Flood Resistant Provisions in the 7th Edition Florida Building Code (2020)

A compilation prepared by the State Floodplain Management Office, Florida Division of Emergency Management.

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Available online: https://www.floridadisaster.org/dem/mitigation/floodplain/ (Community Resources).

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Summary of Most Significant Changes from the 6th Ed. FBC

1. FBC, Building.
   a. Modified ASCE 24, Section 9.6 Pools, to permit equipment for pools, spas and water features below the required elevation if elevated to the extent practical, anchored, and supplied by branch circuits with ground-fault circuit interrupter protection.
   b. Modified Section 2702.1.7 to clarify where new essential electrical systems generators are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24, and where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.
2. FBC, Residential.
   a. Modified R322.1.6 Protection of mechanical, plumbing and electrical systems, Exception, to permit equipment for pools, spas and water features below the required elevation if elevated to the extent practical, anchored, and supplied by branch circuits with ground-fault circuit interrupter protection.
   b. New R322.3.4: Moves and clarifies requirements for concrete slabs in coastal high hazard areas (Zone V) and Coastal A Zones.
   c. New R322.3.7: Adds requirements for stairways and ramps in coastal high hazard areas (Zone V) and Coastal A Zones.
   d. New R322.3.8: Adds requirements for decks and porches in coastal high hazard areas (Zone V) and Coastal A Zones.

7th Edition Florida Building Code, Building (2020)

CHAPTER 1 ADMINISTRATIVE
SECTION 101 GENERAL

Note: *In these Chapter 1 excerpts the flood provisions are identified by vertical black bars in the right margin.*

Note: *Sections 101.2 and 102.2 are shown so that floodplain administrators who are not familiar with the code see which buildings are subject to the FBC, Building, FBC, Residential, and FBC, Existing Building, and which buildings and facilities are exempt. The NFIP requires all development to be regulated; buildings not subject to the FBC are still subject to floodplain requirements under local regulations.*

[A] 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.

SECTION 102 APPLICABILITY

102.2 Building. The provisions of the *Florida Building Code* shall apply to the construction, erection, alteration, modification, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every public and private building, structure or facility or floating residential structure, or any appurtenances connected or attached to such buildings, structures or facilities. Additions, alterations, repairs and changes of use or occupancy group in all buildings and structures shall comply with the provisions provided in the *Florida Building Code, Existing Building*. The following buildings, structures and facilities are exempt from the *Florida Building Code* as provided by law, and any further exemptions shall be as determined by the legislature and provided by law:

(a) Building and structures specifically regulated and preempted by the federal government.
(b) Railroads and ancillary facilities associated with the railroad.
(c) Nonresidential farm buildings on farms.
(d) Temporary buildings or sheds used exclusively for construction purposes.
(e) Mobile or modular structures used as temporary offices, except that the provisions of Part II (Sections 553.501-553.513, *Florida Statutes*) relating to accessibility by persons with disabilities shall apply to such mobile or modular structures.
(f) Those structures or facilities of electric utilities, as defined in Section 366.02, *Florida Statutes*, which are directly involved in the generation, transmission, or distribution of electricity.
(g) Temporary sets, assemblies, or structures used in commercial motion picture or television production, or any sound-recording equipment used in such production, on or off the premises.
(h) Chickees constructed by the Miccosukee Tribe of Indians of Florida or the Seminole Tribe of Florida. As used in this paragraph, the term “chickee” means an open-sided wooden hut that has a thatched roof of palm or palmetto or other traditional materials, and that does not incorporate any electrical, plumbing, or other nonwood features.
(i) Family mausoleums not exceeding 250 square feet (23 m^2) in area which are prefabricated and assembled on site or preassembled and delivered on site and have walls, roofs, and a floor constructed of granite, marble, or reinforced concrete.

(j) Temporary housing provided by the Department of Corrections to any prisoner in the state correctional system.
(k) A building or structure having less than 1,000 square feet (93 m^2) which is constructed and owned by a natural person for hunting and which is repaired or reconstructed to the same dimension and condition as existed on January 1, 2011, if the building or structure:
1. Is not rented or leased or used as a principal residence;
2. Is not located within the 100-year floodplain according to the Federal Emergency Management Agency's current Flood Insurance Rate Map; and
3. Is not connected to an off-site electric power or water supply.

102.2.5 Each enforcement district shall be governed by a board, the composition of which shall be determined by the affected localities. *[partial shown]*
2. However, the exemptions under subparagraph 1 do not apply to single-family residences that are located in mapped flood hazard areas, as defined in the code, unless the enforcement district or local enforcement agency has determined that the work, which is otherwise exempt, does not constitute a substantial improvement, including the repair of substantial damage, of such single-family residences.

102.7 Relocation of manufactured buildings.
(1) Relocation of an existing manufactured building does not constitute an alteration.
(2) A relocated building shall comply with wind speed requirements of the new location, using the appropriate wind speed map. If the existing building was manufactured in compliance with the Standard Building Code (prior to March 1, 2002), the wind speed map of the Standard Building Code shall be applicable. If the existing building was manufactured in compliance with the *Florida Building Code* (after March 1, 2002), the wind speed map of the *Florida Building Code* shall be applicable.
(3) A relocated building shall comply with the flood hazard area requirements of the new location, if applicable.

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

[A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. Reserved.

[A] 104.10.1 [Modifications] Flood hazard areas. Reserved.

SECTION 105 PERMITS

[A] 105.1 [Permits] Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any impact-resistant coverings, electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the building official and obtain the required permit.

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: Permit issued on basis of an affidavit shall not extend to the flood load and flood resistance requirements of the *Florida Building Code*.

SECTION 107 SUBMITTAL DOCUMENTS

[A] 107.2.6 Site plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted.

[A] 107.2.6.1 [Site Plan] Design flood elevations. Where design flood elevations are not specified, they shall be established in accordance with Section 1612.3.1.

107.3.5 [Examination of Documents] Minimum plan review criteria for buildings. The examination of the documents by the building official shall include the following minimum criteria and documents: a floor plan; site plan; foundation plan; floor/roof framing plan or truss layout; all fenestration penetrations; flashing; and rough opening dimensions; and all exterior elevations:

Commercial Buildings: *[partial shown]*

Building

1. Site requirements:
   Flood hazard areas, flood zones, and design flood elevations
8. Structural requirements shall include:
   Flood requirements in accordance with Section 1612, including lowest floor elevations, enclosures, flood damage-resistant materials

Electrical

8. Design flood elevation

Plumbing

14. Design flood elevation

Mechanical

16. Design flood elevation

Gas

10. Design flood elevation

Residential (one- and two-family): *[partial shown]*

6. Structural requirements shall include:
   Flood hazard areas, flood zones, design flood elevations, lowest floor elevations, enclosures, equipment, and flood damage-resistant materials

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 [Affidavits] Building permits issued 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.*

SECTION 110 INSPECTIONS

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

Building *[partial shown]*

1. Foundation inspection. To be made after trenches are excavated and forms erected and shall at a minimum include the following building components:
   - ·Stem-wall
   - ·Monolithic slab-on-grade
   - ·Piling/pile caps
   - ·Footers/grade beams

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

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 shall be submitted to the authority having jurisdiction.

[A] 110.3.3 [Required inspections] Lowest floor elevation. Reserved.

[A] 110.3.11.1 [Final inspection] Flood hazard documentation. Reserved.

SECTION 111 CERTIFICATE OF OCCUPANCY

[A] 111.2 [Certificate of Occupancy] Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy that contains the following: *[partial shown]*

6. For buildings and structures in flood hazard areas, a statement that documentation of the as-built lowest floor elevation has been provided and is retained in the records of the authority having jurisdiction

SECTION 117 VARIANCES IN FLOOD HAZARD AREAS

117.1 Flood hazard areas. Pursuant to section 553.73(5), *Florida Statutes*, the variance procedures adopted in the local floodplain management ordinance shall apply to requests submitted to the building official for variances to the provisions of Section 1612.4 of the *Florida Building Code, Building* or, as applicable, the provisions of R322 of the *Florida Building Code, Residential*. This section shall not apply to Section 3109 of the *Florida Building Code, Building.*

CHAPTER 2 DEFINITIONS
SECTION 202 DEFINITIONS

[A] ADDITION. An extension or increase in floor area, number of stories or height of a building or structure.

[A] ALTERATION. Any construction or renovation to an existing structure other than repair or addition.

[BS] BASE FLOOD. The flood having a 1-percent chance of being equaled or exceeded in any given year.

[BS] BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM).

[BS] BASEMENT (for flood loads). The portion of a building having its floor subgrade (below ground level) on all sides. This definition of "Basement" is limited in application to the provisions of Section 1612.

BASEMENT. A story that is not a story above grade plane (see "Story above grade plane"). This definition of "Basement" does not apply to the provisions of Section 1612 for flood loads.

