U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
National Flood Insurance Program

ELEVATION CERTIFICATE

IMPORTANT: Follow the instructions on pages 1–9.

OMB No. 1660-0008
Expiration Date: July 31, 2015

SECTION A – PROPERTY INFORMATION

FOR INSURANCE COMPANY USE

A1. Building Owner's Name: Tim Glover — Policy Number:

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.: 1412 Battery Creek Road — Company NAIC Number:

City: Beaufort — State: SC — ZIP Code: 29902

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.): 120-8-8

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.): Non- Residential

A5. Latitude/Longitude: Lat. 32°23' 38.9" N Long. 80°42'06.5" W Horizontal Datum: ☐ NAD 1927 ☐ NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number: 1A

A8. For a building with a crawlspace or enclosure(s):
- a) Square footage of crawlspace or enclosure(s): 739 sq ft
- b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade: 4
- c) Total net area of flood openings in A8.b: 928 sq in
- d) Engineered flood openings? ☒ Yes ☐ No

A9. For a building with an attached garage:
- a) Square footage of attached garage: N/A sq ft
- b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade: N/A
- c) Total net area of flood openings in A9.b: N/A sq in
- d) Engineered flood openings? ☒ Yes ☐ No

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number	B2. County Name	B3. State
Beaufort 450026	Beaufort	SC

B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Panel Effective/ Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use base flood depth)
450026 0005	D	09/29/1986	09/29/1986	A-8	13.0

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:
☐ FIS Profile ☒ FIRM ☐ Community Determined ☐ Other/Source:

B11. Indicate elevation datum used for BFE in Item B9: ☒ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source:

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? ☐ Yes ☒ No
Designation Date: ___/___/___ ☐ CBRS ☐ OPA

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☐ Construction Drawings* ☐ Building Under Construction* ☒ Finished Construction
*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: BFT County # 20 Vertical Datum: NGVD 29

Indicate elevation datum used for the elevations in items a) through h) below. ☒ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source:
Datum used for building elevations must be the same as that used for the BFE.

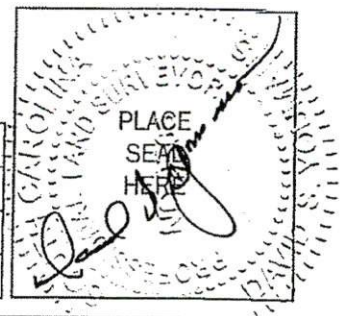
		Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	9.5	☒ feet	☐ meters
b) Top of the next higher floor	N.A	☐ feet	☐ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	N.A	☐ feet	☐ meters
d) Attached garage (top of slab)	N.A	☐ feet	☐ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	N.A	☐ feet	☐ meters
f) Lowest adjacent (finished) grade next to building (LAG)	8.50	☒ feet	☐ meters
g) Highest adjacent (finished) grade next to building (HAG)	9.40	☒ feet	☐ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	N.A	☐ feet	☐ meters

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. *I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*

☐ Check here if comments are provided on back of form.
☐ Check here if attachments.

Were latitude and longitude in Section A provided by a licensed land surveyor? ☒ Yes ☐ No



Certifier's Name	License Number		
David S Youmans	9765		
Title: Owner/President	Company Name: Beaufort Surveying.		
Address: 2201 Boundary Street., Suite 103	City: Beaufort	State: SC	ZIP Code: 29902
Signature: David S Youmans	Date: 04/22/2016	Telephone: (843) 524-3261	

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 1412 Battery Creek Road			Policy Number:
City Beaufort	State SC	ZIP Code 29902	Company NAIC Number:

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments

Signature Date 04/22/2016

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the LAG.

E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8–9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E3. Attached garage (top of slab) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E4. Top of platform of machinery and/or equipment servicing the building is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name

Address City State ZIP Code

Signature Date Telephone

Comments

☐ Check here if attachments.

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

G1. ☐ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate Of Compliance/Occupancy Issued

G7. This permit has been issued for: ☐ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ . _____ ☐ feet ☐ meters Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ . _____ ☐ feet ☐ meters Datum _____

G10. Community's design flood elevation: _____ . _____ ☐ feet ☐ meters Datum _____

Local Official's Name Title

Community Name Telephone

Signature Date

Comments

☐ Check here if attachments.

