Town of Westerly
Rhode Island

Department of
Development Services
Planning Office

Town Hall
45 Broad Street
Westerly, RI 02891

Memo of Review for Correctness and Completion

The attached FEMA Elevation Certificate has been reviewed by this office.
The items noted below are not correct on the attached form and should read as entered on this page.

SECTION A - PROPERTY INFORMATION	For Insurance Company Use:
A1. Building Owner's Name	Policy Number
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.	Company NAIC Number

City   State   ZIP Code

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

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) _____
A5. Latitude/Longitude: Lat. _____ Long. _____   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 _____
A8. For a building with a crawlspace or enclosure(s):
   a) Square footage of crawlspace or enclosure(s) _____ sq ft
   b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____
   c) Total net area of flood openings in A8.b _____ sq in
   d) Engineered flood openings? ☐ Yes ☐ No
A9. For a building with an attached garage:
   a) Square footage of attached garage _____ sq ft
   b) No. of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____
   c) Total net area of flood openings in A9.b _____ 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

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)
44009C0258					

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 (Describe) _____
B11. Indicate elevation datum used for BFE in Item B9: ☐ NGVD 1929   ☐ NAVD 1988   ☐ Other (Describe) _____
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)?
   ☐ Yes
   ☐ No
   Designation Date _____   ☐ CBRS   ☐ OPA

Local Official's Name   David Murphy   Title Building Official

Community Name Town of Westerly   Telephone (401) 348-2546

Signature   Date 10-20-17

Comments

ELEVATION CERTIFICATE

Important: Read the instructions on pages 1–9.

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

SECTION A – PROPERTY INFORMATION

FOR INSURANCE COMPANY USE
Policy Number:
Company NAIC Number:

A1. Building Owner's Name Gregg O. and Theresa S. Wilcox

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
14 Montauk Avenue
City Westerly   State RI   ZIP Code 02891

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
Assessor's Plat 165 Parcel 162

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

A5. Latitude/Longitude: Lat. 41-19-23.520 Long. 071-48-42.028   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 7

A8. For a building with a crawlspace or enclosure(s):
   a) Square footage of crawlspace or enclosure(s) 1243 sq ft
   b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade 6
   c) Total net area of flood openings in A8.b 1280 sq in
   d) Engineered flood openings? ☒ Yes ☐ No

A9. For a building with an attached garage:
   a) Square footage of attached garage _____ sq ft
   b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____
   c) Total net area of flood openings in A9.b _____ 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
Westerly 445410	Washington	Rhode Island

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)
258	J	10-16-2013	10-16-2013	AE	12

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: WE002   Vertical Datum: NAVD 1988
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)	4.5	☒ feet ☐ meters
b) Top of the next higher floor	14.3	☒ 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)	13.9	☒ feet ☐ meters
f) Lowest adjacent (finished) grade next to building (LAG)	4.0	☒ feet ☐ meters
g) Highest adjacent (finished) grade next to building (HAG)	4.4	☒ feet ☐ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	3.8	☒ 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 Alfred W. DiOrio   License Number RI PLS 1752

Title President   Company Name Alfred W. DiOrio, RLS, Inc.

Address PO Box 999   City Ashaway   State RI   ZIP Code 02804

Signature Alfred W. DiOrio   Date 10-11-2015   Telephone 401-377-8124

[Seal: ALFRED W. DiORIO, No. 1752, PROFESSIONAL LAND SURVEYOR]
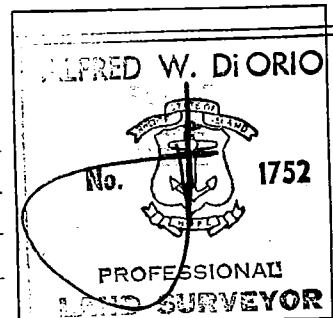
ELEVATION CERTIFICATE, page 2

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. 14 Montauk Avenue	Policy Number:
City Westerly State RI ZIP Code 02891	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 (1) This Certificate revises a previous Certificate, dated 01-07-2015 (based on construction drawings) (2) Enclosure area value from Contractor as provided to Surveyor, (3) See flood vent certification attached, (4) Lowest machinery is air handler as elevation cited, (5) Gas meter and OWTS control panel are below BFE.