[BS] COASTAL A ZONE. Area within a special flood hazard area, landward of a V zone or landward of an open coast without mapped coastal high hazard areas. In a coastal A zone, the principal source of flooding must be astronomical tides, storm surges, seiches or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave height shall be greater than or equal to 1 ½ feet (457 mm). The inland limit of the coastal A zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM, or (b) designated by the authority having jurisdiction.

[BS] COASTAL HIGH HAZARD AREA. Area within the special flood hazard area extending from offshore to the inland limit of a primary dune along an open coast and any other area that is subject to high-velocity wave action from storms or seismic sources, and shown on a Flood Insurance Rate Map (FIRM) or other flood hazard map as velocity Zone V, VO, VE or V1-30.

[BS] DESIGN FLOOD. The flood associated with the greater of the following two areas:

1. Area with a flood plain subject to a 1-percent or greater chance of flooding in any year.
2. Area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

[BS] DRY FLOODPROOFING. A combination of design modifications that results in a building or structure, including the attendant utilities and equipment and sanitary facilities, being water tight with walls substantially impermeable to the passage of water and with structural components having the capacity to resist loads as identified in ASCE 7.

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

[BS] EXISTING STRUCTURE. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.

[BS] FLOOD or FLOODING. A general and temporary condition of partial or complete inundation of normally dry land from:

1. The overflow of inland or tidal waters.
2. The unusual and rapid accumulation or runoff of surface waters from any source.

[BS] FLOOD DAMAGE-RESISTANT MATERIALS. Any construction material capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair.

[BS] FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year.
2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

[BS] FLOOD INSURANCE RATE MAP (FIRM). An official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated both the special flood hazard areas and the risk premium zones applicable to the community.

[BS] FLOOD INSURANCE STUDY. The official report provided by the Federal Emergency Management Agency containing the Flood Insurance Rate Map (FIRM), the Flood Boundary and Floodway Map (FBFM), the water surface elevation of the base flood and supporting technical data.

[BS] FLOODWAY. The channel of the river, creek or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

HISTORIC BUILDINGS. Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law (see Chapter 12 of the *Florida Existing Building Code*).

[BS] LIMIT OF MODERATE WAVE ACTION. Line shown on FIRMs to indicate the inland limit of the 1 ½-foot (457 mm) breaking wave height during the base flood.

LOCAL FLOODPLAIN MANAGEMENT ORDINANCE. An ordinance or regulation adopted pursuant to the requirements in Title 44 Code of Federal Regulations, Parts 59 and 60 for participation in the National Flood Insurance Program.

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

[BS] SPECIAL FLOOD HAZARD AREA. The land area subject to flood hazards and shown on a Flood Insurance Rate Map or other flood hazard map as Zone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE, or V1-30.

[BS] START OF CONSTRUCTION. The date of issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within 180 days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns.

Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual "start of construction" means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

[BS] SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

[BS] SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions.

2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 449 HOSPITALS

449.4.2.2 Site standards.

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.

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.

449.4.2.2.3 Substantial improvement, as defined by Section 1612 of this code, to all existing facilities located within flood areas as defined in Section 1612 of this code or within a Category 3 surge inundation zone as described in Section 449.4.2.2.1 of this code, shall be designed and constructed in compliance with Section 1612 of this code.

449.4.2.2.4 Where an off-site public access route is available to the new facility at or above the base flood elevation, a minimum of one on-site emergency access route shall be provided that is located at the same elevation as the public access route.

SECTION 450 NURSING HOMES

450.4 Physical plant requirements for disaster preparedness of new nursing home construction.

450.4.2.2 Site standards

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 (607 mm), 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.

450.4.2.2.2 For all existing facilities, the lowest floor elevations of all additions, and all resident support areas including food service, and all resident 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 resident 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.

450.4.2.2.3 Substantial improvement, as defined by Section 1612 of this code, to all existing facilities located within flood areas as defined in Section 1612 of this code or within a Category 3 surge inundation zone as described in Section 450.4.2.2.1 of this code, shall be designed and constructed in compliance with Section 1612 of this code.

450.4.2.2.4 Where an off-site public access route is available to the new facility at or above the base flood elevation, a minimum of one on-site emergency access route shall be provided that is located at the same elevation as the public access route.

SECTION 453 EDUCATIONAL FACILITIES

453.4.2 Flood-resistant construction. Educational facilities in flood hazard areas shall comply with ASCE 24.

453.10.9 School site master plan. New schools shall include, as applicable: facility design capacity; floodplain locations; covered accessible walks; infrastructure locations for, and extensions of, technology, telephone, electricity, fire alarm; and, where applicable, water and sewer utilities, and relocatables.

453.25.2.1 Emergency access. EHPAs shall have at least one route for emergency vehicle access. The emergency route shall be above the 100-year floodplain. This requirement may be waived by the board, with concurrence of the local emergency management agency or the DEM.

453.27.5 Site standards/site plan. Relocatables placed on educational plant sites shall comply with federal and state laws and rules relating to the placement of structures on sites, as well as building code, fire code site requirements.

> **453.27.5.1 Floodplain.** Compliance with floodplain standards is required for the initial and subsequent installation of public educational relocatable units. The finished floor shall be 12 inches (305 mm) above base flood elevation, the structure shall be designed to meet the Florida Building Code and anchored to resist buoyant forces.

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

454.1 Public swimming pools and bathing places. Public swimming pools and bathing places shall comply with the design and construction standards of this section.
Exceptions:

1. A portable pool used exclusively for providing swimming lessons or related instruction in support of an established educational program sponsored or provided by a school district may not be regulated as a public pool. Such pool shall be regulated as a private swimming pool under Section 454.2.
2. A temporary pool may not be regulated as a public pool. Such pool shall be regulated as a private swimming pool under Section 454.2.

454.1.1 Flood hazard areas. Public swimming pools installed in flood hazard areas established in Section 612.3 shall comply with Section 1612.

454.2.4.2 Items not covered. For any items not specifically covered in these requirements, the administrative authority is hereby authorized to require that all equipment, materials, methods of construction and design features shall be proven to function adequately, effectively and without excessive maintenance and operational difficulties.

454.2.4.2.1 Flood hazard areas. Private swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.

CHAPTER 8 INTERIOR FINISHES

801.5 [General] Applicability. For buildings in flood hazard areas as established in Section 1612.3, interior finishes, trim and decorative materials below the elevation required by Section 1612 shall be flood-damage-resistant-materials.

CHAPTER 12 INTERIOR ENVIRONMENT

1203.4 [Ventilation] Under-floor ventilation.
1203.4.2 Exceptions. The following are exceptions to Sections 1203.4 and 1203.4.1:

5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.

CHAPTER 14 EXTERIOR WALLS

[BS] 1403.6 [Performance Requirements] Flood resistance. For buildings in flood hazard areas as established in Section 1612.3, exterior walls extending below the elevation required by Section 1612 shall be constructed with flood-damage-resistant materials.

[BS] 1403.7 [Performance Requirements] Flood resistance for coastal high-hazard areas and coastal A zones. For buildings in coastal high-hazard areas and coastal A zones as established in Section 1612.3, electrical, mechanical and plumbing system components shall not be mounted on or penetrate through exterior walls that are designed to break away under flood loads.

CHAPTER 16 STRUCTURAL DESIGN

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

Exception: Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of Sections 1605, 1607, 1611, 1616 through 1626, and, as applicable in flood hazard areas, Section 1612.

SECTION 1602 DEFINITIONS AND NOTATIONS

NOTATIONS.
F_a = Flood load in accordance with Chapter 5 of ASCE 7.

SECTION 1603 CONSTRUCTION DOCUMENTS

1603.1.7 Flood design data. For buildings located in whole or in part in flood hazard areas as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. Flood design class assigned according to ASCE 24.
2. In flood hazard areas other than coastal high hazard areas or coastal A zones, the elevation of the proposed lowest floor, including the basement.
3. In flood hazard areas other than coastal high hazard areas or coastal A zones, the elevation to which any nonresidential building will be dry floodproofed.
4. In coastal high hazard areas and coastal A zones, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

SECTION 1605 LOAD COMBINATIONS

1605.2.1 [Load combinations using strength design or load and resistance factor design] 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.

1605.3.1.2 [Load combinations using allowable stress design] 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.

1605.3.2.1 [Alternative basic load combinations] 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 design, their structural effects in combination with other loads shall be determined in accordance with Section 2.4.4 of ASCE 7.

SECTION 1612 FLOOD LOADS

1612.1 General. Within flood hazard areas as established in Section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvement and restoration of substantial damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads. For buildings that are located in more than one flood hazard area, the provisions associated with the most restrictive flood hazard area shall apply.