BUILDING PHOTOGRAPHS

Continuation Page

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 1412 Battery Creek Road			Policy Number:
City Beaufort	State SC	ZIP Code 29902	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

FRONT

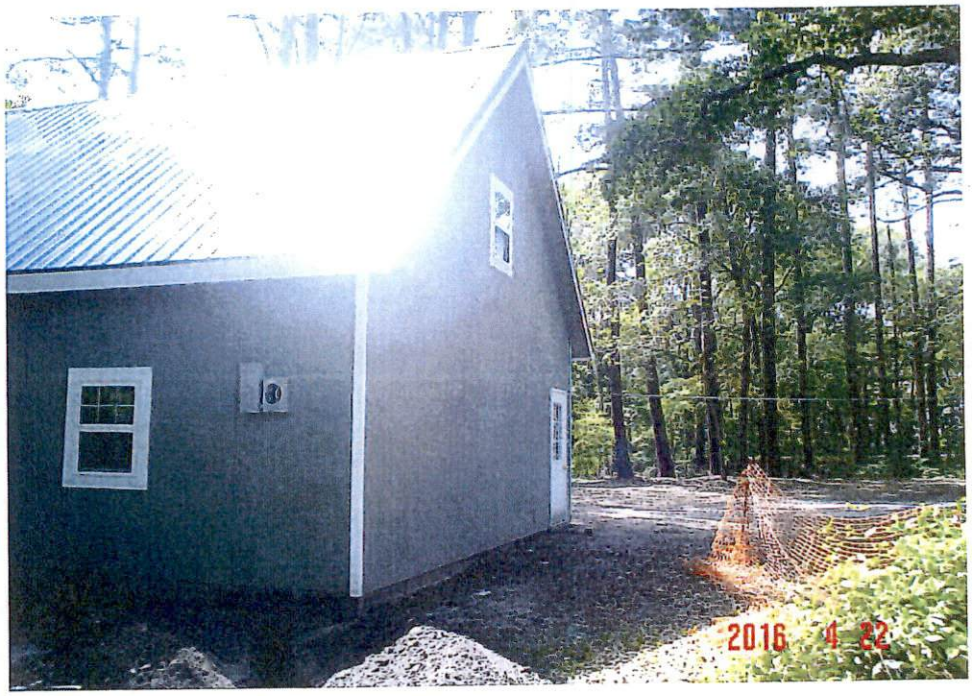
BACK

BUILDING PHOTOGRAPHS
Continuation Page

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			Policy Number:
City	State SC	ZIP Code	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

RT



LT

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

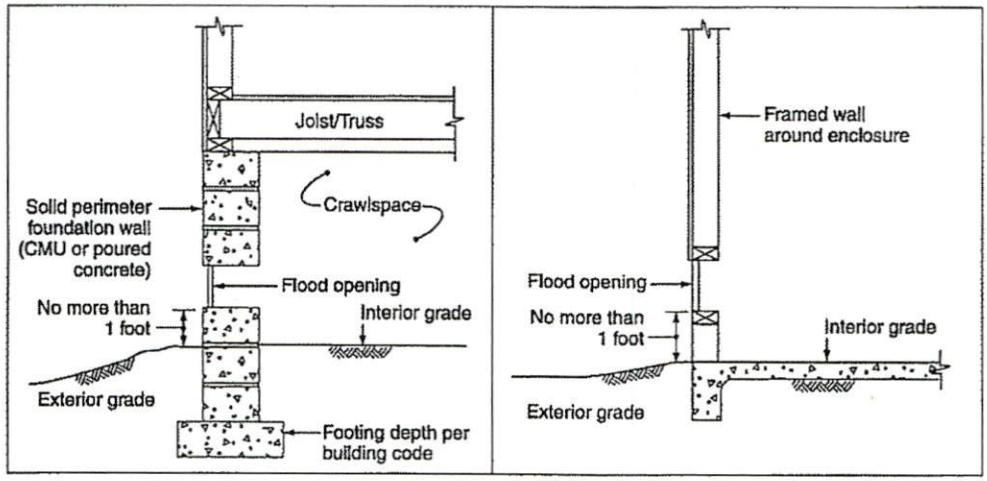
IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 1412 Battery Creek Road			Policy Number:
City Beaufort	State SC	ZIP Code 29902	Company NAIC Number:

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.

