof covering on the entire existing roof~~ing~~ system or roof section is replaced or recovered to conform to the requirements of this code. |

**Exception:** If an existing roofing system or roof section was built, repaired, or replaced in compliance with the requirements of the 2007 Florida Building Code, or any subsequent editions of the Florida Building Code, and 25 percent or more of such roofing system or roof section is being repaired, replaced, or recovered, only the repaired, replaced, or recovered portion is required to be constructed in accordance with the Florida Building Code in effect, as applicable. Pursuant to s. 553.844(5), Florida Statutes, a local government may not adopt by ordinance an administrative or technical amendment to this exception.

**(Code language for consistency with SB 4-D)/ (R9870 AM A1)/with comment post October 2022 TAC meeting**

**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 or~~ ASTM E2140 shall be permitted to be installed to a minimum slope of 1:12.

**(R9952 AM G1)**

# SECTION1525

**HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION**

***Florida Building Code* 7th Edition (202~~0~~3)**

## High-Velocity Hurricane Zone Uniform Permit Application Form

**INSTRUCTION PAGE**

**COMPLETE THE NECESSARY SECTIONS OF THE UNIFORM ROOFING PERMIT APPLICATION FORM AND ATTACH THE REQUIRED DOCUMENTS AS NOTED BELOW:**

|  |  |  |
| --- | --- | --- |
| **Roof System** | **Required Sections of the Permit Application Form** | **Attachments Required See List Below** |
| Low Slope Application | A, B, C | 1,2,3,4,5,6,7 |
| Prescriptive BUR-RAS 150 | A, B, C | 4,5,6,7 |
| Asphaltic Shingles | A, B, D | 1,2,4,5,6,7 |
| Concrete or Clay Tile | A, B, D, E | 1,2,3,4,5,6,7 |
| Metal Roofs | A, B, D | 1,2,3,4,5,6,7 |
| Wood Shingles and Shakes | A, B, D | 1,2,4,5,6,7 |
| Other | As Applicable | 1,2,3,4,5,6,7 |

**ATTACHMENTS REQUIRED:**

|  |  |
| --- | --- |
| 1. | Fire Directory Listing Page |
| 2. | From Product Approval: Front Page Specific System Description Specific System Limitations General Limitations Applicable Detail Drawings |
| 3. | Design Calculations per Chapter 16, or if applicable, RAS 127 or RAS 128 |
| 4. | Other Component of Product Approval |

|  |  |
| --- | --- |
| 5. | Municipal Permit Application |
| 6. | Owners Notification for Roofing Considerations (Reroofing Only) |
| 7. | Any Required Roof Testing/Calculation Documentation |

**Section D**

**(Steep Sloped Roof System)**

|  |
| --- |
| Roof System Manufacturer: \_ \_ |
| Notice of Acceptance Number: \_ \_\_ |
| Minimum Design Wind Pressures, If Applicable (From RAS 127 or Calculations):  Zone 1: \_ Zone 2e: \_\_ Zone 2n: Zone 2r: \_ \_ Zone 3e: \_ \_ Zone 3r: |

**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”

|  |  |
| --- | --- |
| (Zone 1: × ? \_ = \_ \_) – Mg: \_\_ = Mr1 \_ \_ | Product Approval Mf |
| (Zone 2~~e/~~: \_ × ? \_ = \_ \_) – Mg: \_\_ = Mr2~~e/~~ | Product Approval Mf |
| (Zone 2n: \_ × ? \_ = \_ \_) – Mg: \_\_ = Mr2n | ~~Product Approval M~~f |
| ~~(Zone 2r: \_~~ × ? \_ = \_\_) – Mg: \_ \_ = M~~r2r~~ \_ \_ | ~~Product Approval M~~f |
| (Zone 3~~e/~~: \_ × ? \_ = \_ \_) – Mg: \_\_ = Mr3~~e/~~ | Product Approval Mf |
| (Zone 3r: \_ × ? \_ \_ = \_\_ ) – Mg: = Mr3r | ~~Product Approval M~~f |

Method 2 “Simplified Tile Calculations Per Table Below” Required Moment of Resistance (Mr) From Table Below \_\_\_\_\_ Product Approval Mf

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mr required Moment Resistance\* | | | | | |
| Mean Roof Height Roof Slope | 15' | 20' | 25' | 30' | 40' |
| 2:12 | ~~34.4~~ -46 | ~~36.5~~ -47.6 | ~~38.2~~ -49.4 | ~~39.7~~ -50.9 | ~~42.2~~ -53.3 |
| 3:12 | ~~32.2~~ -47.3 | ~~34.4~~ -48.9 | ~~36.0~~ -50.7 | ~~37.4~~ -52.2 | ~~39.8~~ -54.6 |
| 4:12 | ~~30.4~~ -47.2 | ~~32.2~~ -52.0 | ~~33.8~~ -53.8 | ~~35.1~~ -55.3 | ~~37.3~~ -57.9 |
| 5:12 | ~~28.4~~ -39.8 | ~~30.1~~ -41.5 | ~~31.6~~ -42.8 | ~~32.8~~ -43.7 | ~~34.9~~ -45.7 |
| 6:12 | ~~26.4~~ -39.6 | ~~28.0~~ -40.6 | ~~29.4~~ -41.9 | ~~30.5~~ -42.9 | ~~32.4~~ -44.8 |
| 7:12 | ~~24.4~~ -39.4 | ~~25.9~~ -40.3 | ~~27.1~~ -41.6 | ~~28.2~~ -42.6 | ~~30.0~~ -44.6 |

~~\*Must be used in conjunction with a list of moment based tile systems endorsed by the Broward County Board of~~ ~~Rules and Appeals.~~

Method 2 may be utilized within Broward County Exposure C only.

For Uplift based tile systems use Method 3. Compare 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”

|  |  |
| --- | --- |
| (Zone 1: × L = × w: = ) – W: × cos r = Fr1 | Product Approval F' |
| (Zone 2~~e/~~: × L = × w: = \_\_) – W: × cos r = Fr2~~e/~~ | Product Approval F' |
| (Zone 2n: × L = × w: = \_\_) – W: × cos r = F~~r2n~~ | ~~Product Approval F'~~ |
| (Zone 2r: × L = × w: = ) – W: × cos r = F~~r2r~~ | ~~Product Approval F'~~ |
| (Zone 3~~e/~~: × L = × w: = \_\_) – W: × cos r = Fr3~~e/~~ | Product Approval F' |
| (Zone 3r: × L = × w: = ) – W: × cos r = F~~r3r~~ | ~~Product Approval F'~~ |

|  |  |  |
| --- | --- | --- |
| Where to Obtain Information | | |
| Description | Symbol | Where to find |
| Design Pressure | Zones 1, 2~~e/~~, ~~2n,~~ ~~2r,~~ 3~~e, 3r~~ | From applicable table in RAS 127 or by an engineering analysis prepared by PE based on ASCE 7 |
| Mean Roof Height | H | Job Site |
| Roof Slope | ? | Job Site |
| Aerodynamic Multiplier | ? | Product Approval |
| Restoring Moment due to Gravity | Mg | Product Approval |
| Attachment Resistance | Mf | Product Approval |
| Required Moment Resistance | Mg | Calculated |
| Minimum Attachment Resistance | F' | Product Approval |
| Required Uplift Resistance | Fr | Calculated |

|  |  |  |
| --- | --- | --- |
| Average Tile Weight | W | Product Approval |
| Tile Dimensions | L = length W = width | Product Approval |
| All calculations must be submitted to the building official at the time of permit application. | | |

**(R10271 AM A1)**

**CHAPTER 16 STRUCTURAL DESIGN**

|  |
| --- |
| **Revise as follows:**  **Section 1602 Notations –**  **NOTATIONS.**  *~~E =~~*~~Combined effect of horizontal and vertical earthquake induced forces as defined in Section 2.3.6 of ASCE 7.~~  *~~S =~~*~~Snow load.~~  **Delete section in its entirety and show as Reserved:**  **1603.1.3 Roof snow load data.**Reserved.  ~~The ground snow load,~~*~~p~~~~g~~*~~, shall be indicated. In areas where the ground snow load,~~*~~p~~~~g~~*~~, exceeds 10 pounds per square foot (psf) (0.479 kN/m~~~~2~~~~), 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~~~~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~~~~d~~*~~, where the sum of~~*~~p~~~~d~~*~~and~~*~~p~~~~f~~*~~exceeds 20 psf (0.96 kN/m~~~~2~~~~).~~  ~~7. Width of snow drift(s),~~*~~w~~*~~.~~  **Delete section in its entirety and show as Reserved:**  **1603.1.5 Earthquake design data.**Reserved. ~~The following information related to seismic loads shall be shown, regardless of whether seismic loads govern the design of the lateral force-resisting system of the structure:~~  ~~1.~~*~~Risk category~~*~~.~~  ~~2. Seismic importance factor,~~*~~I~~~~e~~*~~.~~  ~~3. Mapped spectral response acceleration parameters,~~*~~S~~~~S~~*~~and~~*~~S~~~~1~~*~~.~~  ~~4.~~*~~Site class~~*~~.~~  ~~5. Design spectral response acceleration parameters,~~*~~S~~~~DS~~*~~and~~*~~S~~~~D1~~*~~.~~  ~~6.~~*~~Seismic design category~~*~~.~~  ~~7. Basic seismic force-resisting system(s).~~  ~~8. Design base shear(s).~~  ~~9. Seismic response coefficient(s),~~*~~CS~~*~~.~~  ~~10. Response modification coefficient(s),~~*~~R~~*~~.~~  ~~11. Analysis procedure used.~~  **Revise as follows:**  **1604.3 Serviceability.**Structural systems and members thereof shall be designed to have adequate stiffness to limit deflections and lateral drift. ~~See Section 12.12.1 of ASCE 7 for drift limits applicable to earthquake loading.~~  **Revise as follows:**    **1604.4 Analysis.***Load effects*on structural members and their connections 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.  Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.  Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.  The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided for in the design. A diaphragm is rigid for the purpose of distribution of story shear and torsional moment when the lateral deformation of the diaphragm is less than or equal to two times the average story drift. Where required by ASCE 7, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral force resisting system.  Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609 for wind loads~~,~~ and Section 1610 for lateral soil loads ~~and Section 1613 for earthquake loads~~.    **Revise as follows:**  **1604.8.2 Structural walls.**Walls that provide vertical load-bearing resistance or lateral shear resistance for a portion of the structure shall be anchored to the roof and to all floors and members that provide lateral support for the wall or that are supported by the wall. The connections shall be capable of resisting the horizontal forces specified in Section 1.4.5 of ASCE 7 ~~for walls of structures assigned to~~*~~Seismic Design Category~~*~~A and to Section 12.11 of ASCE 7 for walls of structures assigned to all other~~*~~seismic design categories~~*. Required anchors in masonry walls of hollow units or cavity walls shall be embedded in a reinforced grouted structural element of the wall. See Section~~s~~ 1609 for wind design requirements ~~and 1613 for earthquake design requirements~~.  **Revise as follows:**  **1604.8.3 Decks.**Where supported by attachment to an *exterior wall*, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. Connections of decks with cantilevered framing members to exterior walls or other framing members shall be designed for both of the following:  1. The reactions resulting from the dead load and live load specified in Table 1607.1, ~~or the snow load~~  ~~specified in Section 1608,~~ in accordance with Section 1605, acting on all portions of the deck.  2. The reactions resulting from the dead load and live load specified in Table 1607.1, ~~or the snow load specified in Section 1608,~~ in accordance with Section 1605, acting on the cantilevered portion of the deck, and no live load ~~or snow load~~ on the remaining portion of the deck.  **Revise as follows:**  **1604.9 Counteracting structural actions.**Structural members, systems, components and cladding shall be designed to resist forces due to ~~earthquakes and~~ wind, with consideration of overturning, sliding and uplift. Continuous load paths shall be provided for transmitting these forces to the foundation. Where sliding is used to isolate the elements, the effects of friction between sliding elements shall be included as a force.  **Delete section in its entirety:**  **~~1604.10 Wind and seismic detailing.~~**~~Lateral force-resisting systems shall meet seismic detailing requirements and limitations prescribed in this code and ASCE 7, excluding Chapter 14 and Appendix 11A, even when wind~~*~~load effects~~*~~are greater than seismic~~*~~load effects~~*~~.~~  **Revise as follows:**  **1605.1 General.** Buildings and other structures and portions thereof shall be designed to resist the Strength Load Combinations specified in ASCE 7 Section 2.3, the Allowable Stress Design Load Combinations specified in ASCE 7 Section 2.4, or the Alternative Allowable Stress Design Load Combinations of Section 1605.2.  **Exceptions:**    1.   The modifications to Load Combinations of ASCE 7 Section 2.3, ASCE 7 Section 2.4, and Section 1605.2 specified in ASCE 7 Chapter 18 and 19 shall apply.    ~~2.   When the Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, flat roof snow loads of 30 psf (1.44kN/m~~~~2~~~~) and roof live loads of 30 psf (1.44 kN/m~~~~2~~~~) or less need not be combined with seismic load. Where flat roof snow loads exceed 30 psf (1.44kN/m~~~~2~~~~), 20 percent shall be combined with seismic loads.~~    2 ~~3~~.  Where Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, 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 loads.  **Revise as follows:**  **1605.2 Alternative allowable stress design load combinations.** In lieu of the Load Combinations in ASCE 7 Section 2.4, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. Where using these alternative 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. Where 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 (?) in the following equations shall be taken as 1.3. For other wind loads, (?) shall be taken as 1. Where 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, (?) shall be taken as 1. Where 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~~*~~,~~*~~E~~~~v~~*~~, in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero.  Where required by ASCE 7 Chapters 12,13, and 15, the Load Combinations including overstrength of ASCE 7 Sections 2.3.6 shall be used.~~    *D*+ *L*+ (*Lr*~~or~~*~~S~~*or *R*)                                                                                 **(Equation 16-1)**  *D*+ *L*+ 0.6 ?*W***(Equation 16-2)**  *D*+ *L*+ 0.6 ?*W*~~+~~*~~S~~*~~/2~~                                                                               **(Equation 16-3)**  *D*+ *L*+ *~~S~~*+ 0.6?*W*/2                                                                                **(Equation 16-4)**  *D*+ *L*+ *~~S~~*~~+~~*~~E~~*~~/1.4~~                                                                                       **(Equation 16-5)**  0.9*D*~~+~~*~~E~~*~~/1.4~~                                                                                             **(Equation 16-6)**    **Exception~~s~~:**    ~~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/m~~~~2~~~~) or less and roof live loads of 30 psf (1.44 kN/m~~~~2~~~~) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m~~~~2~~~~), 20 percent shall be combined with seismic loads.~~    **Revise as follows:**    **TABLE 1607.1**  **MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, *L0*, AND MINIMUM CONCENTRATED LIVE LOADSg**    (*no change to table values)*  g.  Reserved. ~~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).~~  **Revise as follows:**  **1607.12 Roof loads.**The structural supports of roofs and marquees shall be designed to resist wind ~~and, where applicable, snow and earthquake~~ loads~~,~~ in addition to the dead load of construction and the appropriate live loads as prescribed in this section, or as set forth in Table 1607.1. The live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.  **Revise as follows:**    **1607.12.1 Distribution of roof loads.**Where uniform roof live loads are reduced to less than 20 psf (0.96 kN/m2) in accordance with Section 1607.12.2.1 and are applied to the design of structural members arranged so as to create continuity, the reduced roof live load shall be applied to adjacent spans or to alternate spans, whichever produces the most unfavorable *load effect*. See Section 1607.12.2 for reductions in minimum roof live loads ~~and Section 7.5 of ASCE 7 for partial snow loading~~.  **Revise as follows:**  **1607.12.4 Awnings and canopies.**Awnings and canopies shall be designed for uniform live loads as required in Table 1607.1 as well as for ~~snow loads and~~ wind loads as specified in Section~~s 1608 and~~ 1609.  **Revise as follows:**  **1607.12.5.2 Photovoltaic panels or modules.**The structure of a roof that supports solar photovoltaic panels or modules shall be designed to accommodate the full solar photovoltaic panels or modules and ballast dead load, including concentrated loads from support frames in combination with the loads from Section 1607.12.5.1 and other applicable loads. ~~Where applicable, snow drift loads created by the photovoltaic panels or modules shall be included.~~  **Delete Section 1608 in its entirety and show as Reserved:**    **SECTION 1608**  **SNOW LOADS**  **RESERVED**    **Delete Section 1613 in its entirety and show as Reserved:**    **SECTION 1613**  **EARTHQUAKE LOADS**  **RESERVED** |
|  |

**(S10041 AS)**

**Add new notation as follows:**

**SECTION 1602**

**NOTATIONS**

VT = Tornado speed, miles per hour (mph) (m/s) determined from Chapter 32 of ASCE 7.

*(no change to remaining notations)*

**Revise as follows:**

**1603.1.4 Wind design data.**The following information related to wind loads shall be shown, regardless of

whether wind loads govern the design of the lateral force-resisting system of the structure:

1. Ultimate design wind speed, *Vult*, (3-second gust), miles per hour (km/hr), tornado speed, VT (mph) and nominal design wind speed, *Vasd*, (mph) as determined in accordance with Section 1609.3.1.

2. *Risk category*.

3. Effective plan area, Ae, for tornado design in accordance with Chapter 32 of ASCE 7.

4 ~~3~~. Wind exposure. Applicable wind direction if more than one wind exposure is utilized.

5 ~~4~~. Applicable internal pressure coefficients and applicable tornado internal pressure coefficients.

6 ~~5~~. Design wind pressures and their applicable zones with dimensions to be used for exterior component and cladding materials not specifically designed by the *registered design professional*responsible for the design of the structure, psf (kN/m2).  Where design for tornado loads is required, the design pressures shown shall be the maximum of wind or tornado pressures.

**(S10065 AM A1)**

**SECTION 1602**

**NOTATIONS**

**1602.1 Notations.** The following notations are used in this chapter:

*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 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~~ Live load.

*Lr* = Roof live load ~~of 20 psf (0.96 kN/m~~~~2~~~~) or less~~.

*R* = Rain load.

*S* = Snow load.

T = Cumulative effects of self-straining load forces and effects.

Vasd = Allowable stress design wind speed, miles per hour (mph) (km/hr) where applicable.

V = Basic design wind speeds, miles per hour (mph) (km/hr) determined from Figures 1609.3(1) through 1609.3(8) or ASCE 7.

*W* = Load due to wind pressure.

*Wi* = Wind-on-ice in accordance with Chapter 10 of ASCE 7.

**(S9525 / S36-19 AS)**

**Revise as follows:**

**1603.1.4 Wind design data.** The following information related to wind loads shall be shown, regardless of whether wind loads govern the design of the lateral force-resisting system of the structure:

1. Basic design wind speed, V, miles per hour and allowable stress design wind speed, Vasd, as determined in accordance with Section 1609.3.1.

2. Risk category.

3. Wind exposure. Applicable wind direction if more than one wind exposure is utilized.

4. Applicable internal pressure coefficient.

5. Design wind pressures and their applicable zones with dimensions to be used for exterior component and cladding materials not specifically designed by the registered design professional responsible for the design of the structure, psf (kN/m2).

**(S9526 / S39-19 AS)**

**Revise as follows:**

**TABLE 1604.5**

**RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **RISK CATEGORY** | **NATURE OF OCCUPANCY** |
| III | Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:  •Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.  Buildings and other structures containing one or more public assembly spaces each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.  •Buildings and other structures containing Group E occupancies with an occupant load greater than 250.  •Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.  •Group I-2, Condition 1 occupancies with 50 or more care recipients.  •Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities.  •Group I-3 occupancies.  •Any other occupancy with an occupant load greater than 5,000.a  •Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.  •Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:  Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the International Fire Code; and  Are sufficient to pose a threat to the public if released.b |

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

**(S9528/ S44-19 AMPC1)**

**Revise as follows:**

**TABLE 1604.5**

**RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **RISK CATEGORY** | **NATURE OF OCCUPANCY** |
| III | Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:  •Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.  •Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.  •Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.  •Group I-2, Condition 1 occupancies with 50 or more care recipients.  •Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities.  •Group I-3 occupancies.  •Any other occupancy with an occupant load greater than 5,000.a  •Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.  •Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:  Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the International Fire Code ; and  Are sufficient to pose a threat to the public if released.b |

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

**(S9529 / S45-19 AS)**

**SECTION 1605**

**LOAD COMBINATIONS**

**Delete and substitute as follows:**

**~~1605.1~~ ~~General.~~** ~~Buildings and other structures and portions thereof shall be designed to resist all of the following:~~

~~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.~~

~~3. The seismic~~ *~~load effect~~* ~~s including overstrength factor in accordance with Sections 2.3.6 and 2.4.5 of ASCE 7 where required by Chapters 12, 13, and 15 of ASCE 7. With the simplified procedure of ASCE 7, Section 12.14, the seismic~~ *load effect* ~~s 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 Sections 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.~~

**1605.1 General.** Buildings and other structures and portions thereof shall be designed to resist the Strength Load Combinations specified in ASCE 7 Section 2.3, the Allowable Stress Design Load Combinations specified in ASCE 7 Section 2.4, or the Alternative Allowable Stress Design Load Combinations of Section 1605.2.

**Exceptions:**

1. The modifications to Load Combinations of ASCE 7 Section 2.3, ASCE 7 Section 2.4, and Section 1605.2 specified in ASCE 7 Chapter 18 and 19 shall apply.

2. When the Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, flat roof snow loads of 30 psf (1.44kN/m2) and roof live loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic load. Where flat roof snow loads exceed 30 psf (1.44kN/m2), 20 percent shall be combined with seismic loads.

3. Where the Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, 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 loads.

**Revise as follows:**

**1605.1.1 Stability.** Regardless of which load combinations are used to design for strength, where overall structure stability (such as stability against overturning, sliding, or buoyancy) is being verified, use of the load combinations specified in ASCE 7 Section ~~1605.2 or 1605.3~~ 2.3, ASCE 7 Section 2.4, and in Section 1605.2 shall be permitted. Where the load combinations specified in ASCE 7 Section ~~1605.2~~ 2.3 are used, strength reduction factors applicable to soil resistance shall be provided by a *registered design professional*. The stability of retaining walls shall be verified in accordance with Section 1807.2.3.

**Delete without substitution:**

**~~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:~~

~~Equation 16-1.jpg~~

**~~(Equation 16-1)~~**

Equation 16-2.jpg

**~~(Equation 16-2)~~**

Equation 16-3.jpg

**~~(Equation 16-3)~~**

Equation 16-4.jpg

**~~(Equation 16-4)~~**

Equation 16-5.jpg

**~~(Equation 16-5)~~**

Equation 16-6.jpg

**~~(Equation 16-6)~~**

Equation 16-7.jpg

**~~(Equation 16-7)~~**

~~where:~~

*~~f~~*~~1~~ ~~= 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.~~

*~~f~~*~~2~~ ~~= 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.~~

**~~1605.2.1~~ ~~Other loads.~~** ~~Where flood loads,~~ ~~F~~a~~, are to be considered in the design, the load combinations of Section 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 2.3.4 of~~ ~~ASCE 7. Where an ice-sensitive structure is subjected to loads due to atmospheric icing, the load combinations of Section 2.3.3 of~~ ~~ASCE 7~~ ~~shall be considered.~~

**~~1605.3~~ ~~Load combinations using allowable stress design.~~** ~~Load combinations for allowable stress design shall be in accordance with~~ ~~Section 1605.3.1~~ ~~or~~ ~~1605.3.2.~~

**~~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:~~

Equation 16-8.jpg

**~~(Equation 16-8)~~**

Equation 16-9.jpg

**~~(Equation 16-9)~~**

Equation 16-10.jpg

**~~(Equation 16-10)~~**

Equation 16-11.jpg

**~~(Equation 16-11)~~**

Equation 16-12.jpg

**~~(Equation 16-12)~~**

Equation 16-13.jpg

**~~(Equation 16-13)~~**

Equation 16-14.jpg

**~~(Equation 16-14)~~**

Equation 16-15.jpg

**~~(Equation 16-15)~~**

Equation 16-16.jpg

**~~(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/m~~2~~) or less and roof live loads of 30 psf (1.44 kN/m~~2~~) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m~~2~~), 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.~~

**~~1605.3.1.1~~ ~~Stress increases.~~** ~~Increases in allowable stresses specified in the appropriate material chapter or the referenced standards shall not be used with the load combinations of~~ ~~Section 1605.3.1, except that increases shall be permitted in accordance with~~ ~~Chapter 23.~~

**~~1605.3.1.2~~ ~~Other loads.~~** ~~Where flood loads, F~~a~~, are to be considered in design, the load combinations of Section 2.4.2 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 2.4.4 of~~ ~~ASCE 7. Where an ice-sensitive structure is subjected to loads due to atmospheric icing, the load combinations of Section 2.4.3 of~~ ~~ASCE 7~~ ~~shall be considered.~~

**Revise as follows:**

**~~1605.3.2~~ 1605.2 Alternative ~~basic~~ allowable stress design load combinations.** In lieu of the ~~basic load combinations specified in Section 1605.3.1~~ Load Combinations in ASCE 7 Section 2.4, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. Where 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. Where 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. Where 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. Where 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. Where 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. Where required by ASCE 7 Chapters 12, 13, and 15, the Load Combinations including overstrength of ASCE 7 Sections 2.3.6 shall be used.

Equation 16-17.jpg

**(Equation** ~~16-17~~ **16-1)**

Equation 16-18.jpg

**(Equation** ~~16-18~~ **16-2)**

Equation 16-19.jpg

**(Equation** ~~16-19~~ **16-3)**

Equation 16-20.jpg

**(Equation** ~~16-20~~ **16-4)**

Equation 16-21.jpg

**(Equation** ~~16-2~~ **16-5)**

Equation 16-22.jpg

**(Equation** ~~16-22~~ **16-6)**

**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.

**Delete without substitution:**

**~~1605.3.2.1~~ ~~Other loads.~~** ~~Where~~ ~~F,~~ ~~H~~ ~~or~~ ~~T~~ ~~are to be considered in the design, each applicable load shall be added to the combinations specified in~~ ~~Section 1605.3.2. Where self-straining loads,~~ ~~T, are considered in the design, their structural effects in combination with other loads shall be determined in accordance with Section 2.4.4 of~~ ~~ASCE 7.~~

**Revise as follows:**

**1607.14 Crane loads.** The crane live load shall be the rated capacity of the crane. Design loads for the runway beams, including connections and support brackets, of moving bridge cranes and monorail cranes shall include the maximum wheel loads of the crane and the vertical impact, lateral and longitudinal forces induced by the moving crane.

**1602.1 Notations.** The following notations are used in this chapter:

*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 ~~2.3.6~~ 12.4 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/m2) and floor live load.

*Lr* = Roof live load of 20 psf (0.96 kN/m2) or less.

*R* = Rain load.

*S* = Snow load.

T = Cumulative effects of self-straining load forces and effects.

Vasd = Allowable stress design wind speed, miles per hour (mph) (km/hr) where applicable.

V = Basic design wind speeds, miles per hour (mph) (km/hr) determined from Figures 1609.3(1) through 1609.3(8) or ASCE 7.

*W* = Load due to wind pressure.

*Wi* = Wind-on-ice in accordance with Chapter 10 of ASCE 7.

**(S9530 / S47-19 AM)/**

**Revise as follows:**

**1605.1 General.** Buildings and other structures and portions thereof shall be designed to resist the Strength Load Combinations specified in ASCE 7 Section 2.3, the Allowable Stress Design Load Combinations specified in ASCE 7 Section 2.4, or the Alternative Allowable Stress Design Load Combinations of Section 1605.2.

**Exceptions:**

1.   The modifications to Load Combinations of ASCE 7 Section 2.3, ASCE 7 Section 2.4, and Section 1605.2 specified in ASCE 7 Chapter 18 and 19 shall apply.

2.   When the Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, flat roof snow loads of 30 psf (1.44kN/m2) and roof live loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic load. Where flat roof snow loads exceed 30 psf (1.44kN/m2), 20 percent shall be combined with seismic loads.