1612.1.1 Cross references. See Table 1612.1.

TABLE 1612.1
CROSS REFERENCES DEFINING FLOOD-RESISTANT PROVISIONS OF THE FLORIDA BUILDING CODE

Florida Building Code – Building			
Section		Section	
Chapter 1	Administration	Chapter 14	Exterior Walls
102	Applicability	1403	Performance Requirements
105	Permits		
107	Construction Documents	Chapter 16	Structural Design
110	Inspections	1601	General
111	Certificates of Occupancy and Completion	1603	Construction Documents
117	Variances in Flood Hazard Areas	1605	Load Combinations
		1612	Flood Loads
Chapter 2	Definitions		
202	Definitions	Chapter 18	Soils and Foundations
		1804	Excavation, Grading and Fill
Chapter 4	Special Detailed Requirements Based on Use and Occupancy	1805	Dampproofing and Waterproofing
449	Hospitals		
450	Nursing Homes	Chapter 27	Electrical
453	Educational Facilities	2702	Emergency and Standby Power Systems
454	Swimming Pools and Bathing Places (Public And Private)		
		Chapter 30	Elevators and Conveying Systems
Chapter 8	Interior Finishes	3001	General
801	General		
		Chapter 31	Special Construction
Chapter 12	Interior Environment	3102	Membrane Structures
1203	Ventilation	3109	Coastal Construction Control Line
Florida Building Code – Residential			
Section		Section	
Chapter 2	Definitions	Chapter 20	Boilers and Water Heaters
202	Definitions	M2001	Boilers
Chapter 3	Building Planning	Chapter 22	Special Piping and Storage Systems
R301	Design Criteria	M2201	Oil Tanks
R309	Garages and Carports		
R322	Flood-Resistant Construction	Chapter 24	Fuel Gas
		G2404 (301)	General
Chapter 4	Foundations		
R401	General	Chapter 26	General Plumbing Requirements
R404	Foundation and Retaining Walls	P2601	General
R408	Under-Floor Space		
		Chapter 27	Plumbing Fixtures
Chapter 13	General Mechanical System Requirements	P2705	Installation
M1301	General		
		Chapter 30	Sanitary Drainage
Chapter 14	Heating and Cooling Equipment	P3001	General
M1401	General		
		Chapter 31	Vents
Chapter 16	Duct Systems	P3101	Vent Systems
M1601	Duct Construction		

(continued)

TABLE 1612.1—continued
CROSS REFERENCES DEFINING FLOOD-RESISTANT PROVISIONS OF THE FLORIDA BUILDING CODE

Florida Building Code – Residential			
Section		Section	
Chapter 17	Combustion Air	Chapter 45	Private Swimming Pools
M1701	General	R4501	General
Florida Building Code – Existing Building			
Section		Section	
Chapter 2	Definitions	Chapter 7	Alterations – Level I
202	Definitions	701	General
Chapter 3	Compliance Methods	Chapter 11	Additions
301.1	General	1103	Structural
Chapter 4	Repairs	Chapter 12	Historic Buildings
401	General	1201	General
406	Structural		
		Chapter 13	Relocated or Moved Buildings
Chapter 5	Prescriptive Compliance Method	1302	Requirements
502	Additions		
503	Alterations	Chapter 14	Performance Compliance Methods
		1401	General
Florida Building Code – Mechanical			
Section		Section	
Chapter 3	General Regulations	Chapter 6	Duct Systems
M301	General	M602	Plenums
		M603	Duct Construction and Installation
Chapter 4	Ventilation		
M401	General	Chapter 12	Hydronic Piping
		M1206	Piping Installation
Chapter 5	Exhaust Systems		
M501	General	Chapter 13	Fuel Oil Piping and Storage
		M1305	Fuel Oil System Installation
Florida Building Code – Plumbing			
Section			
Chapter 3	General Regulations		
P309	Flood Hazard Resistance		
Florida Building Code – Fuel Gas			
Section			
Chapter 3	General Regulations		
FG301	General		

1612.2 Definitions. The following terms are defined in Chapter 2:

BASE FLOOD.
BASE FLOOD ELEVATION.
BASEMENT.
COASTAL A ZONE.
COASTAL HIGH HAZARD AREA.
DESIGN FLOOD.
DESIGN FLOOD ELEVATION.
DRY FLOODPROOFING.
EXISTING STRUCTURE.
FLOOD or FLOODING.
FLOOD DAMAGE-RESISTANT MATERIALS.
FLOOD HAZARD AREA.
FLOOD INSURANCE RATE MAP (FIRM).
FLOOD INSURANCE STUDY.
FLOODWAY.
LOWEST FLOOR.
SPECIAL FLOOD HAZARD AREA.
START OF CONSTRUCTION.
SUBSTANTIAL DAMAGE.
SUBSTANTIAL IMPROVEMENT.

1612.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the applicable governing authority shall, by local floodplain management ordinance, adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency.

1612.3.1 Design flood elevations. Where design flood elevations are not included in the flood hazard areas established in Section 1612.3, or where floodways are not designated, the building official is authorized to require the applicant to:

1. Obtain and reasonably utilize any design flood elevation and floodway data available from a federal, state, or other source; or
2. Determine the design flood elevation and/or floodway in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice.

1612.3.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed work will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction of the applicable governing authority.

1612.4 Design and construction. The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and Coastal A Zones, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.4.1 Modification of ASCE 24. Table 6-1 and Section 6.2.1 in ASCE 24 shall be modified as follows:

1. The title of Table 6.1 shall be “Minimum Elevation of Floodproofing, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE), in Coastal A Zones and in Other Flood Hazard Areas that are not High Risk Flood Hazard Areas.”
2. Section 6.2.1 shall be modified to permit dry floodproofing in Coastal A Zones, as follows: “Dry floodproofing of nonresidential structures and nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave

loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted."

1612.4.2 Modification of ASCE 24 9.6 Pools. Modify Section 9.6 of ASCE 24 by adding an exception as follows:

9.6 Pools. In-ground and above ground pools shall be designed to withstand all flood-related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems, and filtering systems, and their associated electrical systems shall comply with Chapter 7.

Exception: Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1 provided it is elevated to the extent practical, is anchored to prevent flotation and resist flood forces and is supplied by branch circuits that have ground-fault circuit interrupter protection.

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.
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/m^2) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

CHAPTER 18 SOILS AND FOUNDATIONS

1801.1 [General] Scope. The provisions of this chapter shall apply to building and foundation systems.

1804.4 [Excavation, Grading and Fill] Site grading. The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall. If physical obstructions or lot lines prohibit 10 feet (3048 mm) of horizontal distance, a 5-percent slope shall be provided to an approved alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 2 percent where located within 10 feet (3048 mm) of the building foundation. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building, except as otherwise permitted in Section 1010.1.5, 1012.3 or 1012.6.1.

Exception: Where climatic or soil conditions warrant, the slope of the ground away from the building foundation shall be permitted to be reduced to not less than one unit vertical in 48 units horizontal (2-percent slope).

The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill.

1804.5 [Excavation, Grading and Fill] Grading and fill in flood hazard areas. In flood hazard areas established in Section 1612.3, grading, fill, or both, shall not be approved:

1. Unless such fill is placed, compacted and sloped to minimize shifting, slumping and erosion during the rise and fall of flood water and, as applicable, wave action.
2. In floodways, unless it has been demonstrated through hydrologic and hydraulic analyses performed by a registered design professional in accordance with standard engineering practice that the proposed grading or fill, or both, will not result in any increase in flood levels during the occurrence of the design flood.
3. In coastal high hazard areas, unless such fill is conducted and/or placed to avoid diversion of water and waves toward any building or structure.
4. Where design flood elevations are specified but floodways have not been designated, unless it has been demonstrated that the cumulative effect of the proposed flood hazard area encroachment, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point.

1805.1.2.1 [Dampproofing and Waterproofing; Under-floor space] Flood hazard areas. For buildings and structures in flood hazard areas as established in Section 1612.3, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on at least one side.

Exception: Under-floor spaces of Group R-3 buildings that meet the requirements of FEMA TB 11.

CHAPTER 27 ELECTRICAL

[F] 2702.1.8 [Emergency and Standby Power Systems; Installation] Group I-2 Occupancies. In Group I-2 occupancies located in flood hazard areas established in Section 1612.3, where new essential electrical systems generators are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS

3001.2 [General] Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to the applicable standard specified in Table 3001.2 and ASCE 24 for construction in *flood hazard areas* established in Section 1612.3. The Division of Hotels and Restaurants may grant variances and waivers to the *Elevator Safety Code* as authorized by the *Safety Code for Elevators and Escalators* (ASME A17.1, Section 1.2) and *Florida Statutes* (Chapter 120 and Chapter 399.)

CHAPTER 31 SPECIAL CONSTRUCTION

3102.7 [Membrane Structures] 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 flood and seismic loads and in accordance with Chapter 16.

SECTION 3109 STRUCTURES SEAWARD OF A COASTAL CONSTRUCTION CONTROL LINE

This section revised and reorganized in the 6th Edition to more closely align with Section 1612.

