

ELEVATION CERTIFICATE

Important: Read the instructions on pages 1-9.

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

App'd 6/18/15

SECTION A - PROPERTY INFORMATION		FOR INSURANCE COMPANY USE
A1. Building Owner's Name Donald J. Chapman		Policy Number:
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 142 Lighthouse Drive		Company NAIC Number:
City Waretown	State NJ	ZIP Code 08758-2015

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
 Tax Lot 10 Block 102, Ocean Township, Ocean County, NJ

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

A5. Latitude/Longitude: Lat. 39-48'-07.1" Long. 74-10'-54.2" 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)	<u>708</u> sq ft
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade	<u>2</u>
c) Total net area of flood openings in A8.b	<u>790</u> sq in
d) Engineered flood openings?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

A9. For a building with an attached garage:

a) Square footage of attached garage	<u>190</u> sq ft
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade	<u>2</u>
c) Total net area of flood openings in A9.b	<u>600</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 Ocean Township - 340518		B2. County Name Ocean		B3. State NJ	
B4. Map/Panel Number 34029C0416	B5. Suffix F	B6. FIRM Index Date 9/29/06	B7. FIRM Panel Effective/Revised Date 9/29/06	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use base flood depth) 6

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: GPS-Smartnet Vertical Datum: NAVD88

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>3.8</u>	<input checked="" type="checkbox"/> feet	<input type="checkbox"/> meters
b) Top of the next higher floor	<u>12.0</u>	<input checked="" type="checkbox"/> feet	<input type="checkbox"/> meters
c) Bottom of the lowest horizontal structural member (V Zones only)	<u>N/A</u>	<input type="checkbox"/> feet	<input type="checkbox"/> meters
d) Attached garage (top of slab)	<u>3.5</u>	<input checked="" 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)	<u>12.0</u>	<input checked="" type="checkbox"/> feet	<input type="checkbox"/> meters
f) Lowest adjacent (finished) grade next to building (LAG)	<u>2.9</u>	<input checked="" type="checkbox"/> feet	<input type="checkbox"/> meters
g) Highest adjacent (finished) grade next to building (HAG)	<u>3.4</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>3.0</u>	<input checked="" type="checkbox"/> feet	<input type="checkbox"/> meters

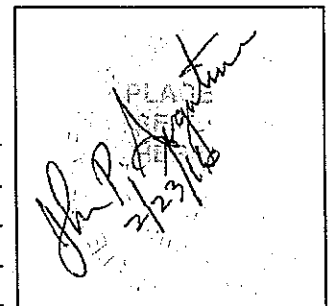
SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

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.

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

Check here if attachments.

Certifier's Name John P. Augustine	License Number 34838
Title Land Surveyor	Company Name Gravatt Consulting Group, Inc.-9761
Address 414 Lacey Road	City Forked River State NJ ZIP Code 08731
Signature <i>John P. Augustine</i>	Date 12/3/15 Rev. 2/23/16 Telephone 609-693-6126 ext.100



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. 142 Lighthouse Drive			Policy Number:
City Waretown	State NJ	ZIP Code 08758-2015	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 This certificate is certified to the owners in line A1 only and is non-transferrable. Property is located in preliminary flood zone AE, elev.=7, per preliminary map 34029C0416G, published 1/30/15 by FEMA, this is for informational purposes only & subject to verification by FEMA. Vents are engineered Vents Model No.1616CS (3 Typ.) and 816CS (1 Typ.) See attached certification. Utilities: W.Heater elev.=12.0 Elec.Meter elev.=8.7.

Signature *J.P. Signature*

Date 12/3/15 Rev.2/23/16

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
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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.

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.
142 Lighthouse Drive

Policy Number:

City Waretown

State NJ

ZIP Code 08758-2015

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.



FRONT VIEW



REAR VIEW

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.
142 Lighthouse Drive

Policy Number:

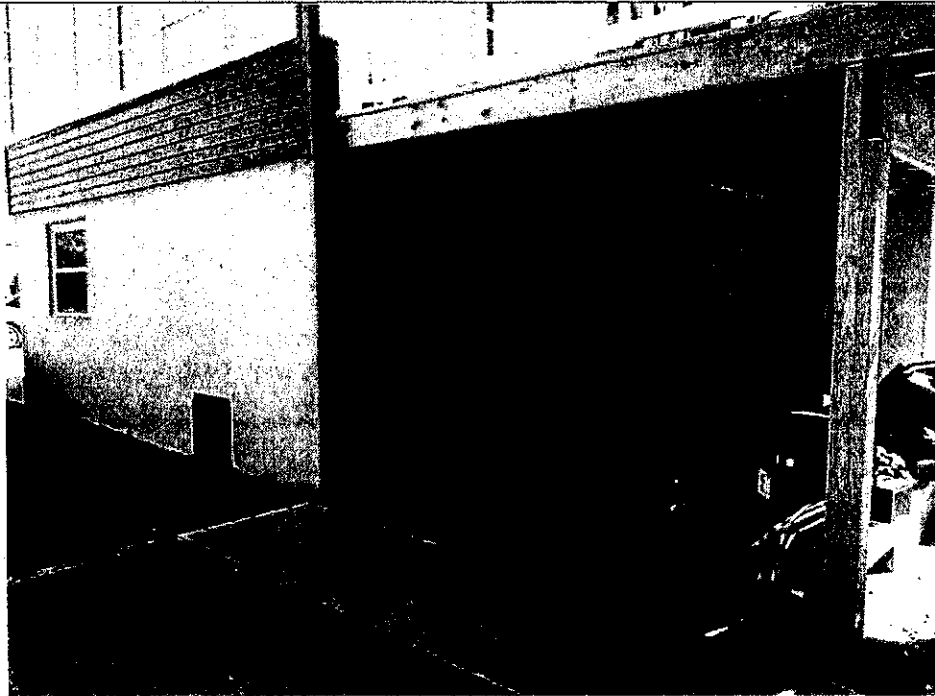
City Waretown

State NJ

ZIP Code 08758-2015

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.



RIGHT SIDE VIEW FROM REAR



LEFT SIDE VIEW FROM REAR

Certification of Engineered Flood Openings

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

I hereby certify that the Crawl Space Door Systems flood vents 816CS, 1220CS, 1232CS, 1616CS, 1624CS, 1632CS, 2032CS, 2424CS, and 2436CS are designed in accordance with the requirements of the NFIP "Flood Insurance Manual" (2011) to provide automatic equalization of hydrostatic flood forces by allowing for the entry and exit of floodwaters, when properly installed and sized as set forth below. This certification follows the design requirements and specifications established in FEMA Technical Bulletin 1-08, "Openings in Foundation Walls and Walls of Enclosures Below Elevated Buildings in Special Flood Hazard Areas", and the ASCE Standard for "Flood Resistant Design and Construction" (ASCE/SEI 24-05).

Design Characteristics

Section 2.6.2.2 of ASCE 24 provides an equation to determine the required net area of engineered openings (A_o) for a given enclosed area (A_e). This equation is based on the hydraulic formula for the flow rate across sharp edged orifices. I have utilized this equation to calculate 1) the respected flow rate through the individual openings between louvers; 2) the flow rate through the main frame opening in case the louver is blown out during a flood event; and 3) the flow rate of water flowing through louver blades following hydraulic short tube theory. The ultimate maximum total enclosed area (A_e) that can be serviced by a single vent has then been determined by utilizing the lowest flow rate of the three assessed scenarios for each vent and is listed in Table 1.

These values are based on the following assumptions:

- in absence of reliable data, the rates of rise and fall have been assumed with 5 feet/hour;
- The (maximum) difference between the exterior and interior floodwater levels has been assumed with 1 foot during base flood conditions;
- A factor of safety of 5 has been assumed, which is consistent with design practices related to protection of life and property;
- The net area of openings (A_o) as provided by the manufacturer.

*)	Model	H x W [in]	A_o [in ²]	A_e [ft ²]
<input checked="" type="checkbox"/>	816CS	8 x 16	105	205
<input type="checkbox"/>	1220CS	12 x 20	235	500
<input type="checkbox"/>	1232CS	12 x 32	305	645
<input checked="" type="checkbox"/>	1616CS	16 x 16	180	395
<input type="checkbox"/>	1624CS	16 x 24	310	670
<input type="checkbox"/>	1632CS	16 x 32	405	835
<input type="checkbox"/>	2032CS	20 x 32	630	1240
<input type="checkbox"/>	2424CS	24 x 24	570	1230
<input type="checkbox"/>	2436CS	24 x 36	850	1765

Installation Requirements and Limitations

This certification will be voided if the following installation requirements and limitations are not enforced:

- There shall be a minimum of two openings on different sides of each enclosed area;
- The bottom of each required opening shall be no more than 1ft above the adjacent ground level;
- No temporary (e.g. during cold weather) or permanent solid cover may be placed into or over the flood vent that would block the automatic entry or exit of floodwaters at any time;
- Where analysis indicates rates of rise and fall greater than 5 ft/hr, the total enclosed area as given in Table 1 shall be reduced accordingly to account for the higher rates of rise and fall.

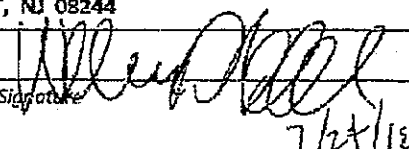
Table I Maximal total enclosed area (A_e) that can be served by each individual model based on the given net area of engineered openings (A_o)

Identification of the Building and Installed Flood Vents

The flood vent models marked in Table 1*) are being installed at the following building:

Building Address

Certifying Design Professional

Name	WILLIAM S. SWIDERSKI, P.E.	
Title	ENGINEER	
Address	599 SHORE ROAD, SOMERS POINT, NJ 08244	
Type of License	PROFESSIONAL ENGINEER	
License #	20482	Signature 
Issuing State	NEW JERSEY	

