

# V Zone Design and Construction Certification

**Purpose:** *To explain the certification requirements for structural design and methods of 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 proposed methods of construction** (a similar documentation requirement appears in the 2009 IRC, Section R322.3.6). It is recommended that the design professional use ASCE 24 and ASCE 7 as appropriate engineering standards.

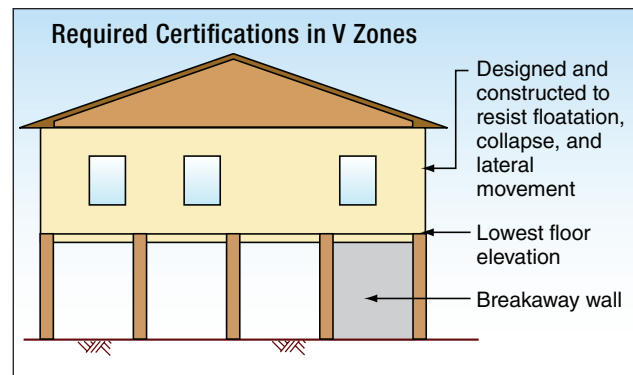
Specifically, NFIP regulations and local floodplain management ordinances require that:

1. A **registered professional engineer or architect shall develop or review the structural design, specifications, and plans** for the construction.
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 in meeting these 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).
  - 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. ASCE 7-10, *Minimum Design Loads for Buildings and Other Structures*, provides guidelines on different load combinations, which include flood and wind loads.

## Completing the V Zone Design Certificate

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. It is intended to show one way that a jurisdiction may require that the certification and supporting information be provided. In this example, the certification statement can address both design and proposed methods of construction and breakaway wall design.



## Other Certifications Required in V Zone

- Breakaway Wall Design, by a registered professional engineer or architect (see Fact Sheet No. 8.1, *Enclosures and Breakaway Walls*)
- “As Built” Lowest Floor Elevation, by a surveyor, engineer, or architect (see Fact Sheet No. 1.4, *Lowest Floor Elevation*)

**The V Zone Design 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., 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 and Fact Sheet No. 8.1, Enclosures and Breakaway Walls.*)



# BREAKAWAY WALL CERTIFICATE

Name \_\_\_\_\_ Policy Number (*Insurance Co. Use*) \_\_\_\_\_

Building Address or Other Description \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_ Permit No. \_\_\_\_\_

## SECTION I: Flood Insurance Rate Map (FIRM) Information

Community No. \_\_\_\_\_ Panel No. \_\_\_\_\_ Suffix \_\_\_\_\_ FIRM Date \_\_\_\_\_

FIRM Zone Designation \_\_\_\_\_

## SECTION II: Breakaway Wall Design Certification Statement

I certify that I have developed or reviewed the plans and specifications for breakaway walls to be constructed under the above referenced building and that the design and methods of construction specified are in conformance with NFPA Technical Bulletin 9 (specified or performance based) and ASCE 24-14. Accepted standards of practice meet the following provisions:

- Breakaway wall collapse shall result from a water load less than that which would occur during the base flood;
- 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;
- All materials are flood damage resistant and permanent flood opening in conformance with NFIP regulations have been installed.

(Certified construction plan and specifications on file with the Community Official)

## SECTION III: Final Construction Certification

I certify that I have inspected the breakaway walls installed below the noted structure, and they are constructed in accordance with the certified design documents.

Certifier's Name \_\_\_\_\_

License Number \_\_\_\_\_ Firm No. \_\_\_\_\_

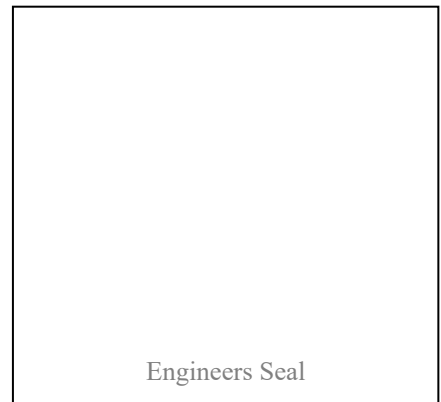
Title \_\_\_\_\_ Company Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone \_\_\_\_\_ E-Mail \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_



*(This certification is to be signed and sealed by a registered professional engineer authorized by law to certify structural designs.)*