

ICC-ES Evaluation Report

ESR-3851

Reissued September 2024


This report also contains:

- CBC Supplement
- FBC Supplement

Subject to renewal September 2025

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<p>DIVISION: 08 00 00 - OPENINGS</p> <p>Section: 08 95 43— Vents/Foundation Flood Vents</p>	<p>REPORT HOLDER:</p> <p>CRAWL SPACE DOOR SYSTEMS, INC.</p>	<p>EVALUATION SUBJECT:</p> <p>CRAWL SPACE DOOR SYSTEMS FLOOD VENT MODEL #CSBA816</p> <p>CRAWL SPACE STACKED MODELS:</p> <p>#ICCSTACKED2;</p> <p>#ICCSTACKED4</p> <p>FLOOD VENT INSULATED KIT</p> <p>#ICCINSULATED</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018 and 2015 [International Building Code® \(IBC\)](#)
- 2021, 2018 and 2015 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Physical operation
- Water flow
- Weathering

2.0 USES

Crawl Space Door Systems flood vents are used to provide for the equalization of hydrostatic flood forces on exterior walls.

3.0 DESCRIPTIONS

3.1 General:

Crawl Space Door Systems flood vents are engineered mechanically operated flood vents. Upon contact with flood water, the flood vents automatically open and allow flood water to enter and exit enclosed areas. The vents are constructed of general purpose ABS SP-9010 plastic. The Crawl Space Flood Vent Model #CSBA816 has a faux louver with either a solid plastic plate or wire mesh attached to the back of the louver. The louver is dislodged from the vent upon contact with flood waters. See [Figure 1](#) for an illustration of the flood vent Model #CSBA816.

The Flood Vent Insulated Kit Model #ICCINSULATED is constructed of general purpose ABS SP-9010 plastic. The vent frame opening is filled with a 2-inch thick (51 mm) extruded polystyrene Styrofoam™ Brand Scoreboard Foam Insulation Board (ESR-2142). The insulation board is dislodged from the vent upon contact with flood waters, allowing flood waters to enter and exit enclosed areas. See [Figure 2](#) for an illustration of the Flood Vent Insulated Kit Model #ICCINSULATED.

The Crawl Space Stacked Model #ICCSTACKED2 contains two vertically arranged Crawl Space Flood Vents (Model #CSBA816) in one assembly. The Crawl Space Stacked Model #ICCSTACKED4 contains four Crawl Space Flood Vents (Model #CSBA816) in one assembly, with two sets of side by side flood vents vertically arranged.

3.2 Engineered Opening:

The Crawl Space Door Systems static flood vents comply with the design principle noted in Section 2.7.2.2 of ASCE/SEI 24 for a rate of rise and fall of 5 feet per hour (0.423 mm/s). In order to comply with the engineered opening requirement of ASCE/SEI 24-14, the flood vents must be installed in accordance with Section 4.0 of this report.

3.3 Ventilation:

The Crawl Space Flood Vent Model #CSBA816 and Crawl Space Stacked Models #ICCSTACKED2 and #ICCSTACKED4 are available covered with metal wire mesh with 0.108 inch by 0.108 inch (2.74 mm by 2.74 mm) openings. The mesh is covered by a faux louver with $1^{11}/_{16}$ inch (17.5 mm) vertical clearance between each blade. The Crawl Space Flood Vent Model #CSBA816 provides 11 square inches (7097 mm²) of net free area to supply natural ventilation when equipped with wire mesh. The Crawl Space Stacked Models #ICCSTACKED2 and #ICCSTACKED4 supply 22 square inches (14,194 mm²) and 44 square inches (28,388 mm²), respectively, of net free area to supply natural ventilation when equipped with wire mesh. The Crawl Space Flood Vent Model #CSBA816 covered with a solid plastic plate, Crawl Space Stacked Models #ICCSTACKED2 and #ICCSTACKED4 covered with a solid plastic plate, and the Flood Vent Insulated Kit Model #ICCINSULATED do not offer natural ventilation.

4.0 DESIGN AND INSTALLATION

The Crawl Space Door Systems flood vents are designed to be installed into walls or doors of existing or new construction from the exterior side. Installation of the vents must be in accordance with the manufacturer's instructions, the applicable code and this report. In order to comply with the engineered opening design principle noted in Sections 2.7.2.2 and 2.7.3 of ASCE/SEI 24-14, the vent must be installed as follows:

- With a minimum of two openings; one on different sides of each enclosed area.
- With a minimum of one vent for the square footage of enclosed area noted in [Table 1](#).
- Below the base flood elevation.
- With the bottom of the vent located a maximum of 12 inches (305 mm) above grade.

