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# ICC-ES Evaluation Report

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## ESR-2074

Reissued 02/2023

This report is subject to renewal 02/2025.

DIVISION: 08 00 00—OPENINGS

SECTION: 08 95 43—VENTS/FOUNDATION FLOOD VENTS

X2

REPORT HOLDER:

**SMART VENT PRODUCTS, INC.**

EVALUATION SUBJECT:

**SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520;  
#1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514  
FLOOD VENT SEALING KIT #1540-526**



*"2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence"*



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## ICC-ES Evaluation Report ESR-2074

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~~DIVISION: 08-00-00—OPENINGS~~

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#1540-570; #1540-574; #1540-524; #1540-514  
FLOOD VENT SEALING KIT #1540-526

### 1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
- 2021 and 2018 *International Energy Conservation Code*® (IECC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical operation
- Water flow

### 2.0 USES

The Smart Vent® units are engineered mechanically operated flood vents (FVs) employed to equalize hydrostatic pressure on walls of enclosures subject to rising or falling flood waters. Certain models also allow natural ventilation.

### 3.0 DESCRIPTION

#### 3.1 General:

When subjected to rising water, the Smart Vent® FVs internal floats are activated, then pivot open to allow flow in either direction to equalize water level and hydrostatic pressure from one side of the foundation to the other. The FV pivoting door is normally held in the closed position by a buoyant release device. When subjected to rising water, the buoyant release device causes the unit to unlatch, allowing

the door to rotate out of the way and allow flow. The water level stabilizes, equalizing the lateral forces. Each unit is fabricated from stainless steel. Smart Vent® Automatic Foundation Flood Vents are available in various models and sizes as described in Table 1. The SmartVENT® Stacking Model #1540-511 and FloodVENT® Stacking Model #1540-521 units each contain two vertically arranged openings per unit.

#### 3.2 Engineered Opening:

The FVs comply with the design principle noted in Section 2.7.2.2 and Section 2.7.3 of ASCE/SEI 24-14 [Section 2.6.2.2 of ASCE/SEI 24-05 (2012, 2009, 2006 IBC and IRC)] for a maximum rate of rise and fall of 5.0 feet per hour (0.423 mm/s). In order to comply with the engineered opening requirement of ASCE/SEI 24, Smart Vent FVs must be installed in accordance with Section 4.0.

#### 3.3 Ventilation:

The SmartVENT® Model #1540-510 and SmartVENT® Overhead Door Model #1540-514 both have screen covers with 1/4-inch-by-1/4-inch (6.35 by 6.35 mm) openings, yielding 51 square inches (32 903 mm<sup>2</sup>) of net free area to supply natural ventilation. The SmartVENT® Stacking Model #1540-511 consists of two Model #1540-510 units in one assembly, and provides 102 square inches (65 806 mm<sup>2</sup>) of net free area to supply natural ventilation. Other FVs described in this report do not offer natural ventilation.

#### 3.4 Flood Vent Sealing Kit:

The Flood Vent Sealing Kit Model #1540-526 is used with SmartVENT® Model #1540-520. It is a Homasote 440 Sound Barrier® (ESR-1374) insert with 21 – 2-inch-by-2-inch (51 mm x 51 mm) squares cut in it. See Figure 4.

### 4.0 DESIGN AND INSTALLATION

#### 4.1 SmartVENT® and FloodVENT®:

SmartVENT® and FloodVENT® are designed to be installed into walls or overhead 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. Installation clips allow mounting in masonry and concrete walls of any thickness. In order to comply with the engineered opening design principle noted in Section 2.7.2.2 and 2.7.3 of ASCE/SEI 24-14 [Section 2.6.2.2 of ASCE/SEI 24-05 (2012, 2009, 2006 IBC and IRC)], the Smart Vent® FVs must be installed as follows:

- With a minimum of two openings on different sides of each enclosed area.
- With a minimum of one FV for every 200 square feet (18.6 m<sup>2</sup>) of enclosed area, except that the SmartVENT® Stacking Model #1540-511 and FloodVENT® Stacking Model #1540-521 must be installed with a minimum of one FV for every 400 square feet (37.2 m<sup>2</sup>) of enclosed area.
- Below the base flood elevation.
- With the bottom of the FV located a maximum of 12 inches (305.4 mm) above the higher of the final grade or floor and finished exterior grade immediately under each opening.

**4.2 Flood Vent Sealing Kit**

The Flood Vent Sealing Kit Model 1540-526 is used in conjunction with FloodVENT® Model #1540-520. When installed and tested in accordance with ASTM E283, the FV and Flood Vent Sealing Kit assembly have an air leakage rate of less than 0.2 cubic feet per minute per lineal foot (18.56 l/min per lineal meter) at a pressure differential of 1 pound per square foot (50 Pa) based on 12.58 lineal feet (3.8 lineal meters) contained by the Flood Vent Sealing Kit.

**5.0 CONDITIONS OF USE**

The Smart Vent® FVs 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 Smart Vent® FVs must be installed in accordance with this report, the applicable code and the

manufacturer's installation instructions. In the event of a conflict, the instructions in this report govern.

- 6.2 The Smart Vent® FVs 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.