3.  Where Allowable Stress Design Load Combinations of ASCE 7 Section 2.4 are used, 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 loads.

4.  Where design for tornado loads is required, the alternative allowable stress design load combinations of Section 1605.2 shall not apply where tornado loads govern the design.

**Revise as follows:**

**1607.12 Roof loads.**The structural supports of roofs and marquees shall be designed to resist wind and, where applicable, tornado, snow and earthquake loads, in addition to the dead load of construction and the appropriate live loads as prescribed in this section, or as set forth in Table 1607.1. The live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.

**1607.12.4 Awnings and canopies.**Awnings and canopies shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads and wind and tornado loads as specified in Sections 1608 and 1609.

**(S10065 AM A1)**

**Revise as follows:**

**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. Where 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. Where 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. Where 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. Where 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. Where 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.

Equation 16-17.jpg **(Equation 16-17)**

~~Equation 16-18.jpg~~*D + L* + 0.6*W* **(Equation 16-18)**

Equation 16-19.jpg *D + L* + 0.6*W + S/*2**(Equation 16-19)**

Equation 16-20.jpg *D + L* + *S* + 0.6*W /*2**(Equation 16-20)**

Equation 16-21.jpg **(Equation 16-21)**

Equation 16-22.jpg**(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.

**(S9531 / S48-19 AS)**

**Revise as follows:**

**1606.2 ~~Design dead load.~~ Weights of materials of construction.** For purposes of design, the actual weights of materials of construction ~~and fixed service equipment~~ shall be used. In the absence of definite information, values used shall be subject to the approval of the *building official*.

**Add new text as follows:**

**1606.3 Weight of fixed service equipment.** In determining dead loads for purposes of design, the weight of fixed service equipment, including the maximum weight of the contents of fixed service equipment, shall be included. The components of fixed service equipment that are variable, such as liquid contents and movable trays, shall not be used to counteract forces causing overturning, sliding, and uplift conditions in accordance with Section 1.3.6 of ASCE 7.

**Exceptions:**

1. Where force effects are the result of the presence of the variable components, the components are permitted to be used to counter those load effects. In such cases, the structure shall be designed for force effects with the variable components present and with them absent.

2. For the calculation of seismic force effects, the components of fixed service equipment that are variable, such as liquid contents and movable trays, need not exceed those expected during normal operation.

**(S9532 / S49-19 AS)**

**Add new text as follows:**

**1606.4 Photovoltaic panel systems.** The weight of photovoltaic panel systems, their support system, and ballast shall be considered as dead load.

**(S9533 / S50-19 AS)**

**Add new text as follows:**

**1606.5 Vegetative and landscaped roofs.**The weight of all landscaping and hardscaping materials for vegetative and landscaped roofs shall be considered as dead load. The weight shall be computed considering both fully saturated soil and drainage layer materials and fully dry soil and drainage layer materials to determine the most severe load effects on the structure.

**(S9534/ S51-19 AM)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0, AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 4. Assembly areas |  | — |
| Fixed seats (fastened to floor) | 60m |  |
| Follow spot, projections and control rooms | 50 |  |
| Lobbies | 100m |  |
| Movable seats | 100m |  |
| Stage floors | 150n |  |
| Platforms (assembly) | 100m |  |
| Reviewing stands, grandstands and bleachers | 100c,m |  |
| Stadiums and arenas with fixed seats (fastened to the floor) | 60c,m |  |
| Other assembly areas | 100m |  |
| 24. Recreational uses: |  | — |
| Bowling alleys, poolrooms and similar uses | 75m |  |
| Dance halls and ballrooms | 100m |  |
| Gymnasiums | 100m |  |
| Ice skating rink | 250n |  |
| ~~Reviewing stands, grandstands and bleachers~~ | ~~100~~~~c, m~~ |  |
| Roller skating rink | 100m |  |
| ~~Stadiums and arenas with fixed seats (fastened to floor)~~ | ~~60~~~~c, m~~ |  |

c. Design in accordance with ICC 300.

m. Live load reduction is not permitted.

**(S9535 / S53-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0, AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 6. Catwalks for maintenance service access | 40 | 300 |
| 35. Yards and terraces, ~~pedestrians~~ pedestrian | 100m | — |

**(S9537/ S55-19 AM)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0 , AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 14. Fixed ladders | See Section 1607.16 |  |

**Add new text as follows:**

**1607.15Fixed ladders.** Fixed ladders with rungs shall be designed to resist a single concentrated load of 300 lb (1.33 kN) in accordance with Section 4.5.4 of ASCE 7. Where rails of fixed ladders extend above a floor or platform at the top of the ladder, each side rail extension shall be designed to resist a single concentrated load of 100 lb (0.445 kN) in accordance with Section 4.5.4 of ASCE 7. Ships ladders shall be designed to resist the stair loads given in Table 1607.1.

(**S9538 / S56-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0 , AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |  |
| --- | --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** | **ALSO SEE SECTION** |
| 14. Garages ~~(passenger vehicles only)~~ | ~~40°~~ | ~~Note a~~ |  |
| Passenger vehicles only | 40° | See Section 1607.7 |  |
| Trucks and buses | See Section ~~1607.7~~1607.8 |  |  |
| 15. Handrails, guards and grab bars | See Section ~~1607.8~~1607.9 |  |  |
| 19. Libraries |  |  |  |
| Corridors above first floor | 80 | 1,000 |  |
| Reading rooms | 60 | 1,000 |  |
| Stack rooms | 150 ~~b,~~ n | 1,000 | Section 1607.17 |
| 25. Residential |  |  | Section 1607.20 |
| 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 roomsm and corridors serving them | 100 |  |  |
| 26. Roofs |  |  | Section 1607.14.2 |
| All roof surfaces subject to maintenance workers |  | 300 |  |
| Awnings and canopies: |  |  |  |
| Fabric construction supported by a skeleton structure | 5m |  |  |
| 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 | 100m |  |  |
| All other similar areas | Note 1 | Note 1 |  |
| 28. Scuttles, skylight ribs and accessible ceilings | — | 200 |  |
| 29. Sidewalks, vehicular driveways and yards, subject to trucking | 250~~d,~~ n | 8,000~~e~~ | Section 1607.18 |
| 30. Stairs and exits |  |  |  |
| One- and two-family dwellings | 40 | 300~~f~~ | Section 1607.19 |
| All other | 100 | 300~~f~~ | Section 1607.19 |
| 33. Vehicle barriers | See Section ~~1607.9~~1607.10 |  |  |

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 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.~~

~~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 not less than 30 inches.~~

~~ii.~~ ~~The slopes of the joists or truss bottom chords are not 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 1607.13.3.

m. Live load reduction is not permitted.

n. Live load reduction is only permitted in accordance with Section 1607.11.1.2 or Item 1 of Section 1607.11.2.

o. Live load reduction is only permitted in accordance with Section 1607.11.1.3 or Item 2 of Section 1607.11.2.

**Add new text as follows:**

**1607.7 Passenger vehicle garages.** Floors in garages or portions of a building used for the storage of motor vehicles shall be designed for the uniformly distributed live loads indicated in Table 1607.1 or the following concentrated load:

1. For garages restricted to passenger vehicles accommodating not more than nine passengers, 3,000 pounds (13.35 kN) acting on an area of 4.5 inches by 4.5 inches(114 mm by 114 mm).

2. For mechanical parking structures without slab or deck that are used for storing passenger vehicles only, 2,250 pounds (10 kN) per wheel.

**Revise as follows:**

**~~1607.7~~ 1607.8 Heavy vehicle loads.** Floors and other surfaces that are intended to support vehicle loads greater than a 10,000-pound (4536 kg) gross vehicle weight rating shall comply with Sections 1607.7.1 through 1607.7.5.

**Add new text as follows:**

**1607.16 Library stack rooms.** The live loading indicated in Table 1607.1 for library stack rooms 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 (2,290 mm).

2. The nominal shelf depth shall not exceed 12 inches (305 mm) for each face.

3. Parallel rows of double-faced book stacks shall be separated by aisles not less than 36 inches (914 mm) wide.

**1607.17 Sidewalks, vehicular driveways, and yards subject to trucking.** The live loading indicated in Table 1607.1 for sidewalks, vehicular driveways, and yards subject to trucking shall comply with the requirements of this section.

**1607.17.1 Uniform loads.** In addition to the loads indicated in Table 1607.1, other uniform loads in accordance with an approved method which contains provisions for truck loading, shall be considered where appropriate.

**1607.17.2 Concentrated loads.** The concentrated wheel load indicated in Table 1607.1 shall be applied on an area of 4.5 inches by 4.5 inches (114 mm by 114 mm).

**1607.18 Stair treads.** The concentrated load indicated in Table 1607.1 for stair treads shall be applied on an area of 2 inches by 2 inches (51 mm by 51 mm). This load need not be assumed to act concurrently with the uniform load.

**1607.19 Residential Attics** The live loads indicated in Table 1607.1 for attics in residential occupancies shall comply with the requirements of this section.

**1607.19.1 Uninhabitable attics without storage.** In residential occupancies, uninhabitable attic areas without storage are those where the maximum clear height between the joists and rafters is less than 42 inches (1067 mm), or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches (1067 mm) in height by 24 inches (610 mm) in width, or greater, within the plane of the trusses. The live load in Table 1607.1 need not be assumed to act concurrently with any other live load requirement.

**1607.19.2 Uninhabitable attics with storage.** In residential occupancies, uninhabitable attic areas with storage are those where the maximum clear height between the joist and rafter is 42 inches (1067 mm) or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches (1067 mm) in height by 24 inches (610 mm) in width, or greater, within the plane of the trusses. The live load in Table 1607.1 need only be applied to those portions of the joists or truss bottom chords where both of the following conditions are met:

1. The attic area is accessed from an opening not less than 20 inches (508 mm) in width by 30 inches (762 mm) in length that is located where the clear height in the attic is not less than 30 inches (762 mm).

2. The slope of the joists or truss bottom chords is not 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 (0.48 kN/m2).

**1607.19.3 Attics served by stairs.** 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.

**(S9539 / S57-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0 , AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 24. Recreational uses: |  | — |
| Bowling alleys, poolrooms and similar uses | 75m |  |
| Dance halls and ballrooms | 100m |  |
| Gymnasiums | 100m |  |
| Ice skating rink | 250n |  |
| ~~Reviewing stands,~~ Bleachers, folding and telescopic seating and grandstands ~~and bleachers~~ | 100~~c,~~ m(see Section 1607.16) |  |
| Roller skating rink | 100m |  |
| Stadiums and arenas with fixed seats (fastened to floor) | 60~~c,~~ m(see Section 1607.16) |  |

~~c. Design in accordance with ICC 300~~.

**Add new text as follows:**

**1607.20 Seating for assembly uses.** Bleachers, folding and telescopic seating and grandstands shall be designed for the loads specified in ICC 300. Stadiums and arenas with fixed seats shall be designed for the horizontal sway loads in Section 1607.16.1.

**1607.20.1 Horizontal sway loads.** The design of stadiums and arenas with fixed seats shall include horizontal swaying forces applied to each row of seats as follows:

1. 24 lb per linear foot (0.35 kN/m) of seat applied in a direction parallel to each row of seats, and

2. 10 lb per linear foot (0.15 kN/m) of seat applied in a direction perpendicular to each row of seats.

The parallel and perpendicular horizontal swaying forces are not required to be applied simultaneously.

**(S9540 / S58-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0, AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 26. Roofs |  |  |
| ~~All roof surfaces subject to maintenance workers~~ |  | ~~300~~ |
| ~~Awnings and canopies:~~ |  |  |
| ~~Fabric construction supported by a skeleton structure~~ | ~~5~~~~m~~ |  |
| ~~All other construction, except one-and two-family dwellings~~ | ~~20~~ |  |
| Ordinary flat, pitched, and curved roofs (that are not occupiable) | 20 |  |
| Roof areas used for assembly purposes | 100m |  |
| Roof areas used for occupancies other than assembly | Same as occupancy served |  |
|  |  |  |
| Vegetative and landscaped roofs: |  |  |
| Roof areas not intended for occupancy | 20 |  |
| Roof areas used for assembly purposes | 100 |  |
| Roof areas used for other occupancies | Same as occupancy served |  |
| Awnings and canopies: |  |  |
| Fabric construction supported by a skeleton structure | 5m |  |
| All other construction, except one-and two-family dwellings | 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 |
| All roof surfaces subject to maintenance workers |  | 300 |
| ~~Occupiable roofs:~~ |  |  |
| ~~Roof gardens~~ | ~~100~~ |  |
| ~~Assembly areas~~ | ~~100~~~~m~~ |  |
| ~~All other similar areas~~ | ~~Note 1~~ | ~~Note 1~~ |

~~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 1607.13.3.~~

m. Live load reduction is not permitted.

**Delete without substitution:**

**~~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 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/m~~2~~). The uniform design live load for occupied landscaped areas on roofs shall be determined in accordance with~~ ~~Table 1607.1.~~

**(S9541/ S59-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0 , AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 31. Storage areas above ceilings | 20 |  |
| ~~31~~ 32. Storage warehouses (shall be designed for heavier loads if required for anticipated storage) |  | — |
| Heavy | 250n |  |
| Light | 125n |  |

**(S9542 / S61-19 AS)**

**Revise as follows:**

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L0 , AND MINIMUM CONCENTRATED LIVE LOADSg**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **OCCUPANCY OR USE** | **UNIFORM (psf)** | **CONCENTRATED (pounds)** |
| 5. Balconies and decks~~h~~ | 1.5 times the live load for the area served, not required to exceed 100 | — |

~~h. See~~ ~~Section 1604.8.3~~ ~~for decks attached to exterior walls.~~

**(S9543 / S62-19 AS)**

**Revise as follows:**

**1607.2 Loads not specified.** For occupancies or uses not designated in ~~Table 1607.1~~Section 1607, the live load shall be determined in accordance with a method *approved* by the *building official*.

**(S9544 / S63-19 AS)**

**Revise as follows:**

**1607.8.1.1 Concentrated load.** Handrails and guards shall be designed to resist a concentrated load of 200 pounds (0.89 kN) in accordance with Section ~~4.5.1.1 of~~ 4.5.1 of ASCE 7.

**(S9545 / S66-19 AS)**

**Revise as follows:**

**1607.8.1.2 ~~Intermediate rails.~~ Guard component loads.** ~~Intermediate rails (all those except the handrail), balusters and panel fillers shall~~ Balusters, panel fillers, and guard infill components, including all rails except the handrail and the top rail, shall be designed to resist a concentrated load of 50 pounds (0.22 kN) in accordance with Section ~~4.5.1.1 of~~ 4.5.1.2 of ASCE 7.

**(S9546 / S67-19 AS)**

**Revise as follows:**

**1607.8.2 Grab bars, shower seats and ~~dressing room~~ accessible benches.** Grab bars, shower seats and ~~dressing room~~ *accessible* benches ~~seats~~ shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied in any direction at any point on the grab bar, ~~or~~ shower seat, or seat of the accessible bench so as to produce the maximum load effects.

**(S9547 / S68-19 AM)**

**Revise as follows:**

**1607.9.4 Fall arrest and lifeline anchorages.** In addition to any other applicable live loads, fall arrest and lifeline anchorages and structural elements that support these anchorages shall be designed for a live load of not less than 3,100 pounds (13.8 kN) for each attached lifeline, in ~~every~~ any direction that a fall arrest load can be applied.

**(S9548 / S69-19 AS)**

**Revise as follows:**

**1607.9.4 Fall arrest. ~~and~~ lifeline and rope descent system anchorages.** In addition to any other applicable live loads, fall arrest ~~and lifeline~~ , lifeline, and rope descent system anchorages and structural elements that support these anchorages shall be designed for a live load of not less than 3,100 pounds (13.8 kN) for each attached ~~lifeline~~ line, in every direction that ~~a fall arrest~~ the load can be applied.

Anchorages of horizontal lifelines and the structural elements that support these anchorages shall be designed for the maximum tension that develops in the horizontal lifeline from these live loads.

**(S9549 / S70-19 AS)**

**Revise as follows:**

**1607.12 Roof loads.** The structural supports of roofs and marquees shall be designed to resist wind and, where applicable, snow and earthquake loads, in addition to the dead load of construction and the appropriate live loads as prescribed in this section, or as set forth in Table 1607.1. The live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.

**1607.12.1 Distribution of roof loads.** Where uniform roof live loads are reduced to less than 20 psf (0.96 kN/m2) in accordance with Section 1607.13.2.1 and are applied to the design of structural members arranged so as to create continuity, the reduced roof live load shall be applied to adjacent spans or to alternate spans, whichever produces the most unfavorable *load effect*. See Section 1607.13.2 for reductions in minimum roof live loads and Section 7.5 of ASCE 7 for partial snow loading.

**1607.12.2 ~~General.~~ Reduction in uniform roof live loads.** The minimum uniformly distributed live loads of roofs and marquees, *Lo*, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.13.2.1.

**1607.12.2.1 Ordinary roofs, awnings and canopies.** Ordinary flat, pitched and curved roofs, and awnings and canopies other than of fabric construction supported by a skeleton structure, are permitted to be designed for a reduced uniformly distributed roof live load, Lr, as specified in the following equations or other controlling combinations of loads as specified in Section 1605, whichever produces the greater *load effect*.

In structures such as greenhouses, where special scaffolding is used as a work surface for workers and materials during maintenance and repair operations, a lower roof load than specified in the following equations shall not be used unless *approved* by the *building official*. Such structures shall be designed for a minimum roof live load of 12 psf (0.58 kN/m2).

Equation 16-26.jpg **(Equation 16-26)**

where: 0.58 ≤ *Lr* ≤ 0.96

*Lo* = Unreduced roof live load per square foot (m2) of horizontal projection supported by the member (see Table 1607.1).

*Lr* = Reduced roof live load per square foot (m2) of horizontal projection supported by the member.

where: 12 ≤ *Lr* ≤ 20

For SI: *Lr* = *LoR1R2*

The reduction factors *R1* and *R2* shall be determined as follows:

Equation 16-27.jpg **(Equation 16-27)**

Equation 16-28.jpg **(Equation 16-28)**

Equation 16-28.jpg

Equation 16-29.jpg **(Equation 16-29)**

where:

*At* = Tributary area (span length multiplied by effective width) in square feet (m2) supported by the member, and

Equation 16-30.jpg **(Equation 16-30)**

Equation 16-31.jpg **(Equation 16-31)**

Equation 16-32.jpg **(Equation 16-32)**

where:

*F* = For a sloped roof, the number of inches of rise per foot (for SI: *F* = 0.12 × slope, with slope expressed as a percentage), or for an arch or dome, the rise-to-span ratio multiplied by 32.

**~~1607.12.3~~ 1607.12.2.2 Occupiable roofs.** Areas of roofs that are occupiable, such as *vegetative roofs*, roof gardens or for assembly or other similar purposes, and marquees are permitted to have their uniformly distributed live loads reduced in accordance with Section 1607.11.

**~~1607.12.3.1~~ 1607.12.3 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 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.

**(S9550 / S71-19 AS)**

**Revise as follows:**

**~~1607.12.5.2.1~~ 1607.12.5.3 Photovoltaic panels installed on open grid roof structures.** Structures with open grid framing and without a roof deck or sheathing supporting photovoltaic panel systems shall be designed to support the uniform and concentrated roof live loads specified in Section 1607.13.5.1, except that the uniform roof live load shall be permitted to be reduced to 12 psf (0.57 kN/m2).

**~~1607.12.5.3~~ 1607.12.5.4 ~~Photovoltaic panels or modules installed as an independent structure.~~ Ground-mounted photovoltaic (PV) panel systems.** ~~Solar photovoltaic panels or modules~~ Ground-mounted *photovoltaic (PV) panel systems* that are independent structures and do not have accessible/occupied space underneath are not required to accommodate a roof photovoltaic live load~~, provided that the area under the structure is restricted to keep the public away~~. Other loads and combinations in accordance with Section 1605 shall be accommodated. ~~Solar photovoltaic panels or modules that are designed to be the roof, span to structural supports and have accessible/occupied space underneath shall have the panels or modules and all supporting structures designed to support a roof photovoltaic live load, as defined in Section 1607.13.5.1 in combination with other applicable loads. Solar photovoltaic panels or modules in this application are not permitted to be classified as “not accessible” in accordance with Section 1607.13.5.1.~~

**~~1607.12.5.4~~ 1607.12.5.5 Ballasted photovoltaic panel systems.** Roof structures that provide support for ballasted *photovoltaic panel systems* shall be designed, or analyzed, in accordance with Section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding.

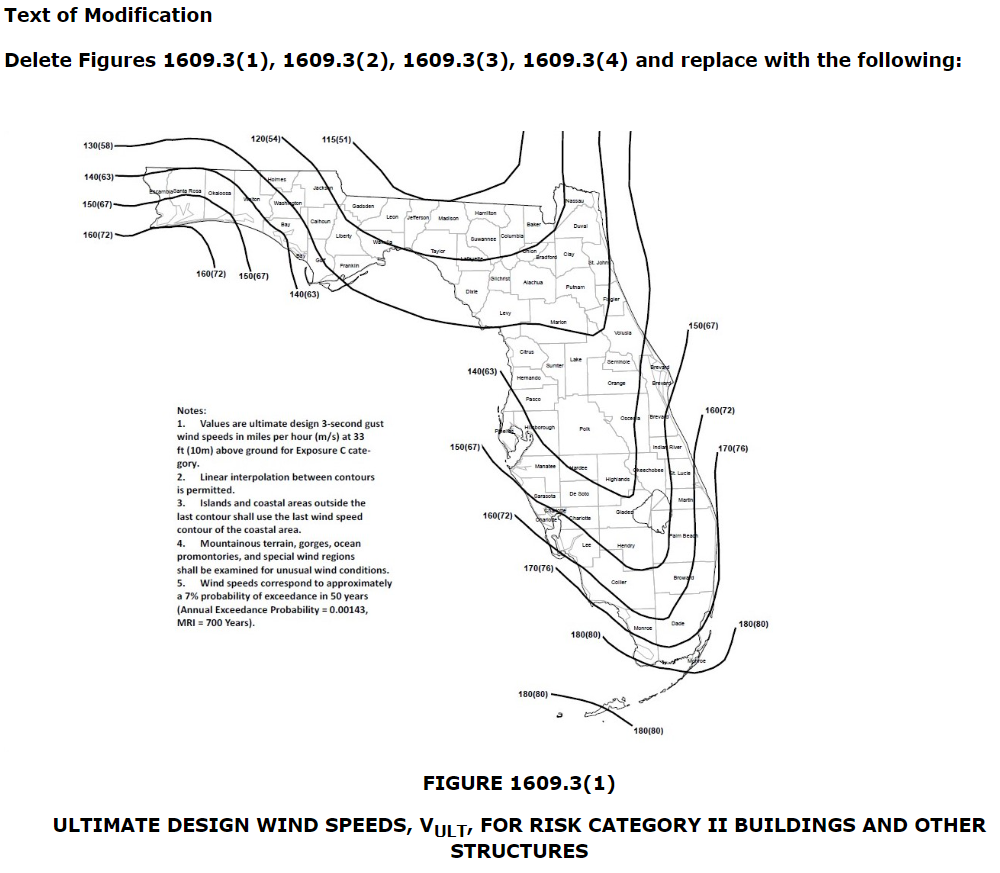
**(S9551 / S72-19 AS)**

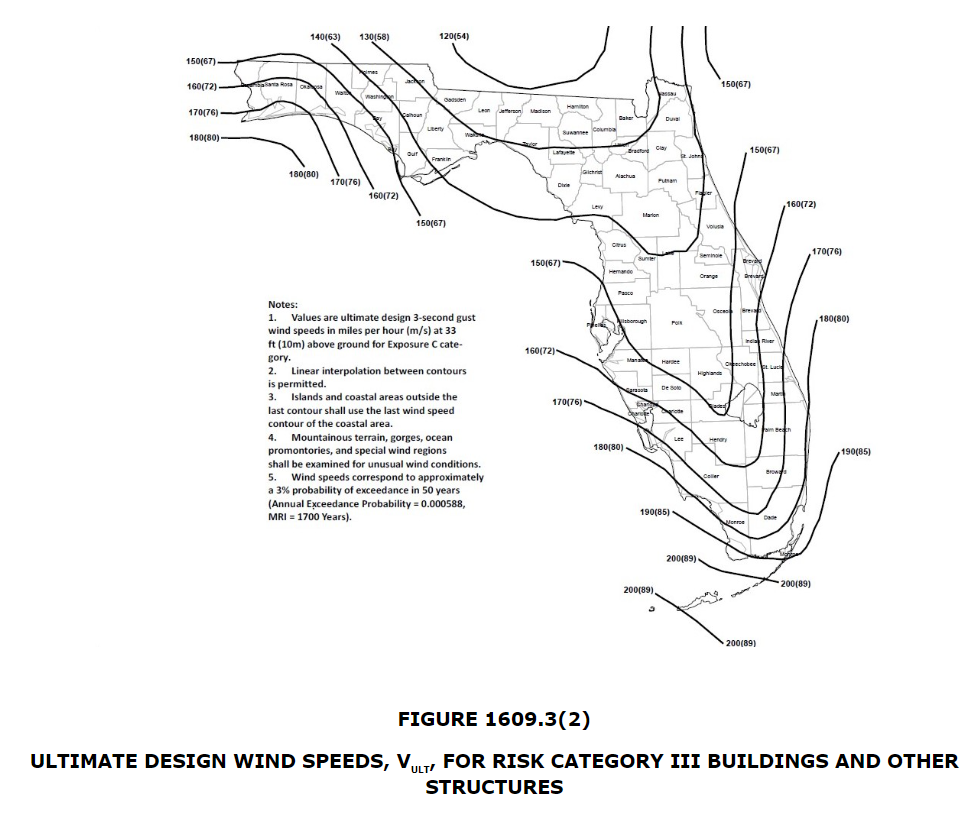
**Revise as follows:**

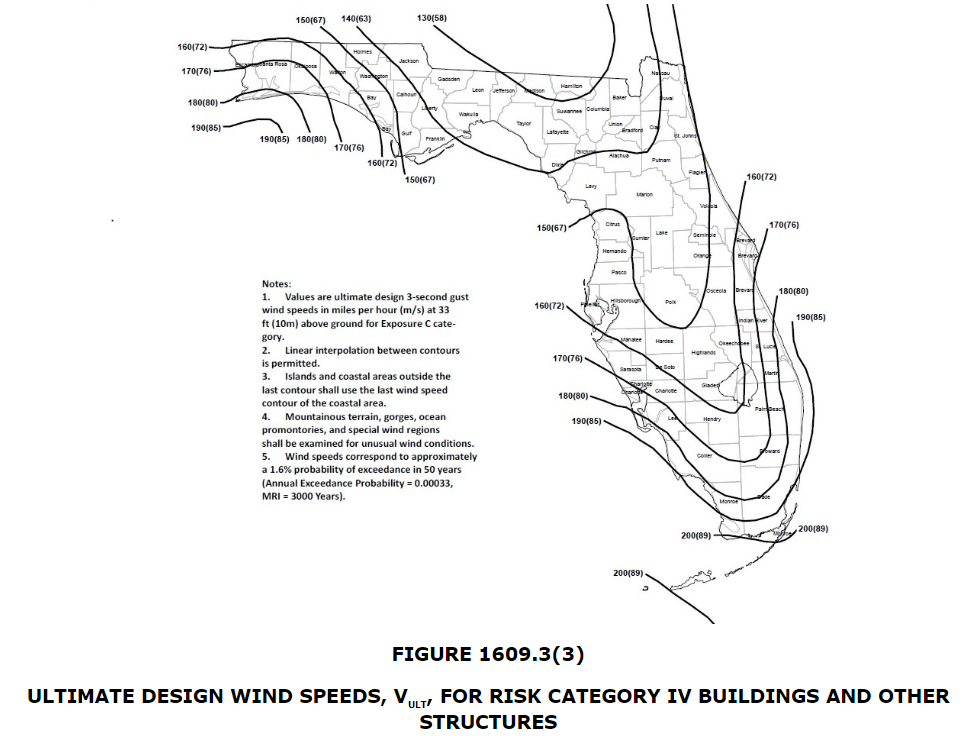
**1607.13.2 Vertical impact force.** The maximum wheel loads of the crane shall be increased by the following percentages to ~~determine~~ account for the ~~induced~~ effects of vertical impact or vibration ~~force~~:

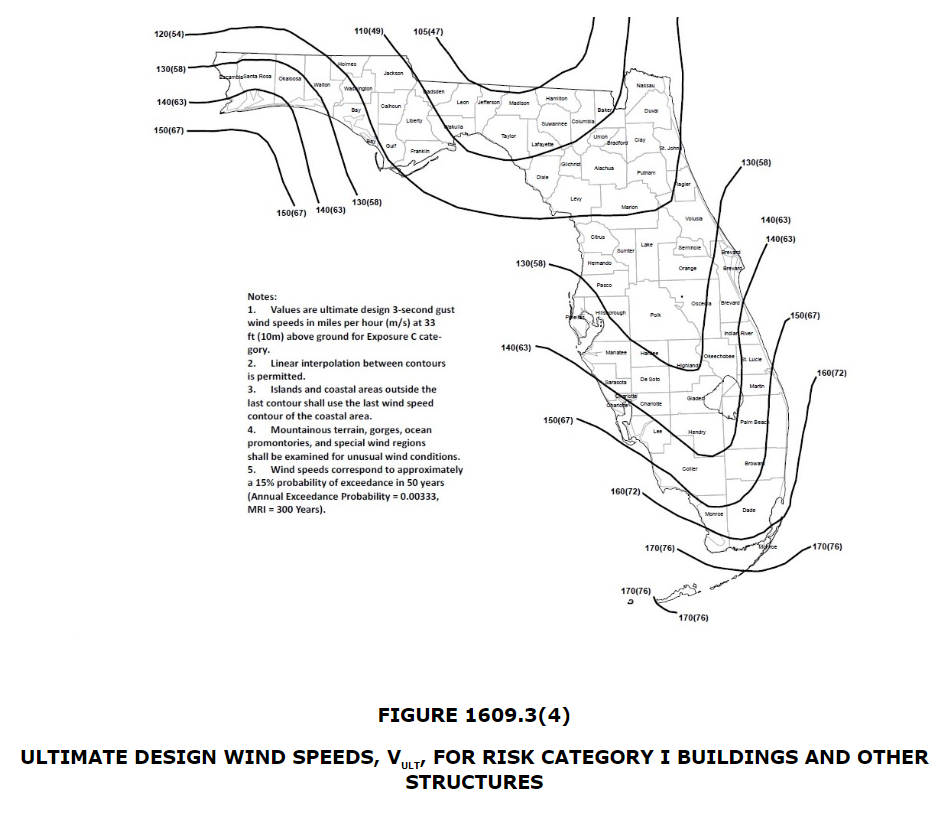
|  |  |
| --- | --- |
| Monorail cranes (powered) | 25 percent |
| Cab-operated or remotely operated bridge cranes (powered) | 25 percent |
| Pendant-operated bridge cranes (powered) | 10 percent |
| Bridge cranes or monorail cranes with hand-geared bridge, trolley and hoist | 0 percent |

**(S9552 / S73-19 AS)**









**(S9959 AS)**

**1609.1.2.1Louvers.**

Louvers protecting the exterior wall opening that are located within 30 feet (9144 mm) of grade shall meet the requirements of AMCA 540 or shall be protected by an impact-resistant cover complying with the large missile test of ASTM E1996 oran approved impact-resistance standard. Louvers required to be open for life safety purposes such asproviding a breathable atmosphere shall meet the requirements of AMCA 540.

