

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 Michele & Christopher Hartney				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 209 North Wissahickon Avenue				Company NAIC Number:	
City Ventnor		State New Jersey		ZIP Code 08406	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Block 231 Lot 2					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>39°20'21.7"</u> Long. <u>74°29'23.5"</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>8</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>835.00</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>6</u>					
c) Total net area of flood openings in A8.b <u>1230.00</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>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Ventnor City - 345326			B2. County Name Atlantic County		B3. State New Jersey
B4. Map/Panel Number 345326 0001	B5. Suffix B	B6. FIRM Index Date 06-18-1971	B7. FIRM Panel Effective/ Revised Date 09-15-1983	B8. Flood Zone(s) A8	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 10'
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 checked="" type="checkbox"/> NGVD 1929 <input 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

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
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City: Ventnor	State New Jersey	ZIP Code 08406	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: 5.17' (Corpscon 6.0.1) Vertical Datum: NGVD29

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>6.67</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>13.43</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>N/A</u> | <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) | <u>13.43</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>5.95</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>6.50</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>6.16</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 Marc J. Cifone	License Number 24GS04132900	
Title President	Place Seal Here	
Company Name Lakeland Surveying, Inc.		
Address 117 Hibernia Avenue		
City: Rockaway		State New Jersey

Signature  Date 04-03-2018 Telephone (973) 625-5670 Ext.

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)
Atlantic County, NJ - Preliminary Work Map No. 34001C0453F dated May 30, 2014 - Zone AE / BFE 9' (NAVD88) = 10.23' (NGVD29)
Crawlspace Door Systems: Model 816CS (205 s.f. each)
C2. e) Water Heater
Ductwork in attic
Elec. Meter elev. 12.80
UPDATED AND NEW PICTURES 01-03-2019 - REVISED 01/18/2019

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**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 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 _____ 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.

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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 <i>Dino Cavalieri</i>	Title <i>C.F.M.</i>
Community Name <i>Ventnor</i>	Telephone <i>609 823-7987</i>
Signature <i>[Signature]</i>	Date <i>1-31-19</i>

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

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

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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 FRONT LEFT - JANUARY 3, 2019

Clear Photo One



Photo Two

Photo Two Caption REAR LEFT - JANUARY 3, 2019

Clear Photo Two

BUILDING PHOTOGRAPHS

ELEVATION CERTIFICATE

Continuation Page

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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 Three

Photo Three Caption FRONT RIGHT - JANUARY 3, 2019

Clear Photo Three



Photo Four

Photo Four Caption REAR RIGHT - JANUARY 3, 2019

Clear Photo Four

Certification of Engineered Flood Openings

In accordance with the Code of Federal Regulations for the National Flood Insurance Program

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 Code of Federal Regulations for the National Flood Insurance Program (NFIP) 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. Vent opening measurements were measured and certified by Mr. Christopher Mark Loney, Virginia P.E. NO. 029000. Detailed calculations were prepared as outlined in "Review of certification of Engineered Flood Openings," prepared by Dr. Georg Reichard, Associate Professor of Building Construction, Virginia Tech (available upon request from Crawl Space Door Systems, Inc. billy@crawlspacedoors.com)

Design Characteristics

Section 2.6.2.2 of ASCE/SEI 24-05 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 restricted flow rate through the main frame opening in case the louver is blown out during a flood event; 2) the flow rate through the individual openings between louver blades; and 3) the flow rate through projected openings between louver blades following hydraulic short-tube theory. The 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 at a minimum rate of 5 feet/hour;
- The (maximum) difference between the exterior and interior floodwater levels shall not exceed 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 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 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

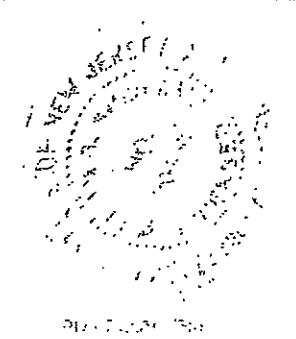
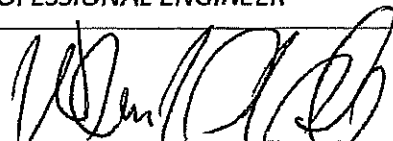
Table 1 Maximum total enclosed area (A_e) that can be serviced by each individual model based on the given net area of engineered openings (A_o)

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 subject to flooding;
- The bottom of all openings shall be no higher than one foot above the higher of the interior or exterior grade that is immediately under each opening;
- 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 data or analyses indicate more rapid rates of rise and fall, the required number of openings shall be increased to account for those different conditions. The number or size of the openings may be decreased if data or analyses indicate rates of rise and fall are less than 5 feet per hour.