Installing Flood Vents (1/2)

If basement and crawlspace walls are not designed with openings to relieve the pressure of standing water or moving water against them during a flood, the walls can be damaged or fail. If the walls are "load bearing" walls that support the upper floors of the building there is the risk of partial or total collapse of the dwelling. To address this problem, a homeowner can install flood vents that will allow flood waters to enter and exit the space automatically. By allowing the space to fill with water, the pressure being exerted on the interior and exterior surfaces of the wall are equal.

The diagram below depicts a typical crawl space and framed wall surrounding an enclosed space. It depicts the location of the opening with respect to grade. The bottom of the opening should not be more than 1 foot above grade.:

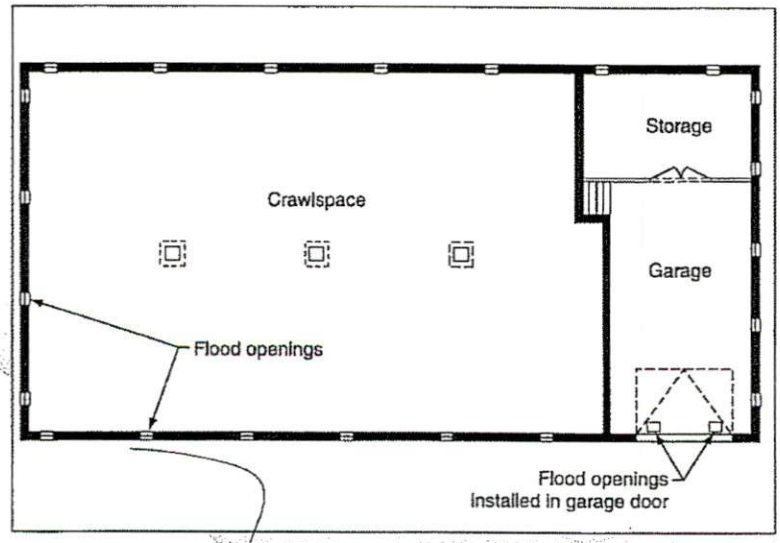


Note: These flood vents are not applicable in Flood Zone V (wave action) areas. In those areas the foundation system is typically made of piers or pilings. The area around the piers is unobstructed to allow waves to pass under the building. If the space is to be enclosed, lattice or insect screening can be used.

Protect Spaces With Floodvents

There are a number of spaces that should be protected by flood vents:

- Solid perimeter foundation walls enclosing crawl spaces, under-floor spaces, below-grade crawl spaces, and basements.
- Garages attached to elevated buildings.



Each enclosed area is requires to have a minimum of two openings on the exterior wall to allow floodwaters to enter the space directly. If the openings are to be installed without the benefit of an engineer, then there needs to be 1 square inch of net open area for every square foot of enclosed area.

40' x 60' enclosed crawl space = 2400 sq.ft.

This space would need
2400 square inches of opening

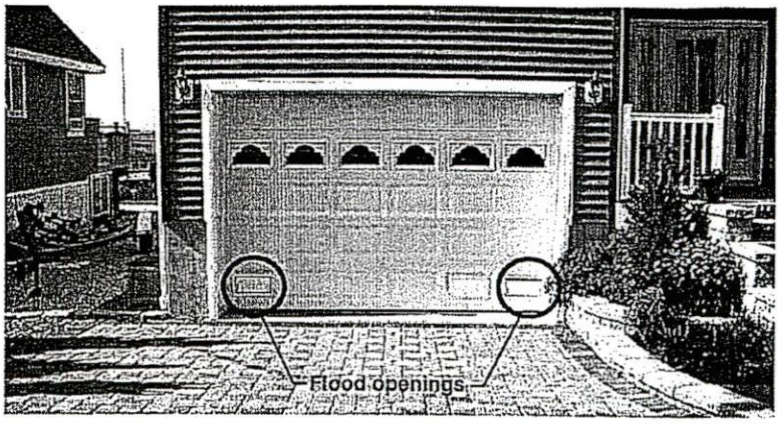
The openings should be located below the base flood elevation. The openings should be installed on at least two sides of the dwelling to reduce the risk of the vents being blocked with debris. This also will allow for a more even filling and draining of the space. The openings should be reasonably distributed around the perimeter of the enclosed space.