**(S10081 AM/A1)**

**Add new text as follows:**

**1609.5 Tornado Loads.**The design and construction of Risk Category III and IV buildings and other structures shall be in accordance with Chapter 32 of ASCE 7, except as modified by this code.

*(renumber remaining sections)*

**Revise as follows:**

**1609.~~5~~6.1 Roof deck.**The roof deck shall be designed to withstand the wind pressures determined in accordance with ASCE 7.  Where design for tornado loads is required, the roof deck shall be designed to withstand the greater of wind pressures or tornado pressures determined in accordance with ASCE 7.

**1609.6.3.1 Tornado loads.**  Where design for tornado loads is required, tornado loads on rigid tile roof coverings shall be determined in accordance with Section 1609.6.3.1, replacing qh with qhT and (GCp) with KvT(GCp) in Equation 16-18, where:

qhT = tornado velocity pressure, psf (kN/m ) determined in accordance with Section 32.10 of ASCE 7.

KvT = tornado pressure coefficient adjustment factor for vertical winds, determined in accordance with Section 32.14 of ASCE 7.

**(S10065 AM A1)**

**1609.5 Roof systems.**Roof systems shall be designed and constructed in accordance with sections 1609.5.1 through 1609.5.3, as applicable.

**1609.5.1 Roof deck.**The roof deck shall be designed to withstand the wind pressures determined in accordance with ASCE 7.

**1609.5.2 Roof coverings.**Roof coverings shall comply with Section 1609.5.1.

**Exception:**Rigid tile roof coverings that are air permeable and installed over a roof deck complying with Section 1609.5.1 are permitted to be designed in accordance with Section 1609.5.3.

**1609.5.2.1 Asphalt Shingles.**Asphalt shingles installed over a roof deck complying with Section 1609.5.1 shall comply with the wind-resistance requirements of Section 1504.1.1.

**(S9895 AS)**

**1609.5.3 Rigid tile.**Wind loads on rigid tile roof coverings shall be determined in accordance with the following equation:

M = qhKdCLbLLa[1.0 - (GCp)]

For SI:

M = qhKdCLbLLa[1.0 - (GCp)] / 1,000

where:

(GCp) = Roof pressure coefficient for each applicable roof zone determined from Chapter 30 of ASCE 7. Roof coefficients shall not be adjusted for internal pressure.

Kd = Wind directionality factor determined from Chapter 26 of ASCE 7.*(no change to remaining variable definitions)*

**(S10063 AS)**

**Revise as follows:**

**SECTION 1610   
SOIL ~~LATERAL~~ LOADS AND HYDROSTATIC PRESSURE**

**1610.1 ~~General~~ Lateral pressures.** Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

**Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported at the top by flexible diaphragms shall be permitted to be designed for active pressure.

**Add new text as follows:**

**1610.2 Uplift loads on floor and foundations.**Basement floors, slabs on ground, foundations, and similar approximately horizontal elements below grade shall be designed to resist uplift loads where applicable. The upward pressure of water shall be taken as the full hydrostatic pressure applied over the entire area. The hydrostatic load shall be measured from the underside of the ~~construction~~ element being evaluated. The design for upward loads caused by expansive soils shall comply with Section 1808.6.

**(S9554 / S76-19 AM)**

**Revise as follows:**

**1610.1 General.** Foundation walls and retaining walls shall be designed to resist lateral soil loads from adjacent soil. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. ~~Design lateral~~ Lateral pressure from surcharge loads shall be added to the lateral ~~earth pressure~~ soil load. ~~Design lateral~~ Lateral pressure shall be increased if expansive soils are present at the site ~~are expansive~~. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

**Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported at the top by flexible diaphragms shall be permitted to be designed for active pressure.

**(S9555 / S77-19 AS)**

**Revise as follows:**

**1612.5 Flood hazard documentation.** The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*:

1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.

1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24.

2. For construction in *coastal high hazard areas* and *coastal A zones*:

2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.

2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using *allowable stress design*, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

**(SP9557 / S80-19 AS)**

**SECTION 1611**

**RAIN LOADS**

**1611.1 Design rain loads.**Each portion of a roof shall be designed to sustain the load of rainwater as per the requirements of Chapter 8 of ASCE 7 ~~that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow~~. Rain loads shall be based on the summation of the static head, ds, hydraulic head, dh, and ponding head, dp using equation 16-36.  The hydraulic head shall be based on hydraulic test data or hydraulic calculations assuming a flow rate corresponding to a rainfall intensity equal to or greater than the 15-min duration storm with return period given in Table 1611.1   ~~The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1 or on other rainfall rates determined from~~*~~approved~~*~~local weather data.~~  The ponding head shall be based on structural analysis as the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored dead load.

*R*= 5.2(*ds*+ *dh* +dp)                                                                                  **(Equation 16-36)**

For SI: *R*= 0.0098(*ds*+ *dh* +dp)

where:

*dh*= Hydraulic head equal to the depth of water on the undeflected roof above the inlet of the secondary drainage system for structural loading (SDSL) required to achieve the design flow in inches (mm)  ~~Additional depth of water on the undeflected roof above the inlet of secondary drainage system at its design flow (i.e., the hydraulic head), in inches (mm)~~.

*ds*=  Static head equal to the depth of water on the undeflected roof up to the inlet of the secondary drainage system for structural loading (SDSL) in inches (mm) ~~Depth of water on the undeflected roof up to the inlet of secondary drainage system when the primary drainage system is blocked (i.e., the static head), in inches (mm)~~.

*dp* = ponding head equal to the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored dead load in inches (mm).

*R*= Rain load ~~on the undeflected roof,~~ in psf (kN/m2). ~~When the phrase “undeflected roof” is used,~~

~~deflections from loads (including dead loads) shall not be considered when determining the amount of rain on the roof.~~

SDSL is the roof draining system through which water is drained from the roof when the drainage systems listed in ASCE 7 Section 8.2(a) through 8.2(d) are blocked or not working.

**TABLE 1611.1**

**DESIGN STORM RETURN PERIOD BY RISK CATEGORY**

|  |  |
| --- | --- |
| **Risk Category** | **Design Storm Return Period** |
| I & II | 100 years |
| III | 200 years |
| IV | 500 years |

**1611.2 Ponding instability.**Susceptible bays of roofs shall be evaluated for ponding instability in accordance with Section 8.4 of ASCE 7.

**1611.3 Controlled drainage.**Roofs equipped with hardware to control the rate of drainage shall be equipped with a secondary drainage system at a higher elevation that limits accumulation of water on the roof above that elevation. Such roofs shall be designed to sustain the load of rainwater that will accumulate on them to the elevation of the secondary drainage system plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow determined from Section 1611.1. Such roofs shall also be checked for ponding instability in accordance with Section 1611.2.

**Delete without substitution:**

**~~FIGURE 1611.1~~**

**~~100-YEAR, 1-HOUR RAINFALL (INCHES) WESTERN UNITED STATES~~**

**~~FIGURE 1611.1-continued~~**

**~~100-YEAR, 1-HOUR RAINFALL (INCHES) CENTRAL UNITED STATES~~**

**~~FIGURE 1611.1-continued~~**

**~~100-YEAR, 1-HOUR RAINFALL (INCHES) EASTERN UNITED STATES~~**

**~~FIGURE 1611.1-continued~~**

**~~100-YEAR, 1-HOUR RAINFALL (INCHES) ALASKA UNITED STATES~~**

**~~FIGURE 1611.1-continued~~**

**~~100-YEAR, 1-HOUR RAINFALL (INCHES) HAWAII UNITED STATES~~**

**Revise as follows:**

**1603.1.9 Roof rain load data.**Design rainfall intensity, *i* (in./hr) (cm/hr), shall be shown regardless of whether rain loads govern the design.~~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)~~

**(S10080 AS)**

**1612.5 Flood hazard documentation.**The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:

1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24.

1.4. For dry floodproofed nonresidential buildings, the elevation to which the building is dry floodproofed as required for the final inspection in Section 110.3, Building, 6.1.

2. For construction in coastal high hazard areas and coastal A zones:

2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.12.1.

2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m ) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

2.4 For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

**(CA10265 AS)/ (SP9558 / S81-19 AS)**

**1612.5 Flood hazard documentation.** The following documentation shall be prepared and sealed by a licensed professional surveyor and mapper or a registered design professional, as applicable, and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:

1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

1.3 For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.

2. For construction in coastal high hazard areas and coastal A zones:

2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

**(SP10349 AS)**

**1616.2.1 Fences.**

Fences not exceeding 6 feet (1829 mm) in height from grade may be designed for allowable wind speeds of 75 mph (33 m/s) fastest mile wind speed or 115 mph (40 m/s) 3-second gust.

**(S10276 AS)**

**Add new text as follows:**

**1620.7 Tornado Loads.**The design and construction of Risk Category III and IV buildings and other structures shall be in accordance with Chapter 32 of ASCE 7.

**(S10065 AM A1)**

|  |
| --- |
| 1626.5 Louvers  1626.5.1  Louvers ~~that are located on the building~~protecting the exterior wall envelope and are within 30 feet (9144 mm) of grade shall meet the requirements of AMCA 540 or TAS 201 (large missile test) or shall be protected by an impact-resistant cover complying with TAS 201 (large missile test), TAS 202 and TAS 203.  1626.5.2  Louvers required to be open for life safety purposes such as providing a breathable atmosphere that are~~located on the building~~ protecting the exterior wall envelope and are within 30 feet (9144 mm) of grade shall meet the impact requirements of AMCA 540 or TAS 201 (large missile test).  1626.6.3  Open and closed louvers ~~located on the building~~ protecting the exterior wall envelope, regardless of their function or location from grade, shall also comply with uniform air pressure testing per TAS 202protocol and either the cyclical wind pressure loading per TAS 203 protocol or by complying with both the impact and cyclical pressure testing of AMCA 540. |
|  |

**(S10082 AS)**

**CHAPTER 17 SPECIAL INSPECTIONS AND TESTS**

**1709.5.1 Exterior windows and doors.**

Exterior windows and sliding doors shall be tested and labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or TAS 202 (HVHZ shall comply with TAS 202 and ASTM E1300 or Section 2404). Exterior side-hinged doors shall be tested and *labeled* as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or comply with Section 1709.5.2. Products tested and *labeled* as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or TAS 202 shall not be subject to the requirements of Sections 2403.2 and 2403.3. Exterior windows and doors shall be labeled with a permanent label, marking, or etching providing traceability to the manufacturer and product. The following shall also be required either on a permanent label or on a temporary supplemental label applied by the manufacturer: information identifying the manufacturer, the product model/series number, positive and negative design pressure rating, product maximum size tested, impact-resistant rating if applicable, Florida product approval number or Miami-Dade product approval number, applicable test standard(s), and approved product certification agency, testing laboratory, evaluation entity or Miami-Dade product approval.

**(S10402 AS)**

|  |
| --- |
| **Revise as follows:**  **1702.1 Definitions.**The following terms are defined in Chapter 2:  **~~DESIGNATED SEISMIC SYSTEM.~~**    (*no change to remainder of section*)    **Revise as follows:**  **1708.3.2 Load test procedure not specified.**In the absence of applicable load test procedures contained  within a standard referenced by this code or acceptance criteria for a specific material or method of construction, such *existing structure*shall be subjected to a test procedure developed by a *registered design professional*that simulates applicable loading and deformation conditions. ~~For components that are not a part of the seismic force resisting system, at~~ At a minimum the test load shall be equal to the specified factored design loads. For materials such as wood that have strengths that are dependent on load duration, the test load shall be adjusted to account for the difference in load duration of the test compared to the expected duration of the design loads being considered. For statically loaded components, the test load shall be left in place for a period of 24 hours. For components that carry dynamic loads (e.g., machine supports or fall arrest anchors), the load shall be left in place for a period consistent with the component’s actual function. The structure shall be considered to have successfully met the test requirements where the following criteria are satisfied:    1. Under the design load, the deflection shall not exceed the limitations specified in Section 1604.3.  2. Within 24 hours after removal of the test load, the structure shall have recovered not less than 75 percent of the maximum deflection.  3. During and immediately after the test, the structure shall not show evidence of failure.  **Revise as follows:**  **1709.3 Load test procedures not specified.**Where load test procedures are not specified in the applicable referenced standards, the load-bearing and deformation capacity of structural components and assemblies shall be determined on the basis of a test procedure developed by a *registered design professional*that simulates applicable loading and deformation conditions. ~~For components and assemblies that are not a part of the seismic force-resisting system, the~~ The test shall be as specified in Section 1709.3.1. Load tests shall simulate the applicable loading conditions specified in Chapter 16. |
| **(S10042 AS)**   |  | | --- | | **1703.6.2 Test and inspection records.**Copies of necessary tests and special inspection records shall be filed with the building official.    Add a new section as follows:    **1703.6.2.1 Concrete Testing Reports.**Where this code, a referenced standard, a building official or inspection agency requires testing of concrete on a project, test reports shall be provided to the building official or inspection agency, the registered design professional of record, and the material supplier concurrent with reporting results to the client. | |  | |

**(S10120 AM A1)**

**1709.5.1 Exterior windows and doors.**

Exterior windows and sliding doors shall be tested and labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or TAS 202 (HVHZ shall comply with TAS 202 and ASTM E1300 or Section 2404). Exterior side-hinged doors shall be tested and *labeled* as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or comply with Section 1709.5.2. Products tested and *labeled* as conforming to AAMA/WDMA/CSA101/I.S.2/A440 shall not be subject to the requirements of Sections 2403.2 and 2403.3. Exterior windows and doors shall be labeled with a permanent label, marking, or etching providing traceability to the manufacturer and product. The following shall also be required either on a permanent label or on a temporary supplemental label applied by the manufacturer: information identifying the manufacturer, the product model/series number, positive and negative design pressure rating, product maximum size tested, impact-resistant rating if applicable, Florida product approval number or Miami-Dade product approval number, applicable test standard(s), and approved product certification agency, testing laboratory, evaluation entity or Miami-Dade product approval.

The labels are limited to one design pressure rating per referenced standard. The temporary supplemental label shall remain on the window or door until final approval by the building official.

**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:

OH ratio = OH Length/OH Height

where:

OH length = The horizontal measure of how far an overhang over a door projects out from door surface.

OH height = The vertical measure of the distance from the door sill to the bottom of the overhang over a door.

3. Structural wind load design pressures for window and door assemblies other than the size tested in accordance with Section 1709.5.1 shall be permitted to be different than the design value of the tested assembly provided such different pressures are determined by accepted engineering analysis such as AAMA 2502 or WDMA I.S.11. All components of the alternate size assembly shall be the same as the tested or labeled assembly; however, lineal components shall be permitted to vary in length compared to the tested or labeled assembly.

i. Operable windows and doors rated in this manner shall comply with the following:

1. For windows and doors (other than sliding or bi-fold), the frame area of the alternate size unit shall not exceed the frame area of the tested approved unit.

2. For sliding or bi-fold doors, the panel area of the alternate size unit shall not exceed the panel area of the tested approved unit.

3. Shall vary from the tested approved unit only in width, height or load requirements.

4. Shall not exceed 100 percent of the proportional deflection and fiber stress of the intermediate members of the approved unit.

5. Shall not exceed 100 percent of the concentrated load at the juncture of the intermediate members and the frame of the approved unit.

6. Shall not exceed the air and water infiltration resistance of the tested approved unit.

7. Shall not exceed the maximum cyclic pressure of the tested approved unit when tested in accordance with TAS 201 and TAS 203 or ASTM E1886 and ASTM E1996 where applicable.

ii. Nonoperable windows and doors rated in this manner shall comply with the following:

1. The frame area of the alternate size unit shall not exceed the frame area of the tested approved unit.

2. Shall vary from the tested approved unit only in width, height or load requirements.

3. The maximum uniform load distribution (ULD) of any side shall be equal to the uniform load carried by the side divided by the length of the side.

4. The ULD of any member shall not exceed the ULD of the corresponding member of the tested approved unit.

5. The ULD of each member shall be calculated in accordance with standard engineering analysis.

6. Shall not exceed the air and water infiltration resistance of the tested approved unit.

7. Shall not exceed the maximum cyclic pressure of the tested approved unit when tested in accordance with TAS 201 and TAS 203 or ASTM E1886 and ASTM E1996 where applicable.

4. 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.

**(S10417 AS)**

**CHAPTER 18 SOILS AND FOUNDATIONS**

**Revise as follows:**

**1803.2 Investigations required.**Geotechnical investigations shall be conducted in accordance with Sections 1803.3 through 1803.5.

**Exception:**The *building official*shall be permitted to waive the requirement for a geotechnical investigation where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Section~~s~~ 1803.5.10 ~~and 1803.5.11~~.

**Revise as follows:**

**1803.5 Investigated conditions.**Geotechnical investigations shall be conducted as indicated in Sections 1803.5.1 through 1803.5.10 ~~1803.5.12~~.

**Delete section in its entirety:**

**~~1803.5.11 Seismic Design Categories C through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, a geotechnical investigation shall be conducted, and shall include an evaluation of all of the following potential geologic and seismic hazards:~~

~~1. Slope instability.~~

~~2. Liquefaction.~~

~~3. Total and differential settlement.~~

~~4. Surface displacement due to faulting or seismically induced lateral spreading or lateral flow.~~

**Delete section in its entirety:**

**~~1803.5.12 Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, the geotechnical investigation required by Section 1803.5.11 shall also include all of the following as applicable:~~

~~1. The determination of dynamic seismic lateral earth pressures on foundation walls and retaining walls supporting more than 6 feet (1.83 m) of backfill height due to design earthquake ground motions.~~

~~2. The potential for liquefaction and soil strength loss evaluated for site peak ground acceleration, earthquake magnitude and source characteristics consistent with the maximum considered earthquake ground motions. Peak ground acceleration shall be determined based on one of the following:~~

~~2.1. A site-specific study in accordance with Section 21.5 of ASCE 7.~~

~~2.2. In accordance with Section 11.8.3 of ASCE 7.~~

~~3. An assessment of potential consequences of liquefaction and soil strength loss including, but not limited to, the following:~~

~~3.1. Estimation of total and differential settlement.~~

~~3.2. Lateral soil movement.~~

~~3.3. Lateral soil loads on foundations.~~

~~3.4. Reduction in foundation soil-bearing capacity and lateral soil reaction.~~

~~3.5. Soil downdrag and reduction in axial and lateral soil reaction for pile foundations.~~

~~3.6. Increases in soil lateral pressures on retaining walls.~~

~~3.7. Flotation of buried structures.~~

~~4. Discussion of mitigation measures such as, but not limited to, the following:~~

~~4.1. Selection of appropriate foundation type and depths.~~

~~4.2. Selection of appropriate structural systems to accommodate anticipated displacements and forces.~~

~~4.3. Ground stabilization.~~

~~4.4. Any combination of these measures and how they shall be considered in the design~~

~~of the structure.~~

**Revise as follows:**

**1806.1 Load combinations.**The presumptive load-bearing values provided in Table 1806.2 shall be used with the *allowable stress design*load combinations specified in Section 1605.3. The values of vertical foundation pressure and lateral bearing pressure given in Table 1806.2 shall be permitted to be increased by one-third where used with the alternative basic load combinations of Section 1605.3.2 that include wind ~~or earthquake~~ loads.

**Revise as follows:**

**1807.1.3 Rubble stone foundation walls.**Foundation walls of rough or random rubble stone shall not be less than 16 inches (406 mm) thick. ~~Rubble stone shall not be used for foundation walls of structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F.~~

**Revise as follows:**

**1807.1.6.2.1 Minimum ~~Seismic~~ requirements.**~~Based on the~~*~~seismic design category~~*~~assigned to the structure in accordance with Section 1613, concrete~~ Concrete foundation walls designed using Table 1807.1.6.2 shall have ~~be subject to the following limitations:~~

~~1.~~*~~Seismic Design Categories~~*~~A and B. Not~~ not less than one No. 5 bar ~~shall be~~ provided around window, door and similar sized openings. The bar shall be anchored to develop *fy*in tension at the corners of openings.

~~2.~~*~~Seismic Design Categories~~*~~C, D, E and F. Tables shall not be used except as allowed for plain concrete members in Section 1905.1.7.~~

**Delete section in its entirety:**

**~~1807.1.6.3.2 Seismic requirements.~~**~~Based on the~~*~~seismic design category~~*~~assigned to the structure in accordance with Section 1613, masonry foundation walls designed using Tables 1807.1.6.3(1) through 1807.1.6.3(4) shall be subject to the following limitations:~~

~~1.~~*~~Seismic Design Categories~~*~~A and B. No additional seismic requirements.~~

~~2.~~*~~Seismic Design Category~~*~~C. A design using Tables 1807.1.6.3(1) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.3 of TMS 402.~~

~~3.~~*~~Seismic Design Category~~*~~D. A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.4 of TMS 402.~~

~~4.~~*~~Seismic Design Categories~~*~~E and F. A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.5 of TMS 402.~~

**Revise as follows:**

**1807.2.3 Safety factor.**Retaining walls shall be designed to resist the lateral action of soil to produce sliding and overturning with a minimum safety factor of 1.5 in each case. The load combinations of Section 1605 shall not apply to this requirement. Instead, design shall be based on ~~0.7 times nominal earthquake loads,~~ 1.0 times all applicable ~~other~~ *nominal loads*, and investigation with one or more of the variable loads set to zero. The safety factor against lateral sliding shall be taken as the available soil resistance at the base of the retaining wall foundation divided by the net lateral force applied to the retaining wall.

**~~Exception:~~**~~Where earthquake loads are included, the minimum safety factor for retaining wall sliding and overturning shall be 1.1.~~

**Delete section in its entirety and show as Reserved:**

**1808.3.1 Seismic overturning.**  Reserved.~~Where foundations are proportioned using the load combinations of Section 1605.2 or 1605.3.1, and the computation of seismic overturning effects is by equivalent lateral force analysis or modal analysis, the proportioning shall be in accordance with Section 12.13.4 of ASCE 7.~~

**Revise as follows:**

**1808.8 Concrete foundations.**The design, materials and construction of concrete foundations shall comply with Sections 1808.8.1 through 1808.8.5 ~~1808.8.6~~ and the provisions of Chapter 19.

**Exception:**Where concrete footings supporting walls of light-frame construction are designed in accordance with Table 1809.7, a specific design in accordance with Chapter 19 is not required.

**Revise as follows:**

**TABLE 1808.8.1**

**MINIMUM SPECIFIED COMPRESSIVE STRENGTH *f******C*OF CONCRETE OR GROUT**

|  |  |
| --- | --- |
| **FOUNDATION ELEMENT OR CONDITION** | **SPECIFIED COMPRESSIVE STRENGTH, *f******c*** |
| 1. Foundations ~~for structures assigned to Seismic Design Category A, B or C~~ | 2,500 psi |
| ~~2a. Foundations for Group R or U occupancies of light-frame construction, two stories or less in height, assigned to Seismic Design Category D, E or F~~ | ~~2,500 psi~~ |
| ~~2b. Foundations for other structures assigned to Seismic Design Category D, E or F~~ | ~~3,000 psi~~ |
| 2 ~~3~~. Precast nonprestressed driven piles | 4,000 psi |
| 3 ~~4~~. Socketed drilled shafts | 4,000 psi |
| 4 ~~5~~. Micropiles | 4,000 psi |
| 5 ~~6~~. Precast prestressed driven piles | 5,000 psi |

**Delete section in its entirety:**

**~~1808.8.6 Seismic requirements.~~**~~See Section 1905 for additional requirements for foundations of structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F. For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, provisions of Section 18.13 of ACI 318 shall apply where not in conflict with the provisions of Sections 1808 through 1810.~~

**~~Exceptions:~~**

~~1. Detached one- and two-family dwellings of lightframe construction and two stories or less above~~*~~grade plane~~*~~are not required to comply with the provisions of Section 18.13 of ACI 318.~~

~~2. Section 18.13.4.3(a) of ACI 318 shall not apply.~~

**Revise as follows:**

**1809.1 General.**Shallow foundations shall be designed and constructed in accordance with Sections 1809.2 through 1809.12 ~~1809.13~~.

