

ELEVATION CERTIFICATE

Important: Read the instructions on pages 1-9.

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

PERMIT 12-1104

POOL # 12-1105 FENCE 13'

SECTION A - PROPERTY INFORMATION

FOR INSURANCE COMPANY USE

A1. Building Owner's Name MICHAEL E. AND TAMRA C. LUDWIG

Policy Number:

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
 1810 CANBY COURT

Company NAIC Number:

City MARCO ISLAND State FL ZIP Code 34145

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
 LOT 8, BLOCK 63, MARCO BEACH UNIT TWO

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

A5. Latitude/Longitude: Lat. 25° 56' 28.5"N Long. 81° 41' 52.8"W

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 1-B

A8. For a building with a crawlspace or enclosure(s):

- a) Square footage of crawlspace or enclosure(s) N/A sq ft
- b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade N/A
- c) Total net area of flood openings in A8.b N/A sq in
- d) Engineered flood openings? Yes No

A9. For a building with an attached garage:

- a) Square footage of attached garage 781 sq ft
- b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade 3
- c) Total net area of flood openings in A9.b 789 sq in
- d) Engineered flood openings? Yes No

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number CITY OF MARCO ISLAND 120426		B2. County Name COLLIER		B3. State FLORIDA	
B4. Map/Panel Number 12021 C 0829	B5. Suffix H	B6. FIRM Index Date 5/16/2012	B7. FIRM Panel Effective/Revised Date 5/16/2012	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use base flood depth) 7.0'

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: SITE Vertical Datum: NAVD 88

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) 8.7 feet meters
- b) Top of the next higher floor N/A feet meters
- c) Bottom of the lowest horizontal structural member (V Zones only) N/A feet meters
- d) Attached garage (top of slab) 6.9 feet meters
- e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) 8.7 feet meters
- f) Lowest adjacent (finished) grade next to building (LAG) 6.3 feet meters
- g) Highest adjacent (finished) grade next to building (HAG) 7.1 feet meters
- h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support N/A 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. Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No
- Check here if attachments.

Certifier's Name ANTONIO TRIGO (12.0036)	License Number PLS 2982
Title LAND SURVEYOR	Company Name A. TRIGO & ASSOCIATES, INC.
Address 2223 TRADE CENTER WAY	City NAPLES State FL ZIP Code 34109
Signature	Date 7/9/2013 Telephone 239-594-8448

A. TRIGO
PLS No. 2982



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. 1810 CANBY COURT	Policy Number:
City NAPLES State FL ZIP Code 34145	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 A9 d= ONE MODEL 1616-D, ONE MODEL 1616-F AND ONE MODEL 2416-D FROM FLOOD SOLUTIONS C2 a= THIS HOUSE WAS PERMITTED AT ELEVATION 10.0 NGVD29, (8.7 NAVD88) AS REQUIRED BY THE CITY OF MARCO. C2 e = A/C PAD

Signature _____ Date 7/9/2013

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 CHRISTOPHER SPARACINO, CFM	Title PLANNER
Community Name _____	Telephone _____
Signature C. Sparacino	Date 7/23/13
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.
1810 CANBY COURT

Policy Number:

City MARCO ISLAND

State FL

ZIP Code 34145

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 7/9/2013



REAR VIEW 7/9/2013

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 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 = 0.40 open 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 $A^e = 1 \text{ ft}^2$ 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.

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

$$\text{or } A^0 / A^e = 0.033 [1/C] R = 0.033 [1 / 0.35 \text{ for square}] = .4719 \text{ in}^2 \text{ per ft}^2$$

Each individual opening, and any louvers, screens, or other covers, shall be designed to allow automatic entry and exit of floodwaters during design flood 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 of OPENING: (WIDTH X HEIGHT)	Net Free Air (square inches):	ENGINEERED OPENING Each vent covers: (square ft.)
1412-F	14-1/2" x 12"	67	145
1509-F	16" x 9-1/2"	55	131
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: _____

NAME : DANIEL G. FARABAUGH

TYPE OF LICENSE: PROFESSIONAL ENGINEER

STATE: FLORIDA LICENSE NUMBER: 48349

DAN FARABAUGH, P.E.
 FARABAUGH ENGINEERING AND TESTING, INC.
 401 WIDE DR., MCKEESPORT, PA 15135
 PHONE: 412-751-4001 FAX: 412-751-4003