3109.1 General. The provisions of this section shall apply to the design and construction of *habitable structures,* and *substantial improvement* or repair of *substantial damage* of such structures, that are entirely seaward of, and portions of such structures that extend seaward of, the *coastal construction control line* or seaward of the *50-foot setback line*, whichever is applicable. This section does not apply to structures that are not *habitable structures*, as defined in this section. Section 1612 shall apply to *habitable structures* and structures that are not *habitable structures* if located in whole or in part in *special flood hazard areas* established in Section 1612.3.

3109.1.1 Modification, maintenance or repair of existing *habitable structures*. The requirements of Section 3109 do not apply to the modification, maintenance or repair of existing *habitable structures*, provided all of the following apply to the modification, maintenance, or repair:

1. Is within the limits of the existing foundation.
2. Does not require, involve or include any additions to, or repair or modification of, the existing foundation.
3. Does not include any additions or enclosures added, constructed, or installed below the lowest floor or deck.

Advisory Note. If the modification or repair is determined to be *substantial improvement* or *substantial damage*, and if the building is located in a *special flood hazard area* (Zone A and Zone V) established in Section 1612.3, the requirements of *Florida Building Code, Existing Building* applicable to *flood hazard areas* shall apply.

3109.1.2 Approval prior to construction. An environmental permit from the Florida Department of Environmental Protection is required prior to the start of construction. When issued, a copy of the environmental permit shall be submitted to the building official. The environmental permit may impose special siting considerations to protect the beach-dune system, proposed or existing structures, and public beach access, and may condition the nature, timing and sequence of construction of permitted activities to provide protection to nesting sea turtles and hatchlings and their habitat, including submittal and approval of lighting plans.

3109.1.3 Elevation certification. As part of the permit process, upon placement of the *lowest horizontal structural member* of the *lowest floor* and prior to further vertical construction, certification of the elevation of the bottom of the *lowest horizontal structural member* of the *lowest floor* shall be submitted to the building official. Any work undertaken prior to submission of the certification or subsequent to submission and prior to the building official's review shall be at the applicant's risk.

3109.2 Definitions. The following words and terms shall, for the purposes of this section, have the indicated meanings shown herein.

ALLOWED USE. For the purpose of Section 3109.3.4, use of enclosures above, or with *dry floodproofing* to, the elevation specified in ASCE 24 and below the *100-year storm elevation,* includes, but is not limited to use for parking of vehicles, storage, building access, small mechanical and electrical rooms, retail shops, commercial pool bars and other bars, snack bars, commercial grills with portable cooking equipment, commercial dining areas where the permanent kitchen is located landward of the *coastal construction control line* or above the *100-year storm elevation*, toilet rooms and bathrooms, cabanas, recreational spaces such as gyms and card rooms, commercial service/storage/back-of-house facilities; and uses of a similar nature that are not spaces for living, sleeping or cooking.

COASTAL A ZONE. See Section 202.

COASTAL CONSTRUCTION CONTROL LINE. The line established by the State of Florida pursuant to Section 161.053, *Florida Statutes*, and recorded in the official records of the respective county and which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.

COASTAL HIGH HAZARD AREA. See Section 202.

COMBINED TOTAL STORM TIDE ELEVATION (VALUE). The elevation of combined total tides including storm surges, astronomical tide and dynamic wave setup which occurs primarily inside the wave breaking zone. The *combined total storm tide elevations (values)* for various return periods are determined by the Florida Department of Environmental Protection for each coastal county with an established *coastal construction control lines* and published in reports for each county titled "Revised Combined Total Storm Tide Frequency Analysis."

DESIGN GRADE. The predicted eroded grade, accounting for erosion and localized scour resulting from the presence of structural components, used in the calculation of flood loads, pile reactions and bearing capacities. The design grade shall be determined by a site-specific analysis prepared by a qualified registered design professional or the design grade may be determined by the Florida Department of Environmental Protection in the report titled "One-Hundred-Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999).

DRY FLOODPROOFING. See Section 202.

FIFTY-FOOT SETBACK LINE. A line of jurisdiction, established pursuant to the provisions of Section 161.052, *Florida Statutes*, in which construction is prohibited within 50 feet (15.13 m) of the line of mean high water at any riparian coastal location fronting the Gulf of Mexico or the Atlantic coast shoreline.

FLOOD HAZARD AREA. See Section 202.

HABITABLE STRUCTURE. Structures designed primarily for human occupancy. Typically included within this category are residences, hotels and restaurants.

LOW-RISE BUILDING. A structure with mean roof height less than or equal to 60 feet.

LOWEST FLOOR. For the purpose of Section 3109, the *lowest floor* of the lowest enclosed area, excluding any enclosure that complies with the requirements and limitations of Section 3109.3.4 applicable to enclosures below the flood elevation.

LOWEST HORIZONTAL STRUCTURAL MEMBER. A horizontal structural member that supports floor, wall or column loads and transmits the loads to the foundation.

100-YEAR STORM ELEVATION. The height of the breaking wave crest or wave approach as superimposed on the storm surge with dynamic wave setup of a 100-year (one-percent-annual chance) storm. The 100-year storm elevation is determined by the Florida Department of Environmental Protection based on studies published as part of the Coastal Construction Control Line establishment process and an analysis of topographic and other site specific data and found in the report "One-Hundred-Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999). An applicant may request the Department of Environmental Protection to determine a site-specific *100-year storm elevation* for the location of the applicant's proposed structure as part of the environmental permit application process.

SPECIAL FLOOD HAZARD AREA. See Section 202.

SUBSTANTIAL DAMAGE. See Section 202.

SUBSTANTIAL IMPROVEMENT. See Section 202.

3109.3 Design and construction. The design and construction of *habitable structures*, including *substantial improvement* and repair of *substantial damage* to such structures, shall be in accordance with this section and with Section 1612 and ASCE 24, as applicable. *Habitable structures* subject to this section shall be designed to minimize the potential for wind and water-borne debris during storms.

Exception: Additions, repairs, and alterations that, when combined with all other work on a structure, do not constitute *substantial improvement* or repair of *substantial damage*, and provided all of the following apply:

a. The work does not violate the terms of previously issued permits.

b. Any addition does not advance the seaward limits of the existing structure.

3109.3.1 Flood loads. Flood loads shall be determined according to Chapter 5 of ASCE 7, where the stillwater depth shall be the difference between the *design grade* at the location and the higher of:

1. The stillwater elevation specified in the applicable Flood Insurance Study referenced to the datum on the Flood Insurance Rate Map, if the structure is also in a *coastal high hazard area* (Zone V); or

2. The *combined total storm tide elevation (value*) for the 100-year return period identified by the Florida Department of Environmental Protection in reports titled "Revised Combined Total Storm Tide Frequency Analysis" prepared for each county with an established *coastal construction control lines*.

3109.3.2 Foundations. *Habitable structures* shall be elevated and supported on piles or columns that are designed to comply with this section. The space below elevated *habitable structures* shall be free of obstructions and walls, if any, shall comply with Section 3109.3.4. Foundations shall be designed to comply with ASCE 24 Section 4.5, except shallow foundations and stemwalls are not permitted.

3109.3.2.1 Piles and columns. In addition to the requirements of ASCE 24 Section 4.5 for pile and columns foundations:

1. The design ratio or pile spacing to pile diameter, or column spacing to column diameter, shall be not less than 8:1 for individual piles or columns extending above the *design grade*, unless justified by a geotechnical analysis and the foundation design.

2. The tops of grade beams and pile caps shall be at or below the natural grade and below the *design grade* unless designed to resist increased flood loads associated with setting the grade beam or pile cap above the *design grade*.

3. Pile penetration shall take into consideration the anticipated loss of soil above the *design grade*.

3109.3.2.2 Shear walls. Shear walls shall comply with one of the following:

1. Shear walls are permitted perpendicular to the shoreline where perpendicular shall mean less than or equal to ±20 degrees from a line drawn normal to the shoreline.

2. Shear walls not perpendicular to the shoreline shall be limited to a maximum of 20 percent of the building length in the direction running parallel to the shore, and wall segments, spacing between wall segments, and elevator shafts shall be located and positioned to allow floodwater to flow easily around the walls and elevator shafts.

Exception: *Habitable structures* other than *low-rise buildings* are permitted to have shear walls that are not perpendicular to the shoreline and that exceed 20 percent of the total building length provided the design requires a length greater than 20 percent, wall segments, spacing between wall segments, and elevator shafts are located and positioned to allow floodwater to flow easily around the walls and elevator shafts, and the following design documentation is submitted:

a. A hydraulic analysis conducted and certified by a Florida-registered professional engineer qualified to evaluate the potential impact of flow increase on the subject parcel and adjacent properties and demonstrates the increased shear wall length will not result in substantial

increase of flow velocities and drag forces on the structural components of the proposed structure and neighboring structures.
b. The certified design documentation shall include a statement that the increased length of shear walls over 20 percent of total building length is located landward of the predicted 100-year storm erosion limit.