**6.0 EVIDENCE SUBMITTED**

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Mechanically Operated Flood Vents (AC308), dated August 2015 (editorially revised February 2021).
- 6.2 Test report on air infiltration in accordance with ASTM E283.

**7.0 IDENTIFICATION**

- 7.1 The Smart VENT® models and the Flood Vent Sealing Kit described in this report must be identified by a label bearing the manufacturer's name (Smartvent Products, Inc.), the model number, and the evaluation report number (ESR-2074).

- 7.2 The report holder's contact information is the following:

**SMART VENT PRODUCTS, INC.**  
 19 MANTUA ROAD  
 MOUNT ROYAL, NEW JERSEY 08061  
 (877) 441-8368  
[www.smartvent.com](http://www.smartvent.com)  
[info@smartvent.com](mailto:info@smartvent.com)

TABLE 1—MODEL SIZES

| MODEL NAME                         | MODEL NUMBER | MODEL SIZE (in.)   | COVERAGE (sq. ft.) |
|------------------------------------|--------------|--|--------------------|
| FloodVENT®                         | 1540-520     | 15 <sup>3</sup> / <sub>4</sub> " X 7 <sup>3</sup> / <sub>4</sub> " | 200                |
| SmartVENT®                         | 1540-510     | 15 <sup>3</sup> / <sub>4</sub> " X 7 <sup>3</sup> / <sub>4</sub> " | 200                |
| FloodVENT® Overhead Door           | 1540-524     | 15 <sup>3</sup> / <sub>4</sub> " X 7 <sup>3</sup> / <sub>4</sub> " | 200                |
| SmartVENT® Overhead Door           | 1540-514     | 15 <sup>3</sup> / <sub>4</sub> " X 7 <sup>3</sup> / <sub>4</sub> " | 200                |
| Wood Wall FloodVENT®               | 1540-570     | 14" X 8 <sup>3</sup> / <sub>4</sub> "                              | 200                |
| Wood Wall FloodVENT® Overhead Door | 1540-574     | 14" X 8 <sup>3</sup> / <sub>4</sub> "                              | 200                |
| SmartVENT® Stacker                 | 1540-511     | 16" X 16"  | 400                |
| FloodVent® Stacker                 | 1540-521     | 16" X 16"  | 400                |

