V-Zone Design and Construction Certification

FEMA

Purpose: To explain the certification requirements for structural design and construction in V zones.

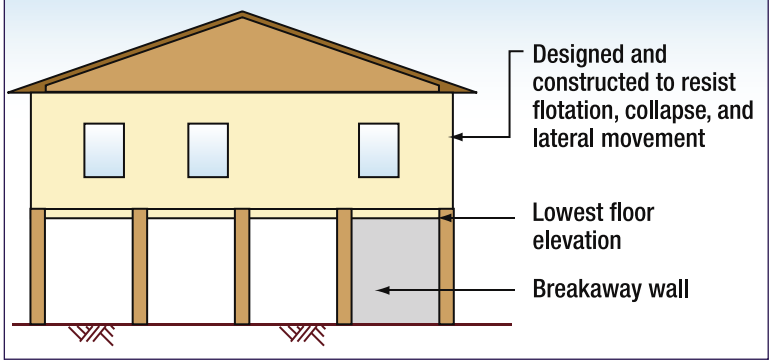
Structural Design and Methods of Construction Certification

As part of the agreement for making flood insurance available in a community, the National Flood Insurance Program (NFIP) requires the community to adopt a floodplain management ordinance that specifies minimum design and construction requirements. Those requirements include a ***certification of the structural design and the methods of construction.***

Specifically, NFIP regulations and local floodplain management ordinances require that:

1. a ***registered professional engineer or architect*** shall ***develop or review*** the ***structural design, specifications, and plans*** for the construction, and
2. a ***registered professional engineer or architect*** shall ***certify that the design and methods of construction*** to be used are in accordance with accepted standards of practice for meeting the following criteria:
   - the ***bottom of the lowest horizontal structural member of the lowest floor*** (excluding the pilings or columns) is elevated to or above the Base Flood Elevation (BFE); and
   - the pile or column foundation and structure attached thereto is ***anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously*** on all building components. Water loading values used shall be those associated with the Base Flood. Wind loading values used shall be those required by applicable state or local building standards.

Required Certifications in V Zones



The community, through its inspection procedures, will verify that the building is built in accordance with the certified design.

Completing the V-Zone Certification

There is no single V-zone certificate used on a nationwide basis. Instead, local communities and/or states have developed their own certification procedures and documents.

Registered engineers and architects involved in V-zone construction projects should ***check with the authority having jurisdiction regarding the exact nature and timing of required certifications***.

Page 2 shows a sample certification form developed by one state. It is intended to show one of many possible ways by which a jurisdiction may require that the certification and supporting information be provided. In this instance, three certifications are included on the form (Lowest Floor Elevation, Design and Methods of Construction, Breakaway Wall Collapse).

Other Certifications Required in V Zones

- Lowest Floor Elevation, by a surveyor, engineer, or architect (see Fact Sheet No. 4)
- Breakaway Wall Collapse, by a registered professional engineer or architect (see Fact Sheet No. 27)

The Design and Methods of Construction certification should take into consideration the NFIP Free-of-Obstruction requirement for V zones: *the space below the lowest floor must be free of obstructions (e.g., free of any building element, equipment, or other fixed objects that can transfer flood loads to the foundation, or that can cause floodwaters or waves to be deflected into the building), or must be constructed with non-supporting breakaway walls, open lattice, or insect screening.* **(See NFIP Technical Bulletin 5-93 and Fact Sheet No. 27.)**

Note: The V-zone certificate is not a substitute for and cannot be used without the NFIP Elevation Certificate (see Fact Sheet No. 4), which is required for flood insurance rating.

V-ZONE CERTIFICATE

Name_____ Policy Number *(Insurance Co. Use)* _____
Building Address or
Other Description _____
City _____ State _____ Zip Code _____

SECTION I: Flood Insurance Rate Map (FIRM) Information

Community Number_____ Panel Number _____ Suffix _____ Date of FIRM Index _____ FIRM Zone_____

SECTION II: Elevation Information

NOTE: This Certificate does not substitute for an Elevation Certificate

1. Elevation of the Bottom of Lowest Horizontal Structural Member……_____ feet (NGVD)
2. Base Flood Elevation (BFE)……_____ feet (NGVD)
3. Elevation of Lowest Adjacent Grade……_____ feet (NGVD)
4. Approximate Depth of Anticipated Scour/Erosion used for Foundation Design……_____ feet (NGVD)
5. Embedment Depth of Pilings or Foundation Below Lowest Adjacent Grade……_____ feet (NGVD)

SECTION III: V-Zone Certification Statement

NOTE: This section must be certified by a registered engineer or architect

I certify that I have developed or reviewed the structural design, plans, and specifications for construction and that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the following provisions:

- The bottom of the lowest horizontal structural member of the lowest floor (excluding piles and columns) is elevated to or above the BFE; and
- The pile and column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of the wind and water loads acting simultaneously on all building components. Water loading values used are those associated with the base flood. Wind loading values used are those required by the applicable State or local building code. The potential for scour and erosion at the foundation has been anticipated for conditions associated with the base flood, including wave action.

SECTION IV: Breakaway Wall Certification Statement

NOTE: This section must be certified by a registered engineer or architect when breakaway walls exceed a design safe loading resistance of 20 pounds per square foot

I certify that I have developed or reviewed the structural design, plans, and specifications for construction and that the design and methods of construction to be used for the breakaway walls are in accordance with accepted standards of practice for meeting the following provisions:

- Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and
- **The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (wind and water loading values to be used are defined in Section III).**

SECTION V: Certification

Signature below certifies: ____ Section III; ____ Section IV

Certifier's Name _____ Company Name_____
Title _____ License Number _____
Street Address _____
City _____ State _____ Zip Code _____

Signature _____ Date _____ Telephone Number _____