

Editorial (8/15/16)

S6883 Public Comment

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### SECTION 3109 STRUCTURES SEAWARD OF A COASTAL CONSTRUCTION CONTROL LINE

**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 officials review shall be at the applicant's risk.

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

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**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 set-up 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 line* 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 Florida-registered professional engineer 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 and buildings 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 ft.

**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-HUNDRED-YEAR STORM ELEVATION.** The height of the breaking wave crest or wave approach as superimposed on the storm surge with dynamic wave set-up 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 analyses 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 line*.

**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  $\pm 20$  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 shall be 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 are 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 ~~one 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:

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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.