Signature Alfred W. DiOrio   Date 10-11-2015

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's 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.

FEMA Form 086-0-33 (7/12)   Replaces all previous editions.

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. 14 Montauk Avenue	Policy Number:
City Westerly	State RI	ZIP Code 02891	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.

East and North View

Replaces all previous editions.

Building Photographs
Continuation Page

IMPORTANT: In these spaces, copy the corresponding information from Section A.

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
14 Montauk Avenue

City Westerly   State RI   ZIP Code 02891

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.

West and South View

MAP SCALE 1" = 500'

250   0   500   1000

FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0258J

FIRM

FLOOD INSURANCE RATE MAP

**WASHINGTON COUNTY,
RHODE ISLAND**
(ALL JURISDICTIONS)

PANEL 258 OF 368
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
WESTERLY, TOWN OF	415410	0258	J

-NOTE-
THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER
RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL
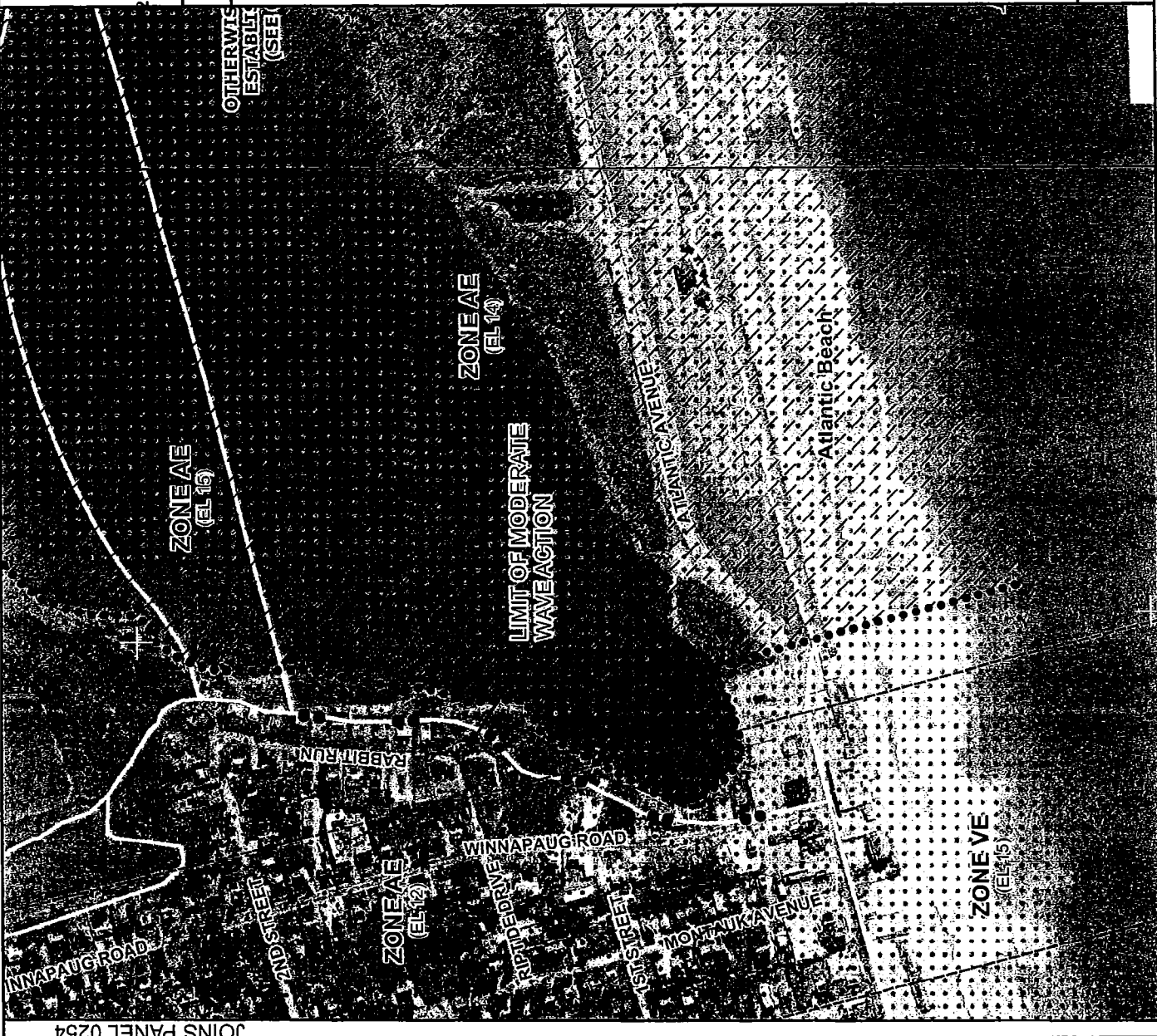BARRIER RESOURCES ACT OF 1982 AND/OR SUBSEQUENT
ENABLING LEGISLATION.

