



# CARSON CITY NEVADA

## Consolidated Municipality and State Capital

### PUBLIC WORKS

#### MEMO OF REVIEW FOR CORRECTNESS AND COMPLETION

In accordance with this community's participation in the National Flood Insurance Program's Community Rating System, all FEMA Elevation Certificates must be correct and complete. The attached Certificate has some incorrect items which are noted here.

SECTION A - PROPERTY INFORMATION			For Insurance Company Use:
A1. Building Owner's Name <u>C. HOLLAND ENTERPRISES LLC</u>			Policy Number
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. <u>5060 Hwy 50 E</u>			Company NAIC Number
City <u>CARSON CITY</u>	State <u>NV</u>	ZIP Code <u>89706</u>	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) <u>APN # 008-382-11</u>			

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) _____		Horizontal Datum: <input type="checkbox"/> NAD 1927 <input type="checkbox"/> NAD 1983
A5. Latitude/Longitude: Lat. _____ Long. _____		
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.		
A7. Building Diagram Number _____		
A8. For a building with a crawl space or enclosure(s), provide a) Square footage of crawl space or enclosure(s) _____ sq ft b) No. of permanent flood openings in the crawl space or enclosure(s) walls within 1.0 foot above adjacent grade _____ c) Total net area of flood openings in A8.b _____ sq in		A9. For a building with an attached garage, provide: a) Square footage of attached garage _____ sq ft b) No. of permanent flood openings in the attached garage walls within 1.0 foot above adjacent grade _____ c) Total net area of flood openings in A9.b _____ sq in

#### SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number		B2. County Name		B3. State	
B4. Map/Panel Number <u>320001/0112</u>	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)
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9. <input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other (Describe) _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other (Describe) _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No Designation Date _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

#### SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: <input type="checkbox"/> Construction Drawings* <input type="checkbox"/> Building Under Construction* <input type="checkbox"/> 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-g below according to the building diagram specified in Item A7. Benchmark Utilized _____ Vertical Datum _____ Conversion/Comments _____

#### COMMENTS:

PER SCOTT MULLIGAN, P.E., I WAS INSTRUCTED TO CORRECT & INITIAL

Date of Review: 6/25/18

Community Official: [Signature]

## ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1-9.

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

SECTION A - PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Carson City Towing <u>(C. HOLLAND ENTERPRISES LLC) S.M.</u>				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 5060 Highway 50 East				Company NAIC Number:	
City Carson City		State Nevada		ZIP Code 89706	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Carson City Assessor's Parcel 008-382-11					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Nonresidential Office and Garage</u>					
A5. Latitude/Longitude: Lat. <u>39.186505N</u> Long. <u>109.710356</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> 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 <u>1B</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>0.00</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>1600.00</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>7</u>					
c) Total net area of flood openings in A9.b <u>1841.00</u> sq in					
d) Engineered flood openings? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number Carson City 320001			B2. County Name Carson City		B3. State Nevada
B4. Map/Panel Number <u>320001 / 0112 S.M.</u>	B5. Suffix <u>E</u>	B6. FIRM Index Date 02-19-2014	B7. FIRM Panel Effective/ Revised Date 01-16-2009	B8. Flood Zone(s) A, AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 4619.8
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					



# ELEVATION CERTIFICATE

OMB No. 1660-0008  
Expiration Date: November 30, 2018

<b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>			<b>FOR INSURANCE COMPANY USE</b>
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 5060 Highway 50 East			Policy Number:
City Carson City	State Nevada	ZIP Code 89706	Company NAIC Number

## 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: USGS V-357 Vertical Datum: 4633.24

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)   | <u>4619.81</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| b) Top of the next higher floor   | <u>S.M. N/A</u> | <input type="checkbox"/> feet <input type="checkbox"/> meters            |
| c) Bottom of the lowest horizontal structural member (V Zones only)   | <u>S.M. N/A</u> | <input type="checkbox"/> feet <input type="checkbox"/> meters            |
| d) Attached garage (top of slab)  | <u>4618.13</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building<br>(Describe type of equipment and location in Comments) | <u>4623.90</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG)  | <u>4618.09</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG)   | <u>4618.30</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support                                  | <u>4618.59</u>  | <input checked="" type="checkbox"/> feet <input type="checkbox"/> 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.

