

Plastic – No Rust or Rot Crawlspace Flood Vent for Homes (New Construction & Replacement)

Easy Access • Modular Use • Can Be Painted

Model Number	Opening Sizes (HxW)	Non Eng. (Sq. In.)	Eng. (Sq. In.)	Net-Free Air (Sq. In.)
FV0816	8" X 16"	128	230	95
FV1220	12" X 20"	240	424	175
FV1232	12" X 32"	384	703	290
FV1616	16" X 16"	256	424	200
FV1624	16" X 24"	384	691	285
FV1632	16" X 32"	512	933	385
FV2032	20" X 32"	640	1,224	505
FV2424	24" X 24"	576	923	435
FV2436	24" X 36"	864	1,612	665

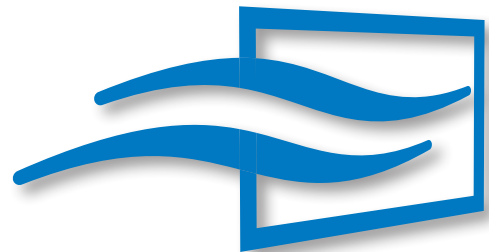


Flood Vent (No Cover)

One-piece ventplate with easy to insert vermin screen and fixed louver. Made of durable PVC/ABS plastic (no rust or rot) with a UV retardant treatment.

FEMA compliant. No cover to allow the automatic entry and exit of floodwaters.

Quick and easy to install.



**Crawl Space
Door Systems**
INCORPORATED

*Plastic Crawlspace Doors & Vents
Plastic Crawlspace Louvers/Screens
Plastic FEMA Flood Vents*

3700 Shore Drive, Virginia Beach, VA 23455
757.363.0005 • 1.800.230.9598 • www.crawlspacedoors.com

Certification of Engineered Flood Openings (TB 1 – August 2008)

I do hereby certify that the CRAWLSPACE FEMA FLOOD LOUVER, Patent No. US D583,042, dated December 16, 2008 and owned by Crawl Space Door Systems, Inc. properly installed and sized in accordance with Federal Emergency Management Agency's National Flood Program regulations (44 CFR 60.3(c)(5)) and National Flood Insurance Program, Technical Bulletin (TB) 1-August 2008 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 the Flood Louvers. The results of the calculations are recorded in the table below. The Engineered size opening calculation was performed by using the formula in TB 1 – August 2008, Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program and ASCE/SEI 24-05, Flood Resistance Design and Construction. I measured the size of each flood louver and the size of all obstructions to determine the Non-Engineered and Net-Free Air opening size for each model. I used the formula ($A^o = 0.033 [1/C] RA^e$) in TB 1 – Aug 2008 to determine the Engineered opening size for each model. I used the following assumptions: A^o = 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 opening coefficient (ASCE 24 Table 2-2 "rectangular, long axis horizontal, short axis vertical unobstructed during design flood", c = 0.35 opening coefficient square; there is an unobstructed rectangular shape between the louvers); R = 5 ft/hr worst case rate of rise and fall; and A^e = total enclosed area.

$$A^o/A^e = 0.033[1/C]R = 0.033[1/0.40]5 = 0.4125 \text{ in}^2 \text{ per ft}^2 \text{ enclosed area}$$

Example: $D0816 = 95 \text{ in}^2 / 0.4125 \text{ in}^2 \text{ per ft}^2 = 230 \text{ ft}^2$

Model #	Size (HXW)	Non-Engineered (Sq. Inches)	Net-Free Air (Sq. Inches)	Engineered (Sq. Inches)
D0816	8" x 16"	128	95	230
D1220	12" x 20"	240	175	424
D1232	12" x 32"	384	290	703
D1616	16" x 16"	256	200	424
D1624	16" x 24"	384	285	691
D1632	16" x 32"	512	385	933
D2032	20" x 32"	640	505	1,224
D2424	24" x 24"	576	435	923
D2436	24" x 36"	864	665	1,612

Installation Limitations and Instructions

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 ground level; 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 minimum rate of rise and fall of 5 ft/h; where data or analysis indicates more rapid rates of rise and fall, the total net area of the required opening shall be increased to account for the higher rates of rise and fall.