**Revise as follows:**

**TABLE 1809.7**

**PRESCRIPTIVE FOOTINGS SUPPORTING**

**WALLS OF LIGHT-FRAME CONSTRUCTIONa, b, c, d, e**

(*no change to table values)*

d. Reserved.  ~~See Section 1905 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.~~

**Revise as follows:**

**1809.10 Pier and curtain wall foundations.**~~Except in~~*~~Seismic Design Categories~~*~~D, E and F, pier~~ Pier and curtain wall foundations shall be permitted to be used to support lightframe construction not more than two *stories above grade plane*, provided the following requirements are met:

(*no change to remainder of section*)

**Delete section in its entirety:**

**~~1809.13 Footing seismic ties.~~**~~Where a structure is assigned to~~*~~Seismic Design Category~~*~~D, E or F, individual spread footings founded on soil defined in Section 1613.3.2 as~~*~~Site Class~~*~~E or F shall be interconnected by ties. Unless it is demonstrated that equivalent restraint is provided by reinforced concrete beams within slabs on grade or reinforced concrete slabs on grade, ties shall be capable of carrying, in tension or compression, a force equal to the lesser of the product of the larger footing design gravity load times the seismic coefficient,~~*~~SDS~~*~~, divided by 10 and 25 percent of the smaller footing design gravity load.~~

**Delete section in its entirety:**

**~~1810.2.4.1 Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, deep foundation elements on~~*~~Site Class~~*~~E or F sites, as determined in Section 1613.3.2, shall be designed and constructed to withstand maximum imposed curvatures from earthquake ground motions and structure response. Curvatures shall include free-field soil strains modified for soil-foundation-structure interaction coupled with foundation element deformations associated with earthquake loads imparted to the foundation by the structure.~~

**~~Exception:~~**~~Deep foundation elements that satisfy the following additional detailing requirements shall be deemed to comply with the curvature capacity requirements of this section.~~

~~1. Precast prestressed concrete piles detailed in accordance with Section 1810.3.8.3.3.~~

~~2. Cast-in-place deep foundation elements with a minimum longitudinal reinforcement ratio of 0.005 extending the full length of the element and detailed in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 as required by Section 1810.3.9.4.2.2.~~

**Revise as follows:**

**1810.3 Design and detailing.**Deep foundations shall be designed and detailed in accordance with Sections 1810.3.1 through 1810.3.11 ~~1810.3.12~~.

**Delete section in its entirety and show as Reserved:**

**1810.3.2.1.1 Seismic hooks.**  Reserved.~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, the ends of hoops, spirals and ties used in concrete deep foundation elements shall be terminated with seismic hooks, as defined in ACI 318, and shall be turned into the confined concrete core.~~

**Revise as follows:**

**1810.3.3.1.5 Uplift capacity of a single deep foundation element.**Where required by the design, the uplift capacity of a single deep foundation element shall be determined by an *approved*method of analysis based on a minimum factor of safety of three or by load tests conducted in accordance with ASTM D3689. The maximum allowable uplift load shall not exceed the ultimate load capacity as determined in Section 1810.3.3.1.2, using the results of load tests conducted in accordance with ASTM D3689, divided by a factor of safety of two.

**Exception:**Where uplift is due to wind ~~or seismic~~ loading, the minimum factor of safety shall be two where capacity is determined by an analysis and one and one-half where capacity is determined by load tests.

**Revise as follows:**

**1810.3.5.3.4 Steel pipes and tubes.**Steel pipes and tubes used as deep foundation elements shall have a nominal outside diameter of not less than 8 inches (203 mm). Where steel pipes or tubes are driven open ended, they shall have a minimum of 0.34 square inch (219 mm2) of steel in cross section to resist each 1,000 foot-pounds (1356 Nm) of pile hammer energy, or shall have the equivalent strength for steels having a yield strength greater than 35,000 psi (241 MPa) or the wave equation analysis shall be permitted to be used to assess compression stresses induced by driving to evaluate if the pile section is appropriate for the selected hammer. Where a pipe or tube with wall thickness less than 0.179 inch (4.6 mm) is driven open ended, a suitable cutting shoe shall be provided. ~~Concrete-filled steel pipes or tubes in structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F shall have a wall thickness of not less than 3/16 inch (5 mm).~~ The pipe or tube casing for socketed drilled shafts shall have a nominal outside diameter of not less than 18 inches (457 mm), a wall thickness of not less than 3/8 inch (9.5 mm) and a suitable steel driving shoe welded to the bottom; the diameter of the rock socket shall be approximately equal to the inside diameter of the casing.

**Exceptions:**

1. There is no minimum diameter for steel pipes or tubes used in micropiles.

2. For mandrel-driven pipes or tubes, the minimum wall thickness shall be 1/10 inch (2.5 mm).

**Delete section in its entirety:**

**~~1810.3.6.1 Seismic Design Categories C through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F splices of deep foundation elements shall develop the lesser of the following:~~

~~1. The nominal strength of the deep foundation element.~~

~~2. The axial and shear forces and moments from the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.~~

**Delete section in its entirety:**

**~~1810.3.8.2.2 Seismic reinforcement in Seismic Design Categories C through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, precast nonprestressed piles shall be reinforced as specified in this section. The minimum longitudinal reinforcement ratio shall be 0.01 throughout the length. Transverse reinforcement shall consist of closed ties or spirals with a minimum 3/8 inch (9.5 mm) diameter. Spacing of transverse reinforcement shall not exceed the smaller of eight times the diameter of the smallest longitudinal bar or 6 inches (152 mm) within a distance of three times the least pile dimension from the bottom of the pile cap. Spacing of transverse reinforcement shall not exceed 6 inches (152 mm) throughout the remainder of the pile.~~

**~~1810.3.8.2.3 Additional seismic reinforcement in Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, transverse reinforcement shall be in accordance with Section 1810.3.9.4.2.~~

**Delete section in its entirety:**

**~~1810.3.8.3.2 Seismic reinforcement in Seismic Design Category C.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, precast prestressed piles shall have transverse reinforcement in accordance with this section. The volumetric ratio of spiral reinforcement shall not be less than the amount required by the following formula for the upper 20 feet (6096 mm) of the pile.~~

~~?~~*~~s~~*~~= 0.12~~*~~f~~*~~~~*~~c~~*~~/~~*~~f~~~~yh~~***~~(Equation 18-5)~~**

~~where:~~

*~~f~~*~~~~*~~c~~~~=~~*~~Specified compressive strength of concrete, psi (MPa).~~

*~~f~~~~yh~~~~=~~*~~Yield strength of spiral reinforcement = 85,000 psi (586 MPa).~~

~~?~~*~~s~~~~=~~*~~Spiral reinforcement index (vol. spiral/vol. core).~~

~~At least one-half the volumetric ratio required by Equation 18-5 shall be provided below the upper 20 feet (6096 mm) of the pile.~~

**Delete section in its entirety:**

**~~1810.3.8.3.3 Seismic reinforcement in Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, precast prestressed piles shall have transverse reinforcement in accordance with the following:~~

~~1. Requirements in ACI 318, Chapter 18, need not apply, unless specifically referenced.~~

~~2. Where the total pile length in the soil is 35 feet (10 668 mm) or less, the lateral transverse reinforcement in the ductile region shall occur through the length of the pile. Where the pile length exceeds 35 feet (10 668 mm), the ductile pile region shall be taken as the greater of 35 feet (10 668 mm) or the distance from the underside of the pile cap to the point of zero curvature plus three times the least pile dimension.~~

~~3. In the ductile region, the center-to-center spacing of the spirals or hoop reinforcement shall not exceed one-fifth of the least pile dimension, six times the diameter of the longitudinal strand or 8 inches (203 mm), whichever is smallest.~~

~~4. Circular spiral reinforcement shall be spliced by lapping one full turn and bending the end of each spiral to a 90-degree hook or by use of a mechanical or welded splice complying with Section 25.5.7 of ACI 318.~~

~~5. Where the transverse reinforcement consists of circular spirals, the volumetric ratio of spiral transverse reinforcement in the ductile region shall comply with the following:~~

~~?~~*~~s~~*~~= 0.25(~~*~~f~~*~~~~*~~c~~~~/ f~~~~yh~~*~~)(~~*~~Ag~~*~~/~~*~~A~~~~ch~~*~~- 1.0)[0.5 + 1.4~~*~~P~~*~~/(~~*~~f~~*~~~~*~~c~~~~Ag~~*~~)]~~**~~(Equation 18-6)~~**

~~but not less than~~

~~?~~*~~s~~*~~= 0.12(~~*~~f~~*~~~~*~~c~~~~/ f~~~~yh~~*~~)[0.5 + 1.4~~*~~P~~*~~/(~~*~~f~~*~~~~*~~c~~~~A~~~~g~~*~~)] ³ 0.12~~*~~f~~*~~~~*~~c~~*~~/~~*~~f~~~~yh~~***~~(Equation 18-7)~~**

~~and need not exceed:~~

~~?~~*~~s~~*~~= 0.021~~**~~(Equation 18-8)~~**

~~where:~~

*~~A~~~~g~~*~~= Pile cross-sectional area, square inches (mm2).~~

*~~A~~~~ch~~*~~= Core area defined by spiral outside diameter, square inches (mm2).~~

*~~f~~*~~~~*~~c~~*~~= Specified compressive strength of concrete, psi (MPa).~~

*~~f~~~~yh~~*~~= Yield strength of spiral reinforcement = 85,000 psi (586 MPa).~~

*~~P~~*~~= Axial load on pile, pounds (kN), as determined from Equations 16-5 and 16-7.~~

~~?~~*~~s~~*~~= Volumetric ratio (vol. spiral/vol. core).~~

~~This required amount of spiral reinforcement is permitted to be obtained by providing an inner and outer spiral.~~

~~6. Where transverse reinforcement consists of rectangular hoops and cross ties, the total cross-sectional area of lateral transverse reinforcement in the ductile region with spacing,~~*~~s~~*~~, and perpendicular dimension,~~*~~hc~~*~~, shall conform~~

~~to:~~

*~~A~~~~sh~~*~~= 0.3~~*~~s h~~~~c~~*~~(~~*~~f~~*~~~~*~~c~~*~~/~~*~~f~~~~yh~~*~~)(~~*~~Ag~~*~~/~~*~~A~~~~ch~~*~~- 1.0)[0.5 + 1.4~~*~~P~~*~~/(~~*~~f~~*~~~~*~~c~~~~A~~~~g~~*~~)]~~**~~(Equation 18-9)~~**

~~but not less than:~~

*~~A~~~~sh~~*~~= 0.12~~*~~s h~~~~c~~*~~(~~*~~f~~*~~~~*~~c~~*~~/~~*~~fyh~~*~~) [0.5 + 1.4~~*~~P~~*~~/(~~*~~f~~*~~~~*~~c~~~~A~~~~g~~*~~)]~~**~~(Equation 18-10)~~**

~~where:~~

*~~f~~~~yh~~*~~= yield strength of transverse reinforcement ? 70,000 psi (483 MPa).~~

*~~h~~~~c~~*~~= Cross-sectional dimension of pile core measured center to center of hoop reinforcement, inch (mm).~~

*~~s~~*~~= Spacing of transverse reinforcement measured along length of pile, inch (mm).~~

*~~A~~~~sh~~*~~= Cross-sectional area of transverse reinforcement, square inches (mm2).~~

*~~f~~*~~~~*~~c~~*~~= Specified compressive strength of concrete, psi (MPa).~~

~~The hoops and cross ties shall be equivalent to deformed bars not less than No. 3 in size. Rectangular hoop ends shall terminate at a corner with seismic hooks.~~

~~Outside of the length of the pile requiring transverse confinement reinforcing, the spiral or hoop reinforcing with a volumetric ratio not less than one-half of that required for transverse confinement reinforcing shall be provided.~~

**Delete section in its entirety:**

**~~1810.3.9.4 Seismic reinforcement.~~**~~Where a structure is assigned to~~*~~Seismic Design Category~~*~~C, reinforcement shall be provided in accordance with Section 1810.3.9.4.1. Where a structure is assigned to~~*~~Seismic Design Category~~*~~D, E or F, reinforcement shall be provided in accordance with Section 1810.3.9.4.2.~~

**~~Exceptions:~~**

~~1. Isolated deep foundation elements supporting posts of Group R-3 and U occupancies not exceeding two stories of light-frame construction shall be permitted to be reinforced as required by rational analysis but with not less than one No. 4 bar, without ties or spirals, where detailed so the element is not subject to lateral loads and the soil provides adequate lateral support in accordance with Section 1810.2.1.~~

~~2. Isolated deep foundation elements supporting posts and bracing from decks and patios appurtenant to Group R-3 and U occupancies not exceeding two stories of light-frame construction shall be permitted to be reinforced as required by rational analysis but with not less than one No. 4 bar, without ties or spirals, where the lateral load,~~*~~E~~*~~, to the top of the element does not exceed 200 pounds (890 N) and the soil provides adequate lateral support in~~

~~accordance with Section 1810.2.1.~~

~~3. Deep foundation elements supporting the concrete foundation wall of Group R-3 and U occupancies not exceeding two stories of light-frame construction shall be permitted to be reinforced as required by rational analysis but with not less than two No. 4 bars, without ties or spirals, where the design cracking moment determined in accordance with Section 1810.3.9.1 exceeds the required moment strength determined using the load combinations with overstrength factor in Section 12.4.3.2 or 12.14.3.2 of ASCE 7 and the soil provides adequate lateral support in accordance with Section 1810.2.1.~~

~~4. Closed ties or spirals where required by Section 1810.3.9.4.2 shall be permitted to be limited to the top 3 feet (914 mm) of deep foundation elements 10 feet (3048 mm) or less in depth supporting Group R-3 and U occupancies of~~*~~Seismic Design Category~~*~~D, not exceeding two stories of light-frame construction.~~

**~~1810.3.9.4.1 Seismic reinforcement in Seismic Design Category C.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, cast-in-place deep foundation elements shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis.~~

~~A minimum of four longitudinal bars, with a minimum longitudinal reinforcement ratio of 0.0025, shall be provided throughout the minimum reinforced length of the element as defined below starting at the top of the element. The minimum reinforced length of the element shall be taken as the greatest of the following:~~

~~1. One-third of the element length.~~

~~2. A distance of 10 feet (3048 mm).~~

~~3. Three times the least element dimension.~~

~~4. The distance from the top of the element to the point where the design cracking moment determined in accordance with Section 1810.3.9.1 exceeds the required moment strength determined using the load combinations of Section 1605.2.~~

~~Transverse reinforcement shall consist of closed ties or spirals with a minimum 3/8 inch (9.5 mm) diameter. Spacing of transverse reinforcement shall not exceed the smaller of 6 inches (152 mm) or 8-longitudinal-bar diameters, within a distance of three times the least element dimension from the bottom of the pile cap. Spacing of transverse reinforcement shall not exceed 16 longitudinal bar diameters throughout the remainder of the reinforced~~

~~length.~~

**~~Exceptions:~~**

~~1. The requirements of this section shall not apply to concrete cast in structural steel pipes or tubes.~~

~~2. A spiral-welded metal casing of a thickness not less than the manufacturer’s standard No. 14 gage (0.068 inch) is permitted to provide concrete confinement in lieu of the closed ties or spirals. Where used as such, the metal casing shall be protected against possible deleterious action due to soil constituents, changing water levels or other factors indicated by boring records of site conditions.~~

**~~1810.3.9.4.2 Seismic reinforcement in Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, cast-in-place deep foundation elements shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis.~~

~~A minimum of four longitudinal bars, with a minimum longitudinal reinforcement ratio of 0.005, shall be provided throughout the minimum reinforced length of the element as defined below starting at the top of the element. The minimum reinforced length of the element shall be taken as the greatest of the following:~~

~~1. One-half of the element length.~~

~~2. A distance of 10 feet (3048 mm).~~

~~3. Three times the least element dimension.~~

~~4. The distance from the top of the element to the point where the design cracking moment determined in accordance with Section 1810.3.9.1 exceeds the required moment strength determined using the load combinations of Section 1605.2.~~

~~Transverse reinforcement shall consist of closed ties or spirals no smaller than No. 3 bars for elements with a least dimension up to 20 inches (508 mm), and No. 4 bars for larger elements. Throughout the remainder of the reinforced length outside the regions with transverse confinement reinforcement, as specified in Section 1810.3.9.4.2.1 or 1810.3.9.4.2.2, the spacing of transverse reinforcement shall not exceed the least of the following:~~

~~1. 12 longitudinal bar diameters;~~

~~2. One-half the least dimension of the element; and~~

~~3. 12 inches (305 mm).~~

**~~Exceptions:~~**

~~1. The requirements of this section shall not apply to concrete cast in structural steel pipes or tubes.~~

~~2. A spiral-welded metal casing of a thickness not less than manufacturer’s standard No. 14 gage (0.068 inch) is permitted to provide concrete confinement in lieu of the closed ties or spirals. Where used as such, the metal casing shall be protected against possible deleterious action due to soil constituents, changing water levels or other factors indicated by boring records of site conditions.~~

**~~1810.3.9.4.2.1 Site Classes A through D.~~**~~For~~*~~Site Class~~*~~A, B, C or D sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within three times the least element dimension of the bottom of the pile cap. A transverse spiral reinforcement ratio of not less than one-half of that required in Section 18.7.5.4(a) of ACI 318 shall be permitted.~~

**~~1810.3.9.4.2.2 Site Classes E and F.~~**~~For~~*~~Site Class~~*~~E or F sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within seven times the least element dimension of the pile cap and within seven times the least element dimension of the interfaces of strata that are hard or stiff and strata that are liquefiable or are composed of soft- to medium-stiff clay.~~

**Revise as follows:**

**1810.3.10 Micropiles.**Micropiles shall be designed and detailed in accordance with Sections 1810.3.10.1 through 1810.3.10.3 ~~1810.3.10.4~~.

**Delete section in its entirety and show as Reserved:**

**~~1810.3.10.4 Seismic reinforcement.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, the micropile shall be considered as an alternative system in accordance with Section 104.11. The alternative system design, supporting documentation and test data shall be submitted to the~~*~~building official~~*~~for review and approval.~~

**Delete section in its entirety:**

**~~1810.3.11.1 Seismic Design Categories C through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, concrete deep foundation elements shall be connected to the pile cap by embedding the element reinforcement or field-placed dowels anchored in the element into the pile cap for a distance equal to their development length in accordance with ACI 318. It shall be permitted to connect precast prestressed piles to the pile cap by developing the element prestressing strands into the pile cap provided the connection is ductile. For deformed bars, the development length is the full development length for compression, or tension in the case of uplift, without reduction for excess reinforcement in accordance with Section 25.4.10 of ACI 318. Alternative measures for laterally confining concrete and maintaining toughness and ductile-like behavior at the top of the element shall be permitted provided the design is such that any hinging occurs in the confined region.~~

~~The minimum transverse steel ratio for confinement shall not be less than one-half of that required for columns.~~

~~For resistance to uplift forces, anchorage of steel pipes, tubes or H-piles to the pile cap shall be made by means other than concrete bond to the bare steel section. Concrete-filled steel pipes or tubes shall have reinforcement of not less than 0.01 times the cross-sectional area of the concrete fill developed into the cap and extending into the fill a length equal to two times the required cap embedment, but not less than the development length in tension of the reinforcement.~~

**~~1810.3.11.2 Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, deep foundation element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Anchorage shall develop a minimum of 25 percent of the strength of the element in tension. Anchorage into the pile cap shall comply with the following:~~

~~1. In the case of uplift, the anchorage shall be capable of developing the least of the following:~~

~~1.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.~~

~~1.2. The nominal tensile strength of a steel element.~~

~~1.3. The frictional force developed between the element and the soil multiplied by 1.3.~~

**~~Exception:~~**~~The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.~~

~~2. In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 ofASCE 7 or the anchorage shall be capable of developing the full axial, bending and shear nominal strength of the element.~~

~~Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.~~

**~~1810.3.12 Grade beams.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, grade beams shall comply with the provisions in Section 18.13.3 of ACI 318 for grade beams, except where they are designed to resist the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.~~

**~~1810.3.13 Seismic ties.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, individual deep foundations shall be interconnected by ties. Unless it can be demonstrated that equivalent restraint is provided by reinforced concrete beams within slabs on grade or reinforced concrete slabs on grade or confinement by competent rock, hard cohesive soils or very dense granular soils, ties shall be capable of carrying, in tension or compression, a force equal to the lesser of the product of the larger pile cap or column design gravity load times the seismic coefficient,~~*~~S~~~~DS~~*~~, divided by 10, and 25 percent of the smaller pile or column design gravity load.~~

**~~Exception:~~**~~In Group R-3 and U occupancies of light-frame construction, deep foundation elements supporting foundation walls, isolated interior posts detailed so the element is not subject to lateral loads or exterior decks and patios are not subject to interconnection where the soils are of adequate stiffness, subject to the approval of the~~*~~building official~~*~~.~~

**(S10043 AS)**

**Revise as follows:**

**1803.5.7 Excavation near foundations.**

Where excavation will reduce support from any foundation, a *registered design professional* shall prepare an assessment of the structure as determined from examination of the structure, ~~the review of~~ available design documents, available subsurface data, and, if necessary, excavation of test pits. The *registered design professional* shall determine the requirements for ~~underpinning~~ support and protection of any existing foundation and prepare site-specific plans, details and sequence of work for submission. Such support shall be provided by underpinning, ~~sheeting and~~ bracing, excavation retention systems, or by other means acceptable to the *building official*.

**(S9572 / S111-19 AS)**

**Revise as follows:**

**1804.1 Excavation near foundations.** Excavation for any purpose shall not reduce vertical or lateral support for any foundation or adjacent foundation without first underpinning or protecting the foundation against detrimental lateral or vertical movement, or both, in accordance with Section 1803.5.7.

**(S9573 / S112-19 AS)**

**Add new text as follows:**

**1807.2.4 Segmental Retaining Walls.** Dry-cast concrete units used in the construction of segmental retaining walls shall comply with ASTM C1372.

**(S9574 / S115-19 AS)**

**Revise as follows:**

**1808.8.1 Concrete or grout strength and mix proportioning.** Concrete or grout in foundations shall have a specified compressive strength (*f ′c*) not less than the largest applicable value indicated in Table 1808.8.1. Where concrete ~~is placed through a funnel hopper at the top of a deep foundation element, the concrete mix shall be designed and proportioned so as to produce a cohesive workable mix having a slump of not less than 4 inches (102 mm) and not more than 8 inches (204 mm). Where concrete~~ or grout is to be pumped, the mix design including slump shall be adjusted to produce a pumpable mixture.

**(S9575 / S117-19 AS)**

**1809.5 Frost protection.** Except where otherwise protected from frost, foundations and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extending below the frost line of the locality.

2. Constructing in accordance with ASCE 32.

3. Erecting on solid rock.

**Exception:** Free-standing buildings meeting all of the following conditions shall not be required to be protected:

1. Assigned to Risk Category I.

2. Area of 600 square feet (56 m2) or less for light-frame construction or 400 square feet (37 m2) or less for other than light-frame construction.

3. Eave height of 10 feet (3048 mm) or less.

Shallow foundations shall not bear on frozen soil unless such frozen condition is of a permanent character.

**Add new text as follows:**

**1809.5.1 Frost Protection at Required Exits.**Frost protection shall be provided at exterior landings for all required exits with outward swinging doors. Frost protection shall only be required to the extent necessary to ensure the unobstructed opening of the required exit doors.

~~.~~

**(S9576/ S122-19 AS)**

**Revise as follows:**

**TABLE 1810.3.2.6**

**ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **MATERIAL TYPE AND CONDITION** | **MAXIMUM ALLOWABLE STRESSa** |
| 1. Concrete or grout in compressionb  Cast-in-place with a permanent casing in accordance with Section 1810.3.2.7 or Section 1810.3.5.3.4  Cast-in-place in ~~a pipe, tube,~~ other permanent casing or rock  Cast-in-place without a permanent casing  Precast nonprestressed  Precast prestressed | 0.4 f' c  0.33 f' c  0.3f' c  0.33f' c  0.33f ' c-0.27 fpc |

a. f ′ cis the specified compressive strength of the concrete or grout; fpcis the compressive stress on the gross concrete section due to effective prestress forces only; fy is the specified yield strength of reinforcement; Fy is the specified minimum yield stress of steel; Fu is the specified minimum tensile stress of structural steel.

b. The stresses specified apply to the gross cross-sectional area within the concrete surface. Where a temporary or permanent casing is used, the inside face of the casing shall be considered to be the concrete surface.

**(S9577 / S124-19 AS)**

**Revise as follows:**

**TABLE 1810.3.2.6**

**ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **MATERIAL TYPE AND CONDITION** | **MAXIMUM ALLOWABLE STRESSa** |
| 3. Steel in compression  Cores within concrete-filled pipes or tubes  Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8  Pipes or tubes for micropiles  Other pipes, tubes or H-piles  Helical piles | 0.5 Fy ≤ 32,000 psi  0.5 Fy ≤ 32,000 psi  0.4 Fy ≤ 32,000 psi  0.35 Fy ≤ ~~16,000~~ 24,000 psi  0.6 Fy ≤ 0.5 Fu |
| 5. Steel in tension  Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8  Other pipes, tubes or H-piles  Helical piles | 0.5Fy ≤ 32,000 psi  0.35 Fy ≤ ~~16,000~~ 24,000 psi  0.6 Fy ≤ 0.5 Fu |

a. f ′ c is the specified compressive strength of the concrete or grout; fpcis the compressive stress on the gross concrete section due to effective prestress forces only; fy is the specified yield strength of reinforcement; Fy is the specified minimum yield stress of steel; Fu is the specified minimum tensile stress of structural steel.

b. The stresses specified apply to the gross cross-sectional area within the concrete surface. Where a temporary or permanent casing is used, the inside face of the casing shall be considered to be the concrete surface.

**(S9578 / S125-19 AS)**

**Revise as follows:**

**TABLE 1810.3.2.6**

**ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **MATERIAL TYPE AND CONDITION** | **MAXIMUM ALLOWABLE STRESSa** |
| 4. Nonprestressed reinforcement in tension  Within micropiles  Other conditions      For load combinations that do not include wind or seismic loads      For load combinations that include wind or seismic loads | 0.6 fy  0.5 fy ≤ ~~24,000~~ 30,000 psi  0.5 fy ≤ 40,000 psi |

a. f ′ c is the specified compressive strength of the concrete or grout; fpcis the compressive stress on the gross concrete section due to effective prestress forces only; fy is the specified yield strength of reinforcement; Fy is the specified minimum yield stress of steel; Fu is the specified minimum tensile stress of structural steel.

b. The stresses specified apply to the gross cross-sectional area within the concrete surface. Where a temporary or permanent casing is used, the inside face of the casing shall be considered to be the concrete surface.

**(S9579 / S126-19 AS)**

**1810.3.2.6 Allowable stresses.** The allowable stresses for materials used in deep foundation elements shall not exceed those specified in Table 1810.3.2.6.

**Revise as follows:**

**TABLE 1810.3.2.6**

**ALLOWABLE STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS**

*Portions of table not shown remain unchanged.*

|  |  |
| --- | --- |
| **MATERIAL TYPE AND CONDITION** | **MAXIMUM ALLOWABLE STRESSa** |

|  |  |
| --- | --- |
| 1. Concrete or grout in compressionb  Cast-in-place with a permanent casing in accordance with Section 1810.3.2.7  Cast-in-place in a pipe, tube, other permanent casing or rock  Cast-in-place without a permanent casing  Precast nonprestressed  Precast prestressed | 0.4 f' c  0.33 f' c  0.3f' c  0.33f' c  0.33f ' c- 0.27 fpc |
| 2. Nonprestressed reinforcement in compression | 0.4 fy ≤ 30,000 psi |
| 3. Steel in compression  Cores within concrete-filled pipes or tubes  Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8  Pipes or tubes for micropiles  Other pipes, tubes or H-piles  Helical piles | 0.5 Fy ≤ 32,000 psi  0.5 Fy ≤ 32,000 psi  0.4 Fy ≤ 32,000 psi  0.35 Fy ≤ 16,000 psi  0.6 Fy ≤ 0.5 Fu |
| 4. Nonprestressed reinforcement in tension  Within micropiles  Other conditions | 0.6 fy  0.5 fy ≤ 24,000 psi |
| 5. Steel in tension  Pipes, tubes or H-piles, where justified in accordance with Section 1810.3.2.8  Other pipes, tubes or H-piles  Helical piles | 0.5Fy ≤ 32,000 psi  0.35 Fy ≤ 16,000 psi  0.6 Fy ≤ 0.5 Fu |
| 6. Timber | In accordance with the ANSI/AWC NDS |

a. f ′ c is the specified compressive strength of the concrete or grout; fpcis the compressive stress on the gross concrete section due to effective prestress forces only; fy is the specified yield strength of reinforcement; Fy is the specified minimum yield stress of steel; Fu is the specified minimum tensile stress of structural steel.

b. The stresses specified apply to the gross cross-sectional area ~~within~~ of the concrete ~~surface~~ for precast prestressed piles and to the net cross-sectional area for all other piles. Where a temporary or permanent casing is used, the inside face of the casing shall be considered ~~to be~~ the outer edge of the concrete ~~surface~~ cross-section.