3109.3.3 Elevation standards. The bottom of the *lowest horizontal structural member* of the *lowest floor* shall be at or above the higher of the following:

1. The elevation specified in ASCE 24 Chapter 4 if the structure is in a *coastal high hazard area* or *Coastal A Zone*;
2. The elevation specified by the jurisdiction; or
3. The 100-year storm elevation determined by the Florida Department of Environmental Protection in the report titled "One-Hundred-Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999). An applicant may request determination of a site-specific *100-year storm elevation* (see definition).

3109.3.4 Walls and enclosures below the flood elevation. Walls and enclosures below the elevation required by Section 3109.3.3 and above the *design grade* elevation shall comply with all of the following, as applicable:

1. Walls seaward of the CCCL shall comply with the breakaway wall requirements of ASCE 24 Section 4.6 using the lesser of the flood loads specified by Section 3109.3.1.
2. Elevator shafts and stairways shall comply with ASCE 24.
3. For nonresidential buildings located outside of a *coastal high hazard area* (Zone V): a. Small mechanical and electrical rooms with *dry floodproofing* to the elevation specified in ASCE 24 or by the jurisdiction are not required to be breakaway. b. Stairwells are not required to be breakaway provided the walls have flood openings in accordance with this section.
4. In *special flood hazard areas* (Zone V and Zone A), all breakaway walls below the elevation specified in ASCE 24 or the elevation specified by the jurisdiction shall have flood openings in accordance with ASCE 24 Section 4.6.2. Flood openings are not required in: a. Shear walls designed in accordance with Section 3109.3.2.2. b. Walls of enclosures below buildings not located in *special flood hazard areas* (Zone X). c. Walls that are designed and constructed in conformance with the *dry floodproofing* requirements of ASCE 24 in areas other than *coastal high hazard areas*.
5. In *special flood hazard areas* (Zone V and Zone A): a. Enclosures below the elevation specified in ASCE 24 or the elevation specified by the jurisdiction shall be used solely for parking of vehicles, building access, or storage unless enclosures are designed and constructed in accordance with the *dry floodproofing* requirements of ASCE 24. b. Enclosures above the elevation specified in ASCE 24 or by the jurisdiction and below the *100-year storm elevation*, or enclosures with *dry floodproofing* to the elevation specified in ASCE 24 or by the jurisdiction, shall be limited to *allowed use* as defined in this section.
6. In *habitable structures* not located in *special flood hazard areas* (Zone X), uses of enclosures below the *100-year storm elevation* shall be limited to *allowed use* as defined in this section.

3109.3.5 Structural slabs below the 100-year storm elevation. Structural slabs below the *100-year storm elevation* and below the *lowest floor* are not required to be breakaway provided the slabs are designed by a qualified Florida-registered professional engineer to withstand the flood loads specified by Section 3109.3.1.

3109.4 Documentation. In addition to documentation specified in Section 1612.5, where applicable the following documentation shall be prepared, signed, and sealed by a qualified Florida-registered professional engineer and submitted to the building official:

1. For site-specific determination of *design grade*, a report of the assumptions and methods used.
2. For shear walls, the certifications required in Section 3109.3.2.

CHAPTER 35 REFERENCED STANDARDS

Standard Reference Number	Title	Referenced in Code Section Number
ASCE/SEI 24-14	Flood Resistant Design and Construction	453.4.2, 1203.4.2, 1612.4, 1612.4.1, 1612.5, 2702.1.7, 3001.2, 3109.3, 3109.3.2.1, 3109.3.4
FEMA-TB-11-01	Crawlspace Construction for Buildings Located in Special Flood Hazard Areas	1805.1.2.1

7th Edition Florida Building Code, Residential (2020)

CHAPTER 1 SCOPE AND ADMINISTRATION
SECTION R101 GENERAL

R101.2 Scope. The provisions of the *Florida Building Code, Residential,* shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one– and two–family dwellings and 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.

Exceptions:

3. Existing buildings undergoing repair, alteration, additions, or change of occupancy shall comply with the *Florida Building Code, Existing Building.*

R101.2.1 The provisions of Chapter 1, *Florida Building Code, Building,* shall govern the administration and enforcement of the *Florida Building Code, Residential.*

CHAPTER 2 DEFINITIONS

[RB] HABITABLE SPACE. A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, screen enclosures, sunroom categories as defined at Section R301.2.1.1.1, storage or utility spaces and similar areas are not considered *habitable spaces*. [*Note: this definition shown to clarify that some spaces that are not habitable spaces are not permitted below elevated buildings in SFHAs*.]

[RB] LIVE LOADS. Those loads produced by the use and occupancy of the building or other structure and do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.

LOCAL FLOODPLAIN MANAGEMENT ORDINANCE. An ordinance or regulation adopted pursuant to the authority granted to local governments by Title 44 Code of Federal Regulations, Sections 59 and 60 for participation in the National Flood Insurance Program.

CHAPTER 3 BUILDING PLANNING

SECTION R301 DESIGN CRITERIA

R301.1 Application. Buildings and structures, and parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

Exception: Buildings and structures located within the High Velocity Hurricane Zone shall comply with Sections R302 to R327, inclusive and the provisions of Chapter 44, Sections R301.2.5 and R406. In addition, buildings and structures located in flood hazard areas established in Table R301.2(1) shall comply with Sections R301.2.4, R301.2.5 and R322.

R301.2 Climatic and geographic design criteria. Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. Additional criteria shall be set forth in Table R301.2(1).

TABLE R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP[j]
	Speed[d] (mph)	Topographic effects[k]	Special wind region[l]	Wind-borne debris zone[m]		Weathering[a]	Frost line depth[b]	Termite[c]					
NA	See Fig. R301.2(4)				NA	Negligible	NA	Very Heavy		NA		NA	NA

g. The applicable governing body shall, by local floodplain management ordinance, specify (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective FIRMs and FBFMs, or other flood hazard map adopted by the authority having jurisdiction, as amended.

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1), and substantial improvement and repair of substantial damage of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with Section R322. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard area. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R301.2.4.1 Alternative provisions. As an alternative to the requirements in Section R322, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.

R301.2.5 Structures seaward of a coastal construction control line. Structures located seaward of the coastal construction control line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section 3109 of the *Florida Building Code, Building*.

SECTION R309 GARAGES AND CARPORTS

R309.3 Flood hazard areas. For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be:

1. Elevated to or above the design flood elevation as determined in Section R322; or
2. Located below the design flood elevation provided that the floors are at or above grade on not less than one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.

SECTION R322 FLOOD-RESISTANT CONSTRUCTION

R322.1 General. Buildings and structures constructed in whole or in part in flood hazard areas, including A or V Zones and Coastal A Zones, as established in Table R301.2(1), and substantial improvement and repair of substantial damage of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard area. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R322.1.1 Alternative provisions. As an alternative to the requirements in Section R322 ASCE 24 is permitted subject to the limitations of this code and the limitations therein.

R322.1.2 Structural systems. Structural systems of buildings and structures shall be designed, connected and anchored to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the design flood elevation.

R322.1.3 Flood-resistant construction. Buildings and structures erected in areas prone to flooding shall be constructed by methods and practices that minimize flood damage.

R322.1.4 Establishing the design flood elevation. The design flood elevation shall be used to define flood hazard areas. At a minimum, the design flood elevation shall be the higher of the following:

1. The base flood elevation at the depth of peak elevation of flooding, including wave height, that has a 1 percent (100-year flood) or greater chance of being equaled or exceeded in any given year; or
2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.

R322.1.4.1 Determination of design flood elevations. If design flood elevations are not specified, the building official is authorized to require the applicant to comply with either of the following:

1. Obtain and reasonably use data available from a federal, state or other source; or
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.

R322.1.4.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall demonstrate that the effect of the proposed buildings and structures on design flood elevations, including fill, when combined with other existing and anticipated flood hazard area encroachments, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

R322.1.5 Lowest floor. The lowest floor shall be the lowest floor of the lowest enclosed area, including basement, and excluding any unfinished flood-resistant enclosure that is useable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the building or structure in violation of this section.

R322.1.6 Protection of mechanical, plumbing and electrical systems. Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in Section R322.2 or R322.3. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the elevation required in Section R322.2 or R322.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24. Equipment for pools, spas and water features shall be permitted below the elevation required in Section R322.2 or R322.3 provided it is elevated to the extent practical and is anchored to prevent floatation and resist flood forces and is supplied by branch circuits that have ground-fault circuit interrupter protection. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

R322.1.7 Protection of water supply and sanitary sewage systems. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems in accordance with the plumbing provisions of this code. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into systems and discharges from systems into floodwaters in accordance with the plumbing provisions of this code and in accordance with Chapter 64E-6, Florida Administrative Code, Standards for Onsite Sewage Treatment and Disposal Systems.