5.0 CONDITIONS OF USE

The Crawl Space Door Systems flood vents described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The Crawl Space Door Systems flood vents must be installed in accordance with this report, the applicable code and the manufacturer's published installation instructions. In the event of a conflict, the instructions in this report govern.
- 5.2 The Crawl Space Door Systems flood vents must not be used in the place of "breakaway walls" in coastal high hazard areas but are permitted for use in conjunction with breakaway walls in other areas.
- 5.3 The Crawl Space Door Systems flood vents are manufactured under a quality control system with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Mechanically Operated Flood Vents \(AC364\)](#), dated August 2015 (Editorially revised April 2021).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3851) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, The Crawl Space Door Systems flood vents recognized in this report must be identified by a label bearing the manufacturer's name (Crawl Space Door Systems) and the model number.

7.3 The report holder’s contact information is the following:

CRAWL SPACE DOOR SYSTEMS, INC.
3669 SEA GULL BLUFF DRIVE
VIRGINIA BEACH, VIRGINIA 23455
(757) 363-0005
www.crawlspacedoors.com

TABLE 1—CRAWL SPACE DOOR SYSTEMS FLOOD VENTS

MODEL	OVERALL VENT SIZE (Width x Height x Depth) (in)	ROUGH OPENING SIZE (Width x Height) (in)	ENCLOSED AREA COVERAGE ¹ (ft ²)
CSBA816	18 ¹ / ₄ x 10 ¹ / ₂ x 1 ³ / ₄	16 x 8 ¹ / ₄	305
ICCINSULATED	18 ¹ / ₄ x 10 ¹ / ₂ x 1 ³ / ₄	15 ³ / ₄ x 8	300
ICCSTACKED2	30 x 30 x 2 ³ / ₄	24 x 24	610
ICCSTACKED4	40 ¹ / ₂ x 24 ³ / ₄ x 2 ³ / ₄	35 ¹ / ₄ x 19 ¹ / ₂	1,220

For SI: 1 inch = 25.4 mm; 1ft² = 0.093 m²

¹The enclosed coverage area in square feet for each model is equivalent to the performance of the same number of square inches of non-engineered openings.

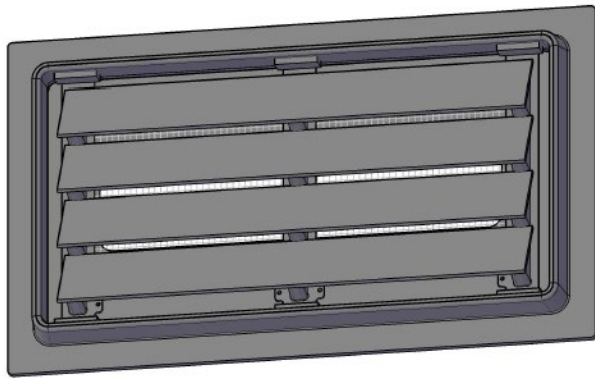


FIGURE 1—CRAWL SPACE DOOR SYSTEMS FLOOD VENT

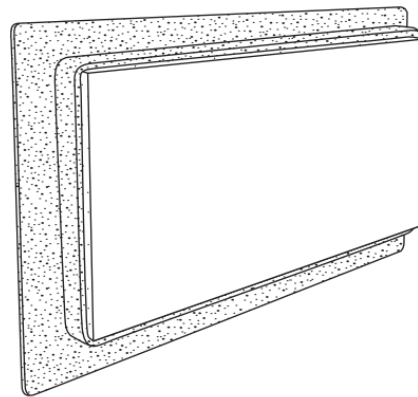


FIGURE 2—FLOOD VENT INSULATED KIT

DIVISION: 08 00 00—OPENINGS

Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

CRAWL SPACE DOOR SYSTEMS, INC.

EVALUATION SUBJECT:

CRAWL SPACE DOOR SYSTEMS FLOOD VENT MODEL #CSBA816
CRAWL SPACE STACKED MODELS #ICCSTACKED2; #ICCSTACKED4
FLOOD VENT INSULATED KIT #ICCINSULATED

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Crawl Space Door Systems flood vents, described in ICC-ES evaluation report [ESR-3851](#), have also been evaluated for compliance with the code(s) noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Crawl Space Door Systems flood vents, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3851](#), comply with CBC Chapter 12, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 12 and 16, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Crawl Space Door Systems flood vents, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3851](#), comply with 2022 CRC, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued September 2024.

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Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

CRAWL SPACE DOOR SYSTEMS, INC.

EVALUATION SUBJECT:

CRAWL SPACE DOOR SYSTEMS FLOOD VENT MODEL #CSBA816
CRAWL SPACE STACKED MODELS #ICCSTACKED2; #ICCSTACKED4
FLOOD VENT INSULATED KIT #ICCINSULATED

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Crawl Space Door Systems flood vents, described in ICC-ES evaluation report ESR-3851, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 CONCLUSIONS

The Crawl Space Door Systems flood vents, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-3851, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* and *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-3851 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* and *Florida Building Code—Residential*, as applicable.

Use of the Crawl Space Door Systems flood vents has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the 2023 *Florida Building Code—Building* and *Florida Building Code—Residential*.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

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