Phone: (843) 915-5090 **Horry County Code Enforcement** (843) 205-5090 1301 2nd Ave Suite 1D09 Fax: (843) 915-6090 Conway, SC 29526

MEMO OF REVIEW FOR CORRECTNESS AND COMPLETION

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In accordance with this community's participation in the National Flood Insurance Program's Community Rating System, all FEMA Elevation Certificates must be correct and complete. The attached Certificate has some incorrect items which are noted here.

·			Δ	SECTION A - PI	ROPERTY INFORM	ATION	For Insurance Company U
A1. Building Ov	vner s Nome	(node	ich	A			Policy Number
A2. Building Str	eet/Address	(including Apt., Ur	Suite, and or Bldg	No.) or P.O. Route	and Box No.		Company NAIC Number
City M	State	CZIP COLE	the S	6			
A3. Property De	scription (Lo	t and Block Numb	ers Tax Parcel Numb	ber, Legal Description	n, etc.)		u
	2	<u> </u>	000107				
•	•		ential, Addition, Acce	essory, etc.)		Horizontal Datum:	🔲 NAD 1927 🗌 NAE
A5. Latitude/Lor A6. Attach at lea			 g if the Certificate is i	being used to obtain	flood insurance.		
A7. Building Dia	igram Numb					uilding with an attache	d garage provide: What
a) Square (footage of cr	awl space or enclos	sure(s)	sq ft	a) Squ	are footage of attache	d garage
		ood openings in the ithin 1.0 foot above				of permanent flood o is within 1.0 foot above	penings in the attached garage
	enings in A9.b						
c) Total net area of flood openings in A8.bsq inc) Total net area of flood opd) Engineered flood openings?YesNod) Engineered flood opening							s? Yes DONO
SECTION B - FLO	ood insur	ANCE RATE MAP	(FIRM) INFORMATI	ION			
B1. NFIP Comm	unity Name	& Community Nun	ıber	B2. County Name			B3. State
B4. Map/Panel	Number	B5. Suffix	B6. FIRM Index Date		RM Panel Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(use base flood de
B10. Indicate the se	ource of the	Base Flood Elevation	on (BFE) data or base	e flood depth entered	in Item B9.	J	
🔲 FIS Pi			Community Detern		Other (Describe)		
B12. Is the building		used for BFE in Iter a Coastal Barrier Re	_	GVD 1929 18 RS) area or Otherwis		Other/Source: OPA)?	
Designation D	Date			CBRS	🗌 OPA		
SECTION C - BU	ILDING ELE	VATION INFORM	ATION (SURVEY RE				
C1. Building elevat Finished Construction		ed on:	Construction Draw	ings*	Building Under Co	onstruction*	
*A new Elevat	ion Certifica			the building is comp		A1 A20 AD/ALL AD	40
			building diagram sp		AR/A, AR/AE, AR/	A1-A30, AR/AH, AR	TAU.
Benchmark Ut	ilized			Vertical Datum			
Indicate eleva	tion datum	used for the eleva	ations in items a) th	rough h) below.			
Other/Source:		_]	
CONANAENITE							
COMMENTS:							
			· · · · · · · · · · · · · · · · · · ·				

All elevation certificates shall be maintained by the community and copies with the attached memo made available upon request.

Date of Review:

Community Official:

U.S. DEPARTMENT OF HOM FEDERAL EMERGENCY MAN National Flood Insurance Pro	AGEMENT AGEN			ERTIFICATI		FP 164637 OMB No. 1660-0008 Expiration Date: July 31, 201
		SEC	TION A - PR	OPERTY INFORM		FOR INSURANCE COMPANY L
A1. Building Owner's Na	THE RONALD H.	AND ANNA T. GOO	DORICH			Policy Number:
A2. Building Street Addre	iss (including Apt	., Unit, Suite, and/or	Bidg. No.) or F	O. Route and Box N	lo.	Company NAIC Number:
230 LANDS END BLVD. City MYRTLE BEAC	HSC	<u> </u>	State	SC ZIP Code 2	29572	· · · · · · · · · · · · · · · · · · ·
A3. Property Description		umbers, Tax Parcel I	Number, Legal	Description etc.)		Otto
LOT 3, PHASE 4-B LAND	S END BOULEV	ARD T.M.S. # 155-	00-01-137		<u> </u>	hariba
 A4. Building Use (e.g., R A5. Latitude/Longitude: L A6. Attach at least 2 phoio A7. Building Diagram Nu A8. For a building with a a) Square footage o 	at <u>33-45-34</u> Los tographs of the bi mber <u>6</u> crawispace or en f crawispace or e	ng. <u>78-45-57</u> Hc uilding if the Certifice closure(s): nclosure(s)	erizontal Datum le is being use <u>1284</u> sq.fi	: 🗋 NAD 1927 🔯 d to obtain flood insu A9, For a i a) So	rance. building with an alta juare footage of atta	
 b) Number of perma or enclosure(s) w 		igs in the crawispace /e adjacent grade	2	wit	thin 1.0 foot above a	adjacent grade
 c) Total net area of d) Engineered flood 		A8.b ⊠Yes ⊡ No	<u>1845</u> ⁄sq ii		tal net area of flood igineered flood ope	
			INSURANC	E RATE MAP (FIR		
			B2. County N		<u></u>	B3. State
B1. NFIP Community Nan HORRY CO.	450104		HORRY			SC
B4. Map/Panel Number 45051C0569	B5. Suffix H	B6. FIRM Index (9-17-03		7. FIRM Panel tive/Revised Date 8-23-99	B8. Flood Zone(s) AE	B9 Base Flood Elevation(s) (AO, use base flood depth 15
B12. Is the building locate Designation Date:	·					
						S Finished Construction
C1 Building elevations are						
C1. Building elevations are "A new Elevation Certi	ficate will be requ	ired when constructi	ion of the build	ng is complete.		
*A new Elevation Certi C2. Elevations – Zones A1 below according to the	-A30, AE, AH, A building ciagram	(with BFE), VE, V1-	ion of the build -V30, V (with 8 '. In Puerto R:c	FE), AR, AR/A, AR/A o only, enter meters.	E, AR/A1-A30, AR	/AH, AR/AO. Complete Items C2.a
*A new Elevation Certi C2. Elevations – Zones A1 below according to the Benchmark Utilized: 5	-A30, AE, AH, A building ciagram 435-B	(with BFE), VE, V1- specified in Item A7	ion of the build V30, V (with 8 /. In Puerto Ric Vertical Da	FE), AR, AR/A, AR/A o only, enter meters. tum: <u>NGVD 29</u>		
*A new Elevation Certi C2. Elevations – Zones A1 below according to the	-A30, AE, AH, A stuilding ciagram 435-B im used for the el	(with BFE), VE, V1- a specified in Item A7 evations in items a) i	ion of the build V30, V (with 8 /. In Puerto R:c Vertical Da through h) beic	FE), AR, AR/A, AR/A o only, enter meters. tum: <u>NGVD 29</u> w. 🖾 NGVD 1929 [⊐ NAVD 1988 ⊡ C	Dther/Source:
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*A new Elevation Certi C2. Elevations – Zones A1 below according to the Benchmark Utilized. 5 Indicate elevation data Datum used for buildin a) Top of bottom floor b) Top of the next high	-A30, AE, AH, A building ciagram <u>435-8</u> im used for the el ig elevations mus (including baseminer floor	(with BFE), VE, V1- specified in Item A7 evations in items a) i t be the same as tha ent, crawlspace, or e	ion of the build V30, V (with 8 7. In Puerto R:c Vertical Da through h) beic it used for the l inclosure floor)	FE), AR, AR/A, AR/A o only, enter meters. turn: <u>NGVD 29</u> w. ⊠ NGVD 1929 [3FE. <u>11.2</u> <u>22 §</u>	□ NAVD 1988 □ 0 Checi 2	Other/Source: k the measurement used. ⊠ feet ☐ meters ⊠ feet ☐ meters
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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 <u>net area</u> of engineered openings (A_o) for a given <u>enclosed</u> area (A,). This equation is based on the hydraulic formula for the flow rate across sharp boged 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 fail 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_{a}) as provided by the manufacturer.

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;
- [in] (in²) 816CS 8 x 16 105 205 122005 12 x 20 235 500 1232CS 12 x 32 305 645 16 × 16 1616C5 180 395 1524CS 16×24 310 670 1632CS 15 x 32 405 835 2032CS 20 x 32 630 1240 2424CS 24 x 24 570 1230 2436CS 24 x 36 850 1765

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Model

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Table 1 Maximal total enclosed area (A_e) that can be served by each individual model based on the given net area of engineered open hgs (A_o)

- 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.

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 D	esign Professional	Man About	
Nome	Frederick Allen House	HOUSE H	
Tit/e	President-House Engineering P.C	c. ENDIRICCHING, ENDIRICCHING, ED	NUMER THE CAROL
Address	P O Box 456, Kitty Hawk, NC 279	STAL IN ARCH IN ST	Manual No. 26541
Type of License	Professional Engineer	FOFAUT	No. 25541
License #	26841	Signature 11011 -1-	
issuing State	South Carolina	THAT HOW 1/23/10	Anna CK A minim
Charles DOT 7	· · · · · · · · · · · · · · · · · · ·		J