Certifying Design Professional

Name WILLIAM S. SWIDERSKI, P.E.	Title ENGINEER	
Company SWIDERSKI ASSOCIATES		
Address 599 SHORE ROAD SOMERS POINT, NJ		
License PROFESSIONAL ENGINEER	License No. 24GE02048200	
Signature: 	Date: 11-10-17	

Identification of the Building and Installed Flood Vents (By Others)

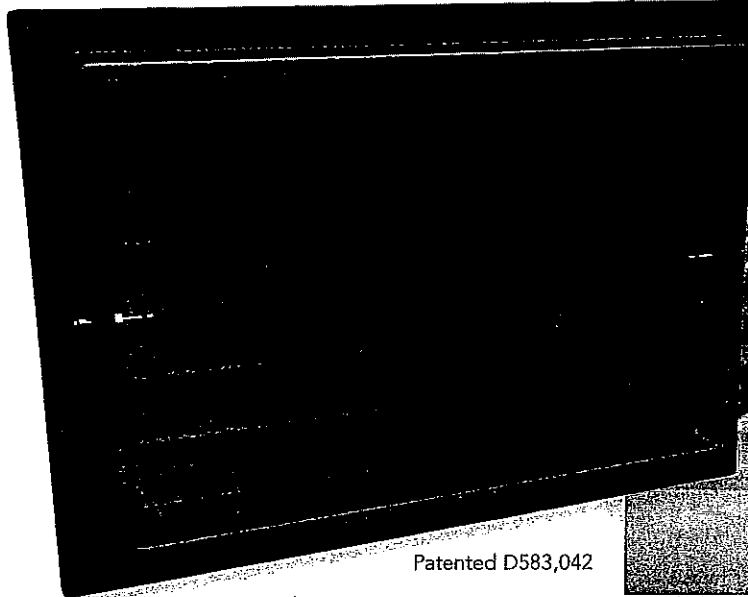
The flood vent models marked in Table 1*) are being installed at the following building:

Building Address

209 N WISS

FEMA COMPLIANT FLOOD VENT

8" X 16" ENGINEERED FLOOD VENT



Patented D583,042



VENT:

105 Square Inches "Net Open Area"

VENT COVERAGE:

205 Square Feet "Enclosed Area"

FEMA: TECHNICAL BULLETIN – AUGUST 2008 (Page 24) Non-Engineered Openings

Engineered Openings

Openings that are designed and certified by a registered design professional as meeting the performance required by the regulations are called "engineered openings." This section describes certification and documentation requirements for engineered openings and the specific design requirements.

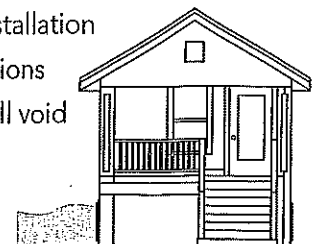
Engineered openings with individual certification

For architectural or other reasons, building designers or owners may prefer to use unique or individually designed openings or devices. In these cases, a registered design professional must submit a certification. As a general rule, States require a designer to be licensed to practice in the State in which building is located.

The original certification of the engineered openings must include the design professional's name, title, address, signature, type of license, license number, the State in which

the license was issued, and the signature and applied seal of the certifying registered design professional. The certification shall identify the building in which the engineered openings will be installed. The language of the certification shall address the following:

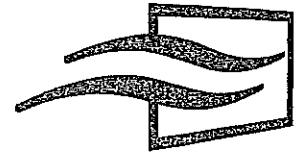
- A statement certifying that the openings are designed to automatically equalize hydrostatic flood loads on exterior walls by allowing the automatic entry and exit of floodwaters in accordance with the Engineered openings, design requirements on page 26,
- Description of the range of flood characteristics tested or computed for which the certification is valid, such as rates of rise and fall of floodwaters, and
- Description of the installation requirements or limitations that, if not followed, will void the certification.



Flood Protection

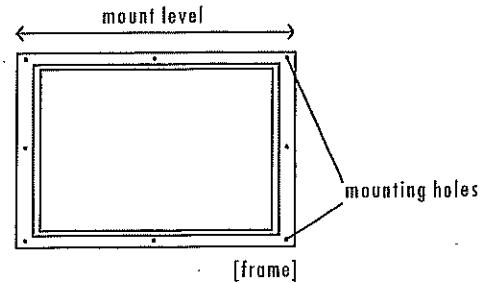
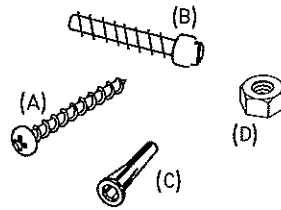
Flood Vent

quick+easy Installation Guide



**Crawl Space
Door Systems**
INCORPORATED

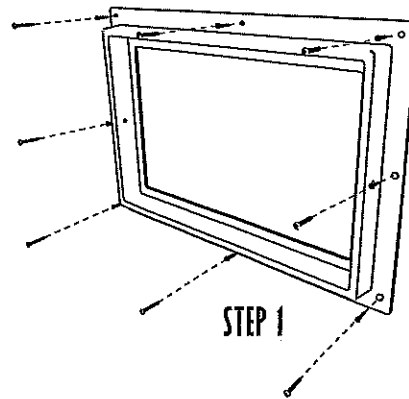
WHAT YOU'LL NEED:	
•POWER DRILL	
•1/4" MASONRY BIT	
•PHILIPS HEAD SCREWDRIVER	
•HAMMER	
•LEVEL	



INCLUDED IN THE KIT:			
A	SCREWS	D	NUTS
B	THREADED NYLON PINS	E	FRAME
C	ANCHORS	F	LOUVER

STEP 1. FRAME INSTALLATION

- BALANCE frame (E) centered over crawlspace opening. With frame (E) in place, drill top center hole.
- INSERT anchor (C) into hole in wall.
- SECURE top center screw (A).
- LEVEL frame (E). With frame (E) held in place, drill remaining holes.
- INSERT remaining anchors (C) into wall.
- SECURE all screws (A).



STEP 2. LOUVER INSTALLATION

- PLACE louver (F) inside the frame (E).
- SECURE on sides with threaded nylon pins (B) and nuts (D).