Were latitude and longitude in Section A provided by a licensed land surveyor? ☐ Yes ☒ No ☐ Check here if attachments.

Certifier's Name Scott Mulligan, P.E.	License Number 18962		
Title Civil Engineer			
Company Name Mountain Sage Consulting, LLC.			
Address P.O. Box 1174			
City Carson City	State Nevada		ZIP Code 89702
Signature <i>Scott Mulligan</i>	Date 05-31-2017	Telephone (775) 720-4121	Ext. 4) 267-4759 S.M.

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

Comments (including type of equipment and location, per C2(e), if applicable)

Elevation control was based on USGS monument V-357 with an elevation of 4633.24', a site construction monument was established by Tri-State Surveying, in the southwest corner of the parcel, with an elevation of 4617.56'. All site elevations are referenced to the USGS Monument through this monument.

# ELEVATION CERTIFICATE

OMB No. 1660-0008  
Expiration Date: November 30, 2018

<b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>			<b>FOR INSURANCE COMPANY USE</b>
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 5060 Highway 50 East			Policy Number:
City Carson City	State Nevada	ZIP Code 89706	Company NAIC Number

## 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 \_\_\_\_\_ 0.51 ☒ feet ☐ meters ☒ above or ☐ below the HAG.
- b) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_ 1.72 ☒ 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 1–2 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 \_\_\_\_\_ 1.50 ☒ feet ☐ meters ☐ above or ☒ below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is \_\_\_\_\_ 4.60 ☒ 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

C. Holland Ent LLC / 5060 Hwy 50 E Carson City NV 89701

Address City State ZIP Code

Signature Date Telephone

Comments

☐ Check here if attachments.



# ELEVATION CERTIFICATE

OMB No. 1660-0008  
Expiration Date: November 30, 2018

<b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>			<b>FOR INSURANCE COMPANY USE</b>	
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 5060 Highway 50 East			Policy Number:	
City Carson City	State Nevada	ZIP Code 89706	Company NAIC Number	
<b>SECTION G – COMMUNITY INFORMATION (OPTIONAL)</b>				
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. <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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: <input type="checkbox"/> New Construction <input type="checkbox"/> Substantial Improvement				
G8. Elevation of as-built lowest floor (including basement) of the building: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____				
G9. BFE or (in Zone AO) depth of flooding at the building site: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____				
G10. Community's design flood elevation: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____				
Local Official's Name		Title		
Community Name		Telephone		
Signature		Date		
Comments (including type of equipment and location, per C2(e), if applicable) <i>-see architects stamped memo of Flood Restitutive materials</i>				
<input type="checkbox"/> Check here if attachments.				

**BUILDING PHOTOGRAPHS**

See Instructions for Item A6.

OMB No. 1660-0008

Expiration Date: November 30, 2018

**ELEVATION CERTIFICATE****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.  
5060 Highway 50 East

Policy Number:

City

State

ZIP Code

Company NAIC Number

Carson City

Nevada

89706

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.



Photo One

Photo One Caption

Clear Photo One



Photo Two Captic

Clear Photo Two

**ELEVATION CERTIFICATE****BUILDING PHOTOGRAPHS**

Continuation Page

OMB No. 1660-0008

Expiration Date: November 30, 2018

<b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>			<b>FOR INSURANCE COMPANY USE</b>
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 5060 Highway 50 East			Policy Number:
City Carson City	State Nevada	ZIP Code 89706	Company NAIC Number
<p>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.</p>			
<b>Photo Three</b>			
Photo Three			
Photo Three Caption			Clear Photo Three
<b>Photo Four</b>			
Photo Four			
Photo Four Caption			Clear Photo Four