R322.1.8 Flood-resistant materials. Building materials and installation methods used for flooring and interior and exterior walls and wall coverings below the elevation required in Section R322.2 or R322.3 shall be flood damage-resistant materials that conform to the provisions of FEMA TB-2.

R322.1.9 Manufactured homes. In addition to the applicable requirements of the state agency with jurisdiction over installation of manufactured homes, installation of manufactured homes in flood hazard areas is subject to the applicable provisions of the local floodplain management ordinance.

R322.1.10 As-built elevation documentation. A registered design professional shall prepare and seal documentation of the elevations specified in Section R322.2 or R322.3.

R322.1.11 Structures seaward of a coastal control construction line. In addition to the requirements of this section, structures located in flood hazard areas and seaward of the coastal construction line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section R3109 (*sic*) of the *Florida Building Code, Building,* and the more restrictive provisions shall govern.

R322.2 Flood hazard areas (including A Zones). Areas that have been determined to be prone to flooding and that are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 1 ½ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones and are subject to the requirements of Section R322.3. Buildings and structures constructed in whole or in part in flood hazard areas shall be designed and constructed in accordance with Sections R322.2.1 through R322.2.3.

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.
3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
Exception: Enclosed areas below the design flood elevation, including basements with floors that are not below grade on all sides, shall meet the requirements of Section 322.2.2.

R322.2.2 Enclosed area below design flood elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation shall:

1. Be used solely for parking of vehicles, building access or storage.
2. Be provided with flood openings that meet the following criteria and are installed in accordance with Section R322.2.2.1:
    - 2.1. The total net area of non-engineered openings shall be not less than 1 square inch (645 mm^2) for each square foot (0.093 m^2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in Section 2.7.2.2 of ASCE 24.
    - 2.2. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.
    - 2.3 The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.

R322.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a building has more than one enclosed area below the design flood elevation, each area shall have openings.
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior grade immediately under each opening.
3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

R322.2.3 Foundation design and construction. Foundation walls for buildings and structures erected in flood hazard areas shall meet the requirements of Chapter 4.

Exception: Unless designed in accordance with Section R404:

1. The unsupported height of 6-inch (152 mm) plain masonry walls shall be not more than 3 feet (914 mm).
2. The unsupported height of 8-inch (203 mm) plain masonry walls shall be not more than 4 feet (1219 mm).
3. The unsupported height of 8-inch (203 mm) reinforced masonry walls shall be not more than 8 feet (2438 mm).

For the purpose of this exception, unsupported height is the distance from the finished grade of the under-floor space to the top of the wall.

R322.2.4 Tanks. Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood. Above-ground tanks shall be installed at or above the elevation required in Section R322.2.1 or shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.

R322.2.5 Pools in flood hazard areas. Pools that are located in flood hazard areas established by Table R301.2(1), including above-ground pools, on-ground pools, and in-ground pools that involve placement of fill, shall comply with Sections R322.2.5.1 or R322.2.5.2.

Exception: Pools located in riverine flood hazard areas which are outside of designated floodways.

R322.2.5.1 Pools located in designated floodways. Where pools are located in designated floodways, documentation shall be submitted to the building official, which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the jurisdiction.

R322.2.5.2 Pools located where floodways have not been designated. Where pools are located in riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

R322.3 Coastal high-hazard areas (including V Zones and Coastal A Zones, where designated). Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high-velocity wave action or wave-induced erosion shall be designated as coastal high-hazard areas. Flood hazard areas that have been designated as subject to wave heights between 1 ½ (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones. Buildings and structures constructed in whole or in part in coastal high-hazard areas and coastal A Zones, where designated, shall be designed and constructed in accordance with Sections R322.3.1 through R322.3.7.

R322.3.1 Location and site preparation.

1. New buildings and buildings that are determined to be substantially improved pursuant to the *Florida Building Code, Existing Building* shall be located landward of the reach of mean high tide.
2. For any alteration of sand dunes and mangrove stands, the building official shall require submission of an engineering analysis that demonstrates that the proposed alteration will not increase the potential for flood damage.

R322.3.2 Elevation requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structure members supporting the lowest floor, with the exception of pilings, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.
2. Basement floors that are below grade on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.4. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with Section R322.3.6. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

R322.3.3.1 Pools. Pools in coastal high-hazard areas shall be designed and constructed in conformance with ASCE 24.

R322.3.4 Concrete slabs. Concrete slabs used for parking, floors of enclosures, landings, decks, walkways, patios and similar uses that are located beneath structures, or slabs that are located such that if undermined or displaced during base flood conditions could cause structural damage to the building foundation, shall be designed and constructed in accordance with one of the following:

1. To be structurally independent of the foundation system of the structure, to not transfer flood loads to the main structure, and to be frangible and break away under flood conditions prior to base flood conditions. Slabs shall be a maximum of 4 inches (102 mm) thick, shall not have turned-down edges, shall not contain reinforcing, shall have isolation joints at pilings and columns, and shall have control or construction joints in both directions spaced not more than 4 feet (1219 mm) apart.

2. To be self-supporting, structural slabs capable of remaining intact and functional under base flood conditions, including erosion and local scour, and the main structure shall be capable of resisting any added flood loads and effects of local scour caused by the presence of the slabs.

R322.3.5 Walls below design flood elevation. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and
2. Are constructed with insect screening or open lattice; or

3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than 10 (479 Pa) and not more than 20 pounds per square foot (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of this code exceed 20 pounds per square foot (958 Pa), as determined using allowable stress design, the construction documents shall include documentation prepared and sealed by a registered design professional that:

4.1. The walls and partitions below the design flood elevation have been designed to collapse from a water load less than that which would occur during the base flood.

4.2. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code.

5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in Section R322.2.2, Item 2.

R322.3.6 Enclosed areas below design flood elevation. Enclosed areas below the design flood elevation shall be used solely for parking of vehicles, building access or storage.

R322.3.6.1 Protection of building envelope. An exterior door that meets the requirements of Section R609 shall be installed at the top of stairs that provide access to the building and that are enclosed with walls designed to break away in accordance with Section 322.3.4.

R322.3.7 Stairways and ramps. Stairways and ramps that are located below the lowest floor elevations specified in Section R322.3.2 shall comply with one or more of the following:

1. Be designed and constructed with open or partially open risers and guards.

2. Stairways and ramps not part of the required means of egress shall be designed and constructed to break away during design flood conditions without causing damage to the building or structure, including foundation.

3. Be retractable, or able to be raised to or above the lowest floor elevation, provided that the ability to be retracted or raised prior to the onset of flooding is not contrary to the means of egress requirements of the code.

4. Be designed and constructed to resist flood loads and minimize transfer of flood loads to the building or structure, including foundation.

Areas below stairways and ramps shall not be enclosed with walls below the design flood elevation unless such walls are constructed in accordance with Section R322.3.5.

R322.3.8 Decks and porches. Attached decks and porches shall meet the elevation requirements of Section R322.3.2 and shall either meet the foundation requirements of this section or shall be cantilevered from or knee braced to the building or structure. Self-supporting decks and porches that are below the elevation required in Section R322.3.2 shall not be enclosed by solid, rigid walls, including walls designed to break away. Self-supporting decks and porches shall be designed and constructed to remain in place during base flood conditions or shall be frangible and break away under base flood conditions.

R322.3.9 Construction documents. The construction documents shall include documentation that is prepared and sealed by a registered design professional that the design and methods of construction to be used meet the applicable criteria of this section.

R322.3.10 Tanks. Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood. Above-ground tanks shall be installed at or above the elevation required in Section R322.3.2. Where elevated on platforms, the platforms shall be cantilevered from or knee braced to the building or shall be supported on foundations that conform to the requirements of Section R322.3.

SECTION R326 SWIMMING POOLS, SPAS AND HOT TUBS

R326.1 General. The design and construction of pools and spas shall comply with Chapter 45 of this Code.

CHAPTER 4 FOUNDATIONS

R401.1 [General] Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas as established by Table R301.2(1) shall meet the provisions of Section R322. Wood foundations shall be designed and installed in accordance with AWC PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

3. Buildings and structures located within the High-Velocity Hurricane Zone shall comply with the provisions of Chapter 44 and, as applicable, Section R322 in flood hazard areas.

R401.2 [General] Requirements. Foundation construction shall be capable of resisting all loads from roof uplift and building overturn. Foundation uplift for light-frame wood or steel buildings shall be calculated or determined from Table R401.1. Masonry buildings within the dimensional scope of Table R401.1 shall be assumed to be of adequate weight so as not to require uplift resistance greater than that provided by the structure and any normal foundation. Foundation construction shall also be capable of accommodating all gravity loads in accordance with Section R301 and of transmitting the resulting loads to the supporting soil. Fill soils that support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice. Gravel fill used as footings for wood and precast concrete foundations shall comply with Section R403.

R401.3 [General] Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm).

Exception: Where lot lines, walls, slopes or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building.

