

SUMMARY OF FLOOD RESISTANT PROVISION IN THE 6TH EDITION FLORIDA BUILDING CODE (2017)

The following is a condensed and simplified version of new and existing requirements. Refer to the Florida Building Code (FBC) and the Collier County Flood Damage Prevention Ordinance for more information.

SUMMARY OF THE MOST SIGNIFICANT CHANGES FROM THE 5TH ED. FBC SPECIFIC TO COLLIER COUNTY¹

1. FBC, Building requires buildings in the Special Flood Hazard Area (zones VE, AE, AH, and A) to be designed by Flood Design Class, per ASCE 24.
2. ASCE 24 updated to the 2014 edition.
3. FBC, Residential modified to be consistent with ASCE 24-14:
 - a. Requires minimum elevation of lowest floor (Zone A) or bottom of the lowest horizontal structure member of the lowest floor (Zone V) is base flood elevation (BFE) +1 (or Design Flood Elevation (DFE), whichever is higher).
 - b. Clarifies flood provisions apply to substantial improvement and repair of substantial damage and if dwelling is in more than one flood zone, the more restrictive requirements apply.
 - c. Specifies determination of net open area of flood openings and separate installation requirements into new subsection.
 - d. Requires all walls (below BFE/DFE) to have flood openings, including break away walls.
 - e. Requires dwellings in Zone V to have an exterior door at the top of stairs that provide access to the dwelling and that are enclosed by walls.
 - f. Adds requirements for tanks.

OVERVIEW OF RELATED FBC CHANGES AND EXISTING COUNTY PROVISIONS

1. Pursuant to the FBC and the Collier County Flood Damage Prevention Ordinance, structures located in a VE, AE, or AH flood zone will be required to meet the higher of the following elevations. For structures located in an unnumbered A zone, please refer directly to the Collier County Flood Damage Prevention Ordinance.
 - a. *FBC, Residential* - buildings and structures shall have the lowest floors elevated to or above the base flood elevation plus 1 foot, or the DFE, whichever is higher (see page 2 or 3 for more information); or
 - i. Exemption: Structures located in an X or X-500 flood zone (e.g. approved FEMA Letters of Map Change)
 - b. *Paved Road* - a minimum of 18 inches above the crown of the nearest street or interior finished roadway system if finished with paving; in the event that the nearest street or interior finished roadway system is located on an evacuation route, a minimum of 18 inches above the crown of the nearest side street; or
 - i. Exemption: Structures located in a project permitted by the South Water Management District with a Design Flood Elevation.
 - c. *Graded or unfinished Road* - 24 inches above the crown if graded or otherwise unfinished;
 - i. Exemption: Structures located in a project permitted by the South Water Management District with a Design Flood Elevation.
 - d. Slabs for garages, carports, screen enclosures, etc., must be at least equal in elevation to the crown of the nearest street.
 - e. Attendant utilities must be elevated as required in the FBC. See R322.1.16 for more information.

¹ State Floodplain Management Office, Florida Division of Emergency Management. (September 9, 2017). *Flood Resistant Provision in the 6th Edition Florida Building Code (2017)*. Retrieved from: https://www.floridadisaster.org/Mitigation/SFMP/Documents/FloodProvisions_6th%20Ed%20FBC_092217r.pdf

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SELECT ELEVATION REQUIREMENTS FROM THE FBC, RESIDENTIAL, 6TH EDITION

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 1¹/₂ 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 R322.2.2.

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 mm²) for each square foot (0.093 m²) 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.

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SELECT ELEVATION REQUIREMENTS FROM THE FBC, RESIDENTIAL, 6TH EDITION

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 11/2 feet (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.

R322.3.2 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 structural members supporting the lowest floor, with the exception of piling, 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.

R322.3.4 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 no 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.

R322.3.5 Enclosed areas below design flood elevation.

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