For SI: 1 inch = 25.4 mm; 1 square foot = m<sup>2</sup>

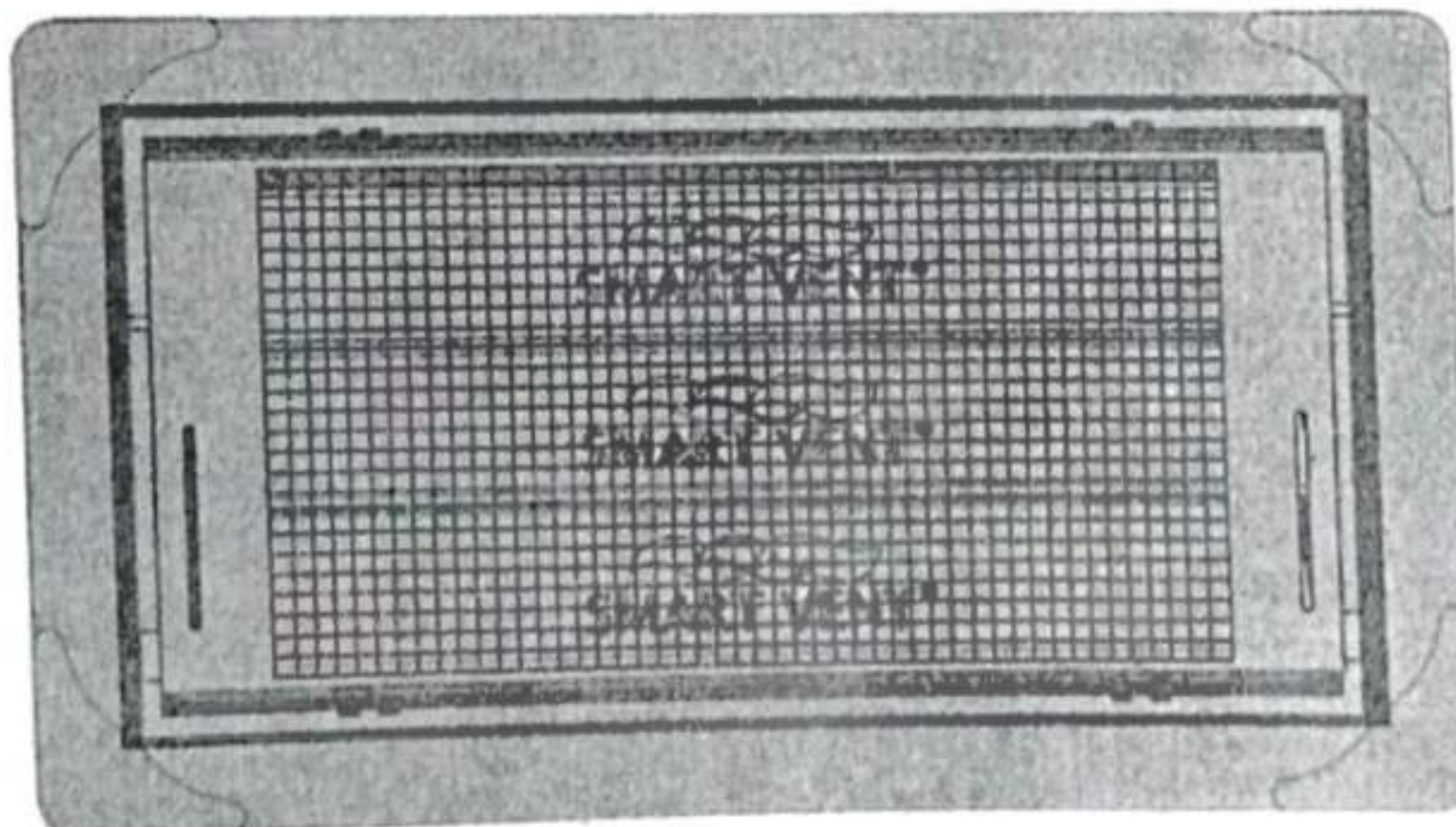


FIGURE 1—SMART VENT: MODEL 1540-510

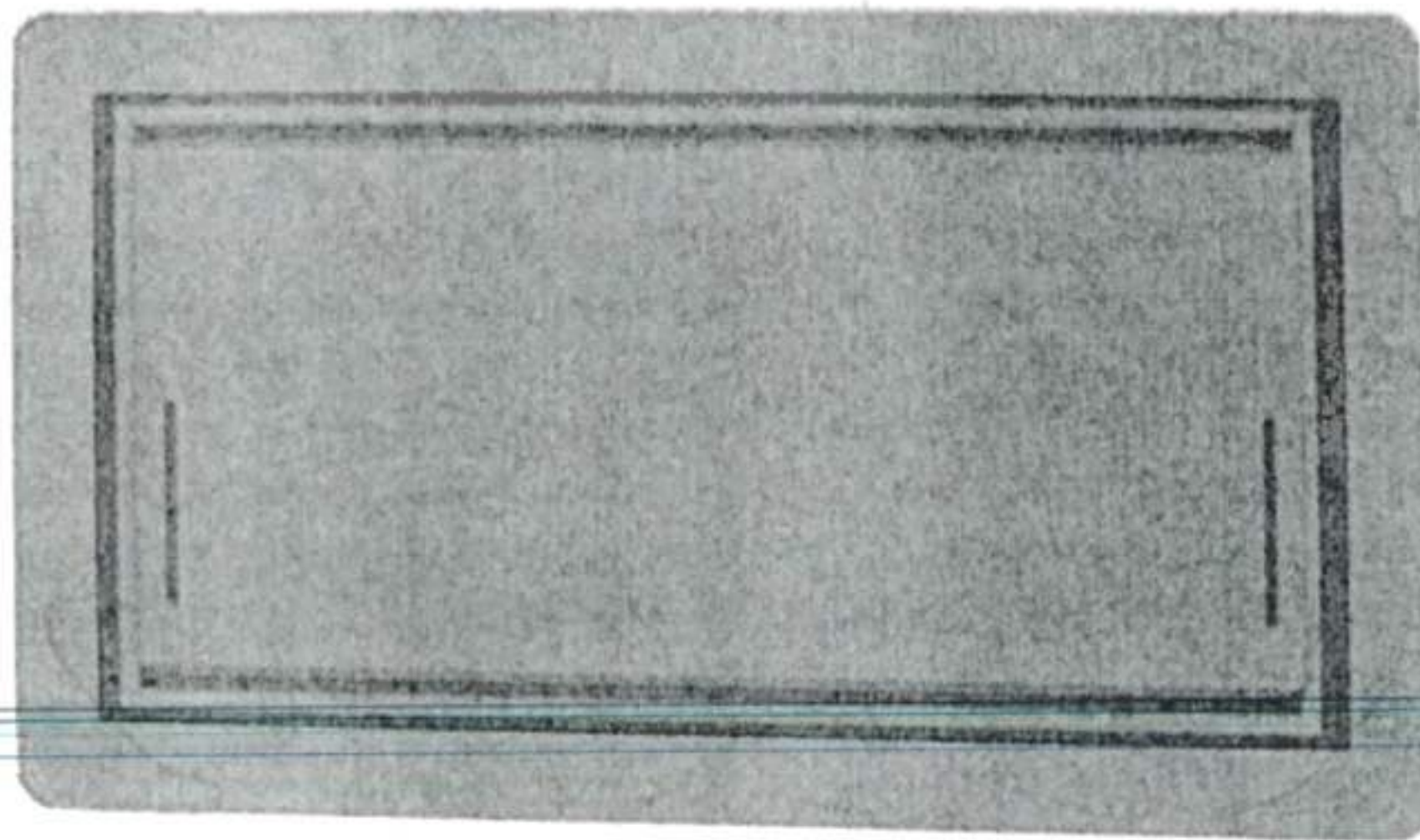


FIGURE 2—SMART VENT MODEL 1540-520

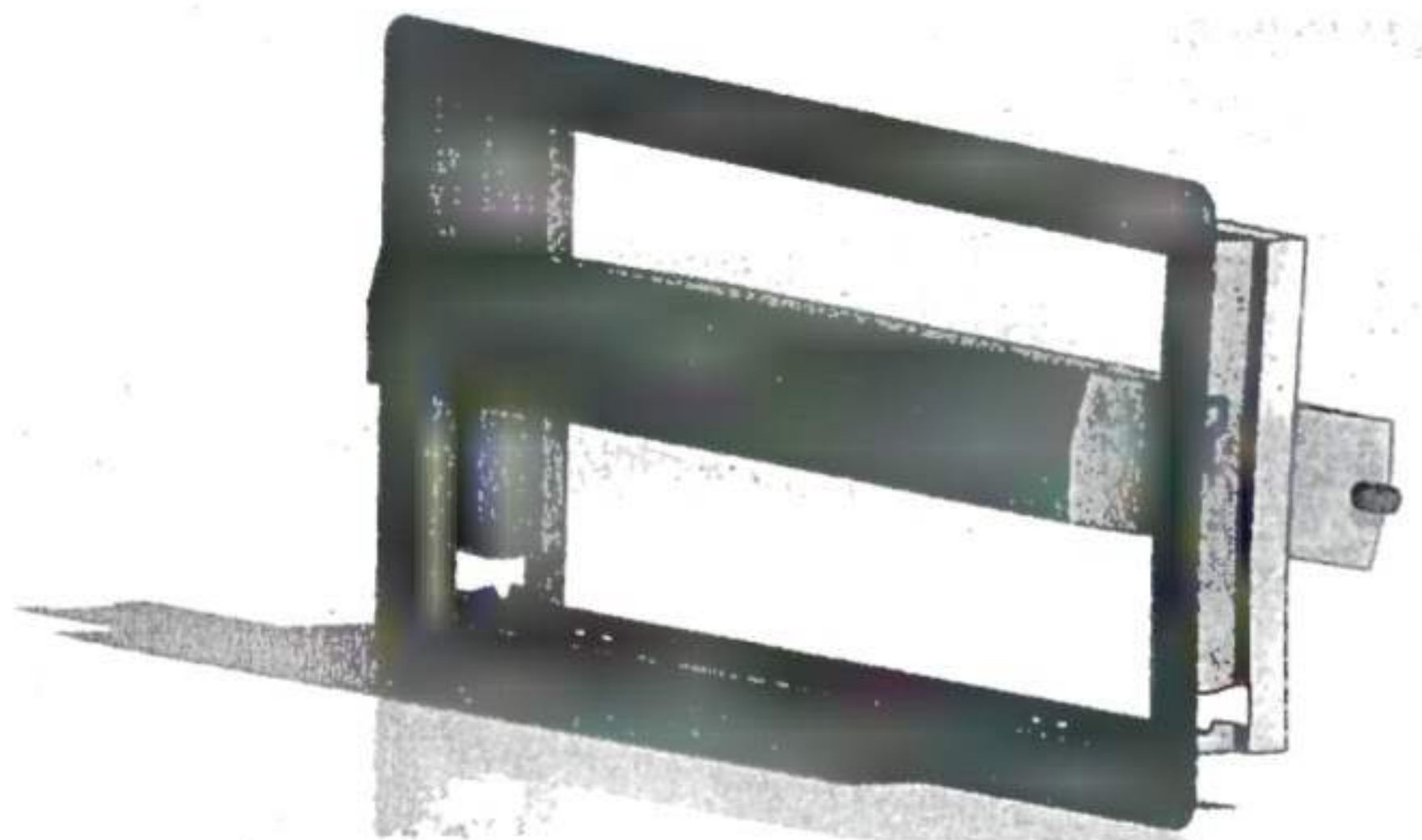


FIGURE 3—SMART VENT: SHOWN WITH FLOOD DOOR PIVOTED OPEN

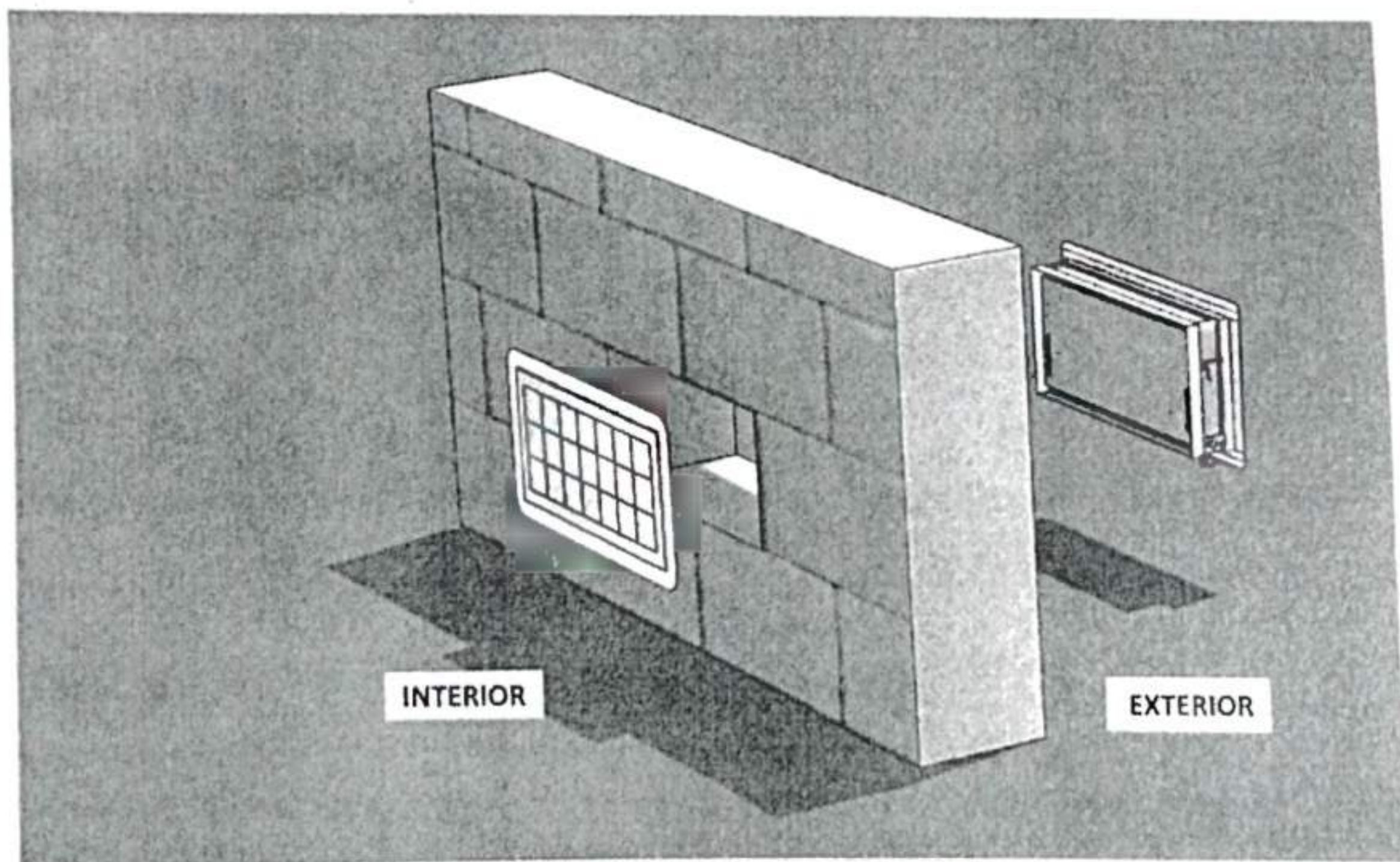


FIGURE 4—FLOOD VENT SEALING KIT

DIVISION: 08 00 00—OPENINGS  
Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

~~SMART-VENT-PRODUCTS, INC.~~

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SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520; #1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514  
FLOOD VENT SEALING KIT #1540-526

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Smart Vent® Automatic Foundation Flood Vents, described in ICC-ES evaluation report ESR-2074, have also been evaluated for compliance with codes noted below.

Applicable code editions:

- 2019 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.

- 2019 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Smart Vent® Automatic Foundation Flood Vents, described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with 2019 CBC Chapter 12, provided the design and installation are in accordance with the 2018 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 Smart Vent® Automatic Foundation Flood Vents, described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with the 2019 CRC, provided the design and installation are in accordance with the 2018 International Residential Code® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued February 2023.

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Smart Vent® Automatic Foundation Flood Vents, described in ICC-ES evaluation report ESR-2074, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 Florida Building Code—Building
- 2020 Florida Building Code—Residential