SECTION R404 FOUNDATION AND RETAINING WALLS

R404.1.9.5 [Isolated masonry piers] Masonry piers in flood hazard areas. Masonry piers for dwellings in flood hazard areas shall be designed in accordance with Section R322.

SECTION R408 UNDER-FLOOR SPACE

R408.6 Finished grade. The finished grade of under-floor surface shall be permitted to be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6 inches (152 mm) of the finished floor at the building perimeter or where there is evidence that the surface water does not readily drain from the building site, the grade in the under-floor space shall be as high as the outside finished grade, unless an approved drainage system is provided.

R408.7 Flood resistance. For buildings located in flood hazard areas as established in Table R301.2(1): 1. Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section R322.2.2.

2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

Exception: Under-floor spaces that meet the requirements of FEMA TB-11-1.

SECTION R506 CONCRETE FLOORS (ON GROUND)

R506.2.1 [Site Preparation] Fill. Fill material shall be free of vegetation and foreign material. The fill shall be compacted to ensure uniform support of the slab, and except where approved, the fill depths shall not exceed 24 inches (610 mm) for clean sand or gravel and 8 inches (203 mm) for earth.

MECHANICAL, FUEL GAS AND PLUMBING

M1301.1.1 [General Mechanical System Requirements] Flood-resistant installation. In flood hazard areas as established by Table R301.2(1), mechanical appliances, equipment and systems shall be located or installed in accordance with Section R322.1.6.

M1401.5 [Heating and Cooling Equipment and Appliances] Flood hazard. In flood hazard areas as established by Table R301.2(1), heating and cooling equipment and appliances shall be located or installed in accordance with Section R322.1.6.

M1601.4.10 [Duct Construction; Installation] Flood hazard areas. In flood hazard areas as established by Table R301.2(1), duct systems shall be located or installed in accordance with Section R322.1.6.

M1701.2 [Combustion Air] Opening location. In flood hazard areas as established in Table R301.2(1), combustion air openings shall be located at or above the elevation required in Section R322.2.1 or R322.3.2.

M2001.4 [Boilers and Water Heaters] Flood-resistant installation. In flood hazard areas established in Table R301.2(1), boilers, water heaters and their control systems shall be located or installed in accordance with Section R322.1.6.

M2105.22.1 [Ground-Source Heat-Pump System Loop Piping] Flood hazard. Piping located in a flood hazard area shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation.

M2201.6 [Special Piping and Storage Systems] Flood-resistant installation. In flood hazard areas as established by Table R301.2(1), tanks shall be installed in accordance with Section R322.2.4 or R322.3.7.

G2404.7 (301.11) [Fuel Gas] Flood hazard. For structures located in flood hazard areas, the appliance, equipment and system installations regulated by this code shall be located at or above the elevation required by Section R322 for utilities and attendant equipment.

> **Exception:** The appliance, equipment and system installations regulated by this code are permitted to be located below the elevation required by Section R322 for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

P2601.3 [General Plumbing Requirements] Flood hazard areas. In flood hazard areas as established by Table R301.2(1), plumbing fixtures, drains, and appliances shall be located or installed in accordance with Section R322.1.6.

P2602.2 [Individual Water Supply and Sewage Disposal] Flood-resistant installation. In flood hazard areas as established by Table R301.2(1):

1. Water supply systems shall be designed and constructed to prevent infiltration of floodwaters.
2. Pipes for sewage disposal systems shall be designed and constructed to prevent infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

P2705.1 [Plumbing Fixtures, Installation] General. The installation of fixtures shall conform to the following: *[partial shown]*

7. In flood hazard areas as established by Table R301.2(1), plumbing fixtures shall be located or installed in accordance with Section R322.1.6.

P3001.3 [Sanitary Drainage] Flood-resistant installation. In flood hazard areas as established by Table R301.2(1), drainage, waste and vent systems shall be located and installed to prevent infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

P3101.5 [Vent Systems] Flood resistance. In flood hazard areas as established by Table R301.2(1), vents shall be located at or above the elevation required in Section R322.1 (flood hazard areas including A Zones) or R322.2 (coastal high-hazard areas including V Zones).

R4501.4.2.1. [Private Swimming Pools, Mechanical requirements] Flood hazard areas. Pools installed in flood hazard areas established in Section R322 shall comply with Section R322.2.4 (A Zones) or R322.3.3.1 in coastal high-hazard areas (V Zones).

CHAPTER 44 REFERENCED STANDARDS

ASCE/SEI 24-14 Flood-resistant Design and Construction

FEMA-TB-2—08 Flood Damage-resistant Materials Requirement

FEMA-TB-11—01 Crawlspace Construction for Buildings Located in Special Flood Hazard Area

7th Edition Florida Existing Building Code (2020)

CHAPTER 1 SCOPE AND ADMINISTRATION

[A] 101.2 Scope. The provisions of the *Florida Building Code, Existing Building* shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* to and relocation of *existing buildings*.

Exception: For the purpose of public educational facilities and state licensed facilities, see Chapter 4, Special Occupancy, of the *Florida Building Code, Building*.

[A] 101.3 Intent. The intent of this code is to provide flexibility to permit the use of alternative approaches to achieve compliance with minimum requirements to safeguard the public health, safety and welfare insofar as they are affected by the *repair*, *alteration*, *change of occupancy*, *addition* and relocation of *existing buildings.*

101.4 Applicability. This code shall apply to the repair, alteration, change of occupancy, addition and relocation of all existing buildings, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.

101.4.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the *Florida Building Code, Building* or *Florida Building Code, Residential*, as applicable, for new construction or with any current permit for such occupancy.

101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *Florida Fire Prevention Code*, or as is deemed necessary by the code official for the general safety and welfare of the occupants and the public.

ADDITION. An extension or increase in floor area, number of stories, or height of a building or structure.

ALTERATION. Any construction or renovation to an existing structure other than a repair or addition. Alterations are classified as Level 1, Level 2 and Level 3.

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

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 the application of the requirements of this code.

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

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

BS] FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year.
2. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

[A] HISTORIC BUILDING. See Section 1202.

REHABILITATION. Any work, as described by the categories of work defined herein, undertaken in an existing building.

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

[BS] SUBSTANTIAL DAMAGE. For the purpose of determining compliance with the flood provisions of this code, damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

[BS] SUBSTANTIAL IMPROVEMENT. For the purpose of determining compliance with the flood provisions of this code, any *repair*, *alteration*, *addition*, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure, before the improvement or *repair* is started. If the structure has sustained *substantial damage*, any repairs are considered *substantial improvement* regardless of the actual *repair* work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the *code official* and that is the minimum necessary to ensure safe living conditions; or
2. Any *alteration* of a historic structure, provided that the *alteration* will not preclude the structure's continued designation as a historic structure.

CHAPTER 3 PROVISIONS FOR ALL COMPLIANCE METHODS

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2 or 301.3, as applicable.

301.2 Repairs. Repairs shall comply with the requirements of Chapter 4.

301.3 Alteration, change of occupancy, addition or relocation. The *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.3.1 through 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic-force resisting system of an *existing building* subject to *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings*, the seismic evaluation and design shall be based on Section 301.3.4 regardless of which compliance method is used.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *Florida Building Code*. *Alteration*s of *existing buildings* in *flood hazard areas* shall comply with Section 701.3. This exception shall not apply to alterations that constitute substantial improvement in flood hazard areas which shall comply with Section 701.3. This exception shall not apply to the structural provisions of Chapter 4 or to the structural provisions of Sections 707, 807, and 907.

301.3.1 Prescriptive compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *Florida Fire Prevention Code* shall be considered in compliance with the provisions of this code.

301.3.2 Work area compliance method. *Alterations*, *additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 6 through 13 of this code shall be considered in compliance with the provisions of this code.

301.3.3 Performance compliance method. *Alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

CHAPTER 4 REPAIRS

[BS] 401.3 Flood hazard areas. In flood hazard areas, repairs that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

401.4 Structure seaward of a coastal construction line. Structures located seaward of the coastal construction line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section 3109 of the *Florida Building Code, Building*.

[BS] 406.2.4 [Structural] Flood hazard areas. In *flood hazard* areas, buildings that have sustained *substantial damage* shall be brought into compliance with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

CHAPTER 5 PRESCRIPTIVE COMPLIANCE METHOD

[BS] 502.2 [Additions] Flood hazard areas. For buildings and structures in *flood hazard* areas established in Section 1612.3 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable, any *addition* that constitutes *substantial improvement* of the existing structure shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable, as applicable, any *additions* that do not constitute *substantial improvement* of the existing structure are not required to comply with the flood design requirements for new construction.

[BS] 503.2 [Alterations] Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable, any *alteration* that constitutes *substantial improvement* of the existing structure shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable, any alterations that do not constitute *substantial improvement* of the existing structure are not required to comply with the flood design requirements for new construction.

