DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

ELEVATION CERTIFICATE

IMPORTANT: FOLLOW THE INSTRUCTIONS ON PAGES 9-16

OMB Control Number: 1660-0008
Expiration: 11/30/2018

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A - PROPERTY INFORMATION

FORM INSURANCE COMPANY USE

A1. Building Owner's Name
The Katz's

Policy Number:

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
8906 Ventnor Ave.

Company NAIC Number:

City CITY OF MARGATE | State NJ | Zip Code 08402

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
Lot 1 and Block 121

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

A5. Latitude/Longitude: Lat. N 39.3239 Long. W 074.5099 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 8

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

a) Square footage of crawlspace or enclosure(s) 2153* sq. ft. sq ft

b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade 10*

c) Total net area of flood openings in A8.b 2940* sq in

d) Engineered flood openings? ◉ Yes ○ No

A9. For a building with an attached garage:

a) Square footage of attached garage N/A sq ft

b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade N/A

c) Total net area of flood openings in A9.b N/A sq in

d) Engineered flood openings? ○ Yes ◉ No

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number
CITY OF MARGATE & 345304

B2. County Name
ATLANTIC COUNTY

B3. State
NJ

B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Panel Effective/ Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use base flood depth
345304 / 0001	C	No index printed	10/18/1983	A8**	10**

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

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.

* A new Elevation Certificate will be required when construction of the building is complete.

Benchmark Utilized: private Vertical Datum: NGVD29

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)	8.6***	-	◉ feet	○ meters
b) Top of the next higher floor	12.4***	-	◉ feet	○ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	N/A	-	◉ feet	○ meters
d) Attached garage (top of slab)	N/A	-	◉ feet	○ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	12.7****	-	◉ feet	○ meters
f) Lowest adjacent (finished) grade next to building (LAG)	8.2	-	◉ feet	○ meters
g) Highest adjacent (finished) grade next to building (HAG)	9.5	-	◉ feet	○ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	8.6	-	◉ feet	○ meters

ELEVATION CERTIFICATE

OMB Control Number: 1660-0008
Expiration: 11/30/2018

8906 Ventnor Ave. CITY OF MARGATE NJ 08402

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 attachments.

Were latitude and longitude in Section A provided by a licensed land surveyor? ◉ Yes ○ No

Certifier's Name	License Number
Paul M. Koelling, PLS, CFM	NJ24GS 04328800

PLACE SEAL HERE

Title	Company Name		
Licensed Land Surveyor	Paul Koelling&AssocLLC-COA24GA28256300		
Address	**City**	**State**	**Zip Code**
2161 Shore Road	Linwood	NJ	08221
Signature	**Date**	**Telephone**	
	6-27-16	+1 (609) 927-0279	

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location , per C2(e), if applicable)"
*A8b.) 2153 sf crawlspace vented with 8 Smart Vents Model #1540-510 engineered for 200 square inches of net area each (see attached)within 12 inches of exterior grade below.....PLUS.....2 Crawl Space Door Systems Model #1624CS engineered for 670 square inches of net area each (see attached)
**B8 & B9.) FEMA Pre-FIRM Zone "AE".....Base Flood Elevation 9 ft. (NAVD88) converted = 10.3 ft. (NGVD29)
***C2a.) crawlspace enclosure (elev 8.6).....elevator shaft (elev 8.4)
****C2e.) exterior air unit

Signature Date 6-27-16

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 or Owner's Authorized Representative's Name:

Address	City	State	ZIP Code
Signature	**Date**	**Telephone**	

Comments

☐ Check here if attachments.

ELEVATION CERTIFICATE

OMB No. 1660-0008
Expiration Date: November 30, 2018

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. AVENUE			Policy Number:
City MARGATE	State New Jersey	ZIP Code 08402	Company NAIC Number

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

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	Title
JIM GALANTINO	CFM
Community Name	**Telephone**
CITY OF MARGATE	609-822-1974
Signature	**Date**
	7/6/2016

Comments (including type of equipment and location, per C2(e), if applicable)

☐ Check here if attachments.

Building Photographs

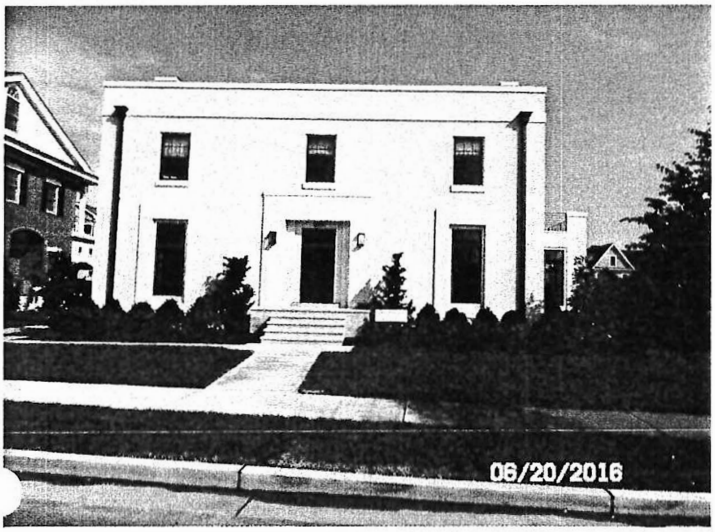
See Instructions for Item A6.

