

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: <input type="checkbox"/> NAD 1927 <input 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 _____			
A8. For a building with a crawlspace or enclosure(s):		A9. For a building with an attached garage:	
a) Square footage of crawlspace or enclosure(s) _____ sq ft	a) Square footage of attached garage _____ sq ft		
b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____	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 A8.b _____ sq in	c) Total net area of flood openings in A9.b _____ sq in		
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No	d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> 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 <u>10/16/2013</u>	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.
 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 <u>David Murphy</u>	Title <u>Building Official</u>
Community Name <u>Town of Westerly</u>	Telephone <u>(401) 348-2546</u>
Signature <u><i>David Murphy</i></u>	Date <u>10-20-17</u>
Comments _____	

ELEVATION CERTIFICATE

Important: Read the instructions on pages 1-9.

SECTION A - PROPERTY INFORMATION			For Insurance Company Use:
A1. Building Owner's Name Thomas F. and Linda B. Retano			Policy Number
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 23 Breach Drive			Company NAIC Number
City Westerly	State Rhode Island	ZIP Code 02891	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Assessors Map 156 - Lot No.37			
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) Residential			
A5. Latitude/Longitude: Lat. N41°-19.946' Long. W71°-45.946' Google Earth 2015		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 No. 7			
A8. For a building with a crawl space or enclosure(s),		A9. For a building with an attached garage, provide: n/a	
a) Square footage of crawl space or enclosure(s) 940 sq ft	a) Square footage of attached garage n/a sq ft		
b) No. of permanent flood openings in the crawl space or enclosure(s) walls within 1.0 foot above adjacent grade 7	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 A8.b 1,180 sq in (see comments)	c) Total net area of flood openings in A9.b ___ sq in		
d) Engineered flood openings? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (See attached certification)	d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No		

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number Town of Westerly, RI 445410		B2. County Name Washington		B3. State Rhode Island	
B4. Map/Panel Number 44009C0259	B5. Suffix J	B6. FIRM Index Date 07/28/1972	B7. FIRM Panel Effective/Revised Date October 16, 2013	B8. Flood Zone(s) Zone AE	B9. Base Flood Elevation(s) (Zone AO, use base flood depth) (EL 12') ___
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 (Describe) ___					
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					

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: **Previous FIRM 445410-0020-E, RM No. 7 (Converted NGVD1929 to NAVD 1988 (-0.95 FT))** Vertical Datum: **NGVD 1929**
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, crawl space, or enclosure floor) 4.6	<input checked="" type="checkbox"/> feet <input type="checkbox"/> meters
b) Top of the next higher floor 15.2	<input checked="" type="checkbox"/> feet <input type="checkbox"/> meters
c) Bottom of the lowest horizontal structural member (V Zones only) n/a	<input type="checkbox"/> feet <input type="checkbox"/> meters
d) Attached garage (top of slab) n/a	<input type="checkbox"/> feet <input type="checkbox"/> meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) 15.2	<input checked="" type="checkbox"/> feet <input type="checkbox"/> meters
f) Lowest adjacent (finished) grade next to building (LAG) 3.5	<input checked="" type="checkbox"/> feet <input type="checkbox"/> meters
g) Highest adjacent (finished) grade next to building (HAG) 3.8	<input checked="" type="checkbox"/> feet <input type="checkbox"/> meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support 4.1	<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.

Check here if comments are provided on back of form. Were latitude and longitude in Section A provided by a Check here if attachments. Licensed land surveyor? Yes No

Certifier's Name Joseph P. Toscano, Jr.		License Number RI PLS License No. 1765	
Title Professional Land Surveyor	Company Name ___		
Address 85 Beach Street	City Westerly	State RI	ZIP Code 02891
Signature <i>Joseph P. Toscano, Jr.</i>	Date 03/06/17	Telephone 401-596-2824	



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. 23 Breach Drive	Policy Number
City State ZIP Code Westerly, RI 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 **There was no observed mechanical equipment below BFE. There are a total of 7 flood vents of varying dimensions which totaled 1,180 square inches. The flood vents are by Flood Solutions, LLC and are certified engineered openings. Refer to the attached "Certification of Engineered Flood Openings". The flood vents installed were (1) 2412D; (1) 1616D; (1) 1608D; (4) 1412F**
 The elevation of the top of the concrete pier is 14.0
 End Comments.