CHAPTER 6 CLASSIFICATION OF WORK

601.3 Structure seaward of a coastal construction line. Structures located seaward of the coastal construction line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section 3109 of the *Florida Building Code, Building*.

CHAPTER 7 ALTERATIONS – LEVEL 1

[BS] 701.3 Flood hazard areas. In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

CHAPTER 8 ALTERATIONS – LEVEL 2

801.2 Alteration level 1 compliance. In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.

CHAPTER 9 ALTERATIONS – LEVEL 3

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

CHAPTER 10 CHANGE OF OCCUPANCY

1001.1 Scope. The provisions of this chapter shall apply where a *change of occupancy* occurs, as defined in Section 202.

CHAPTER 11 ADDITIONS

1101.1 Scope. An *addition* to a building or structure shall comply with the *Florida Codes* as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.

[BS] 1103.5 Flood Hazard Areas. *Additions* and *foundations* in *flood hazard areas* shall comply with the following requirements:

1. For horizontal *additions* that are structurally interconnected to the *existing building*:
   1.1. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.
   1.2. If the *addition* constitutes *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.
2. For horizontal *additions* that are not structurally interconnected to the *existing building*:
   2.1. The *addition* shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.
   2.2. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.
3. For vertical *additions* and all other proposed work that, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.
4. For a raised or extended foundation, if the foundation work and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *Florida Building Code, Building,* or Section R322 of the *Florida Building Code, Residential*, as applicable.
5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

CHAPTER 12 HISTORIC BUILDINGS

[BS] 1201.3 Flood hazard areas. In *flood hazard areas*, if all proposed work, including repairs, work required because of a *change of occupancy*, and *alterations*, constitutes *substantial improvement*, then the building shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

Exception: If the program that designated the building as historic determines that it will continue to be an *historic building* after the proposed work is completed, then the proposed work is not considered a *substantial improvement*. For the purposes of this exception, an *historic building* is:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; or
2. A contributing resource with a National Register of Historic Places listed district; or
3. Designated as historic property under an official municipal, county, special district or state designation, law, ordinance or resolution either individually or as a contributing property in a district, provided the local program making the designation is approved by the Department of the Interior (the Florida state historic preservation officer maintains a list of approved local programs); or
3. Designated eligible by the Florida State Historic Preservation Office for listing in the National Register of Historic Places, either individually or as a contributing property in a district.

HISTORIC BUILDING. For the purposes of this code and the referenced documents, an historic building is defined as a building or structure that is:

1. Individually listed in the National Register of Historic Places; or
2. A contributing property in a National Register of Historic Places listed district; or
3. Designated as historic property under an official municipal, county, special district or state designation, law, ordinance or resolution either individually or as a contributing property in a district; or
4. Determined eligible by the Florida State Historic Preservation Officer for listing in the National Register of Historic Places, either individually or as a contributing property in a district.

CHAPTER 13 RELOCATED OR MOVED BUILDINGS

[BS] 1302.6 Flood hazard areas. If relocated or moved into a flood hazard area, structures shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

CHAPTER 14 PERFORMANCE COMPLIANCE METHOD

[B] 1401.3 Acceptance. For *repairs, alterations, additions*, and *changes of occupancy* to *existing buildings* that are evaluated in accordance with this section, compliance with this section shall be accepted by the *code official*.

[B] 1401.3.3 Compliance with flood hazard provisions. In *flood hazard areas*, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable if the work covered by this section constitutes *substantial improvement*.

7th Edition FBC, Mechanical (2020)

CHAPTER 1 SCOPE AND ADMINISTRATION

[A] 101.1 Scope. The provisions of Chapter 1, *Florida Building Code, Building* shall govern the administration and enforcement of the *Florida Building Code, Mechanical*.

CHAPTER 2 DEFINITIONS

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard area map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number, in feet, specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

CHAPTER 3 GENERAL REGULATIONS

[BS] 301.16 Flood hazard. For structures located in flood hazard areas, mechanical systems, equipment and appliances shall be located at or above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment.

Exception: Mechanical systems, equipment and appliances are permitted to be located below the elevation required by Section 1612 of the *Florida Building Cod, Building* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

[BS] 301.16.1 Coastal high hazard areas and coastal A zones. In coastal high hazard areas and coastal A zones, mechanical systems and *equipment* shall not be mounted on or penetrate walls intended to break away under flood loads.

SECTION 401 [VENTILATION] GENERAL

401.4 Intake opening location. Air intake openings shall comply with all of the following:

Only pertinent item shown

4. Intake openings on structures in flood hazard areas shall be at or above the elevation required by Section 1612 of *the Florida Building Code, Building* for utilities and attendant equipment.

SECTION 501 [EXHAUST SYSTEMS] GENERAL

501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

[only item 4 shown]

4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment.

CHAPTER 6 DUCT SYSTEMS

[BS] 602.4 [Plenums] Flood hazard. For structures located in flood hazard areas, plenum spaces shall be located above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment or shall be designed and constructed to prevent water from entering or accumulating within the plenum spaces during floods up to such elevation. If the plenum spaces are located below the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities

and attendant equipment, they shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

[BS] 603.13 [Duct Construction and Installation] Flood hazard areas. For structures in flood hazard areas, ducts shall be located above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment or shall be designed and constructed to prevent water from entering or accumulating within the ducts during floods up to such elevation. If the ducts are located below the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment, the ducts shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

CHAPTER 12 HYDRONIC PIPING

1206.9.1 [Piping Installation) Flood hazard. Piping located in a flood hazard area shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation*.

1210.8.6 [Plastic Pipe Ground-Source Heat Pump Loop Systems] Flood hazard. Piping located in a flood hazard area shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation*.

CHAPTER 13 FUEL OIL PIPING AND STORAGE

1305.2.1 [Fuel Oil System Installation] Flood hazard. Fuel oil pipe, equipment and appliances located in flood hazard areas shall be located above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment or shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

7th Edition FBC, Plumbing (2020)

CHAPTER 1 SCOPE AND ADMINSITRATION

[A] 101.1 Scope. The provisions of Chapter 1, *Florida Building Code, Building* shall govern the administration and enforcement of the *Florida Building Code, Plumbing*.

CHAPTER 2 DEFINITONS

[BS] BASE FLOOD ELEVATION. A reference point, determined in accordance with the building code, based on the depth or peak elevation of flooding, including wave height, which has a 1 percent (100-year flood) or greater chance of occurring in any given year.

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

[BS] FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any given year.
2. The area designated as a *flood hazard area* on a community's flood hazard map or as otherwise legally designated.

CHAPTER 3 GENERAL REGULATIONS
SECTION 309 FLOOD HAZARD RESISTANCE

309.1 General. Plumbing systems and equipment in structures erected in *flood hazard areas* shall be constructed in accordance with the requirements of this section and the *Florida Building Code, Building*.

[BS] 309.2 Flood hazard. For structures located in *flood hazard areas*, the following systems and equipment shall be located and installed as required by Section 1612 of the *Florida Building Code, Building*.

1. Water service pipes.
2. Pump seals in individual water supply systems where the pump is located below the *design flood elevation*.
3. Covers on potable water wells shall be sealed, except where the top of the casing well or pipe sleeve is elevated to not less than 1 foot (305 mm) above the *design flood elevation*.
4. Sanitary drainage piping.
5. Storm drainage piping.
6. Manhole covers shall be sealed, except where elevated to or above the *design flood elevation*.
7. Other plumbing fixtures, faucets, fixture fittings, piping systems and equipment.
8. Water heaters.
9. Vents and vent systems.

Exception: The systems listed in this section are permitted to be located below the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment, provided that the systems are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

[BS] P309.3 Coastal high hazard areas and coastal A zones. Structures located in coastal high hazard areas and coastal A zones shall meet the requirements of Section 309.2. The plumbing systems, pipes and fixtures shall not be mounted on or penetrate through walls intended to break away under flood loads.

7th Edition FBC, Fuel Gas (2020)

CHAPTER 1 SCOPE AND ADMINISTRATION

[A] 101.1 Scope. The provisions of Chapter 1, *Florida Building Code, Building* shall govern the administration and enforcement of the *Florida Building Code, Fuel Gas*.

[A] 101.2 This code shall apply to the installation of fuel-gas *piping* systems, fuel gas appliances, gaseous hydrogen systems and related accessories in accordance with Sections 101.2.1 through 101.2.5.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *Florida Residential Code, Residential*.

SECTION 202 (IFGC) GENERAL DEFINITIONS

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building*'s perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

[BS] FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year.
2. This area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

CHAPTER 3 GENERAL REGULATIONS

[BS] 301.11 [General] Flood hazard. For structures located in flood hazard areas, the appliance, equipment and system installations regulated by this code shall be located at or above the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment.

Exception: The appliance, equipment and system installations regulated by this code are permitted to be located below the elevation required by Section 1612 of the *Florida Building Code, Building* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.