**(S9580 / S127-19 AS)**

**Revise as follows:**

**1810.3.3.1 Allowable axial load.**The allowable axial load on a deep foundation element shall be determined in accordance with Sections 1810.3.3.1.1 through 1810.3.3.1.9.

**Exception:** Where approved by the building official, load testing is not required.

**(S9581 / S129-19 AM)**

**Revise as follows:**

**1810.3.3.1.9 Helical piles.** The allowable axial design load, Pa, of helical piles shall be determined as follows:

Equation 18-4.jpg

**(Equation 18-4)**

where Pu is the least value of:

1. Base capacity plus shaft resistance of the helical pile. The base capacity is equal to the sum ~~Sum~~ of the areas of the helical bearing plates times the ultimate bearing capacity of the soil or rock comprising the bearing stratum. The shaft resistance is equal to the area of the shaft above the uppermost helical bearing plate times the ultimate skin resistance.

2. Ultimate capacity determined from well-documented correlations with installation torque.

3. Ultimate capacity determined from load tests when required by Section 1810.3.3.1.2.

4. Ultimate axial capacity of pile shaft.

5. Ultimate axial capacity of pile shaft couplings.

6. Sum of the ultimate axial capacity of helical bearing plates affixed to pile.

**(S9582 / S130-19 AM)**

**Revise as follows:**

**1810.3.4 Subsiding soils or strata.** Where deep foundation elements are installed through subsiding ~~fills~~ soils or other subsiding strata and derive support from underlying firmer materials, consideration shall be given to the downward frictional forces potentially imposed on the elements by the subsiding upper strata. Where the influence of subsiding ~~fills~~ soils or strata is considered as imposing loads on the element, the allowable stresses specified in this chapter shall be permitted to be increased where satisfactory substantiating data are submitted.

**(S9583 / S131-19 AS)**

**Revise as follows:**

**1810.3.5.3.1 Structural steel H-piles.** Sections of structural steel H-piles shall comply with the requirements for HP shapes in ASTM A6, or the following:

1. The flange projections shall not exceed 14 times the minimum thickness of metal in either the flange or the web and the flange widths shall be not less than 80 percent of the depth of the section.

2. The nominal depth in the direction of the web shall be not less than 8 inches (203 mm).

3. Flanges and web shall have a minimum nominal thickness of 3/8 inch (9.5 mm).

~~For structures assigned to Seismic Design Category D, E, or F, design and detailing of H-piles shall also conform to the requirements of AISC 341.~~

**~~1810.3.11.2 Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, deep foundation element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Anchorage shall develop not less than 25 percent of the strength of the element in tension. Anchorage into the pile cap shall comply with the following:~~

~~In the case of uplift, the anchorage shall be capable of developing the least of the following:~~

1. ~~In the case of uplift, the anchorage shall be capable of developing the least of the following:~~

~~1.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.~~

~~1.2. The nominal tensile strength of a steel element.~~

~~1.3. The frictional force developed between the element and the soil multiplied by 1.3.~~

**~~Exception:~~**~~The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

~~2.  In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7 or the anchorage shall be capable of developing the full axial, bending and shear nominal strength of the element.~~

~~3. The connection between the pile cap and the steel H-piles or unfilled steel pipe piles in structures assigned to Seismic Design Category D, E, or F shall be designed for a tensile force of not less than 10 percent of the pile compression capacity.~~

**~~Exception Exceptions:~~**

~~1.  Connection tensile capacity need not exceed the strength required to resist seismic load effects including overstrength of ASCE 7 Section 12.4.3 or 12.14.3.2.~~

~~2.  Connections need not be provided where the foundation or supported structure does not rely on the tensile capacity of the piles for stability under the design seismic force.~~

~~Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

**(S9584/ S132-19 AM)**

**1810.3.11 Pile caps.**Pile caps shall conform with ACI 318 and this section. 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 or grade beam 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 or grade beam and the caps shall extend 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.

**(S10208 AS)**

**Revise as follows:**

**1810.3.11 Pile caps.** Pile caps shall conform with ACI 318 and this section. 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 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.

**Delete without substitution:**

**~~1810.3.11.1 Seismic Design Categories C through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~C, D, E or F, concrete deep foundation elements shall be connected to the pile cap in accordance with ACI 318.~~

~~For resistance to uplift forces, anchorage of steel pipes, tubes or H-piles to the pile cap shall be made by means other than concrete bond to the bare steel section. Concrete-filled steel pipes or tubes shall have reinforcement of not less than 0.01 times the cross-sectional area of the concrete fill developed into the cap and extending into the fill a length equal to two times the required cap embedment, but not less than the development length in tension of the reinforcement.~~

**~~1810.3.11.1 1810.3.11.2 Seismic Design Categories D through F.~~**~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, deep foundation element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Anchorage shall develop not less than 25 percent of the strength of the element in tension. Anchorage into the pile cap shall comply with the following:~~

~~1. In the case of uplift, the anchorage shall be capable of developing the least of the following:~~

~~1.1.  The nominal tensile strength of the longitudinal reinforcement in a concrete element.~~

~~1.2.  The nominal tensile strength of a steel element.~~

~~1.3.  The frictional force developed between the element and the soil multiplied by 1.3.~~

**~~Exception:~~**~~The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

~~2.  In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7 or the anchorage shall be capable of developing the full axial, bending and shear nominal strength of the element.~~

~~Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

**(S9587 / S135-19 AM)**

**Revise as follows:**

## ~~1810.3.12 Grade beams. For structures assigned to~~ *~~Seismic Design Category~~* ~~D, E or F, grade Grade beams shall comply with the provisions in Section 18.13.3 of ACI 318 for grade beams, except where they are.~~

**~~Exception:~~** ~~Grade beams designed to resist the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

## ~~1810.3.13 Seismic ties. For structures assigned to Seismic Design Category C, D, E or F, individual deep foundations shall be interconnected by ties. Unless it can be demonstrated that equivalent restraint is provided by reinforced concrete beams within slabs on grade or reinforced concrete slabs on grade or confinement by competent rock, hard cohesive soils or very dense granular soils, ties shall be capable of carrying, in tension or compression, a force equal to the lesser of the product of the larger pile cap or column design gravity load times the seismic coefficient, SDS, divided by 10, and 25 percent of the smaller pile or column design gravity load. Seismic ties shall comply with the provisions of ACI 318.~~

**~~Exception:~~** ~~In Group R-3 and U occupancies of light-frame construction, deep foundation elements supporting foundation walls, isolated interior posts detailed so the element is not subject to lateral loads or exterior decks and patios are not subject to interconnection where the soils are of adequate stiffness, subject to the approval of the~~ *~~building official~~*~~.~~

**(S9588/S136-19 AS)**

**Revise as follows:**

**1810.4.1.2 ~~Casing~~ Shafts in unstable soils.** Where cast-in-place deep foundation elements are formed through unstable soils ~~and concrete is placed in an open-drilled hole, a casing shall be inserted in the hole~~, the open hole shall be stabilized by a casing, slurry, or other *approved* method prior to placing the concrete. Where the casing is withdrawn during concreting, the level of concrete shall be maintained above the bottom of the casing at a sufficient height to offset any hydrostatic or lateral soil pressure. Driven casings shall be mandrel driven their full length in contact with the surrounding soil.

**(S9589 / S137-19 AM)**

**Revise as follows:**

**1810.4.1.3 Driving near uncased concrete.** Deep foundation elements shall not be driven within six element diameters center to center in granular soils or within one-half the element length in cohesive soils of an uncased element filled with concrete less than 48 hours old unless *approved* by the *building official*. If driving near uncased concrete elements causes the concrete surface in any completed element rises or drops significantly or bleeds additional water, the previously completed element shall be replaced. Driven uncased deep foundation elements shall not be installed in soils that could cause heave.

**(S9590 / S138-19 AMPC1)**

**Revise as follows:**

**1810.4.1.3 Driving near uncased concrete.** Deep foundation elements shall not be driven within six element diameters center to center in granular soils or within one-half the element length in cohesive soils of an uncased element filled with concrete less than 48 hours old unless *approved* by the *building official*. If the concrete surface in any completed element rises or drops, the element shall be replaced. ~~Driven uncased deep foundation elements shall not be installed in soils that could cause heave.~~

**(S9591 / S139-19 AS)**

**Revise as follows:**

**1810.4.5 Vibratory driving.** Vibratory drivers shall only be used to install deep foundation elements where the element load capacity is verified by load tests in accordance with Section 1810.3.3.1.2. The installation of production elements shall be controlled according to power consumption, rate of penetration or other *approved* means that ensure element capacities equal or exceed those of the test elements.

**Exceptions:**

1. The pile installation is completed by driving with an impact hammer in accordance with Section 1810.3.3.1.1.

2. The pile is to be used only for lateral resistance.

**(S9592 / S140-19 AS)**

**Revise as follows:**

**1810.4.11 Helical piles.** Helical piles shall be installed to specified embedment depth and torsional resistance criteria as determined by a *registered design professional*. The torque applied during installation shall not exceed the manufacturer's rated maximum ~~allowable~~ installation torque resistance of the helical pile.

**(S9593 / S141-19 AS)**

**CHAPTER 19 CONCRETE**

**Revise as follows:**

**1901.3 Anchoring to concrete.**Anchoring to concrete shall be in accordance with ACI 318 as amended in Section 1905, and applies to cast-in (headed bolts, headed studs and hooked J- or L-bolts)~~;~~, post-installed expansion (torque-controlled and displacement-controlled)~~;~~, undercut, screw, and adhesiveanchors.

**(S9595 / S145-19 AM)**

**Add new text as follows:**

**1901.7 Tolerances for structural concrete.** Where not indicated in construction documents, structural tolerances for concrete structural elements shall be in accordance with this section.

**1901.7.1 Cast-in-place concrete tolerances.** Structural tolerances for cast-in-place concrete structural elements shall be in accordance with ACI 117.

**Exceptions:**

1. Group R-3 detached one or two-family dwellings are not required to comply with this section

2. Shotcrete is not required to comply with this section

**1901.7.2 Precast concrete tolerances.** Structural tolerances for precast concrete structural elements shall be in accordance with ACI ITG-7.

**Exception:** Group R-3 detached one or two-family dwellings are not required to comply with this section.

**(S9596 / S147-19 AS)**

**Revise as follows:**

**1901.5 Construction documents.**The *construction documents*for structural concrete construction shall include:

1. The specified compressive strength of concrete at the stated ages or stages of construction for which each concrete element is designed.

2. The specified strength or grade of reinforcement.

3. The size and location of structural elements, reinforcement and anchors.

4. Provision for dimensional changes resulting from creep, shrinkage and temperature.

5. The magnitude and location of prestressing forces.

6. Anchorage length of reinforcement and location and length of lap splices.

7. Type and location of mechanical and welded splices of reinforcement.

8. Details and location of contraction or isolation joints specified for plain concrete.

9. Minimum concrete compressive strength at time of posttensioning.

10. Stressing sequence for posttensioning tendons.

11. Reserved. ~~For structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, a statement if slab on grade is designed as a structural diaphragm.~~

**Revise as follows:**

**1905.1.2 ACI 318, Section 18.2.1.**Modify ACI 318 Sections 18.2.1.2 and 18.2.1.6 to read as follows:

*18.2.1.2*– *Structures ~~assigned to Seismic Design Category A~~*shall satisfy requirements of Chapters 1 through 17 and 19 through 26*; Chapter 18 does not apply*. ~~Structures assigned to~~*~~Seismic Design Category~~*~~B, C, D, E or F also shall satisfy 18.2.1.3 through 18.2.1.7, as applicable.~~*~~Except for structural elements of plain concrete complying with Section 1905.1.7 of the Florida Building Code, Building, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.~~*

~~18.2.1.6 – Structural systems designated as part of the seismic force-resisting system shall be restricted to those~~*~~permitted by ASCE 7~~*~~. Except for~~*~~Seismic Design Category~~*~~A, for which Chapter 18 does not apply, the following provisions shall be satisfied for each structural system designated as part of the seismic force-resisting system, regardless of the~~*~~seismic design category~~*~~:~~

~~(a) Ordinary moment frames shall satisfy 18.3.~~

~~(b) Ordinary reinforced concrete structural walls~~*~~and ordinary precast structural walls~~*~~need not satisfy any provisions in Chapter 18.~~

~~(c) Intermediate moment frames shall satisfy 18.4.~~

~~(d) Intermediate precast~~*~~structural~~*~~walls shall satisfy 18.5.~~

~~(e) Special moment frames shall satisfy 18.6 through 18.9.~~

~~(f) Special structural walls shall satisfy 18.10.~~

~~(g) Special structural walls constructed using precast concrete shall satisfy 18.11.~~

~~All special moment frames and special structural walls shall also satisfy 18.2.4 through 18.2.8.~~

**Revise as follows:**

**1905.1.3 ACI 318, Section 18.5.**Modify ACI 318, Section 18.5, by adding new Section 18.5.2.2 and renumbering existing Sections 18.5.2.2 and 18.5.2.3 to become 18.5.2.3 and 18.5.2.4, respectively.

*18.5.2.2*– *Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.*

18.5.2.3 – For elements of the connection that are not designed to yield the required strength shall be based on 1.5 *Sy*of the yielding portion of the connection.

~~18.5.2.4 – In structures assigned to SDC D, E or F, wall piers shall be designed in accordance with 18.10.8 or 18.14 in ACI 318.~~

**Delete section in its entirety and show as Reserved:**

**1905.1.5 ACI 318, Section 18.13.1.1.** Reserved.~~Modify ACI 318, Section 18.13.1.1, to read as follows:~~

~~18.13.1.1 – Foundations resisting earthquake-induced forces or transferring earthquake-induced forces between a structure and ground shall comply with the requirements of 18.13 and other applicable provisions of ACI 318~~*~~unless modified by Chapter 18 of the Florida Building Code, Building.~~*

**Delete section in its entirety:**

**~~1905.1.7 ACI 318, Section 14.1.4.~~**~~Delete ACI 318, Section 14.1.4, and replace with the following:~~

*~~14.1.4 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.~~*

*~~14.1.4.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:~~*

*~~(a) Structural plain concrete basement, foundation or other walls below the base as defined in ASCE 7 are permitted in detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall be not less than 71/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.~~*

*~~(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.~~*

***~~Exception:~~****~~In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.~~*

*~~(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. For footings that exceed 8 inches (203 mm) in thickness, a minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.~~*

***~~Exceptions:~~***

*~~1. In Seismic Design Categories A, B and C, detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls are permitted to have plain concrete footings without longitudinal reinforcement.~~*

*~~2. For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.~~*

*~~3. Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.~~*

**Delete section in its entirety:**

**~~1905.1.8 ACI 318, Section 17.2.3.~~**~~Modify ACI 318 Sections 17.2.3.4.2, 17.2.3.4.3(d) and 17.2.3.5.2 to read as follows:~~

~~17.2.3.4.2 – Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with 17.2.3.4.3. The anchor design tensile strength shall be determined in accordance with 17.2.3.4.4.~~

***~~Exception:~~****~~Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 shall be deemed to satisfy Section 17.2.3.4.3(d).~~*

~~17.2.3.4.3(d) – The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include~~***~~E~~***~~, with~~***~~E~~***~~increased by ?~~~~0~~~~. The anchor design tensile strength shall~~*~~be calculated from 17.2.3.4.4~~*~~.~~

~~17.2.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with 17.2.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with 17.5.~~

***~~Exceptions:~~***

*~~1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or nonbearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~*

*~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with ANSI/AWC NDS Table 11E for lateral design values parallel to grain.~~*

*~~1.2. The maximum anchor nominal diameter is 5/8 inch (16 mm).~~*

*~~1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).~~*

*~~1.4. Anchor bolts are located a minimum of 13/4 inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.~~*

*~~1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.~~*

*~~1.6. The sill plate is 2-inch (51 mm) or 3-inch (76 mm) nominal thickness.~~*

*~~2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or nonbearing walls of light-frame construction to foundations or foundation stem walls, the in-plane shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~*

*~~2.1. The maximum anchor nominal diameter is 5/8 inch (16 mm).~~*

*~~2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).~~*

*~~2.3. Anchors are located a minimum of 13/4 inches (45 mm) from the edge of the concrete parallel to the length of the track.~~*

*~~2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.~~*

*~~2.5. The track is 33 to 68 mil (0.84 mm to 1.73 mm) designation thickness.~~*

*~~Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete, shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.~~*

*~~3. In light-frame construction bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 1 inch [25 mm] in diameter attaching sill plate or track to foundation or foundation stem wall need not satisfy 17.2.3.5.3(a) through (c) when the design strength of the anchors is determined in accordance with 17.5.2.1(c).~~*

**(S10044 AS)**

**Revise as follows:**

**SECTION 1902   
~~DEFINITIONS~~ COORDINATION OF TERMS**

**1902.1 General.** ~~The words and terms defined in ACI 318 shall, for the purposes of this chapter and as used elsewhere in this code for concrete construction, have the meanings shown in ACI 318 as modified by Section 1905.1.1.~~

Coordination of terminology used in ACI 318 and ASCE 7 shall be as follows:

**Add new text as follows:**

**1902.1.1 Design displacement.**Design displacement at each level shall be the total lateral deflection at the level calculated for the design-~~basis~~ earthquake using the procedures defined in *Section 12.8.6 of ASCE 7.*

**1902.1.2 Special structural wall.** Special structural walls made of cast-in-place or precast concrete shall comply with the requirements of Sections 18.2.4 through 18.2.8, 18.10 and 18.11 of ACI 318, as applicable, in addition to the requirements for ordinary reinforced concrete structural walls *or ordinary precast structural walls, as applicable. Where ASCE 7 refers to a "special reinforced concrete shear wall," it shall be deemed to mean a "special structural wall."*

**Revise as follows:**

**1905.1.1 ACI 318, Section 2.3.** Modify existing definitions and add the following definitions to ACI 318, Section 2.3.

**~~DESIGN DISPLACEMENT.~~** ~~Total lateral displacement expected for the design-basis earthquake,~~ *~~as specified by Section 12.8.6 of ASCE 7.~~*

**~~SPECIAL STRUCTURAL WALL.~~** ~~A cast-in-place or precast wall complying with the requirements of 18.2.4 through 18.2.8, 18.10 and 18.11, as applicable, in addition to the requirements for ordinary reinforced concrete structural walls~~ *~~or ordinary precast structural walls, as applicable. Where ASCE 7 refers to a “special reinforced concrete structural wall,” it shall be deemed to mean a “special structural wall.”~~*

*(portions of section 1905.1.1 not shown are unchanged)*

**(S9597/ S148-19 AM)**

**Revise as follows:**

**1903.1 General.** Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards listed in ACI 318.

**~~Exception:~~** ~~The following standards as referenced in Chapter 35 shall be permitted to be used.~~

~~1. ASTM C150~~

~~2. ASTM C595~~

~~3. ASTM C1157~~

**(S9598 / S149-19 AS)**

**Revise as follows:**

**SECTION 1906   
~~STRUCTURAL PLAIN CONCRETE~~ FOOTINGS FOR LIGHTFRAME CONSTRUCTION**

**1906.1 ~~Scope~~ Plain concrete footings.** ~~The design and construction of structural plain concrete, both cast-in-place and precast, shall comply with the minimum requirements of ACI 318, as modified in Section 1905.~~ ~~Exception:~~ For Group R-3 occupancies and buildings of other occupancies less than two stories above grade plane of light-frame construction, the required ~~footing~~ thickness of ~~ACI 318~~ plain concrete footings is permitted to be ~~reduced to~~ 6 inches (152 mm), provided that the footing does not extend more than 4 inches (102 mm) on either side of the supported wall.

**(S9599 / S152-19 AM)**

**SECTION 1908   
SHOTCRETE**

**Revise as follows:**

**1908.1 General.** Shotcrete ~~is mortar or concrete that is pneumatically projected at high velocity onto a surface. Except as specified in this section, shotcrete shall conform to the requirements of this chapter for plain or reinforced concrete~~ shall be in accordance with the requirements of ACI 318.

**Delete without substitution:**

**~~1908.2~~ ~~Proportions and materials.~~** ~~Shotcrete proportions shall be selected that allow suitable placement procedures using the delivery equipment selected and shall result in finished in-place hardened shotcrete meeting the strength requirements of this code.~~

**~~1908.3~~ ~~Aggregate.~~** ~~Coarse aggregate, if used, shall not exceed~~ 3~~/~~4 ~~inch (19.1 mm).~~

**~~1908.4~~ ~~Reinforcement.~~** ~~Reinforcement used in shotcrete construction shall comply with the provisions of Sections 1908.4.1 through 1908.4.4.~~

**~~1908.4.1~~ ~~Size.~~** ~~The maximum size of reinforcement shall be No. 5 bars unless it is demonstrated by preconstruction tests that adequate encasement of larger bars will be achieved.~~

**~~1908.4.2~~ ~~Clearance.~~** ~~Where No. 5 or smaller bars are used, there shall be a minimum clearance between parallel reinforcement bars of 2~~1~~/~~2 ~~inches (64 mm). When bars larger than No. 5 are permitted, there shall be a minimum clearance between parallel bars equal to six diameters of the bars used. Where two curtains of steel are provided, the curtain nearer the nozzle shall have a minimum spacing equal to 12 bar diameters and the remaining curtain shall have a minimum spacing of six bar diameters.~~

**~~Exception:~~** ~~Subject to the approval of the~~ ~~building official, required clearances shall be reduced where it is demonstrated by preconstruction tests that adequate encasement of the bars used in the design will be achieved.~~

**~~1908.4.3~~ ~~Splices.~~** ~~Lap splices of reinforcing bars shall utilize the noncontact lap splice method with a minimum clearance of 2 inches (51 mm) between bars. The use of contact lap splices necessary for support of the reinforcing is permitted where~~ ~~approved~~ ~~by the~~ ~~building official, based on satisfactory preconstruction tests that show that adequate encasement of the bars will be achieved, and provided that the splice is oriented so that a plane through the center of the spliced bars is perpendicular to the surface of the shotcrete.~~

**~~1908.4.4~~ ~~Spirally tied columns.~~** ~~Shotcrete shall not be applied to spirally tied columns.~~

**~~1908.5~~ ~~Preconstruction tests.~~** ~~Where preconstruction tests are required by Section 1908.4, a test panel shall be shot, cured, cored or sawn, examined and tested prior to commencement of the project. The sample panel shall be representative of the project and simulate job conditions as closely as possible. The panel thickness and reinforcing shall reproduce the thickest and most congested area specified in the structural design. It shall be shot at the same angle, using the same nozzleman and with the same concrete mix design that will be used on the project. The equipment used in preconstruction testing shall be the same equipment used in the work requiring such testing, unless substitute equipment is~~ ~~approved~~ ~~by the~~ ~~building official. Reports of preconstruction tests shall be submitted to the~~ ~~building official~~ ~~as specified in Section 1704.5.~~

**~~1908.6~~ ~~Rebound.~~** ~~Any rebound or accumulated loose aggregate shall be removed from the surfaces to be covered prior to placing the initial or any succeeding layers of shotcrete. Rebound shall not be used as aggregate.~~

**~~1908.7~~ ~~Joints.~~** ~~Except where permitted herein, unfinished work shall not be allowed to stand for more than 30 minutes unless edges are sloped to a thin edge. For structural elements that will be under compression and for construction joints shown on the~~ ~~approved construction documents, square joints are permitted. Before placing additional material adjacent to previously applied work, sloping and square edges shall be cleaned and wetted.~~

**~~1908.8~~ ~~Damage.~~** ~~In-place shotcrete that exhibits sags, sloughs, segregation, honeycombing, sand pockets or other obvious defects shall be removed and replaced. Shotcrete above sags and sloughs shall be removed and replaced while still plastic.~~

**~~1908.9~~ ~~Curing.~~** ~~During the curing periods specified herein, shotcrete shall be maintained above 40°F (4°C) and in moist condition.~~

**~~1908.9.1~~ ~~Initial curing.~~** ~~Shotcrete shall be kept continuously moist for 24 hours after shotcreting is complete or shall be sealed with an~~ ~~approved~~ ~~curing compound.~~

**~~1908.9.2~~ ~~Final curing.~~** ~~Final curing shall continue for seven days after shotcreting, or for three days if high-early-strength cement is used, or until the specified strength is obtained. Final curing shall consist of the initial curing process or the shotcrete shall be covered with an~~ ~~approved~~ ~~moisture-retaining cover.~~

**~~1908.9.3~~ ~~Natural curing.~~** ~~Natural curing shall not be used in lieu of that specified in this section unless the relative humidity remains at or above 85 percent, and is authorized by the~~ ~~registered design professional~~ ~~and~~ ~~approved~~ ~~by the~~ ~~building official.~~

**~~1908.10~~ ~~Strength tests.~~** ~~Strength tests for shotcrete shall be made by an~~ ~~approved agency~~ ~~on specimens that are representative of the work and that have been water soaked for not fewer than 24 hours prior to testing. Where the maximum-size aggregate is larger than~~ 3~~/~~8 ~~inch (9.5 mm), specimens shall consist of not less than three 3-inch-diameter (76 mm) cores or 3-inch (76 mm) cubes. Where the maximum-size aggregate is~~ 3~~/~~8 ~~inch (9.5 mm) or smaller, specimens shall consist of not less than 2-inch-diameter (51 mm) cores or 2-inch (51 mm) cubes.~~

**~~1908.10.1~~ ~~Sampling.~~** ~~Specimens shall be taken from the in-place work or from test panels, and shall be taken not less than once each shift, but not less than one for each 50 cubic yards (38.2 m~~3~~) of shotcrete.~~

**~~1908.10.2~~ ~~Panel criteria.~~** ~~Where the maximum-size aggregate is larger than~~ 3~~/~~8 ~~inch (9.5 mm), the test panels shall have minimum dimensions of 18 inches by 18 inches (457 mm by 457 mm). Where the maximum-size aggregate is~~ 3~~/~~8 ~~inch (9.5 mm) or smaller, the test panels shall have minimum dimensions of 12 inches by 12 inches (305 mm by 305 mm). Panels shall be shot in the same position as the work, during the course of the work and by the nozzlemen doing the work. The conditions under which the panels are cured shall be the same as the work.~~

~~1908.10.3~~ ~~Acceptance criteria.~~ ~~The average compressive strength of three cores from the in-place work or a single test panel shall equal or exceed 0.85~~ ~~f´~~c ~~with no single core less than 0.75~~ ~~f ´~~c~~. The average compressive strength of three cubes taken from the in-place work or a single test panel shall equal or exceed~~ ~~f´~~c ~~with no individual cube less than 0.88~~ ~~f´~~c~~. To check accuracy, locations represented by erratic core or cube strengths shall be retested.~~

**(S9600 / S155-19 AS)**

**CHAPTER 20 ALUMINUM**

Revise Tables 2002.4 and 2002.4A to read as follows:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2002.4** | | | | | | | | | | | | | | | | | | | | | |  |
| **DESIGN WIND PRESSURES SCREENED ENCLOSURES a, b, f, g, h**  **(STRENGTH DESIGN OR LRFD ONLY)** | | | | | | | | | | | | | | | | | | | | | |  |
|  | ULTIMATE DESIGN WIND SPEED Vult (mph) | | | | | | | | | | | | | | | | | | | | |  |
|  | 110 | | | 120 | | | 130 | | | 140 | | | 150 | | | 160 | | | 170 | | |  |
| Surface | Design Pressures by Exposure Category (psf) | | | | | | | | | | | | | | | | | | | | |  |
| B | C | D | B | C | D | B | C | D | B | C | D | B | C | D | B | C | D | B | C | D |  |
| Horizontal Pressures on Windward Surfaces d | 17 | 24 | 28 | 20 | 28 | 33 | 23 | 32 | 38 | 27 | 38 | 44 | 31 | 43 | 51 | 36 | 49 | 58 | 40 | 56 | 66 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Horizontal Pressures on Leeward Surfaces d | 13 | 18 | 21 | 15 | 22 | 26 | 20 | 26 | 31 | 21 | 29 | 34 | 22 | 34 | 40 | 25 | 39 | 46 | 29 | 44 | 52 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vertical Pressures on Screen Surfaces c | 4 | 7 | 8 | 6 | 8 | 9 | 6 | 9 | 11 | 8 | 11 | 12 | 9 | 12 | 14 | 10 | 14 | 16 | 11 | 15 | 18 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vertical Pressures on Solid Surfaces e | ~~14~~  17 | ~~19~~  24 | ~~23~~  29 | ~~17~~  21 | ~~23~~  29 | ~~27~~  34 | ~~20~~  24 | ~~27~~  34 | ~~32~~  40 | ~~23~~  28 | ~~32~~  39 | ~~37~~  46 | ~~25~~  32 | ~~36~~  45 | ~~42~~  53 | ~~29~~  36 | ~~41~~  51 | ~~48~~  60 | ~~33~~  41 | ~~46~~  58 | ~~54~~  68 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

For SI: 1 pound per square foot = 9.479 kN/m2.