For Insurance Company Use:
Policy Number
Company NAIC Number

Building Street Address (including Apt., Unit, Suite, and/or Bldg.) No. or P.O. Route and Box No. **8906 Ventnor Ave.**

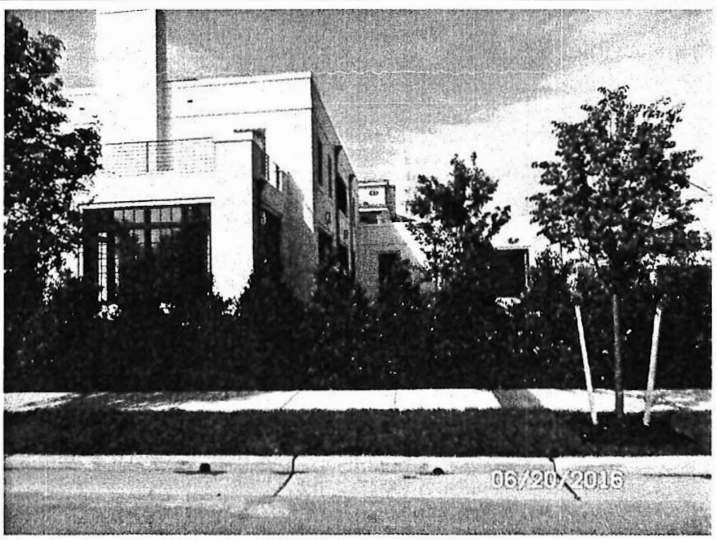
City	State	ZIP Code
Margate	**NJ**	**08402**

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least two 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." If submitting more photographs than will fit on this page, use the Continuation Page on the reverse.



Front View – Date of Photograph: (See Photo Stamp)

Rear View – Date of Photograph: (See Photo Stamp)



Right Side View – Date of Photograph: (See Photo Stamp)

Vent View – Date of Photograph: (See Photo Stamp)

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 net area of engineered openings (A_o) for a given enclosed area (A_e). This equation is based on the hydraulic formula for the flow rate across sharp edged 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 fall 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_o) as provided by the manufacturer.

*)	Model	H x W [in]	A_o [in^2]	A_e [ft^2]
☐	816CS	8 x 16	105	**205**
☐	1220CS	12 x 20	235	**500**
☐	1232CS	12 x 32	305	**645**
☐	1616CS	16 x 16	180	**395**
☒	1624CS	16 x 24	310	**670**
☐	1632CS	16 x 32	405	**835**
☐	2032CS	20 x 32	630	**1240**
☐	2424CS	24 x 24	570	**1230**
☐	2436CS	24 x 36	850	**1765**

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

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;
- 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

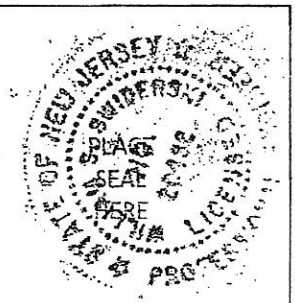
The flood vent models marked in Table 1*) are being installed at the following building:

Building Address

Certifying Design Professional

Name	**WILLIAM S. SWIDERSKI, P.E.**
Title	**ENGINEER**
Address	**599 SHORE ROAD, SOMERS POINT, NJ 08244**
Type of License	**PROFESSIONAL ENGINEER**
License #	**20482**
Issuing State	**NEW JERSEY**

Signature 7/24/12



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Reissued 02/2017

This report is subject to renewal 02/2019.

DIVISION: 08 00 00—OPENINGS

SECTION: 08 95 43—VENTS/FOUNDATION FLOOD VENTS

REPORT HOLDER:

SMARTVENT PRODUCTS, INC.

430 ANDBRO DRIVE, UNIT 1
PITMAN, NEW JERSEY 08071

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

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ANSI ACCREDITED ISO/IEC 17065 Product Certification Body #1000

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ICC-ES Evaluation Report

ESR-2074

Reissued February 2017
Revised November 2017
This report is subject to renewal February 2019.

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

REPORT HOLDER:

SMARTVENT PRODUCTS, INC.
430 ANDBRO DRIVE, UNIT 1
PITMAN, NEW JERSEY 08071
(877) 441-8368
www.smartvent.com
info@smartvent.com

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

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†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^2) 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^2) of net free area to supply natural ventilation. Other FVs recognized in this report do not offer natural ventilation.