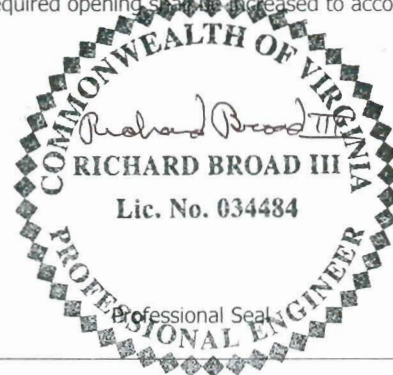
Name: Richard Broad, III

Company: Richard Broad, III, P.E.

Address: 13445 Shiloh Drive, Windsor, VA 23487

License: Professional Engineer; Virginia; No. 034484

Signature: Richard Broad III Date: 5/25/2011



Contractor's Installation Certificate Crawl Space Door Systems' FLOOD VENT

This certification must be submitted to, and kept on file by, the local jurisdictions' permit authority. A copy should be retained by the owner to demonstrate compliance in order to receive the best flood insurance rating.

Crawl Space Door Systems' FLOOD VENT™ is certified when properly installed and sized in accordance with Federal Emergency Management Agency's National Flood Program regulations (44 CFR 60.3(c)(5)) and National Flood Insurance Program's Technical Bulletin 1 - 2008. For a copy of the Certification of Engineered Flood Openings (TB 1 – August 2008) and additional information please visit www.crawlspacedoors.com.

do hereby certify that the Crawl Space Door Systems' FLOOD VENT™ was installed in accordance the manufacturers instructions, and the National Flood Program Regulations.

_____ Signature and Title of Contractor Date: _____	_____ Type of License and Number
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Project Name _____
 Address _____

Contractor's Check List:

Installed:	Number:	Model #	Size (HXW)	Sq. Inch Rating (each)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

1. Each enclosed area has a minimum of two flood openings, installed on different sides of the enclosed area; if there are multiple enclosed areas, each area has openings in its exterior walls.
2. The bottom of each opening is no more than 1 foot above the higher of the interior or exterior grade immediately under the opening.
3. Installation complies with the manufactures instructions.
4. The flood vents are not equipped with detachable solid covers that can be installed to stop the automatic entry and exit of floodwaters.
5. The screen and fixed louver does not block or impede the automatic flow of floodwaters into and out of the enclosed area. Insect screens do not impede the entry and exist of floodwaters and are allowed per TB – 1 (2008), the last paragraph on page 20.

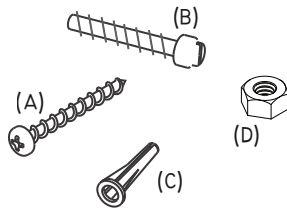
*** Fill in the Information Above and submit to appropriate community code office.

Flood Vent

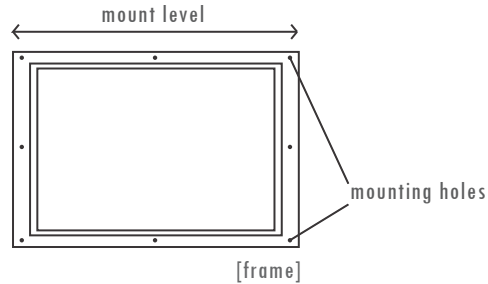
quick+easy Installation Guide



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

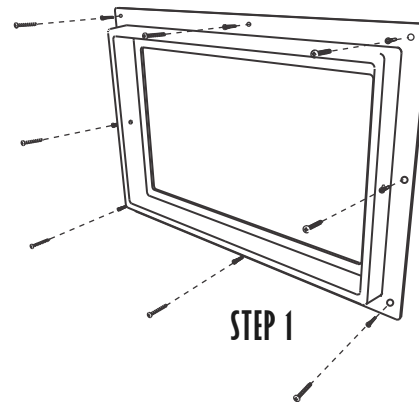


INCLUDED IN THE KIT:		
A	SCREWS	D NUTS
B	THREADED NYLON PINS	E FRAME
C	ANCHORS	F LOUVER



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).