Notice to User: The Map Number shown below
should be used when placing map orders; the
Community Number shown above should be
used on insurance applications for the subject
community.

**MAP NUMBER
44009C0258J**

**MAP REVISED
OCTOBER 16, 2013**

Federal Emergency Management Agency

CERTIFICATION OF ENGINEERED FLOOD OPENINGS (FEMA TB-1 August 2008)

I do hereby certify that the **FLOOD SOLUTIONS LLC** Flood Vent properly installed and sized in accordance with Federal Emergency Management Agency's (FEMA's) National Flood Program regulations is designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of floodwater during floods up to and including the base 100-year flood.

I also do hereby certify that I calculated the Non Engineered Net Free Air and Engineered Opening size for each model and size of FLOOD SOLUTIONS LLC flood vents. The results of the calculations are recorded in the table below. The Engineered size opening calculation was performed using the formula in FEMA Technical Bulletin 1 – August 2008, Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program (NFIP) and ASCE/SEI 24-05, Flood Resistance Design and Construction.

I measured the Non Engineered Net Free Air by calculating the minimum distance between the top blade and the top of the vent times the clear opening width of the vent; plus the minimum distance between the bottom blade and the bottom of the vent the clear opening width of the vent; plus the minimum distance between each blade times the number of spaces between the blades in vent times the clear opening width of the vent.

I used the formula in TB 1 – August 2008 ($A^o = 0.033$ [1/C] $RA\hat{e}$) to determine the Engineered Opening size for each model listed below. I used the following assumptions: A^o = total net area of openings required (in^2); 0.033 = coefficient corresponding to a factor of safety of 5.0 (in^2 hr/ft^3); c = 0.40 opening coefficient (ASCE 24 Table 2-3 "rectangular, long axis horizontal, short axis vertical unobstructed during design flood") or C = 0.35 (square unobstructed during design flood); R = 5 ft/hr worst case rate of rise and fall; and $A\hat{e}$ = 1 ft^2 total enclosed area.

Note: When the horizontal dimension is twice or more the vertical dimension, use 0.4; as the dimensions approach a square, interpolate from 0.4 to 0.35

$$A^o / A\hat{e} = 0.033 \,[1/C]\, R = 0.033 \,[1/0.40 \text{ for rectangle, long axis horizontal}] = 0.4125 \text{ in}^2 \text{ per ft}^2$$
$$\text{or } A^o / A\hat{e} = 0.033 \,[1/C]\, R = 0.033 \,[1/0.35 \text{ for square}] = .4719 \text{ in}^2 \text{ per ft}^2$$

Each individual opening, and any louvers, screens, or other covers, shall be designed to allow automatic entry and exit of floodwaters during design flood or lesser flood conditions; there shall be a minimum of two openings on different sides of each enclosed area; if a structure has more than one enclosed area below the DFE, each area shall have openings; openings shall not be less than 3 inches in any direction in the plane of the wall; the bottom of each required opening shall be no more than 1 ft. above the adjacent grade; the difference between the exterior and interior floodwater levels shall not exceed 1 ft. during base flood conditions; in the absence of reliable data on the rates of rise and fall, assume a rate of rise and fall of 5ft/hr; where data or analysis indicated more rapid rates of rise and fall, the total net area of the required openings shall be increased to account for the higher rates of rise and fall.