**NOTES:**

a. Pressures apply to enclosures with a mean enclosure roof height of 30 feet (10 m). For other heights, multiply the pressures in this table by the factors in Table 2002.4A.

b. Apply horizontal pressures to the area of the enclosure projected on a vertical plane normal to the assumed wind direction, simultaneously inward on the windward side and outward on the leeward side.

c. Apply vertical pressures upward and downward to the area of the enclosure projected on a horizontal plane.

d. Apply horizontal pressures simultaneously with vertical pressures.

e. Table pressures are MWFRS Loads. The design of solid roof panels and their attachments shall be based on component and cladding loads for enclosed, ~~or~~ partially enclosed structures, or attached canopies as appropriate.

f. Table pressures apply to 20 × 20 × 0.013" mesh screen. For 18 ×14 × 0.013" mesh screen, pressures on screen surfaces may be multiplied by 0.88. For screen densities greater than 20 × 20 × 0.013", use pressures for enclosed buildings.

g. Table pressures may be interpolated using ASCE 7 methodology.

h. For allowable stress design (ASD) pressures shall be permitted to be multiplied by 0.6.

**TABLE 2002.4A**

**HEIGHT ADJUSTMENT FACTORS**

|  |  |  |  |
| --- | --- | --- | --- |
| **MEAN ROOF HEIGHT** | **EXPOSURE** | | |
| **B** | **C** | **D** |
| 0-15 | ~~1~~ 0.81 | 0.86 | 0.89 |
| 20 | ~~1~~ 0.89 | 0.92 | 0.93 |
| 25 | ~~1~~ 0.94 | 0.96 | 0.97 |
| 30 | 1 | 1 | 1 |
| 35 | 1.05 | 1.03 | 1.03 |
| 40 | 1.09 | 1.06 | 1.05 |
| 45 | 1.12 | 1.09 | 1.07 |
| 50 | 1.16 | 1.11 | 1.09 |
| 55 | 1.19 | 1.14 | 1.11 |
| 60 | 1.22 | 1.16 | 1.13 |

**(S-FBC-B-Ch. 20-Errata #2)**

**2002.8 Sun Control Structure Design.**A registered design professional shall design sun control structures.

**2002.8.1**Free-standing sun control structures shall be permitted to be designed to resist wind speeds for Risk Category I of Figure 1609.3(4) of the *Florida Building Code-Building.*Sun control structures relying on a host structure for support shall be designed for the Risk Category of the host structure.

**2002.8.2**Operable louvers shall be repositioned and locked in the vertical open position when wind speeds are predicted to be 75 mph or greater. The contractor shall post a legible and readily visible permanent decal or sign stating words to the effect that the operable louvers are to be locked in the vertically open position when wind speeds are predicted to be 75 mph and during a hurricane warning or alert as designated by the National Weather Service. The warning label should essentially read:

THIS SUN CONTROL STRUCTURE SHALL HAVE LOUVERED BLADES LOCKED IN THE VERTICAL POSITION DURING A HURRICANE WARNING OR ALERT AS DESIGNATED BY THE NATIONAL WEATHER SERVICE OR WHEN WIND SPEEDS ARE PREDICTED TO BE 75 MPH.

**2002.8.3 Electrical Installations.**All electrical components and installations shall comply with Chapter 27 of this Code.

**(S10390 AM A1)**

|  |
| --- |
| **2003.10 Sun Control Structure Design.**A registered design professional shall design sun control structures.  **2002.10.1 Wind Loads.** Basic wind speed in miles per hour (mph) shall be determined in accordance with Section 1620. Sun control structures, including exposed structures, components, and cladding, shall be designed to resist the wind loads as established in Section 1620.2.  **2002.10.2**Operable louvers shall be repositioned and locked in the vertical open position when wind speeds are predicted to be 75 mph or greater. The contractor shall post a legible and readily visible permanent decal or sign stating words to the effect that the operable louvers are to be locked in the vertically open position when wind speeds are predicted to be 75 mph and during a hurricane warning or alert as designated by the National Weather Service. The warning label should essentially read:    THIS SUN CONTROL STRUCTURE SHALL HAVE LOUVERED BLADES LOCKED IN THE VERTICAL POSITION DURING A HURRICANE WARNING OR ALERT AS DESIGNATED BY THE NATIONAL WEATHER SERVICE OR WHEN WIND SPEEDS ARE PREDICTED TO BE 75 MPH.    **2002.10.3 Electrical Installations.**All electrical components and installations shall comply with Chapter 27 of this Code. |
|  |

**(S10393 AM A1)**

**CHAPTER 21 MASONRY**

**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. Architectural cast stone shall conform to ASTM C1364 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 E119 or UL 263 and shall comply with the requirements of Table ~~602.~~705.5.

**(F9241 / FS18-18 AM)**

|  |
| --- |
| **Delete section in its entirety and show as Reserved:**    **2106.1 Seismic design requirements for masonry.** Reserved.~~Masonry structures and components shall comply with the requirements in Chapter 7 of TMS 402 depending on the structure’s~~*~~seismic design category~~*~~.~~    **Delete section in its entirety and show as Reserved:**    **2111.4 Seismic reinforcement.** Reserved.~~In structures assigned to~~*~~Seismic Design Category~~*~~A or B, seismic reinforcement is not required. In structures assigned to~~*~~Seismic Design Category~~*~~C or D, masonry fireplaces shall be reinforced and anchored in accordance with Sections 2111.4.1, 2111.4.2 and 2111.5. In structures assigned to~~*~~Seismic Design Category~~*~~E or F, masonry fireplaces shall be reinforced in accordance with the requirements of Sections 2101 through 2108.~~    **2111.4.1 Vertical reinforcing.** Reserved.~~For fireplaces with chimneys up to 40 inches (1016 mm) wide, four No. 4 continuous vertical bars, anchored in the foundation, shall be placed in the concrete between wythes of solid masonry or within the cells of hollow unit masonry and grouted in accordance with Section 2103.3. For fireplaces with chimneys greater than 40 inches (1016 mm) wide, two additional No. 4 vertical bars shall be provided for each additional 40 inches (1016 mm) in width or fraction thereof.~~    **2111.4.2 Horizontal reinforcing.**Reserved.~~Vertical reinforcement shall be placed enclosed within 1/4-inch (6.4 mm) ties or other reinforcing of equivalent net cross-sectional area, spaced not to exceed 18 inches (457 mm) on center in concrete; or placed in the bed joints of unit masonry at a minimum of every 18 inches (457 mm) of vertical height. Two such ties shall be provided at each bend in the vertical bars.~~    **2111.5 Seismic anchorage.** Reserved.~~Masonry fireplaces and foundations shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade with two 3/16-inch by 1-inch (4.8 mm by 25 mm) straps embedded a minimum of 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to a minimum of four floor joists with two 1/2-inch (12.7 mm) bolts.~~    **~~Exception:~~**~~Seismic anchorage is not required for the following:~~  ~~1. In structures assigned to~~*~~Seismic Design Category~~*~~A or B.~~  ~~2. Where the masonry fireplace is constructed completely within the exterior walls.~~    **Delete section in its entirety and show as Reserved:**    **2112.4 Seismic reinforcing.** Reserved.~~In structures assigned to~~*~~Seismic Design Category~~*~~D, E or F, masonry heaters shall be anchored to the masonry foundation in accordance with Section 2113.3. Seismic reinforcing shall not be required within the body of a masonry heater with a height that is equal to or less than 3.5 times its body width and where the masonry chimney serving the heater is not supported by the body of the heater. Where the masonry chimney shares a common wall with the facing of the masonry heater, the chimney portion of the structure shall be reinforced in accordance with Section 2113.~~    **Delete section in its entirety and show as Reserved:**    **2113.3 Seismic reinforcement.** Reserved.~~In structures assigned to~~*~~Seismic Design Category~~*~~A or B, seismic reinforcement is not required. In structures assigned to~~*~~Seismic Design Category~~*~~C or D, masonry chimneys shall be reinforced and anchored in accordance with Sections 2113.3.1, 2113.3.2 and 2113.4. In structures assigned to~~*~~Seismic Design Category~~*~~E or F, masonry chimneys shall be reinforced in accordance with the requirements of Sections 2101 through 2108 and anchored in accordance with Section 2113.4.~~    **2113.3.1 Vertical reinforcement.** Reserved.~~For chimneys up to 40 inches (1016 mm) wide, four No. 4 continuous vertical bars anchored in the foundation shall be placed in the concrete between wythes of solid masonry or within the cells of hollow unit masonry and grouted in accordance with Section 2103.3. Grout shall be prevented from bonding with the flue liner so that the flue liner is free to move with thermal expansion. For chimneys greater than 40 inches (1016 mm) wide, two additional No. 4 vertical bars shall be provided for each additional 40 inches (1016 mm) in width or fraction thereof.~~    **2113.3.2 Horizontal reinforcement.** Reserved.~~Vertical reinforcement shall be placed enclosed within 1/4-inch (6.4 mm) ties, or other reinforcing of equivalent net cross-sectional area, spaced not to exceed 18 inches (457 mm) on center in concrete, or placed in the bed joints of unit masonry, at not less than every 18 inches (457 mm) of vertical height. Two such ties shall be provided at each bend in the vertical bars.~~    **2113.4 Seismic anchorage.** Reserved.~~Masonry chimneys and foundations shall be anchored at each floor, ceiling or roof line more than 6 feet (1829 mm) above grade with two 3/16-inch by 1-inch (4.8 mm by 25 mm) straps embedded not less than 12 inches (305 mm) into the chimney. Straps shall be hooked around the outer bars and extend 6 inches (152 mm) beyond the bend. Each strap shall be fastened to not less than four floor joists with two 1/2-inch (12.7 mm) bolts.~~    **~~Exception:~~**~~Seismic anchorage is not required for the following:~~  ~~1. In structures assigned to~~*~~Seismic Design Category~~*~~A or B.~~  ~~2. Where the masonry fireplace is constructed completely within the exterior walls.~~ |
|  |

**(S10045 AS)**

**CHAPTER 22 STEEL**

|  |
| --- |
| **Delete section in its entirety:**  **~~2205.2 Seismic design.~~**~~Where required, the seismic design, fabrication and erection of buildings, structures and portions thereof shall be in accordance with Section 2205.2.1 or 2205.2.2, as applicable.~~  **~~2205.2.1 Structural steel seismic force-resisting systems.~~**~~The design, detailing, fabrication and erection of structural steel seismic force-resisting systems shall be in accordance with the provisions of Section 2205.2.1.1 or 2205.2.1.2, as applicable.~~  **~~2205.2.1.1 Seismic Design Category B or C.~~**~~Structures assigned to~~*~~Seismic Design Category~~*~~B or C shall be of any construction permitted in Section 2205. Where a response modification coefficient,~~*~~R~~*~~, in accordance with ASCE 7, Table 12.2-1, is used for the design of structures assigned to~~*~~Seismic Design Category~~*~~B or C, the structures shall be designed and detailed in accordance with the requirements of AISC 341.~~    **~~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 AISC 360, and need not be designed and detailed in accordance with AISC 341.~~  **~~2205.2.1.2 Seismic Design Category D, E or F.~~**~~Structures assigned to~~*~~Seismic Design Category~~*~~D, E or F shall be designed and detailed in accordance with AISC 341, except as permitted in ASCE 7, Table 15.4-1.~~    **~~2205.2.2 Structural steel elements.~~**~~The design, detailing, fabrication and erection of~~*~~structural steel elements~~*~~in seismic force-resisting systems other than those covered in Section 2205.2.1, including struts, collectors, chords and foundation elements, shall be in accordance with AISC 341 where either of the following applies:~~    ~~1. The structure is assigned to~~*~~Seismic Design Category~~*~~D, E or F, except as permitted in ASCE 7, Table 15.4-1.~~  ~~2. A response modification coefficient,~~*~~R~~*~~, greater than 3 in accordance with ASCE 7, Table 12.2-1, is used for the design of the structure assigned to~~*~~Seismic Design Category~~*~~B or C.~~  **Delete section in its entirety:**  **~~2206.2 Seismic design.~~**~~Where required, the seismic design, fabrication and erection of composite steel and concrete systems shall be in accordance with Section 2206.2.1.~~  **~~2206.2.1 Seismic requirements for composite structural steel and concrete construction.~~**~~Where a response modification coefficient,~~*~~R~~*~~, in accordance with ASCE 7, Table 12.2-1, is used for the design of systems of structural steel acting compositely with reinforced concrete, the structures shall be designed and detailed in accordance with the requirements of AISC 341.~~  **Delete section in its entirety:**  **~~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 2211.1.~~  **Revise as follows:**  **2209.1 Storage racks.**The design, testing and utilization of *storage racks*made of cold-formed or hot-rolled steel structural members shall be in accordance with RMI/ANSI MH 16.1. ~~Where required by ASCE 7, the seismic design of~~*~~storage racks~~*~~shall be in accordance with Section 15.5.3 of ASCE 7.~~    **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.~~  **Revise as follows:**  **2210.1 General.**The design of cold-formed carbon and low-alloy steel structural members shall be in accordance with AISI S100. The design of cold-formed stainless-steel structural members shall be in accordance with ASCE 8. Cold-formed steel light-frame construction shall also comply with Section 2211. ~~Where required, the seismic design of cold-formed steel structures shall be in accordance with the additional provisions of Section 2210.2.~~  **Delete section in its entirety and show as Reserved:**  **2210.2 Seismic requirements for cold-formed steel structures.** Reserved.~~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.~~  **Delete section in its entirety:**  **~~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.~~ |
|  |

**(S10047 AS)**

2214.2

The design, fabrication and erection of iron and steel for buildings and other structures shall be as set forth in this chapter. The additional requirements set forth in Sections 2215 through 2221 herein, inclusive, apply to structural steel for buildings and other structures located in high-velocity hurricane zones. The additional requirements set forth in Sections 2222 and 2223, herein, inclusive, apply to cold-formed members of sheet or strip steel and cold-formed steel light frame construction located in high-velocity hurricane zones.

**(S10129 AS)**

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. 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. Detailing for Steel Construction, AISC.~~

**(S10132 AS)**

Revise Section 2214.3 as follows:

9.Steel Joist Institute, SJI.

a.45th ~~44th~~ Edition Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders, 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.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.

**(S10249 AS)**

Revise Section 2214.3 as follows:

10. Steel Tube Institute, STI.

a. HSS Design Manual, Volume 1: Section Properties & Design Information.

b. HSS Design Manual, Volume 2A: Member Design 2016.

c. HSS Design Manual Volume 2B: Member Design 2016.

d. HSS Design Manual, Volume 3: Connections at HSS Members 2016.

e~~d~~. HSS Design Manual, Volume 4: Truss & Bracing Connections 2016.

**(S10421 AS)**

**CHAPTER 23 WOOD**

**Revise as follows:**

**2303.2 Fire-retardant-treated wood.** *Fire-retardant-treated wood* is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a *listed* flame spread index of 25 or less. ~~and show no evidence of significant progressive combustion when the test is continued~~ Additionally, the ASTM E84 or UL 723 test shall be continued for an additional 20-minute period~~. Additionally,~~ and the flame front shall not progress more than 101/2 feet (3200 mm) beyond the centerline of the burners at any time during the test.

**2303.2 Fire-retardant-treated wood.***Fire-retardant-treated wood* is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a *listed* flame spread index of 25 or less. Additionally, the ASTM E84 or UL 723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 101/2 feet (3200 mm) beyond the centerline of the burners at any time during the ~~extended 30-minute~~test.

**(F9607 / S166-19 AM)**

**Revise as follows:**

**Add new text as follows:**

**2303.2.3 Fire Testing Of Wood Structural Panels.** Wood structural panels shall be tested with a ripped or cut longitudinal gap of 1/8" (3.2 mm).

**(F9608 / S167-19 AMPC2)**

**Revise as follows:**

**2303.4.1.1 Truss design drawings.** The written, graphic and pictorial depiction of each individual truss shall be provided to the *building official* for approval prior to installation. Truss design drawings shall be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the following information:

1. Slope or depth, span and spacing.

2. Location of all joints and support locations.

3. Number of plies if greater than one.

4. Required bearing widths.

5. Design loads as applicable, including:

5.1. Top chord live load.

5.2. Top chord dead load.

5.3. Bottom chord live load.

5.4. Bottom chord dead load.

5.5. Additional loads and locations.

5.6. Environmental design criteria and loads (such as wind, rain, snow, seismic).

6. Other lateral loads, including drag strut loads.

7. Adjustments to wood member and metal connector plate design value for conditions of use.

8. Maximum reaction force and direction, including maximum uplift reaction forces where applicable.

9. Joint connection type and description, such as size and thickness or gage, and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.

10. Size, species and grade for each wood member.

11. Truss-to-truss connections and truss field assembly requirements.

12. Calculated span-to-deflection ratio and maximum vertical and horizontal deflection for live and total load as applicable.

13. Maximum axial tension and compression forces in the truss members.

14. Required permanent individual truss member restraint location and the method and details of restraint ~~/~~ and diagonal bracing to be used in accordance with Section 2303.4.1.2.

**2303.4.1.2 Permanent individual truss member restraint (PITMR) and permanent individual truss member diagonal bracing (PITMDB).** Where ~~permanent restraint of truss members is required on~~ the truss design drawings designate the need for *permanent individual truss member restraint,* it shall be accomplished by one of the following methods:

1. ~~Permanent individual truss member restraint/bracing shall be~~ *PITMR* and *PITMDB* installed using standard industry lateral restraint ~~/~~and diagonal bracing details in accordance with ~~generally~~ TPI 1 section 2.3.3.1.1, accepted engineering practice, or Figures 2303.4.1.2(1a), (2a), and (3). ~~Locations for lateral restraint shall be identified on the truss design drawing.~~

2. *Individual truss member* reinforcement in place of the specified lateral restraints (i.e., buckling reinforcement such as T-reinforcement, L-reinforcement, proprietary reinforcement, etc.) such ~~2.The trusses shall be designed so~~ that the buckling of any *individual truss member* is resisted internally by the individual ~~truss through suitable means (for example, buckling reinforcement by T-reinforcement or L-reinforcement, proprietary reinforcement).~~ truss. The buckling reinforcement of *individual truss members* ~~of the trusses~~ shall be installed as shown on the truss design drawing or on supplemental truss member buckling reinforcement details provided by the truss designer or in accordance with Figures 2303.4.1.2 (1b) and (2b).

3. A project-specific ~~permanent individual truss member restraint/bracing design shall be permitted to be specified~~ *PITMR* and *PITMDB* design provided by any *registered design professional*.

**Add new text as follows:**

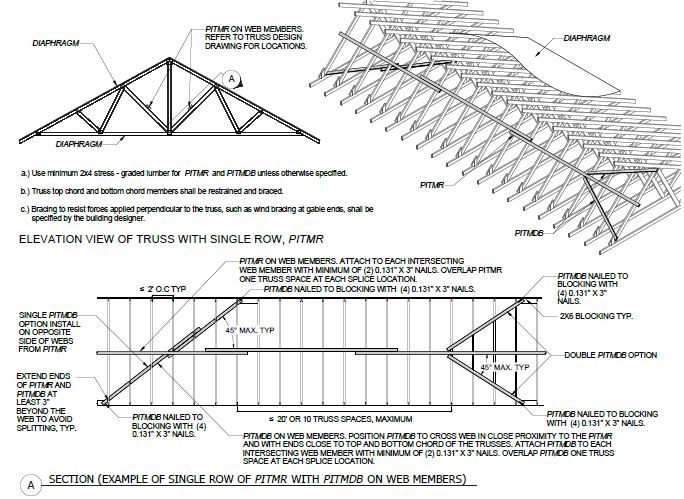
**2303.4.1.2.1 Trusses installed without a diaphragm** Trusses installed without a diaphragm on the top or bottom chord shall require a project specific PITMR and PITMDB design prepared by a registered design professional.

**Exception:** Group U occupancies.

**Revise as follows:**

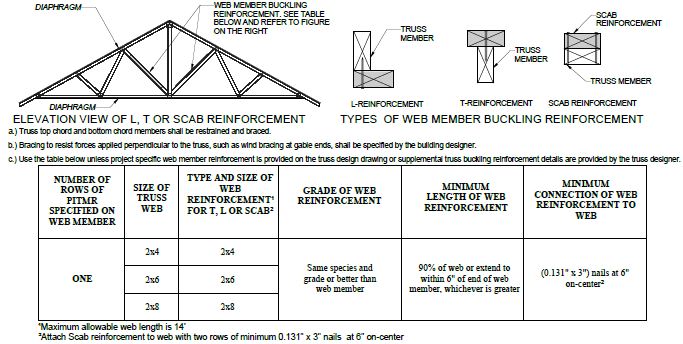
**2303.4.1.3 Trusses spanning 60 feet or greater.** The *owner* or the *owner*’s authorized agent shall contract with any qualified *registered design professional* for the design of the temporary installation restraint ~~/~~and diagonal bracing and the ~~permanent individual truss member restraint/bracing~~ *PITMR* and *PITMDB* for all trusses with clear spans 60 feet (18 288 mm) or greater.

**Add new text as follows:**



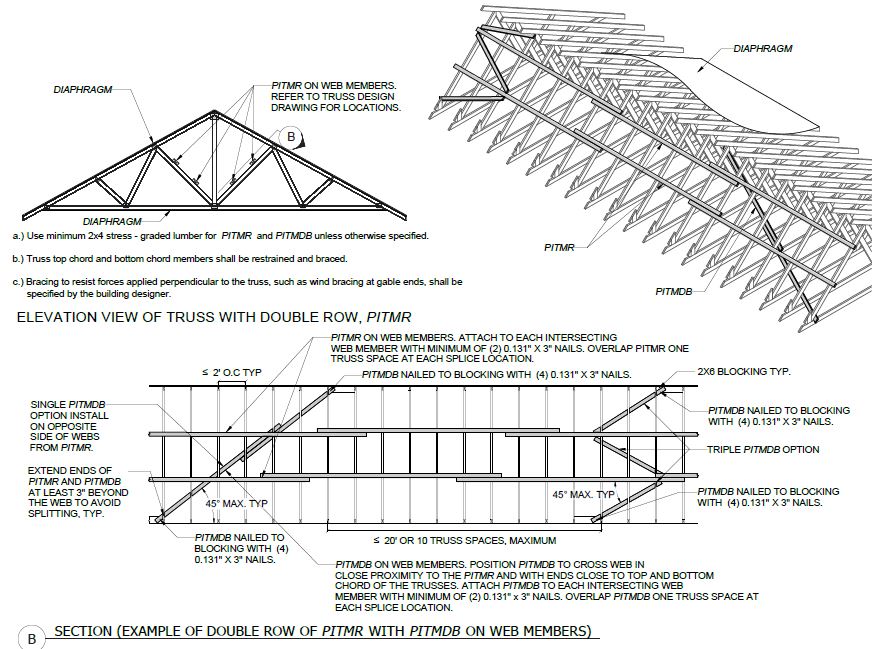
**FIGURE 2303.4.1.2.(1a)**

**PITMR AND PITMDB FOR TRUSS WEB MEMBERS REQUIRING ONE ROW OF PITMR**



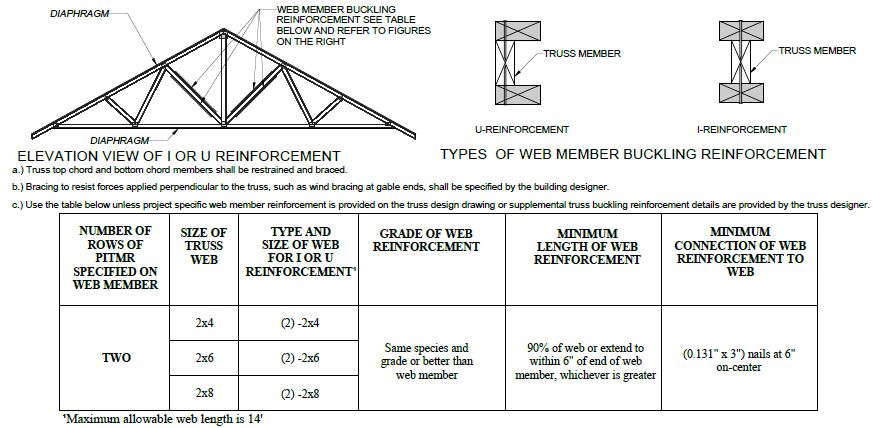
**FIGURE 2303.4.1.2.(1b)**

**ALTERNATIVE INSTALLATION USING BUCKLING REINFORCEMENT FOR TRUSS WEB MEMBERS IN LIEU OF ONE ROW OF *PITMR***



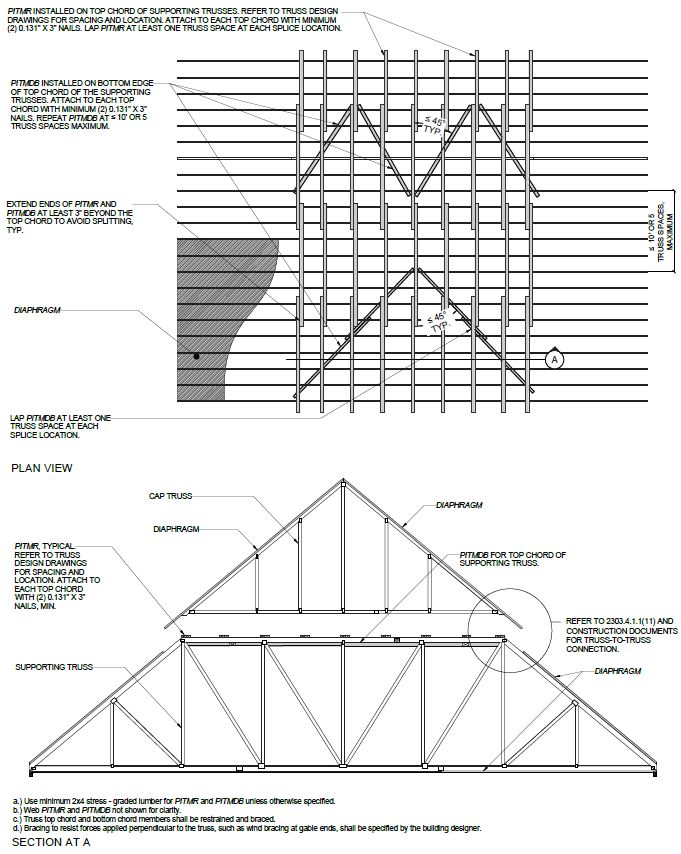
**FIGURE 2303.4.1.2.(2a)**

**PITMR AND PITMDB FOR TRUSS WEB MEMBERS REQUIRING TWO ROWS OF PITMR**



**FIGURE 2303.4.1.2.(2b)**

**ALTERNATIVE INSTALLATION USING BUCKLING REINFORCEMENT FOR TRUSS WEB MEMBERS IN LIEU OF TWO ROWS OF *PITMR***



**FIGURE 2303.4.1.2 (3)**

**PITMR AND PITMDB FOR FLAT PORTION OF TOP CHORD IN A PIGGYBACK ASSEMBLY**

**(S9609 / S168-19 AS)**

**Revise as follows:**

**2303.7 Shrinkage.** Consideration shall be given in design ~~to~~ for the ~~possible effect~~ effects of wood cross-grain dimensional changes ~~considered vertically~~ that ~~may~~ occur ~~in lumber fabricated in a green condition.~~as a result of changes in the wood moisture content after installation.