4.0 DESIGN AND INSTALLATION

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^2) 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^2) 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.

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.

5.2 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

Data in accordance with the ICC-ES Acceptance Criteria for Mechanically Operated Flood Vents (AC364), dated August 2015.

7.0 IDENTIFICATION

The Smart VENT® models recognized 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).

TABLE 1—MODEL SIZES

MODEL NAME	MODEL NUMBER	MODEL SIZE (in.)	COVERAGE (sq. ft.)
FloodVENT®	1540-520	$15^3/_4$" X $7^3/_4$"	200
SmartVENT®	1540-510	$15^3/_4$" X $7^3/_4$"	200
FloodVENT® Overhead Door	1540-524	$15^3/_4$" X $7^3/_4$"	200
SmartVENT® Overhead Door	1540-514	$15^3/_4$" X $7^3/_4$"	200
Wood Wall FloodVENT®	1540-570	14" X $8^3/_4$"	200
Wood Wall FloodVENT® Overhead Door	1540-574	14" X $8^3/_4$"	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^2

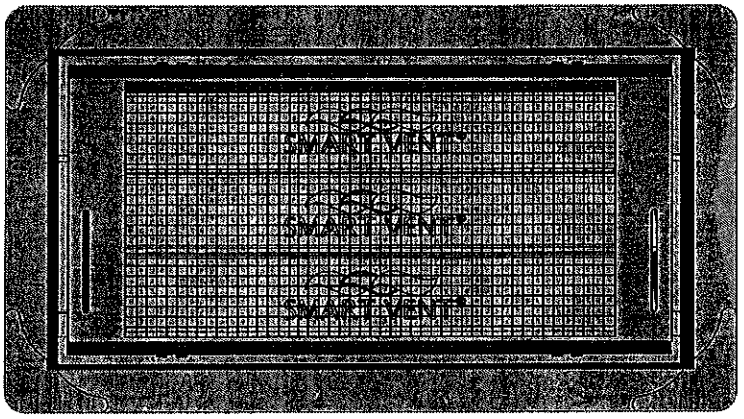

FIGURE 1—SMART VENT: MODEL 1540-510

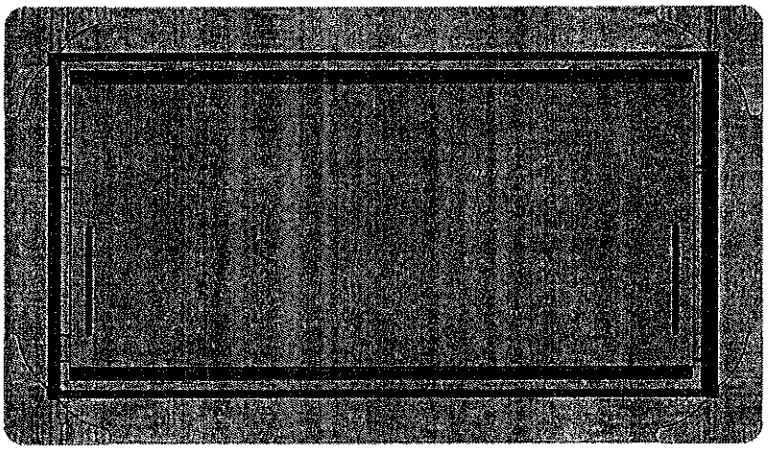

FIGURE 2—SMART VENT MODEL 1540-520

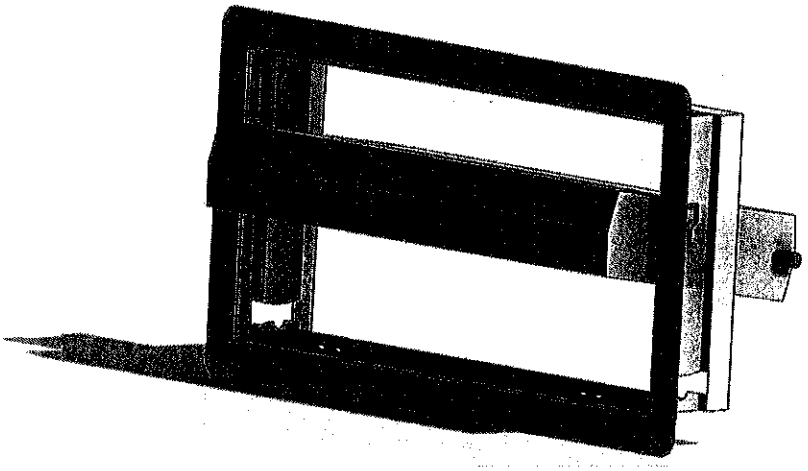

FIGURE 3—SMART VENT: SHOWN WITH FLOOD DOOR PIVOTED OPEN