In this example, the crawlspace, garage and storage areas are separate spaces and would be addressed individually. For example, the total area of the vents serving the crawl space would be based on the square footage of the crawlspace only.

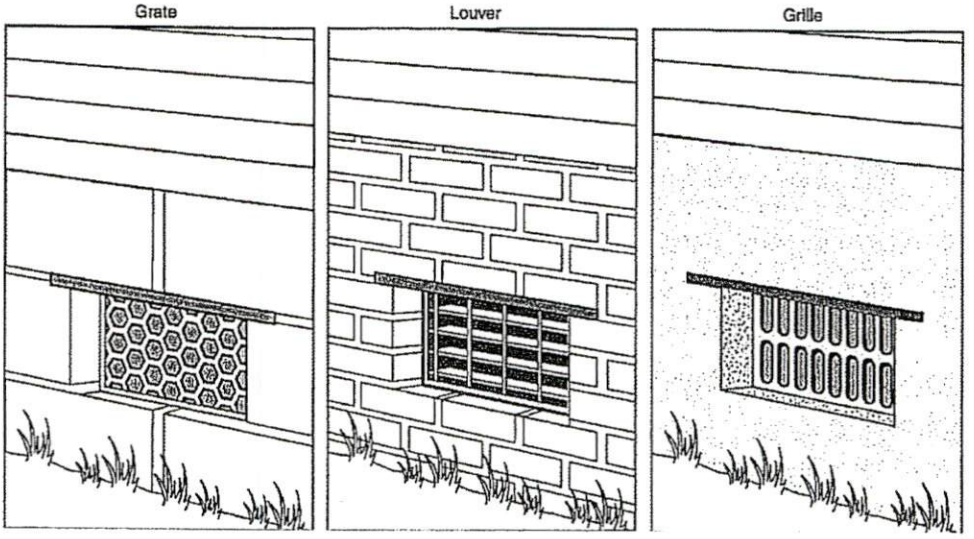
Installing Flood Vents (2/2)

The garage doors in the example above can be included in the exterior wall area. The picture on the right shows the installation of flood vents in a garage door:

Standard air vents may be used as flood vents. The open area of the air vent is typically stamped in the metal frame or included in the packaging. It is important to insure that the total area of the vents is correct. There must not be a solid cover included on the air vent, as this will prevent the free flow of water. Air vents that are designed to be open and closed manually must be permanently disabled in the "open" position. Insect screens do not affect the area determination of the vent, and are required under the Code.



The diagram on the right shows some typical air vent types:



Additional Information

- ICC Evaluation Service, Inc. 2007. Acceptance Criteria for Automatic Flood Vents (AC364) http://www.icc-es.org/criteria/pdf_files/ac364.pdf
- American Society of Civil Engineers, Structural Engineering Institute. 2005. *Flood Resistant Design and Construction*, ASCE/SEI 24 - 05

From: info@usafloodairvents.com
Subject: New Order # USA 11994
Date: February 15, 2016 at 1:23 PM
To: kenton@woodtex.com

USA FOUNDATION FLOOD AIR VENTS
Save Money...Save Time

Order Confirmation

Barbara Lapp,

This email confirms that your order was received at USA Flood Air Vents. You will receive an additional email once your order is shipped. Contact us if you have any questions about your order.

Thanks for using USA Flood Air Vents.

Order Information

Order number: USA11994
Order Date: 2/15/2016

Billing Address

Barbara Lapp
WoodTex Products
kenton@woodtex.com
607-243-5141
3700 Route 14
Himrod, NY 14842 US

Additional Information

Account Info
Login: kenton@woodtex.com
Pass: ******

Payment Information

Payment Method
Online Credit Card

Order Summary

ROSS (RFSS) - 85851005115 Retrofit Stainless Steel Flood Vent $144.00 x 4 **$576.00**

Shipping To
Kenton Yoder Wood-Tex Products
15406 South Highway 11 FAIR PLAY, SC 29643 US