Signature Joseph P. Luciano, Jr. Date 03/06/17 Check here if attachments

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, crawl space, or enclosure) is _____ feet meters above or below the HAG.
 b) Top of bottom floor (including basement, crawl space, 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 - G9. 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.-G9.) is provided for community floodplain management purposes.

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

See Instructions for Item A6.

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 23 Breach Drive			For Insurance Company Use: Policy Number
City Westerly	State Rhode Island	ZIP Code 02891	Company NAIC Number
<p>If using the Elevation Certificate to obtain NFIP flood insurance, affix at least two 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.</p>			

PHOTO 1: Taken 04/20/2016, From the street, looking at the "FRONT" house view.



PHOTO 2: Taken 04/20/2016, From the street, looking at the "LEFT SIDE and FRONT" house views.



Building Photographs

Continuation Page

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 23 Breach Drive			For Insurance Company Use: Policy Number
City Westerly	State Rhode Island	ZIP Code 02891	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.

PHOTO 3: Taken 04/20/2016 - View Of Right Side Of House



PHOTO 4: Taken 04/20/2016 - View Of Rear Side Of House



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 ($A^0 = 0.033 [1/C] RA^2$) to determine the Engineered Opening size for each model listed below. I used the following assumptions: A^0 = total net area of openings required (in²); 0.033 = coefficient corresponding to a factor of safety of 5.0 (in² hr/ft³); $c = 0.4$ 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 $A^e = 1$ 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.

$$A^0 / A^e = 0.033 [1/C] R = 0.033 [1/0.40 \text{ for rectangle, long axis horizontal}] R = 0.4125 \text{ in}^2 \text{ per ft}^2$$

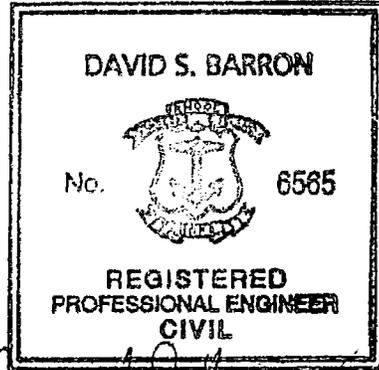
$$\text{or } A^0 / A^e = 0.033 [1/C] R = 0.033 [1 / 0.35 \text{ for square}] R = .4714 \text{ in}^2 \text{ per ft}^2$$

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 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. Where potential for excessive debris clogging may be a potential, the required openings shall be increased to account for the higher level of potential debris clogging.

NEW YORK	SIZE of WALL OPENING (WIDTH X HEIGHT)	Net Free Air (square inches)	ENGINEERED OPENING: (Sq. Inches) Each vent covers (Sq. Ft.)
1412-F	14-1/2" x 12"	67	145
1509-F	16" x 9-1/4"	55	129
1608-F	16" x 8"	52	125
1608-D	16" x 8"	50	121
1608-C	16" x 8"	46	111
1616-F	16" x 16"	104	221
1616-D	16" x 16"	100	212
2412-F	24" x 12"	108	261
2412-D	24" x 12"	110	267
2416-F	24" x 16"	149	344
2416-D	24" x 16"	155	358
3208-F	32" x 8"	101	244
3208-D	32" x 8"	103	249

SIGNATURE: David S Barron
 NAME: DAVID S. BARRON
 TYPE OF LICENSE: PROFESSIONAL ENGINEER
 STATE: RHODE ISLAND LICENSE NUMBER: 6565

SEAL:



David S. Barron, Professional Engineer
 11 Dartmouth Dr.
 Greensburg, PA 15601

David S Barron
 8-8-13

To be completed by installer: I HEREBY CERTIFY THE NUMBER/LOCATION/INSTALLATION OF FLOOD VENTS HAVE BEEN INSTALLED IN ACCORDANCE WITH INSTRUCTIONS LISTED ABOVE ON THE BUILDING LOCATED AT:

Address: _____

Installed by: (Print Name or Company Name) _____

Signature of Installer _____