MODEL Number Flood Solutions:	SIZE WIDTH X HEIGHT:	Net Free Air (square inches):	ENGINEERED OPENING (square ft.):
1608-F	16" x 8"	51	124
1608-D	16" x 8"	51	124
1608-C	16" x 8"	65	158
1616-F	16" x 16"	104	221
1616-D	16" x 16"	102	216
2412-F	24" x 12"	113	274
2412-D	24" x 12"	110	267
2416-F	24" x 16"	156	362
2416-D	24" x 16"	154	357
3208-F	32" x 8"	104	252
3208-D	32" x 8"	104	252

SIGNATURE: _Dave D Barron_

NAME: Dave Barron

TYPE OF LICENSE: Professional Engineer

STATE: Rhode Island   LICENSE NUMBER: 6565

5-19-11
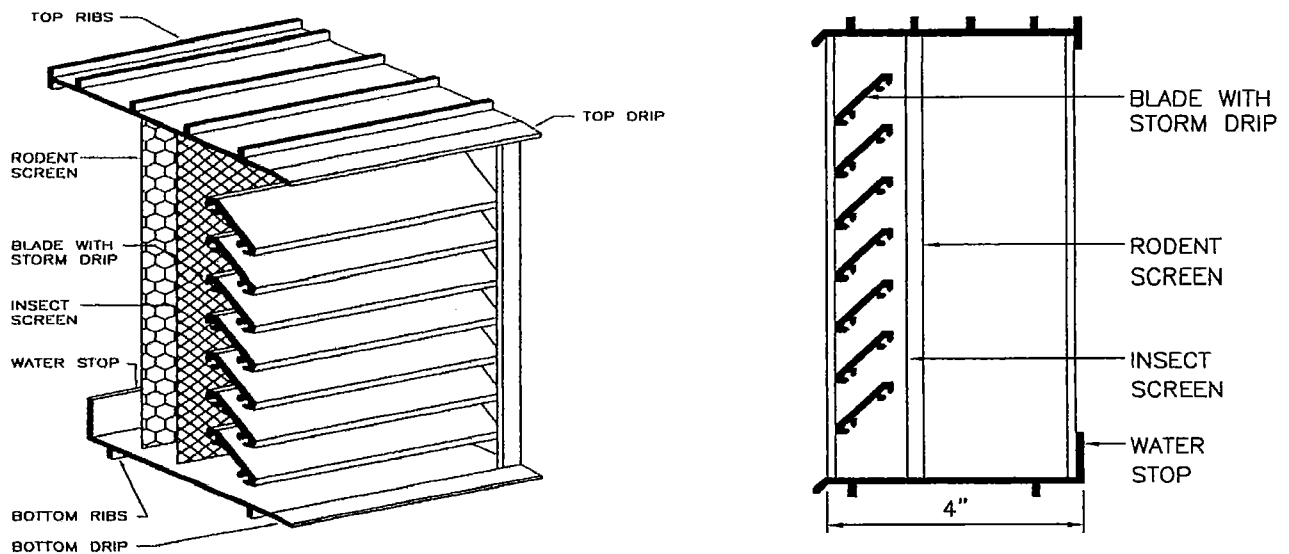
DAVID S. BARRON

No. 6565

REGISTERED PROFESSIONAL ENGINEER

FEMA COMPLIANT ENGINEERED FLOOD VENTS
FLOOD SOLUTIONS™ MODEL "D"

FEMA Compliant Engineered Flood Vents meet FEMA requirements when installed properly.

- Use at least 2 flood vents per enclosed area below flood grade, installed on at least two separate walls.
- The bottom of the flood vent opening must not be higher than 12 inches above the grade.
- At least 1 square inch of engineered opening for every 1 square foot of enclosed space.
- An engineered certificate from the state in which the building is located is required for all engineered openings without ICC-ES certification.