Shipping Method
UPS - Ground

Subtotal: $576.00
Discount: $0.00

Certification of Engineered Flood Openings

In accordance with NFIP, FEMA Technical Bulletin 1-08 and ASCE/SEI 24-05

Certification Statement

I hereby certify that the flood vents manufactured by USA Foundation Flood Air Vents (Model No's FO-316, FA-316, FOAL, FAAL, RFPC and RFSS) are designed in accordance with the requirements of the 2011 NFIP "Flood Insurance Manual" to provide automatic equalization of hydrostatic flood loads on exterior walls by allowing the automatic entry and exit of floodwaters during floods up to and including the base 100-year flood. The flood vents must be installed and sized properly as set forth by the requirements below. This certification follows the design requirements and specifications that are established in FEMA Technical Bulletin 1-08 and ASCE/SEI 24-05.

Design Characteristics

I hereby certify that I have measured the flood vent models listed below. I have also calculated the maximum total enclosed area that can be served by each individual model based on the net area of the opening using the equation taken from ASCE/SEI 24-05, Section 2.6.2.2 and the following design assumptions listed below.

Design Assumptions:

1. The rates of rise and fall have been assumed to be 5 feet per hour.
2. The maximum difference between the exterior and interior floodwater levels have been assumed to be 1 foot during base flood conditions.
3. A factor of safety of 5 has been used in the design.

Area of Engineered Openings per ASCE 24, Section 2.6.2.2

$A_o = (0.0333)[1/c]R(A_e) \rightarrow Ae = Ao / [(0.0333)[1/c]R]$

Where:

A_o =	Total Net Area of Openings Required (in^2)
0.033 =	Coefficient Corresponding to a Factor of Safety of 5.0 ($in^2 \cdot hr/ft^3$)
c =	Opening Coefficient (Non-Dimensional; see ASCE 24, Table 2-2)
R =	Worst Case Rate of Rise and Fall (ft/hr)
A_e =	Total Enclosed Area (ft^2)

Maximum Area Coverage in Square Feet per Vent for each Model

Model	Height (in.)	Width (in.)	A_o (in^2)	Constant ($in^2 \cdot hr/ft^3$)	c	R (ft/hr)	A_e* (ft^2)
FO-316	7.00	15.50	108.50	0.0330	0.400	5	263
FA-316	7.00	15.50	108.50	0.0330	0.400	5	263
FOAL-W	7.00	15.50	108.50	0.0330	0.400	5	263
FOAL-B	7.00	15.50	108.50	0.0330	0.400	5	263
FOAL-G	7.00	15.50	108.50	0.0330	0.400	5	263
FAAL-W	7.00	15.50	108.50	0.0330	0.400	5	263
FAAL-B	7.00	15.50	108.50	0.0330	0.400	5	263
FAAL-G	7.00	15.50	108.50	0.0330	0.400	5	263
RFPC	7.00	13.75	96.25	0.0330	0.398	5	232
RFSS	7.00	13.75	96.25	0.0330	0.398	5	232

**Note: (A_e) is the maximum total enclosed area that can be served for each individual model based on the net area of the opening (A_o)*

Limitations and Installation Requirements

This certification will be voided in it's entirety if the following installation requirements and limitations are not enforced. USA Foundation Flood Air Vents and Conn Engineering Consultants, Inc. do not recommend or authorize any modifications to the flood vents and will not be held liable for improper installation or modification of the flood vents.

FEMA/ NFIP Limitations and Installation Requirements:

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
2. The bottom of all openings shall be no higher than one foot above grade that is immediately under each opening.
3. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
4. It is recommended that openings be reasonably distributed around the perimeter of the enclosed area unless there is clear justification for putting all openings on just one or two sides (such as in townhouses or buildings set into sloping sites).
5. Where analysis indicates rates of rise and fall greater than 5 feet per hour, the total enclosed area shall be reduced accordingly.

Design Professional

Professional Engineering Seal

Name / Title: SAMPLE
Address: SAMPLE
License Type: SAMPLE
State: SAMPLE
License Number: SAMPLE

Installation Address

Customer and Installation Address:

SAMPLE

Model Installed

Model Number: SAMPLE
Maximum total enclosed area that can be served for EACH individual vent: 232 Square Feet