# Robert M. Darney, Architect

490 Hot Springs Road Carson City, Nevada 89706  
NEVADA ARIZONA

June 21, 2017

Carson City Engineering  
Stormwater  
Carson City, Nevada

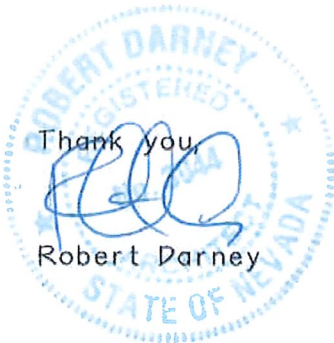
Project: New Building  
CCPD Project No: 16-1459  
Project Address: 5060 Hwy 50E

Attn: Robb Fellows,  
Senior Project Manager-Stormwater

Robb,  
Flood resistive materials were installed up to 2 feet above  
the DFE. See prior EC based on plans.

Thank you,

Robert Darney



---

ARCHITECTURE  
TEL: (775) 883-3444

PLANNING  
FAX: (775) 882-4016

DESIGN  
EMAIL: darneyarch@sbcglobal.net

SCALE MODELS





# Certification of Engineered Flood Openings

In accordance with NFIP, FEMA Technical Bulletin 1-08 and ASCE/SEI 24-14

## 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 24-14.

## 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 24-14, 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

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

Where:

$A_o =$	Total Net Area of Openings Required (in <sup>2</sup> )
0.033 =	Coefficient Corresponding to a Factor of Safety of 5.0 (in <sup>2</sup> ·hr/ft <sup>3</sup> )
$c =$	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 <sup>2</sup> )

Maximum Area Coverage in Square Feet per Vent for each Model

Model	Height (in.)	Width (in.)	$A_o$ (in <sup>2</sup> )	Constant (in <sup>2</sup> ·hr/ft <sup>3</sup> )	$c$	$R$ (ft/hr)	$A_e$ (ft <sup>2</sup> )
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 its 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

Name / Title: Jason M. Conn, P.E. President, Conn Engineering Consultants, Inc.  
Address: 107 N. Bridge St., Linden, MI 48451  
License Type: Professional Engineer  
State: Nevada  
License Number: 0 17258

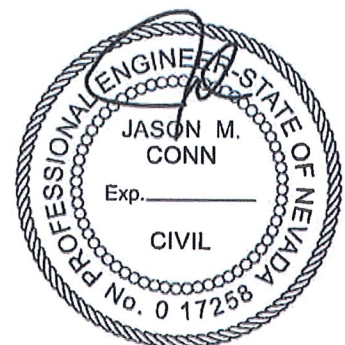
### Installation Address

Customer and Installation Address:  
5060 Highway 50 East  
Carson City, Nevada APN 16-195-20

### Model Installed

Model Number: FAAL-G  
Maximum total enclosed area that can be served for EACH individual vent: 263 Square Feet

### Professional Engineering Seal







# Certification of Engineered Flood Openings

In accordance with NFIP, FEMA Technical Bulletin 1-08 and ASCE/SEI 24-14

## 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 24-14.

## 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 24-14, 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

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

Where:

- $A_o$  = Total Net Area of Openings Required (in<sup>2</sup>)  
 $0.0333$  = Coefficient Corresponding to a Factor of Safety of 5.0 (in<sup>2</sup> hr/ft<sup>3</sup>)  
 $c$  = 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<sup>2</sup>)

Maximum Area Coverage in Square Feet per Vent for each Model

Model	Height (in)	Width (in)	$A_o$ (in <sup>2</sup> )	Constant (in <sup>2</sup> hr/ft <sup>3</sup> )	$c$	$R$ (ft/hr)	$A_e$ (ft <sup>2</sup> )
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 its 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

Name / Title: Jason M. Conn, P.E. President, Conn Engineering Consultants, Inc.  
 Address: 107 N Bridge St, Linden, MI 48451  
 License Type: Professional Engineer  
 State: Nevada  
 License Number: 017258

### Installation Address

Customer and Installation Address:  
 5060 Highway 50 East  
 Carson City, Nevada APN 16-195-20

### Model Installed

Model Number: FAAL-G  
 Maximum total enclosed area that can be served for EACH individual vent: 263 Square Feet

### Professional Engineering Seal



Certification Date: 7/14/2016