2.0 CONCLUSIONS

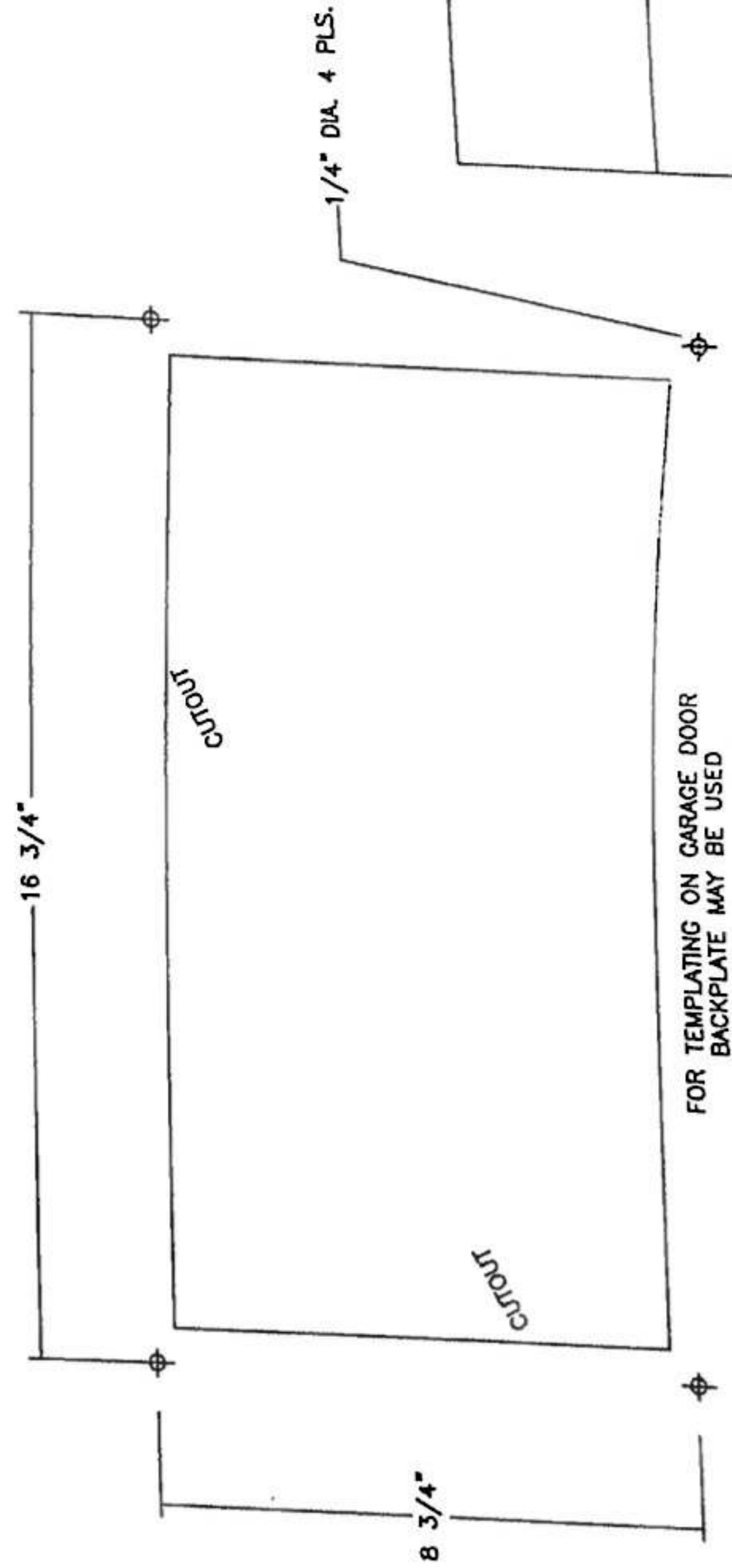
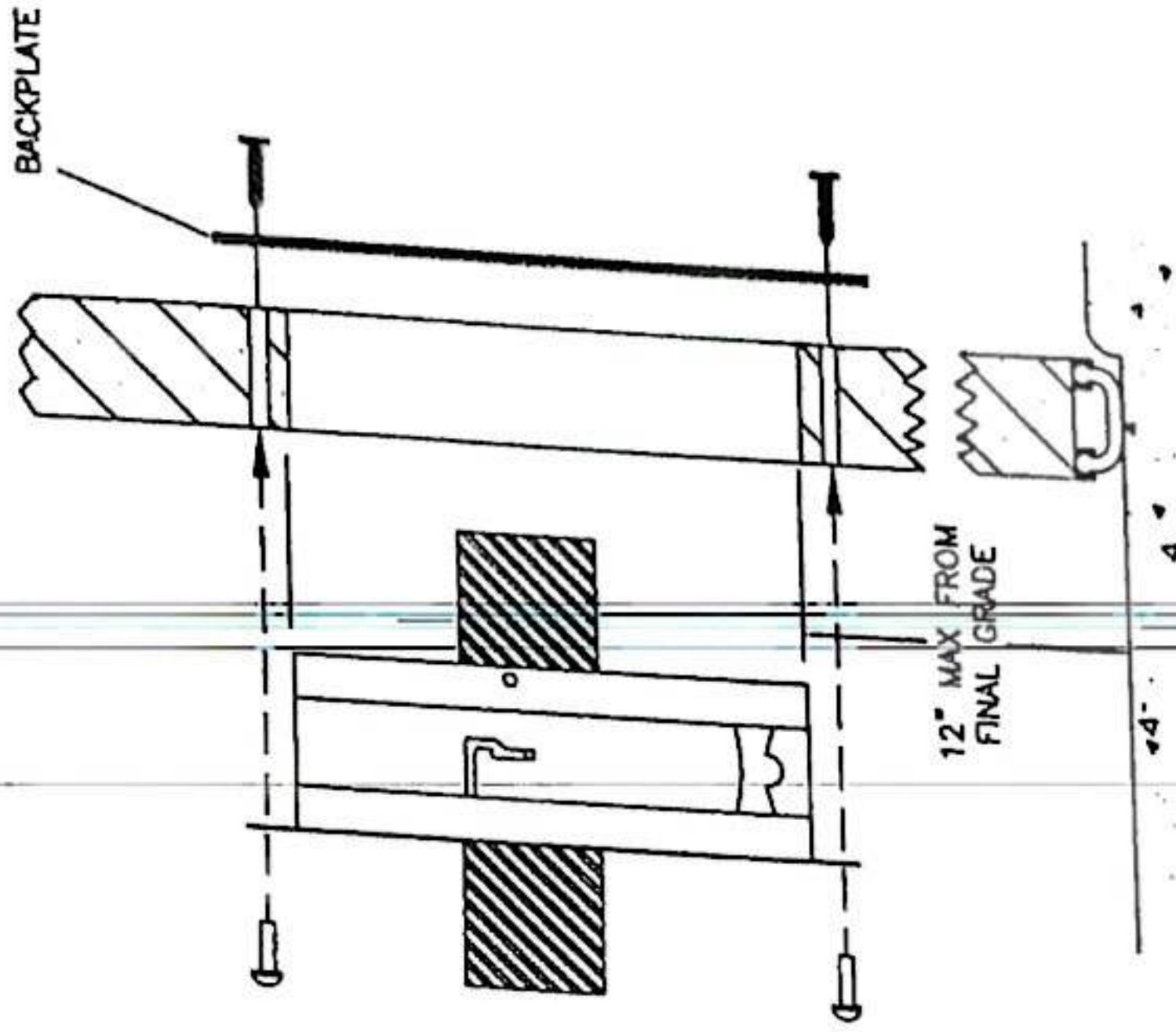
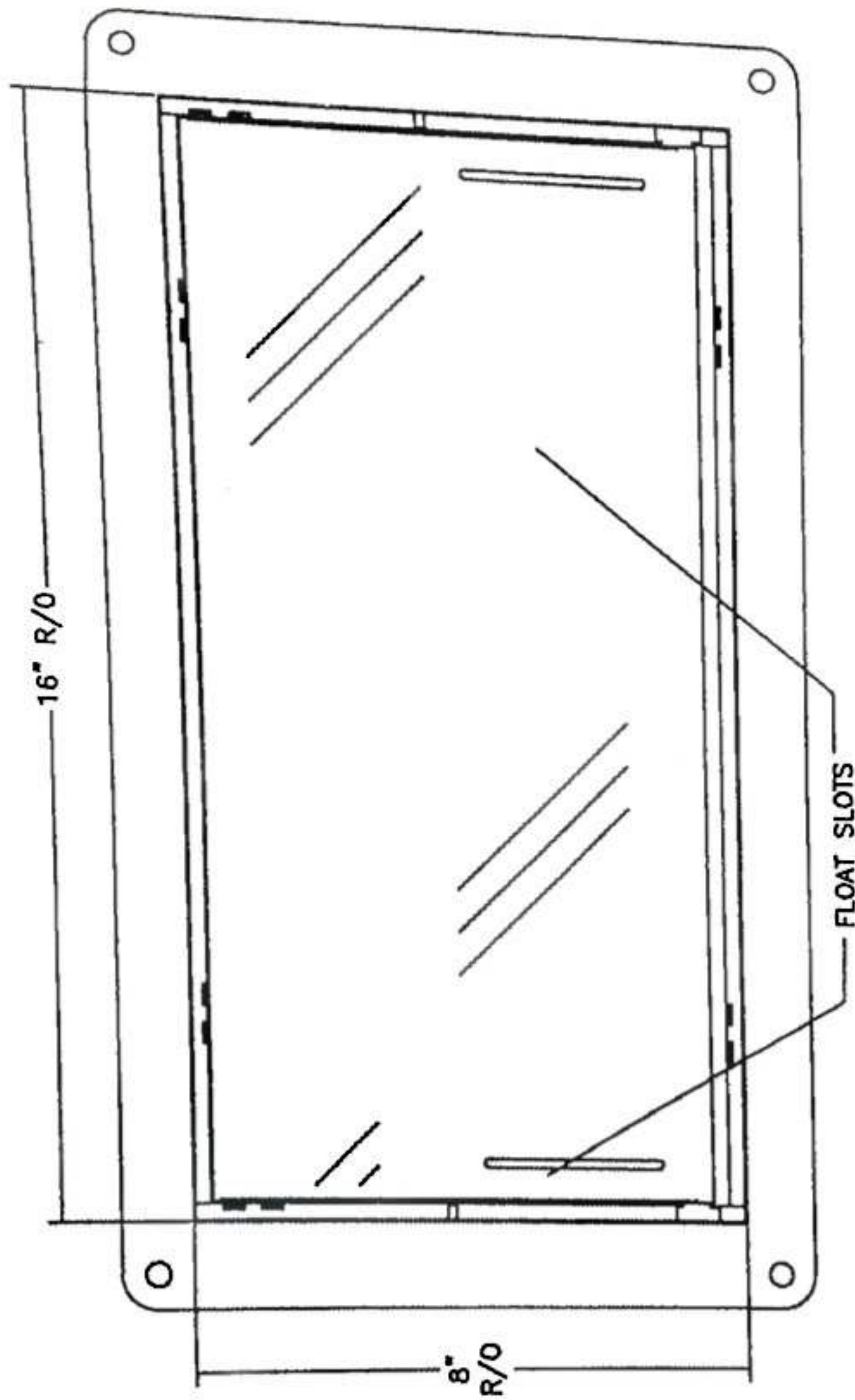
The Smart Vent® Automatic Foundation Flood Vents, described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-2074 for 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Smart Vent® Automatic Foundation Flood Vents has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *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).