Qty	Model	Minimum Opening Required	Engineered Opening Covers
	1608-D	16"Wide x 8"High	124 sq ft
	1616-D	16"Wide x 16"High	216 sq ft
	2412-D	24"Wide x 12"High	267 sq ft
	2416-D	24"Wide x 16"High	357 sq ft
	3208-D	32"Wide x 8"High	252 sq ft

Finishes	
	Black Kynar
	Light Grey Kynar
	Light Tan Kynar
	No Finish (for field painting)

<u>Frame:</u> **4" DEEP, Channel Frame**; heavy gauge extruded aluminum sections, minimum .125" thickness
<u>Blades:</u> Heavy gauge extruded aluminum sections, minimum .063 thickness
<u>Construction:</u> Extruded aluminum sections mechanically fastened
<u>Insect/Rodent Screen:</u> Heavy-duty aluminum insect & rodent screen; rear mounted

FLOOD Solutions
FEMA Compliant
Engineered Flood Vents

FLOOD SOLUTIONS, LLC.
One Industrial Park Drive
Bldg. 27
Pelham NH, 03076
Toll Free: 1-800-325-9775
In NH: 603-595-5222
Fax: 603-595-4778
www.floodsolutions.com
info@floodsolutions.com

PROJECT:	
CONTRACTOR:	
RETAILER:	
DATE:	

CERTIFICATION OF ENGINEERED FLOOD OPENINGS (FEMA TB-1 August 2008)

I do hereby certify that the **FLOOD SOLUTIONS LLC** Flood Vent properly installed and sized in accordance with Federal Emergency Management Agency's (FEMA's) National Flood Program regulations is designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of floodwater during floods up to and including the base 100-year flood.

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I used the formula in TB 1 – August 2008 (A^o = 0.033 [1/C] RAê) to determine the Engineered Opening size for each model listed below. I used the following assumptions: A^o = total net area of openings required (in²); 0.033 = coefficient corresponding to a factor of safety of 5.0 (in² hr/ft³); c = 0.40 opening coefficient (ASCE 24 Table 2-3 "rectangular, long axis horizontal, short axis vertical unobstructed during design flood") or C = 0.35 (square unobstructed during design flood); R = 5 ft/hr worst case rate of rise and fall; and Aê = 1 ft² total enclosed area.

Note: When the horizontal dimension is twice or more the vertical dimension, use 0.4; as the dimensions approach a square, interpolate from 0.4 to 0.35

$$A^o / Aê = 0.033 [1/C] R = 0.033 [1/0.40 \text{ for rectangle, long axis horizontal}] = 0.4125 \text{ in}^2 \text{ per ft}^2$$
$$\text{or } A^o / Aê = 0.033 [1/C] R = 0.033 [1 / 0.35 \text{ for square}] = .4719 \text{ in}^2 \text{ per ft}^2$$

Each individual opening, and any louvers, screens, or other covers, shall be designed to allow automatic entry and exit of floodwaters during design flood or lesser flood conditions; there shall be a minimum of two openings on different sides of each enclosed area; if a structure has more than one enclosed area below the DFE, each area shall have openings; openings shall not be less than 3 inches in any direction in the plane of the wall; the bottom of each required opening shall be no more than 1 ft. above the adjacent grade; the difference between the exterior and interior floodwater levels shall not exceed 1 ft. during base flood conditions; in the absence of reliable data on the rates of rise and fall, assume a rate of rise and fall of 5ft/hr; where data or analysis indicated more rapid rates of rise and fall, the total net area of the required openings shall be increased to account for the higher rates of rise and fall.

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SIGNATURE: _Dave S Barron_

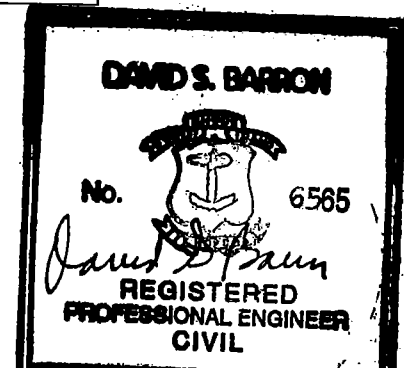NAME: Dave Barron

TYPE OF LICENSE: Professional Engineer

STATE: Rhode Island   LICENSE NUMBER: **6565**

5-19-11