

Issue: DS 2023-035: The petitioner, George Merlin, of George Merlin Associates is seeking a declaratory statement regarding the definition and height location of the design flood elevation (DFE), and the “allowed use” above the elevation specified in ASCE 24 and the FDEP’s 100-year storm elevation.

Petitioner seeks clarification of the following questions:

Question 1a: Is the DFE based on ASCE / FEMA FIRM maps and NOT based on FDEP’s 100-year storm elevation?

Question 1b: Is the DFE based on the higher FDEP elevation?

Question 2: Does the FBC allow an enclosed bathroom and snack bar to be provided at the ground level of this residence, if the bathroom and snack bar are above the +11.0 ASCE / FEMA FIRM map elevation and below the +18.3 NAVD FDEP elevation and their enclosure walls are breakaway with fixtures and utilities not attached to any breakaway walls?

Question 3: Are the pool bath and snack bar enclosures described above considered a non-habitable use and / or non-habitable structure?

Background:

The petitioner is currently designing a new oceanfront single family residence on Casey Key, Nokomis Florida. According to the petitioner, the proposed residence will be located in multiple flood zones, FEMA A flood zone and also in the FDEP Coastal construction control line (CCCL) zone. The property has existing hardened shoreline protection along the gulf front with access stair down to the beach and mean high water line area. The existing ground level elevation at the new residence location is approximately +10 ft. NAVD. The new residence will be piling supported and have ground level parking, storage and vertical building access at elevation +11.0 NAVD and with two story elevated living area above the ground level space.

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1.2 Definitions

Base Flood Elevation (BFE) – Elevation of flooding, including wave height, having a 1% chance of being equaled or exceeded in any given year.

Design Flood Elevation (DFE) – Elevation of the design flood, including wave height, relative to the datum specified on the community’s flood hazard map.

4.4 Elevation requirements

The bottom of the lowest horizontal structural member of the lowest floor shall be elevated in conformance with the minimum requirements of Table 4 – 1. The actual required height above the DFE shall be determined by the Flood Design Class of the structure. Piles, pile caps, footings, mat or raft foundations, grade beams, columns, bracing, and shear walls designed and constructed in accordance with Section 4.5 shall not be required to meet the elevation requirements of Table 4-1.

Table 4-1 Minimum Elevation of Bottom of lowest Supporting Horizontal Structural Member of Lowest Floor – Coastal High Hazard Areas and Coastal A Zones

<u>Flood Design Class</u>	<u>Minimum Elevation, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE)</u>
1	DFE
2	BFE + 1 ft or DFE, whichever is higher
3	BFE + 2 ft or DFE, whichever is higher
4	BFE + 2ft or DFE, or 500-year flood elevation, whichever is higher

7th Edition (2020) Florida Building Code, Residential

CHAPTER 3 BUILDING PLANNING

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.

R322.2 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 1/2 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.

R322.1.11 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 of the *Florida Building Code, Building*, and the more restrictive provisions shall govern.

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.

7th Edition (2020) Florida Building Code, Building

CHAPTER 2 DEFINITIONS

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] 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] 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.

HABITABLE SPACE. A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, screen enclosures, sunroom Categories I, II, III and IV as defined in Section 2002.6, storage or utility spaces and similar areas are not considered habitable spaces.

CHAPTER 31 SPECIAL CONSTRUCTION

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.

3109.2 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.

Staff Analysis

Question 1a: Is the DFE based on ASCE / FEMA FIRM maps and NOT based on FDEP's 100-year storm elevation?

Answer:

The answer to the Petitioner's question is no. The DFE and FDEP 100-year storm elevation refer to the elevation of the water surface, and as per Section 3109.3.3 of the 7th Edition (2020) Florida Building Code (FBC), Building, the bottom of the horizontal member of the lowest floor for the project in question must be at or above the higher of the elevation specified in ASCE 24 and the Florida Department of Environmental Protection (FDEP) 100-year storm elevation.

Question 1b:

Is the DFE based on the higher FDEP elevation?

Answer: See answer to question 1.

Question 2:

Does the FBC allow an enclosed bathroom and snack bar to be provided at the ground level of this residence, if the bathroom and snack bar are above the +11.0 ASCE / FEMA FIRM map elevation and below the +18.3 NAVD FDEP elevation and their enclosure walls are breakaway with fixtures and utilities not attached to any breakaway walls?

Answer:

The answer to the Petitioner's question is yes. As per Section 3109.3.4, Item 5, of the 7th Edition (2020) FBC, Building, an enclosed bathroom and snack bar are allowed to be provided at the ground level of the residence in question, if the said bathroom and snack bar are above the elevation specified by ASCE 24 and below the FDEP 100-year storm elevation.

Question 3:

Are the pool bath and snack bar enclosures described above considered a non-habitable use and / or non-habitable structure?

Answer:

The answer to the Petitioner's question is yes. As per the definitions of "Allowed Use" and "Habitable Space" of the 7th Edition (2020) FBC, Building, the pool bath and snack bar in question that are located above the elevation specified by ASCE 24 and below the FDEP 100-year storm elevation are considered non-habitable spaces.