



V-Zone Design Certificate

This form is to certify that the design, specifications, and plans for all development within Coastal High Hazard Areas (CHHA) conform to the requirements of the Town of Duck Flood Damage Prevention Ordinance and the provisions of this form.

Name of Owner: _____

Structure Address or Other Description: _____

City: _____ State: NC Zip Code: _____

SECTION I: FLOOD INSURANCE RATE MAP (FIRM) INFORMATION
Note: to be obtained from appropriate FIRMs

1. Community Number 370632	2. Panel Number	3. Suffix	4. Date of FIRM Index/ and FIRM	5. FIRM Zone
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SECTION II: Elevation Information Used for Design
Note: This section documents the elevations/depths used or specified in the design – it does not document surveyed elevations and is not equivalent to the as-built elevations required to be submitted during or after construction. This form is not a substitute for the NFIP Elevation Certificate (see Fact Sheet No. 1.4, Lowest Floor Elevation), which is required to certify as-built elevations needed for flood insurance rating. Elevations should be rounded to nearest tenth of a foot.

1. **FIRM Base Flood Elevation (BFE)** _____ **feet***
2. **Community’s Design Flood Elevation (DFE)**..... _____ **feet***
3. **Elevation of the Bottom of Lowest Horizontal Structural Member**..... _____ **feet***
4. **Elevation of Lowest Adjacent Grade**..... _____ **feet***
5. **Depth of Anticipated Scour/Erosion Used for Foundation Design**..... _____ **feet**
6. **Embedment depth of Pilings or Foundation Below Lowest Adjacent Grade** _____ **feet**

Indicate elevation Datum Used in 1-4: _____ **NGVD '29** _____ **NAVD '88** _____ **Other**

SECTION III: V Zone Design Certification Statement

I certify that: (1) I have developed or reviewed the structural design, plans, and specifications for construction of the above-referenced building and (2) that the design and methods of construction specified 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 the pilings or columns) is elevated to or above the BFE;
- The pile or 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 including wave action. 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 flood, including wave action.

SECTION IV: Breakaway Wall Design Certification Statement

I certify that: (1) I have developed or reviewed the structural design, plans, and specifications for construction of breakaway walls to be constructed under the above-referenced building and (2) that the design and methods of construction specified to be used are in accordance with accepted standards of practice for meeting the following provisions:

- Breakaway wall collapse (if applicable) shall result from water load less than that which would occur during 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, including wind and water loading values as defined in Section III.
- Breakaway walls contain a minimum of two flood openings on different side of each enclosed area with the net area of flood openings equaling at least one square inch per one square foot of enclosed area.

SECTION V: FILL Design Certification Statement

I certify that:

- Fill material will not be used for structural support with the exception of parking slabs, pool decks, patios, walkways, and similar site elements.
- A statement shall accompany this design certification and address the conformance standards identified within FEMA's Coastal Construction Manual publication FEMA-55.
- Design plans are submitted in accordance with Section 150.22 (I) of the Town of Duck FDPO.
- The floodplain administrator may approve design plans for non-structural fill only after the applicant has provided an analysis by an engineer, architect, and/or soil scientist which demonstrates that the following factors have been satisfied:
 - Particle composition of fill material is similar and consistent with the natural soils in the area;
 - Volume, slope and distribution of fill will not cause harmful diversion of floodwaters or wave runup or deflection that would increase damage to the subject structure or adjacent properties.

SECTION VI: Swimming Pool Design Certification Statement

I certify that:

- The pool will not act as an obstruction that will result in damage to the V-Zone building or nearby buildings.
- The pool will not be subject to breaking up or floating out of the ground during a coastal flood and will therefore not increase the potential for damage to the foundations and elevated portions of the subject structure or any nearby buildings.
- The elevation of the pool accounts for the potential buoyancy of the pool and the buoyancy calculations should be made with the pool empty. (Calculations must be attached to this certification for review.)
- The pool is designed and sited so that any increased wave or debris impact forces will not affect any nearby buildings.

SECTION VII: Certification and Seal

This certification is to be signed and sealed by a registered professional engineer or architect authorized by law to certify structural designs. I certify

_____ the V Zone Design Certification Statement (Section III),
_____ the Breakaway Wall Design Certification Statement (Section IV),
_____ the Fill Design Certification Statement (Section V), and
_____ the Pool Design Certification Statement (Section VI).

Check all that apply above.



Certifier's Name _____ License Number _____

Title: _____ Company Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Signature _____ Date: _____ Telephone: _____