This supplement expires concurrently with the evaluation report, reissued February 2023.

DETAIL DIAGRAM  
 MODEL 1540-524  
 16" GARAGE DOOR INSULATED



FOR TEMPLATING ON GARAGE DOOR  
 BACKPLATE MAY BE USED

SMART VENT FOUNDATION FLOOD VENTS  
 430 ANDERSON DR., UNIT 1  
 PITMAN NJ 08071

**SMART VENT**  
 877-441-8368  
 WWW.SMARTVENT.COM

16" GARAGE DOOR INSULATED  
 MODEL 1540-524

|               |                     |              |
|---------------|---------------------|--------------|
| SIZE<br>A     | DWG NO.<br>1540-524 | REV<br>A     |
| DATE: 6-21-16 |                     | SHEET 1 OF 2 |



Smart VENT

877-441-8368

www.smartvent.com

INSTALLATION INSTRUCTIONS  
& DETAILS  
MODEL 1540-524  
16" GARAGE DOOR INSULATED  
REV. 6-21-16

**INSTALLATION INSTRUCTIONS**

(SEE DIAGRAM ON BACK PAGE 1 OF 2)

1. FOR EACH VENT CUT A CLEAN, SQUARE, AND LEVEL 16" X 8" OPENING IN THE DOOR PANEL. ENSURE THAT THE BOTTOM OF THE OPENING IS NO MORE THAN 12" ABOVE THE FINAL GRADE (DRIVEWAY). THE INSIDE BACKPLATE CAN ALSO BE USED AS A TEMPLATE.
2. REMOVE THE VENT DOOR FROM VENT FRAME. (TURN UPSIDE DOWN, ROTATE BOTTOM OF DOOR OUTWARD AND SLIDE OUT OF FRAME SLOTS)
3. POSITION THE VENT FRAME BY HAND IN THE OPENING SO THAT IT IS SQUARE AND LEVEL. TRANSFER THE 4 MOUNTING HOLES. REMOVE THE VENT FROM THE OPENING AND DRILL (4) 1/4" HOLES THROUGH THE ENTIRE DOOR.
4. ENSURE THAT THESE HOLES ARE SQUARE SO THE VENT FRAME AND BACKPLATE LINE UP.
5. CLEAN ANY AND ALL LOOSE OR SHARP METAL BURRS FROM THE DOOR PANEL. THE FRONT VENT FRAME MUST SIT FLUSH TO THE DOOR PANEL. CHECK ALIGNMENT OF INSERT THE VENT FRAME INTO OH DOOR PANEL WITH SERIAL NUMBER LABEL ON THE BOTTOM. INSTALL BACKPLATE OVER INSIDE OF DOOR FRAME.
6. PRE-DRILLED HOLES IN VENT FRAME, DOOR AND BACKPLATE. MAKE SURE FRAME SITS LEVEL AND FRONT FLANGE IS FLUSH WITH THE FRONT OF OH DOOR PANEL. APPLY HURRIBOND GRIP & SEAL OR EQUIVALENT ADHESIVE BEHIND VENT FRONT FRAME FLANGE TO SEAL VENT FRAME TO FACE OF DOOR PANEL. SEE DIAGRAM.
7. SECURE WITH 4 STAINLESS STEEL SEX NUTS AND BOLTS THROUGH DOOR TO BACKPLATE WITH FEMALE SECTION ON OUTSIDE. IF OVERHEAD DOOR THICKNESS IS TOO THIN, USE THE SELF LOCKING NUTS AND WASHERS IN LIEU OF THE SEX NUTS AND BOLTS.
8. INSERT THE DOOR BACK INTO THE VENT FRAME. CHECK THAT THE VENT DOOR IS LATCHED ON BOTH SIDES. TO OPEN THE VENT INSERT TWO CREDIT CARDS INTO THE FRONT FLOAT SLOTS AS SHOWN IN THE DIAGRAM.

VENT DOOR SHOULD NOT OPEN WHEN OH DOOR OPENS. VENT DOOR ONLY OPENS WHEN IN CONTACT WITH FLOOD WATER AND OH DOOR IS FULLY CLOSED.

**DETAIL SPECIFICATIONS:**

MATERIAL: STAINLESS STEEL

OPERATION FLOOD: AUTOMATIC NON-POWERED ACTIVATION AND OPERATION

**INSTALLATION:**

SECURED W/ 4 STAINLESS STEEL BINDING BARRELS

USE 2 1/2" BOLD AND LOCKING NUT WHERE

BINDING BARREL NUT (SNB'S) CAN NOT BE USED.

HYDROSTATIC RELIEF: 200 Sq Ft per Vent

REQUIREMENTS FLOOD: MINIMUM OF 2 VENTS PER ENCLOSED AREA

MOUNTED ON AT LEAST TWO DIFFERENT WALLS

COLORS: WHITE (STANDARD)

STAINLESS STEEL, WHEAT, GRAY AND BLACK (AVAILABLE)

MEETS THE REQUIREMENTS FOR ENGINEERED OPENINGS AS SET FORTH BY:  
FEMA, NFIP, ICC, & ASCE

SUPPORTIVE DOCUMENTS, TB 1-08, 44CFR 60.3(C)(5), ASCE 24-14  
ICC EVALUATION # ESR-2074