**(S9610 / S169-19 AS)**

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| **2303.4.1.1 Truss design drawings.**The written, graphic and pictorial depiction of each individual truss  shall be provided to the *building official*for approval prior to installation. Truss design drawings shall also be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the information specified below:  Items 1 through 4: *no change*  5. Design loads as applicable, including;  5.1. Top chord live load;  5.2. Top chord dead load;  5.3. Bottom chord live load;  5.4. Bottom chord dead load;  5.5. Additional loads and locations; and  5.6. Environmental design criteria and loads (wind, rain, ~~snow, seismic,~~ etc.).  Items 6 through 14: *no change*    **Revise as follows:**    **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.    **Revise as follows:**    **2305.1 General.**Structures using wood-frame shear walls or wood-frame diaphragms to resist wind~~, seismic~~ or other lateral loads shall be designed and constructed in accordance with AWC SDPWS and the applicable provisions of Sections 2305, 2306 and 2307.    **Revise as follows:**    **TABLE 2306.2(1)**  **ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS UTILIZING STAPLES**  **WITH FRAMING OF DOUGLAS FIR-LARCH, OR SOUTHERN PINEa FOR WIND ~~OR SEISMIC~~ LOADINGf**    (*no change to table values*)    **TABLE 2306.2(1)—continued**  **ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS UTILIZING STAPLES**  **WITH FRAMING OF DOUGLAS FIR-LARCH, OR SOUTHERN PINEa FOR WIND ~~OR SEISMIC~~ LOADINGf**    (*no change to table values*)    **Revise as follows:**    **TABLE 2306.2(2)**  **ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS**  **UTILIZING MULTIPLE ROWS OF STAPLES (HIGH-LOAD DIAPHRAGMS) WITH FRAMING OF**  **DOUGLAS FIR-LARCH OR SOUTHERN PINEa FOR WIND ~~OR SEISMIC~~ LOADINGb, g, h**    (*no change to table values*)    **TABLE 2306.2(2)—continued**  **ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS**  **UTILIZING MULTIPLE ROWS OF STAPLES (HIGH-LOAD DIAPHRAGMS) WITH FRAMING OF**  **DOUGLAS FIR-LARCH OR SOUTHERN PINE FOR WIND ~~OR SEISMIC~~ LOADING**    (*no change to table values*)    **Revise as follows:**    **TABLE 2306.3(1)**  **ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS UTILIZING STAPLES WITH**  **FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINEa FOR WIND ~~OR SEISMIC~~ LOADINGb, f, g, i**    (*no change to table values*)    g. Reserved. ~~In Seismic Design Category D, E or F, where shear design values exceed 350 pounds per linear foot, all framing members receiving edge fastening from abutting panels shall be not less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered at all panel edges. See ANSI/AWC SDPWS for sill plate size and anchorage requirements.~~    **Revise as follows:**    **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**    (*no change to table values*)    e. Reserved. ~~Values are not permitted in Seismic Design Category D, E or F.~~    **Revise as follows:**    **TABLE 2306.3(3)**  **ALLOWABLE SHEAR VALUES FOR WIND ~~OR SEISMIC~~ FORCES FOR SHEAR WALLS OF LATH AND**  **PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES UTILIZING STAPLES**    (*no change to table values*)    a. These shear walls shall not be used to resist loads imposed by masonry or concrete walls (see AWC SDPWS). Values shown are for short-term loading due to wind ~~or seismic~~ loading. ~~Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.~~ Values shown shall be reduced 25 percent for normal loading. |
|  |

**(S10048 AS)**

**Revise as follows:**

**2304.9 Lumber decking.** Lumber decking shall be designed and installed in accordance with the general provisions of this code and Sections 2304.9.1 through 2304.9.5.3. Other lumber decking patterns and connection designs shall be substantiated through engineering analysis.

**2304.9.1 General.** Each piece of lumber decking shall be square-end trimmed. Where random lengths are furnished, each piece shall be square end trimmed across the face so that not less than 90 percent of the pieces are within 0.5 degrees (0.00873 rad) of square. The ends of the pieces shall be permitted to be beveled up to 2 degrees (0.0349 rad) from the vertical with the exposed face of the piece slightly longer than the opposite face of the piece. Tongue-and-groove decking shall be installed with the tongues up on sloped or pitched roofs with pattern faces down.

**2304.9.2 Layup patterns.** Lumber decking is permitted to be laid up following one of five standard patterns as defined in Sections 2304.9.2.1 through 2304.9.2.5. ~~Other patterns are permitted to be used provided that they are substantiated through engineering analysis.~~

**(S9612 / S172-19 AS)**

**Revise as follows:**

**TABLE 2304.10.1**

**FASTENING SCHEDULE**

*Portions of table not shown remain unchanged.*

|  |  |  |  |
| --- | --- | --- | --- |
| **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) |
| 30. 3/8″ – 1/2″ | 6d common or deformed (2″ × 0.113″) (subfloor and wall) | 6 | 12 |
| 8d common or deformed (21/2″ × 0.131″) (roof) or RSRS-01 (23/8″ × 0.113″) nail (roof)d | 6e | ~~12~~6e |
| 23/8″ × 0.113″ nail (subfloor and wall) | 6 | 12 |
| 13/4″ 16 gage staple, 7/16″ crown (subfloor and wall) | 4 | 8 |
| 23/8″ × 0.113″ nail (roof) | ~~4~~3f | ~~8~~3f |
| 13/4″ 16 gage staple, 7/16″ crown (roof) | 3f | ~~6~~3f |
| 31. 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 (21/2″ × 0.131″) (roof) or RSRS-01 (23/8″ × 0.113″) nail (roof)d | 6e | ~~12~~6e |
| 23/8″ × 0.113″ nail; or 2″ 16 gage staple, 7/16″ crown | 4 | 8 |
| 32. 7/8″ – 11/4″ | 10d common (3″ × 0.148″); or 8d deformed (21/2″ × 0.131″) | 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, refer to Section 2305. Nails for 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 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 rafter shall be permitted to be reduced by one nail.

d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

e. Tabulated fastener requirements apply where the ultimate design wind speed is less than 140 mph. For wood structural panel roof sheathing attached to gable end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Spacing exceeding 6 inches on center at intermediate supports shall be permitted where the fastening is designed per the AWC NDS.

f. Fastening is only permitted where the ultimate design wind speed is less than or equal to 110.

**(S9613 / S173-19 AM)**

**Revise as follows:**

**TABLE 2304.10.1**

**FASTENING SCHEDULE**

|  |  |  |  |
| --- | --- | --- | --- |
| **DESCRIPTION OF BUILDING ELEMENTS** | **NUMBER AND TYPE OF FASTENER** | **SPACING AND LOCATION** | |
|  | Roof | | |
| 1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below | 4-8d box (2½" x 0.113"); or 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 rafters or truss not at the wall top plate, to rafter or truss | 2-8d common (21/2″ × 0.131″) 2-3″ × 0.131″ nails 2-3″ 14 gage staples | Each end, toenail | |
|  | 2-16 d common (31/2″ × 0.162″) 3-3″ × 0.131″ nails 3-3″ 14 gage staples | End nail | |
| Flat blocking to truss and web filler | 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 | 4-8d box (2½" x 0.113"); or 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 rafter, laps over 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 rafter (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 rafter | 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 | |
| 6. Rafter or roof truss to top plate (See Section 2308.7.5, Table 2308.7.5) | 3-10 common (3″ × 0.148″); or 3-16d 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 | 2 toenails on one side and 1 toenail on opposite side of rafter or trussc  ~~Toenail~~~~c~~ | |
| 7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam | 2-16d common (31/2″ × 0.162″); or 3-16d box (3½" x 0.135"); 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 (31/2″ × 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 | |
| Wall | | | |
| 8. Stud to stud (not at braced wall panels) | 16d common (31/2″ × 0.162″); | 24″ o.c. face nail | |
| 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7/16″ crown | 16″ o.c. face nail | |
| 9. Stud to stud and abutting studs at intersecting wallcorners (at braced wall panels) | 16d common (31/2″ × 0.162″); ~~or~~ | 16″ o.c. face nail | |
| 16d box (31/2″ × 0.135″); or  3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7/16″ crown | 12″ o.c. face nail | |
|  | ~~12″ o.c. face nail~~ | |
| 10. Built-up header (2″ to 2″ header) | 16d common (31/2″ × 0.162″)~~; or~~ | 16″ o.c. each edge, face nail | |
| 16d box (31/2″ × 0.135″) | 12″ o.c. each edge, face nail | |
| 11. Continuous header to stud | 4-8d common (21/2″ × 0.131″); or 4-10d box (3″ × 0.128″); or 5-8d box (2½" x 0.113) | Toenail | |
| 12. Top plate to top plate | 16d common (31/2″ × 0.162″)~~; or~~ | 16″ o.c. face nail | |
| 10d box (3″ × 0.128″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7/16″ crown | 12″ o.c. face nail | |
| 13. Top plate to top plate, at end joints | 8-16d common (31/2″ × 0.162″); or 12-16d box (3½" x 0.135"); 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, face 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. face nail | |
| 16d box (31/2″ × 0.135″); or 3″ × 0.131″ nails; or 3″ 14 gage staples, 7/16″ crown | 12″ o.c. face 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. face nail | |
| 16. Stud to top or bottom plate | 3-16d box (3½" x 0.135"); or 4-8d common (21/2″ × 0.131″); or 4-10d box (3″ × 0.128″); or 4-3″ × 0.131″ nails; or 4-8d box (2½" x 0.113"); or 4-3″ 14 gage staples, 7/16″ crown; or | Toenail | |
| 2-16d common (31/2″ × 0.162″); or 3-16d box (3½" x 0.135"); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7/16″ crown | End nail | |
| 17. 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 | |
| 18. 1″ brace to each stud and plate | 3-8d box (2½" x 0.113"); or 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 | |
| 19. 1″ × 6″ sheathing to each bearing | 3-8d box (2½" x 0.113"); or 2-8d common (21/2″ × 0.131″); or 2-10d box (3″ × 0.128″); or 2-1¾ 16 gage staples, 1" crown | Face nail | |
| 20. 1″ × 8″ and wider sheathing to each bearing | 3-8d common (21/2″ × 0.131″); or 3-8d box (2½" x 0.113"); or ~~3~~2-10d box (3″ × 0.128″); or 3-1¾" 16 gage staples, 1" crown | Face nail | |
| Wider than 1" x 8"  3-8d common (2½" x 0.131"); or 4-8d box (2½" x 0.113"); or 3-10d box (3" x 0.128"); or 4-1¾" 16 gage staples, 1" crown |
| Floor | | | |
| 21. Joist to sill, top plate, or girder | 4-8d box (2½" x 0.113"); or 3-8d common (21/2″ × 0.131″); or floor 3-10d box (3″ × 0.128″); or3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, 7/16″ crown | Toenail | |
| 22. Rim joist, band joist, or blocking to top plate, sill or other framing below | 4-8d box (2½" x 0.113) | 4" o.c. toenail | |
| 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 | |
| 23. 1″ × 6″ subfloor or less to each joist | 3-8d box (2½" x 0.113"); or 2-8d common (21/2″ × 0.131″); or ~~2~~ 3-10d box (3″ × 0.128″); or 2-1¾" 16 gage staples 1" crown | Face nail | |
| 24. 2 subfloor to joist or girder | 3-16d box (3½x 0.135"); or 2-16d common (31/2″ × 0.162″) | Blind and Face nail | |
| 25. 2″ planks (plank & beam – floor & roof) | 3-16d box (3½: x 0.135"); or 2-16d common (31/2″ × 0.162″) | Each bearing, face nail | |
| 26. Built-up girders and beams, 2″ lumber layers | 20d common (4″ × 0.192″) | 32″ o.c., face 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. face nail at top and bot-tom 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, face nail | |
| 27. Ledger strip supporting joists or rafters | 3-16d common (31/2″ × 0.162″); or 4-16d box (3½" x 0.135"); 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 rafter, face nail | |
| 28. 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 | |
| 29. Bridging or blocking to joist, rafter 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 | |
| Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framinga | | | |
|  |  | Edges (inches) | Intermediate supports (inches) |
| 30. 3/8″ – 1/2″ | 6d common or deformed (2″ × 0.113″); or 23/8″ × 0.113″ nail (subfloor and wall) | 6 | 12 |
| 8d common or deformed (21/2″ × 0.131″x0.281” head) (roof) or RSRS-01 (23/8″ × 0.113″) nail (roof)d | ~~6~~ | ~~12~~ |
| ~~2~~~~3~~~~/~~~~8~~~~″ × 0.113″ nail (subfloor and wall)~~ | ~~6~~ | ~~12~~ |
| 13/4″ 16 gage staple, 7/16″ crown (subfloor and wall) | 4 | 8 |
| 23/8″ × 0.113″x0.266”head nail (roof) | 4 | 8 |
| 13/4″ 16 gage staple, 7/16″ crown (roof) | 3 | 6 |
| 31. 19/32″ – 3/4″ | 8d common (21/2″ × 0.13**1″**); or ~~6d~~ deformed (2″ × 0.113″) (subfloor and wall) | 6 | 12 |
| 8d common or deformed (21/2″ × 0.131″x0.281”head) (roof) or RSRS-01 (23/8″ × 0.113″) nail (roof)d | 6 | 12 |
| 23/8″ × 0.113″x0.266”head nail; or 2″ 16 gage staple, 7/16″ crown | 4 | 8 |
| 32. 7/8″ – 11/4″ | 10d common (3″ × 0.148**″)**; or ~~8d~~ deformed (21/2″ × 0.131″x0.281head) | 6 | 12 |
| Other exterior wall sheathing | | | |
| 33. 1/2″ fiberboard sheathingb | 11/2″ x 0.120", galvanized roofing nail (7/16″ head diameter); or 11/4″ 16 gage staple with 7/16″ or 1″ crown | 3 | 6 |
| 34. 25/32″ fiberboard sheathingb | 13/4″  x 0.120" galvanized roofing 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 | | | |
| 35. 3/4″ and less | 8d common (21/2″ × 0.131″); or ~~6d~~ deformed (2″ × 0.113″) or deformed 2" x 0.120" | 6 | 12 |
| 36. 7/8″ – 1″ | 8d common (21/2″ × 0.131″); or ~~8d~~ deformed (21/2″ × 0.131″); or deformed 2½" x 0.120" | 6 | 12 |
| 37. 11/8″ – 11/4″ | 10d common (3″ × 0.148″); or ~~8d~~ deformed (21/2″ × 0.131″); or deformed 2½" x 0.120" | 6 | 12 |
| Panel siding to framing | | | |
| 38. 1/2″ or less | 6d corrosion-resistant siding (17/8″ × 0.106″); or 6d corrosion-resistant casing (2″ × 0.099″) | 6 | 12 |
| 39. 5/8″ | 8d corrosion-resistant siding (23/8″ × 0.128″); or 8d corrosion-resistant casing (21/2″ × 0.113″) | 6 | 12 |
| Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framinga | | | |
|  |  | Edges (inches) | Intermediate supports (inches) |
| Interior paneling | | | |
| 40. 1/4″ | 4d casing (11/2″ × 0.080″); or 4d finish (11/2″ × 0.072″) | 6 | 12 |
| 41. 3/8″ | 6d casing (2″ × 0.099″); or 6d finish (2" x 0.092") (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, refer to Section 2305. Nails for 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 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 rafter shall be permitted to be reduced by one nail.

d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

e.  Nails and staples are carbon steel meeting the specifications of ASTM F1667. Connections using nails and staples of other materials, such as stainless steel, shall be designed by acceptable engineering practice or approved under Section 104.11.

**(S9614 / S174-19 AMPC2)**

**Revise as follows:**

**2304.12.1 Locations requiring waterborne preservatives or naturally durable wood.** Wood used above ground in the locations specified in Sections 2304.12.1.1 through 2304.12.1.5~~, 2304.12.3~~ ~~and~~ ~~2304.12.5~~ shall be naturally durable wood or *preservative-treated wood* using waterborne preservatives, in accordance with AWPA U1 for above-ground use.

**2304.12.1.1 Joists, girders and subfloor.** Wood joists or wood structural floors that are closer than 18 inches (457 mm) or wood girders that are closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated areas located within the perimeter of the building foundation shall be of naturally durable or *preservative-treated wood*.

**2304.12.1.2 Wood supported by exterior foundation walls.** Wood framing members, including wood sheathing, that are in contact with exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or *preservative-treated wood*.

**2304.12.1.3 Exterior walls below grade.** Wood framing members and furring strips in direct contact with the interior of exterior masonry or concrete walls below grade shall be of naturally durable or *preservative-treated wood*.

**2304.12.1.4 Sleepers and sills.** Sleepers and sills on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or *preservative-treated wood*.

**2304.12.1.5 Wood siding.** Clearance between wood siding and earth on the exterior of a building shall be not less than 6 inches (152 mm) or less than 2 inches (51 mm) vertical from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather except where siding, sheathing and wall framing are of naturally durable or *preservative-treated wood*.

**2304.12.2 Other locations.** Wood used in the locations specified in Sections 2304.12.2.1 through 2304.12.2.5 shall be naturally durable wood or *preservative-treated* wood in accordance with AWPA U1. *Preservative-treated* wood used in interior locations shall be protected with two coats of urethane, shellac, latex epoxy or varnish unless waterborne preservatives are used. Prior to application of the protective finish, the wood shall be dried in accordance with the manufacturer’s recommendations.

**2304.12.2.1 Girder ends.** The ends of wood girders entering exterior masonry or concrete walls shall be provided with a 1/2-inch (12.7 mm) airspace on top, sides and end, unless naturally durable or *preservative-treated wood* is used.

**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:

1. Are not exposed to the weather, or are protected by a roof, eave, overhang, or other covering if exposed to the weather.

2. Are supported by concrete piers or metal pedestals projected not less than 1 inch (25 mm) above the slab or deck and are separated from the concrete pier by an impervious moisture barrier.

3. Are located not less than 8 inches (203 mm) above exposed earth.

**2304.12.2.3 Supporting member for permanent appurtenances.** Naturally durable or *preservative-treated wood* shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members.

**Exception:** Buildings located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use durable materials where the structure is exposed to the weather.

**2304.12.2.4 Laminated timbers.** The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or *preservative-treated wood*.

**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.

**2304.12.2.6 Ventilation beneath balcony or elevated walking surfaces.** 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.

**2304.12.3 Wood in contact with the ground or fresh water.** Wood used in contact with exposed earth shall be naturally durable for both decay and termite resistance or preservative treated in accordance with AWPA U1 for soil or fresh water use.

**Exception:** Untreated wood is permitted where such wood is continuously and entirely below the ground-water level or submerged in fresh water.

**2304.12.3.1 Posts or columns.** Posts and columns that are supporting permanent structures and embedded in concrete that is exposed to the weather or in direct contact with the earth shall be of *preservative-treated wood*.

**2304.12.4 Termite protection.** In geographical areas where hazard of termite damage is known to be very heavy, wood floor framing in the locations specified in Section 2304.12.1.1 and exposed framing of exterior decks or balconies shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWPA U1 for the species, product preservative and end use or provided with *approved* methods of termite protection.

**2304.12.5 Wood used in retaining walls and cribs.** Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA U1 for soil and fresh water use.

**(S9615 / S175-19 AS)**

**Revise as follows:**

**2304.12.2 Other locations.** Wood used in the locations specified in Sections 2304.12.2.1 through ~~2304.12.2.5~~ 2304.12.2.9 shall be naturally durable wood or *preservative-treated* wood in accordance with AWPA U1. *Preservative-treated* wood used in interior locations shall be protected with two coats of urethane, shellac, latex epoxy or varnish unless waterborne preservatives are used. Prior to application of the protective finish, the wood shall be dried in accordance with the manufacturer’s recommendations.

**2304.12.2.1 Girder ends.** The ends of wood girders entering exterior masonry or concrete walls shall be provided with a 1/2-inch (12.7 mm) airspace on top, sides and end, unless naturally durable or *preservative-treated wood* is used.

**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:

1. Are not exposed to the weather, or are protected by a roof, eave, overhang, or other covering if exposed to the weather.

2. Are supported by concrete piers or metal pedestals projected not less than 1 inch (25 mm) above the slab or deck and are separated from the concrete pier by an impervious moisture barrier.

3. Are located not less than 8 inches (203 mm) above exposed earth.

**2304.12.2.3 Supporting member for permanent appurtenances.** Naturally durable or *preservative-treated wood* shall be utilized for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances where such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering to prevent moisture or water accumulation on the surface or at joints between members.

**Exception:** Buildings located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use durable materials where the structure is exposed to the weather.

**2304.12.2.4 Laminated timbers.** The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or *preservative-treated wood*.

**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.

**2304.12.2.6 Ventilation beneath balcony or elevated walking surfaces.** 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.

**~~2304.12.3~~ 2304.12.2.7 Wood in contact with the ground or fresh water.** Wood used in contact with exposed earth shall be naturally durable for both decay and termite resistance or preservative treated in accordance with AWPA U1 for soil or fresh water use.

**Exception:** Untreated wood is permitted where such wood is continuously and entirely below the ground-water level or submerged in fresh water.

**~~2304.12.3.1~~ 2304.12.2.7.1 Posts or columns.** Posts and columns that are supporting permanent structures and embedded in concrete that is exposed to the weather or in direct contact with the earth shall be of *preservative-treated wood*.

**~~2304.12.4~~ 2304.12.2.8 Termite protection.** In geographical areas where hazard of termite damage is known to be very heavy, wood floor framing in the locations specified in Section 2304.12.1.1 and exposed framing of exterior decks or balconies shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWPA U1 for the species, product preservative and end use or provided with *approved* methods of termite protection.

**~~2304.12.5~~ 2304.12.2.9 Wood used in retaining walls and cribs.** Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA U1 for soil and fresh water use.

**~~2304.12.6~~ 2304.12.3 Attic ventilation.** For *attic* ventilation, see Section 1202.2.2.

**~~2304.12.7~~ 2304.12.4 Under-floor ventilation (crawl space).** For under-floor ventilation (crawl space), see Section 1202.4.

**(S9617 / S177-19 AS)**

**Revise as follows:**

2304.12.2.6 Ventilation beneath balcony or elevated walking surfaces. Enclosed framing in exterior balconies and elevated walking surfaces that ~~are exposed to rain, snow or drainage from irrigation~~ have *weather-exposed surfaces* 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.

**(S9618 / S178-19 AS)**

**Revise as follows:**

**TABLE 2306.1.4**

**ALLOWABLE LOADS FOR LUMBER DECKING**

*Portions of table not shown remain unchanged.*

|  |  |  |
| --- | --- | --- |
| **PATTERN** | **ALLOWABLE AREA LOADa, b** | |
| **Flexure** | **Deflection** |
| 3-inch and 4-inch decking |  |  |

For SI: 1 inch = 25.4 mm.

a. σ*b* = Allowable total uniform load limited by bending.

σΔ = Allowable total uniform load limited by deflection.

b. *d* = Actual decking thickness.

*l* = Span of decking.

*Fb'* = Allowable bending stress adjusted by applicable factors.

*E* = Modulus of elasticity adjusted by applicable factors.

**(S9619 / S180-19 AS)**

**Revise as follows:**

**2306.1.4 Lumber decking.** The capacity of lumber decking arranged according to the patterns described in Section 2304.9.2 shall be the lesser of the capacities determined for ~~flexure~~ moment and deflection according to the formulas in Table 2306.1.4.

**TABLE 2306.1.4**

**ALLOWABLE LOADS FOR LUMBER DECKING**

|  |  |  |
| --- | --- | --- |
| **PATTERN** | **ALLOWABLE AREA LOADa~~,b~~** | |
| **Moment ~~Flexure~~** | **Deflection** |
| Simple span |  |  |
| Two-span continuous |  |  |
| Combination simple- and two-span continuous |  |  |
| Cantilevered pieces intermixed |  |  |
| Controlled random layup | | |
| Mechanically laminated decking |  |  |
| 2-inch decking |  |  |
| 3-inch and 4-inch decking |  |  |

For SI: 1 inch = 25.4 mm.

a. ~~σ~~ wb = Allowable total uniform load limited by ~~bending.~~ moment.

~~b.~~ ~~σ~~ wΔ = Allowable total uniform load limited by deflection.

*d* = Actual decking thickness.

*l* = Span of decking.

*Fb'* = Allowable bending stress adjusted by applicable factors.

*E* = Modulus of elasticity adjusted by applicable factors.

**(S9620 / S181-19 AS)**

**Revise as follows:**

**TABLE 2306.3(3)**

**ALLOWABLE SHEAR VALUES FOR WIND OR SEISMIC FORCES FOR SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES UTILIZING STAPLES**

*Portions of table not shown remain unchanged.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TYPE OF MATERIAL** | **THICKNESS OF MATERIAL** | **WALL CONSTRUCTION** | **STAPLE SPACINGb MAXIMUM (inches)** | **SHEAR VALUEa, c (plf)** | **MINIMUM STAPLE SIZEf, g** |
| 4. Gypsum board, gypsum veneer base or water-resistant gypsum backing board | 1/2″ | Unblockedd | 7 | 75 | No. 16 gage galv. staple, 11/2″ long |
| Unblockedd | 4 | 110 |
| Unblocked | 7 | 100 |
| Unblocked | 4 | 125 |
| Blockede | 7 | 125 |
| Blockede | 4 | 150 |
| 5/8″ | Unblockedd | 7 | 115 | No. 16 gage galv. staple, ~~1~~~~1~~~~/~~~~2~~~~″legs,~~15/8″ long |
| 4 | 145 |
| Blockede | 7 | 145 |
| 4 | 175 |
| Blockede Two-ply | Base ply: 9 Face ply: 7 | 250 | No. 16 gage galv. staple 15/8″ long No. 15 gage galv. staple, 21/4″ long |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per foot = 14.5939 N/m.

a. These shear walls shall not be used to resist loads imposed by masonry or concrete walls (see AWC SDPWS). Values shown are for short-term loading due to wind or seismic loading. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7. Values shown shall be reduced 25 percent for normal loading.

b. Applies to fastening at studs, top and bottom plates and blocking.

c. Except as noted, shear values are based on a maximum framing spacing of 16 inches on center.

d. Maximum framing spacing of 24 inches on center.

e. All edges are blocked, and edge fastening is provided at all supports and all panel edges.

f. Staples shall have a minimum crown width of 7/16 inch, measured outside the legs, and shall be installed with their crowns parallel to the long dimension of the framing members.

g. Staples for the attachment of gypsum lath and woven-wire lath shall have a minimum crown width of 3/4 inch, measured outside the legs.

**(S9621 / S182-19 AS)**

**2314.4.6**National Institute for Standards and Technology Standard Development Services Section, Standards Application and Analysis Division, Washington, D.C. 20234

NIST.

1. Mat-Formed Particleboard CS236.

2. Structural Glued Laminated Timber PS56.

3. Construction and Industrial Structural Plywood PS1.

4. American Softwood Lumber Standard PS20.

5. Performance Standard for Wood-Based Structural Use Panels PS2{\*}.

{\*} All wood-based structural panels except oriented strand boards used as floor sheathing in interior applications or plywood shall have product approval and shall be tested in accordance with High-Velocity Hurricane Zone Testing Protocols.

**(S10261 AS)**

|  |
| --- |
| 2314.4.6 National Institute for Standards and Technology Standard Development Services Section, Standards Application and Analysis Division, Washington, D.C. 20234  NIST.  1. Mat-Formed Particleboard CS236.  ~~2. Structural Glued Laminated Timber PS56.~~  ~~3~~2. ~~Construction and Industrial~~ Structural Plywood PS1.  ~~4~~3. American Softwood Lumber Standard PS20.  ~~5~~4. Performance Standard for Wood~~Based~~ Structural ~~Use~~Panels PS2{\*}.  {\*} All wood~~-based~~ structural panels except plywood shall have product approval and shall be tested in accordance with High-Velocity Hurricane Zone Testing Protocols. |
| **(S10108 AS)**  **2315.2** ~~Reserved~~When wood structural panels are used as floor sheathing in interior applications, the panel sheathing shall be rated for Exposure 1 or Exterior in accordance with PS 1 or PS 2.  **(S10260 AS)** |

**CHAPTER 24 GLASS AND GLAZING**

**Revise as follows:**

## 2403.3 Glass Framing. To be considered firmly supported, the framing members for each individual pane of glass shall be designed so that the deflection of the edge of the glass perpendicular to the glass pane ~~shall~~ does not exceed 1/175 of the glass edge length ~~or~~ ~~3~~~~/~~~~4~~ ~~inch (19.1 mm), whichever is less~~ where the glass edge length is not more than 13 feet 6 inches (4115 mm) or 1/240 of the glass edge length  + 1/4 inch (6.4 mm) where the glass edge length is greater than 13 feet 6 inches (4115 mm), when subjected to the larger of the positive or negative load where loads are combined as specified in Section 1605.

**(S9631 / S189-19 AM)**

**Revise as follows:**

**2401.1 Scope.** The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures. Light-transmitting plastic glazing shall also meet the applicable requirements of Chapter 26.

**(S9630 / S188-19 AS)**

|  |
| --- |
| **SECTION 2404**  **WIND~~, SNOW, SEISMIC~~ AND**  **DEAD LOADS ON GLASS**    **2404.1 Vertical glass.**Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads due to ultimate design wind speed, *Vult,* in Section 1609 for components and cladding. ~~Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9.~~ The load resistance of glass under uniform load shall be determined in accordance with ASTM E1300. The design of vertical glazing shall be based on Equation 24-1.    (*no change to remainder of section*)    **Revises as follows:**    **2404.2 Sloped glass.**Glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunrooms, sloped roofs and other exterior applications shall be designed to resist the most critical combinations of loads determined by Equations 24-2, 24-3 and 24-4.    *Fg =*0.6*Wo – D***(Equation 24-2)**  *Fg =*0.6*Wi + D ~~+~~*~~0.5~~*~~S~~***(Equation 24-3)**  *Fg =*0.3*Wi + D ~~+ S~~***(Equation 24-4)**    where:    *D*= Glass dead load, psf (kN/m2).  For glass sloped 30 degrees (0.52 rad) or less from horizontal,  = 13 *tg*(For SI: 0.0245 *tg*).  For glass sloped more than 30 degrees (0.52 rad) from horizontal,  = 13 *tg*cos ? (For SI: 0.0245 *tg*cos ?).  *Fg*= Total load, psf (kN/m2) on glass.  *~~S~~*~~= Snow load, psf (kN/m~~~~2~~~~) as determined in Section 1608.~~  *tg*= Total glass thickness, inches (mm) of glass panes and plies.  *Wi*= Inward wind force, psf (kN/m2) due to ultimate design wind speed, *Vult*, as calculated in Section 1609.  *Wo*= Outward wind force, psf (kN/m2) due to ultimate design wind speed, *Vult*, as calculated in Section 1609.  ? = Angle of slope from horizontal.    **Exception:**The performance grade rating of unit skylights and tubular daylighting devices shall be determined in accordance with Section 2405.5.    The design of sloped glazing shall be based on Equation 24-5.    *Fg*= *Fga***(Equation 24-5)**    where:    *Fg*= Total load on the glass as determined by Equations 24-2, 24-3 and 24-4.  *Fga*= Short duration load resistance of the glass as determined in accordance with ASTM E1300 for Equations 24-2 and 24-3; or the long duration load resistance of the glass as determined in accordance with ASTM E1300 for Equation 24-4. |
|  |

**(S10049 AS)**

**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 2606 ~~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 2405.3.3.

Laminated glass and plastic materials described in Items 1 and 2 shall not require the screening or height restrictions provided in Section 2405.3.

      For additional requirements for plastic skylights, see Section 2610. Glass-block construction shall conform to the requirements of Section 2110.1.

**(S10403 AS)**

**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 noncorrosive screen materials shall be used.

**2405.3.1 Screens under monolithic glazing.**

Heat-strengthened glass and fully tempered glass shall have screens installed below the full area of the glazing material.

**2405.3.2 Screens under multiple-layer glazing.**

Heat-strengthened glass, fully tempered glass and wired glass used as the bottom glass layer shall have screens installed below the full area of the glazing material.

**2405.3.3~~Screens not required.~~**

~~For all other types of glazing complying with Section 2405.2, retention screens shall not be required.~~

**~~Exceptions:~~Screening not required for monolithic and multiple-layer sloped glazing systems:**In monolithic and multiple-layer sloped glazing systems, the following apply:

1.Fully tempered glass shall be permitted to be installed without retention screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane, and having the highest point of the glass 10 feet (3048 mm) or less above the walking surface.

2.Retention screens 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 any glazing material, including annealed glass, 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 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 3/16inch (4.8 mm) or less.

5.Retention 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, where both of the following conditions are met:

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.

**2405.3.4 Screens not required.**

For all other types of glazing complying with Section 2405.2, retention screens shall not be required.

**(S10404 AS)**

**2406.4.5Glazing 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 Section 2406.4~~.3 or 2406.4.5~~.

**(S10400 AS)**

**2411.1.9**

Replacement of any glazing or part thereof shall be designed and constructed in accordance with ~~Chapter 34 Existing Building Provisions for High-Velocity Hurricane Zones.~~ the Florida Existing Building Code.

**(S10277 AS)**

**CHAPTER 25 GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER**

**Revise as follows:**

**2505.1 Resistance to shear (wood framing).**Wood-frame shear walls sheathed with gypsum board, gypsum panel products or lath and plaster shall be designed and constructed in accordance with Section 2306.3 and are permitted to resist wind ~~and seismic~~ loads. ~~Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.~~

**2505.2 Resistance to shear (steel framing).**Cold-formed steel-frame shear walls sheathed with gypsum board or gypsum panel products and constructed in accordance with the materials and provisions of Section 2211.6 are permitted to resist wind ~~and seismic~~ loads. ~~Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.~~

**Revise as follows:**

**2506.2.1 Other materials.**Metal suspension systems for acoustical and lay-in panel ceilings shall comply with ASTM C635 listed in Chapter 35 ~~and Section 13.5.6 of ASCE 7 for installation in high seismic areas~~.

**Revise as follows:**

**TABLE 2508.6**

**ALLOWABLE (ASD) SHEAR CAPACITY FOR HORIZONTAL WOOD-FRAME GYPSUM BOARD DIAPHRAGM CEILING ASSEMBLIES**

(*no change to table values*)

a. Values are not cumulative with other horizontal diaphragm values and are for short-term wind ~~or seismic~~ loading. Values shall be reduced 25 percent for normal loading.

b. Reserved. ~~Values shall be reduced 50 percent in Seismic Design Categories D, E and F.~~

**(S10050 AS)**

**Revise as follows:**

**2510.6 Water-resistive barriers.** *Water-resistive barriers* shall be installed as required in Section 1403.2 and, where applied over wood-based sheathing, shall comply with Section 2510.6.1 or Section 2510.6.2. ~~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 1404.4) intended to drain to the~~ *~~water-resistive barrier~~* ~~is directed between the layers.~~

**~~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~~*~~.~~

**Add new text as follows:**

**2510.6.1 Dry climates.**One of the following shall apply for dry (B) *climate zones*:

1. The *water-resistive barrier* shall be two layers of 10-minute Grade D paper or have a water resistance equal to or greater than 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 1404.4 and intended to drain to the *water-resistive barrier*, is directed between the layers.

2. The *water-resistive barrier* shall be 60-minute Grade D paper or have a water resistance equal to or greater than one layer of *water-resistive barrier* complying with ASTM E2556, Type II. The water-resistive barrier shall be separated from the stucco by a layer of foam plastic insulating sheathing or other nonwater absorbing layer, or a drainage space.

**2510.6.2 Moist or marine climates.**In moist (A) or marine (C) *climate zones*, water-resistive barrier shall comply with of one of the following:

1. In addition to complying with Item 1 or 2 of Section 2510.6.1, a space or drainage material not less than 3/16 inch (4.8 mm) in depth ~~space~~ shall be applied ~~added~~ to the exterior side of the *water-resistive barrier.*

2. In addition to complying with Item 2 of Section 2510.6.1, drainage on the exterior side of the water-resistive barrier shall have a minimum drainage efficiency of 90% as measured in accordance with ASTM E2273 or Annex A2 of ASTM E2925*.*

**(S9634/ S196-19 AM)**

**CHAPTER 26 PLASTIC**

**Add new text as follows:**

**2603.1.1 Spray-applied foam plastic.** Single- and multiple-component spray-applied foam plastic insulation shall comply with the provisions of Section 2603 and ICC 1100-2018.

**(F9324 / FS155-18 AS)**

**Revise as follows:**

**2606.7.4 Fire suppression system.** In buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, plastic light-diffusing systems shall be protected both above and below unless the sprinkler system has been specifically approved for installation only above the light-diffusing ~~system.~~ system, or the light-diffusing system is listed and labeled in accordance with UL 723S. Areas of light-diffusing systems that are protected in accordance with this section shall not be limited.

**(F9325 / FS158-18 AS)**

**Revise as follows:**

**2607.3 Height limitation.** Light-transmitting plastics shall not be installed more than 75 feet (22 860 mm) above grade plane~~, except as allowed by Section 2607.5~~.

**2607.5 Automatic sprinkler system.** 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 in any story in light-transmitting plastic wall panels and the maximum square footage of a single area given in Table 2607.4 shall be increased 100 percent, but the area of light-transmitting plastic wall panels shall not exceed 50 percent of the wall area in any story, or the area permitted by Section 705.8 for unprotected openings, whichever is smaller. These installations shall ~~be exempt from height limitations.~~not be installed more than 75 feet (22 860 mm) above grade plane.

**(F9326 / FS159-18 AS)**

**Revise as follows:**

**2610.1 Light-transmitting plastic glazing of skylight assemblies.** Skylight assemblies glazed with light-transmitting plastic shall conform to the provisions of this section and Section 2606. ~~Unit skylights glazed with light-transmitting plastic shall comply with Section 2405.5~~.

**Exception:** Skylights in which the light-transmitting plastic conforms to the required roof-covering class in accordance with Section 1505.

**Add new text as follows:**

**2610.1.1 Unit skylights.** Unit skylights glazed with light-transmitting plastic shall comply with Section 2405.5.

**(S9327 / FS160-18 AS)**

**CHAPTER 27 ELECTRICAL**

**Revise as follows:**

**[F] 2702.2.4 Emergency ~~voice/alarm communication systems.~~ Voice Alarm Communication Systems.** Standby ~~Emergency~~ power shall be provided for emergency voice/alarm communication systems ~~as required~~ in accordance with ~~Section 907.5.2.2.5. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in~~ ~~NFPA 72~~ 907.5.2.1.5.

**(F9806 / F149-18 AM)**

**CHAPTER 28 MECHANICAL SYSTEMS**

**No change**

**CHAPTER 29 PLUMBING SYSTEMS**

Note: Revise this Chapter for consistency with Chapter 29 of the IPC.

**[P] 2903   
INSTALLATION OF FIXTURES**

**[P] 2903.1 Setting.** Fixtures shall be set level and in proper alignment with reference to adjacent walls.

**[P] 2903.1.1 Water closets, urinals, lavatories and bidets.** A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction. Where partitions or other obstructions do not separate adjacent fixtures, fixtures shall not be set closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of a water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floor-mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall-hung water closets.

**Exception:** An accessible children's water closet shall be set not closer than 12 inches (305 mm) from its center to the required partition or to the wall on one side.

**[P] 2903.1.2 Public Lavatories.** In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet.

**[P] 2903.1.3 Location of fixtures and piping.** Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings.

**[P] 2903.1.4 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

**Exceptions:**

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

**[P] 2903.1.5 Urinal Partitions.** Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

**Exceptions:**

1. Urinal partitions shall not be required in a single-occupant or family/assisted-use toilet room with a lockable door.

2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

(P9443 AMPC1 / G133-18)

**CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS**

**Revise as follows:**

**3004.4 Personnel and material hoists.**Personnel and material hoists shall be designed utilizing an *approved*method that accounts for the conditions imposed during the intended operation of the hoist device. The design shall include, but is not limited to, anticipated loads, structural stability, impact, vibration, and stresses ~~and seismic restraint~~. The design shall account for the construction, installation, operation and inspection of the hoist tower, car, machinery and control equipment, guide members and hoisting mechanism. Additionally, the design of personnel hoists shall include provisions for field testing and maintenance that will demonstrate that the hoist device functions in accordance with the design. Field tests shall be conducted upon the completion of an installation or following a major *alteration*of a personnel hoist.

**(S10051 AS)**

**Revise as follows:**

**3005.4 Machine rooms, control rooms, machinery spaces, and control spaces.** ~~Elevator machine rooms, control rooms, control spaces and machinery spaces outside of but attached to a hoistway that have openings into the hoistway~~ The following rooms and spaces shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or ~~both.~~ both:

1. Machine rooms

2. Control rooms

3. Control spaces

4. Machinery spaces outside of the hoistway enclosure

The fire-resistance rating shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

**Exceptions:**

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour fire-resistance rating.

2. For other than fire service access elevators and occupant evacuation elevators, in buildings four stories or less above grade plane where machine room, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the machine room, machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

**(S9447 / G143-18 AS)**

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| **Add new definition:**      **Revise as follows:**    **3006.3 Hoistway opening protection.**  Where Section 3006.2 requires protection of the elevator hoistway door opening, the protection shall be provided by one of the following:  1.An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by fire partitions in accordance with Section 708. In addition, doors protecting openings in the elevator lobby enclosure walls shall comply with Section 716.5.3 as required for corridor walls. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.    2.An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by smoke partitions in accordance with Section 710 where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition, doors protecting openings in the smoke partitions shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.5.9. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.    3.Additional doors shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.    4.The elevator hoistway shall be pressurized in accordance with Section 909.21.    5. A*smoke protective curtain assembly for hoistways* shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such curtain assemblies shall comply with the smoke and draft control requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal. Such curtain assemblies shall be equipped with a control unit listed to UL 864. Such curtain assemblies shall comply with section 2.11.6.3 of ASME A17.1/CSA B44. Installation and maintenance shall be in accordance with NFPA 105. |
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**(SP10152 AS)**

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| **3006.4 Means of egress.**  Elevator lobbies shall be provided with not less than one means of egress complying with Chapter 10 and other provision in this code. Egress through an enclosed elevator lobby shall be permitted in accordance with Item 1 of Section 1016.2. Electrically locked exit access doors providing egress from elevator lobbies shall be permitted in accordance with Section 1010.1.9.13.  **(F10061 AM Original plus A1)** |
|  |

**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~~ Exceptions:**

1. 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.

2. The elevator shall not be required to serve the top floor of a building where that floor is utilized only for equipment for building systems.

**(SP9446 / G142-18 AS)**

**CHAPTER 31 SPECIAL CONSTRUCTION**

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| **3102.7 Engineering design.**The structure shall be designed and constructed to sustain dead loads; loads due to tension or inflation; live loads including wind~~, snow or~~ and flood ~~and seismic~~ loads and in accordance with Chapter 16. |
|  |

**(S10052 AS)**

**Revise as follows:**

**3103.1 General.**The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. ~~Tents~~ Special event structures, tents, umbrella structures and other membrane structures erected for a period of less than 180 days shall also comply with the International Fire Code. Those erected for a longer period of time shall comply with applicable sections of this code.

**(F9450/ G147-18 AM)**

**3103.3 Location.** Temporary structures shall be located in accordance with the requirements of Table ~~602~~705.5 based on the fire-resistance rating of the exterior walls for the proposed type of construction.

**(F9241/FS18-18 AM)**

**CHAPTER 32 ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY**

**No change**

**CHAPTER 33 SAFEGUARDS DURING CONSTRUCTION**

**Add new text as follows:**

**3307.2 Excavation retention systems.**Where a retention system is used to provide support of an excavation for protection of adjacent *structures*, the system shall conform to the requirements in Section 3307.2.1 through 3307.2.3.

**3307.2.1 Excavation retention system design.**Excavation retention systems shall be designed by a registered design professional to provide vertical and lateral support.

**3307.2.2 Excavation retention system monitoring.**The retention system design shall include requirements for monitoring of the system and adjacent structures for horizontal and vertical movement.

**3307.2.3 Retention system removal.**Elements of the system shall only be removed or decommissioned when adequate replacement support is provided by backfill or by the new structure. Removal or decommissioning shall be performed in such a manner that protects the adjacent property

**(S9477 / G15-19 AM)**

**CHAPTER 34 RESERVED**

**No change**

**Chapter 35 – Reference Standards**

See attached

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**CHAPTER 36 FLORIDA FIRE PREVENTION CODE**

**3601.2** In addition to the provisions of this code, buildings shall comply with the ~~7~~8th Edition (202~~0~~3) Florida Fire Prevention Code as adopted by the Florida State Fir

**APPENDIX CA BOARD OF APPEALS**

**Add new text as follows:**

**APPENDIX CA  
BOARD OF APPEALS**

**SECTION CA101   
GENERAL**

**CA101.1 Scope.** A board of appeals shall be established within the jurisdiction for the purpose of hearing applications for modification of the requirements of this code pursuant to the provisions of Section C109 (Means of Appeals). The board shall be established and operated in accordance with this section, and shall be authorized to hear evidence from appellants and the code official pertaining to the application and intent of this code for the purpose of issuing orders pursuant to these provisions.

**CA101.2 Application for appeal.** Any person shall have the right to appeal a decision of the code official to the board. An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The application shall be filed on a form obtained from the code official within 20 days after the notice was served.

**CA101.2.1 Limitation of authority.** The board shall not have authority to waive requirements of this code or interpret the administration of this code.

**CA101.2.2 Stays of enforcement.** Appeals of notice and orders, other than Imminent Danger notices, shall stay the enforcement of the notice and order until the appeal is heard by the board.

**CA101.3 Membership of board.** The board shall consist of five voting members appointed by the chief appointing authority of the jurisdiction. Each member shall serve for [INSERT NUMBER OF YEARS] years or until a successor has been appointed. The board member’s terms shall be staggered at intervals, so as to provide continuity. The code official shall be an ex officio member of said board but shall not vote on any matter before the board.

**CA101.3.1 Qualifications.** The board shall consist of five individuals, who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction.

**CA101.3.2 Alternate members.** The chief appointing authority is authorized to appoint two alternate members who shall be called by the board chairperson to hear appeals during the absence or disqualification of a member. Alternate members shall possess the qualifications required for board membership, and shall be appointed for the same term or until a successor has been appointed.

**CA101.3.3 Vacancies.** Vacancies shall be filled for an unexpired term in the same manner in which original appointments are required to be made.

**CA101.3.4 Chairperson.** The board shall annually select one of its members to serve as chairperson.

**CA101.3.5 Secretary.** The chief appointing authority shall designate a qualified clerk to serve as secretary to the board. The secretary shall file a detailed record of all proceedings which shall set forth the reasons for the board’s decision, the vote of each member, the absence of a member and any failure of a member to vote.

**CA101.3.6 Conflict of interest.** A member with any personal, professional or financial interest in a matter before the board shall declare such interest and refrain from participating in discussions, deliberations and voting on such matters.

**CA101.3.7 Compensation of members.** Compensation of members shall be determined by law.

**CA101.3.8 Removal from the board.** A member shall be removed from the board prior to the end of their terms only for cause. Any member with continued absence from regular meeting of the board may be removed at the discretion of the chief appointing authority.

**CA101.4 Rules and procedures.** The board shall establish policies and procedures necessary to carry out its duties consistent with the provisions of this code and applicable state law. The procedures shall not require compliance with strict rules of evidence, but shall mandate that only relevant information be presented.

**CA101.5 Notice of meeting.** The board shall meet upon notice from the chairperson, within 10 days of the filing of an appeal or at stated periodic intervals.

**CA101.5.1 Open hearing.** All hearings before the board shall be open to the public. The appellant, the appellant’s representative, the code official and any person whose interests are affected shall be given an opportunity to be heard.

**CA101.5.2 Quorum.** Three members of the board shall constitute a quorum.

**CA101.5.3 Postponed hearing.** When five members are not present to hear an appeal, either the appellant or the appellant’s representative shall have the right to request a postponement of the hearing.

**CA101.6 Legal counsel.** The jurisdiction shall furnish legal counsel to the board to provide members with general legal advice concerning matters before them for consideration. Members shall be represented by legal counsel at the jurisdiction’s expense in all matters arising from service within the scope of their duties.

**CA101.7 Board decision.** The board shall only modify or reverse the decision of the code official by a concurring vote of three or more members.

**CA101.7.1 Resolution.** The decision of the board shall be by resolution. Every decision shall be promptly filed in writing in the office of the code official within three days and shall be open to the public for inspection. A certified copy shall be furnished to the appellant or the appellant’s representative and to the code official.

**CA101.7.2 Administration.** The code official shall take immediate action in accordance with the decision of the board.

**CA101.8 Court review.** Any person, whether or not a previous party of the appeal, shall have the right to apply to the appropriate court for a writ of certiorari to correct errors of law. Application for review shall be made in the manner and time required by law following the filing of the decision in the office of the chief administrative officer.

**(CA9114 / ADM43-19 Part III AS)**

**Appendix H – Signs**

**Delete section in its entirety and show as Reserved:**

**H105.4 Seismic load.** Reserved. ~~Signs designed to withstand wind pressures shall be considered capable of withstanding earthquake loads, except as provided for in Chapter 16.~~

**(S10054 AS)**

**Appendix I - Patio Covers**

**Revise as follows:**

**I105.1 Design loads.**Patio covers shall be designed and constructed to sustain, within the stress limits of this code, all *dead loads*plus a minimum vertical live load of 10 pounds per square foot (0.48 kN/m2) ~~except that snow loads shall be used where such snow loads exceed this minimum~~. Such patio covers shall be designed to resist the minimum wind ~~and seismic~~ loads set forth in this code.

**(S10055 AS)**

**Appendix J – Grading**

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| **Delete section in its entirety:**  **~~J104.4 Liquefaction study.~~**~~For sites with mapped maximum considered earthquake spectral response accelerations at short periods (~~*~~Ss~~*~~) greater than 0.5g as determined by Section 1613, a study of the liquefaction potential of the site shall be provided and the recommendations incorporated in the plans.~~  **~~Exception:~~**~~A liquefaction study is not required where the~~*~~building official~~*~~determines from established local data that the liquefaction potential is low.~~ | | |
| **(S10056 AS)** | | |
| **Appendix L - Earthquake Recording Instrumentation** |

**Delete Appendix L in its entirety and show as Reserved:**

**APPENDIX L**

**EARTHQUAKE RECORDING INSTRUMENTATION**

**RESERVED**

**(S10057 AS)**

**APPENDIX O PERFORMANCE-BASED APPLICATION**

**Add new text as follows:**

**APPENDIX O  
PERFORMANCE-BASED APPLICATION**

O101.1 Introduction. The following administrative provisions are excerpted from the ICC Performance Code for Buildings and Facilities and can be used in conjunction with the Alternate Methods provisions in Chapter 1, or for a review of submittals requiring a rational analysis or performance-based design. These provisions ~~to~~ provide ~~a recognized~~ an established framework for the code official in terms of the design expertise needed, the necessary submittals, a review framework and related items.

**O101.2 Qualifications.** Registered design professionals shall possess the knowledge, skills and abilities necessary to demonstrate compliance with this code.

**O101.3 Construction document preparation.** Construction documents required by this code shall be prepared in adequate detail and submitted for review and approval in accordance with Section 107.

**O101.3.1 Review.** Construction documents submitted in accordance with this code shall be reviewed for code compliance with the appropriate code provisions in accordance with Section 107.

**O101.4 Construction.** Construction shall comply with the approved construction documents submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

**O101.4.1 Facility operating policies and procedures.** Policies, operations, training and procedures shall comply with approved documents submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

**O101.4.2 Maintenance.** Maintenance of the performance-based design shall be ensured throughout the life of the building or portion thereof.

**O101.4.3 Changes.** The owner or the owner's authorized agent shall be responsible to ensure that any change to the facility, process, or system does not increase the hazard level beyond that originally designed without approval and that changes shall be documented in accordance with the code.

**O101.5 Documentation.** The registered design professional shall prepare appropriate documentation for the project that clearly provides the design approach and rationale for design submittal, construction and future use of the building, facility or process.

**O101.5.1 Reports and Manuals.** The design report shall document the steps taken in the design analysis, clearly identifying the criteria, parameters, inputs, assumptions, sensitivities and limitations involved in the analysis. The design report shall clearly identify bounding conditions, assumptions and sensitivities that clarify the expected uses and limitations of the performance analysis. This report shall verify that the design approach is in compliance with the applicable codes and acceptable methods and shall be submitted for concurrence by the code official prior to the construction documents being completed. The report shall document the design features to be incorporated based on the analysis.

The design report shall address the following:

1. Project scope.

2. Goals and objectives.

3. Performance criteria.

4. Hazard scenarios.

5. Design fire loads and hazards.

6. Final design.

7. Evaluation.

8. Bounding conditions and critical design assumptions.

9. Critical design features.

10. System design and operational requirements.

11. Operational and maintenance requirements.

12. Commissioning testing requirements and acceptance criteria.

13. Frequency of certificate renewal.

14. Supporting documents and references.

15. Preliminary site and floor plans.

**O101.5.2 Design Submittal.** Applicable construction documents shall be submitted to the code official for review. The documents shall be submitted in accordance with the jurisdiction's procedures and in sufficient detail to obtain appropriate permits.

**O101.6 Review.** Construction documents submitted in accordance with this code shall be reviewed for code compliance with the appropriate code provisions.

**O101.6.1 Peer review.** The owner or the owner’s authorized agent shall be responsible for retaining and furnishing the services of a registered design professional or recognized expert, who will perform as a peer reviewer, where required and approved by the code official.

**O101.6.2 Costs.** Costs. The costs of special services, including contract review, where required by the code official, shall be borne by the owner or the owner's authorized agent.

**O101.7 Permits.** Prior to the start of construction, appropriate permits shall be obtained in accordance with the jurisdiction’s procedures and applicable codes.

**O101.8 Verification of compliance.** Upon completion of the project, documentation shall be prepared that verifies performance and prescriptive code provisions have been met. Where required by the code official, the registered design professional shall file a report that verifies bounding conditions are met.

**O101.9 Extent of documentation.** Approved construction documents, the operations and maintenance manual, inspection and testing records, and certificates of occupancy with conditions shall be included in the project documentation of the code official’s records.

**O101.10 Analysis of change.** The registered design professional shall evaluate the existing building, facilities, premises, processes, contents and the applicable documentation of the proposed change as it affects portions of the building, facility, premises, processes and contents that were previously designed for compliance under a performance-based code. Prior to any change that was not documented in a previously approved design, the registered design professional shall examine the applicable design documents, bounding conditions, operation and maintenance manuals, and deed restrictions.

**(CA9116-AMPC1 / ADM44-19 AMPC1)**