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APPROVAL REPORT

Project No: PR449451
Class: 4431
Product Name: TCM, TSF12 and TSF9 Skylights
Product Type: Skylights
Name of Listing Company: American Skylights
Address of Listing Company: 1218 Corporate Dr E
Arlington TX 76006
United States
Customer ID: 251722-1
Customer website: www.americanskylights.com

Prepared by

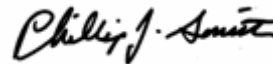


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Reviewed by



R. Scott Holmes
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Phillip J. Smith
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3/1/19

Date of Approval

1 INTRODUCTION

1.1 American Skylights requested Approval of their model TCM, TSF12 and TSF9 Skylights listed in Section 1.4 to determine if they meet the Approval requirements of the standard listed in Section 1.3.

1.2 This report may be freely reproduced only in its entirety and without modification.

1.3 Standard

| Title | Number | Issue Date |
|---------------------------------|--------|-----------------|
| Approval Standard for Skylights | 4431 | September, 2006 |

1.4 Listing

The products will appear in the Approval Guide, an on-line resource of FM Approvals, as follows:

Model TCM

FM Approved American Skylights Model TCM double dome, curb mounted skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6 ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TCM double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).

Model TCM Skylights meet the FM Approval requirements for a 75 psf (3.6 kPa) wind uplift rating when secured to minimum 1.5 in. (38 mm) thick wood curb framing, with minimum #10 x 1-1/2" galvanized or corrosion resistant screws. Fasteners are secured through factory predrilled attachment points spaced maximum 12 in. o.c. (305 mm) along all four sides of the aluminum frame. See manufacturers Installation Instructions for more details.

Model TCM Skylights meet the FM Approval requirements for a Severe Hail (SH) rating as tested with 2.0 in. (51 mm) diameter frozen ice balls.

Model TCM Skylights meet the FM Approval requirements for Class A flame spread from an exterior source at a slope of 5 in 12.

Fire tests indicate that if a sprinkler is installed directly under skylight, steps shall be taken to prevent the skylight from interfering with the sprinkler's operation.

Model TSF12

FM Approved American Skylights Model TSF12 double dome, self-flashing curb skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6 ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with a 12 in. (305 mm) base to frame height and an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TSF12 double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).

Model TSF12 Skylights meet the FM Approvals requirements for a 75 psf (3.6 kPa) Wind Rating when its self-flashing curb is secured to the roof deck with minimum #10 self-tapping, galvanized deck screws. Fasteners are secured through pre-drilled holes on all four sides of the self-flashing curb base and spaced maximum 12 in. o.c. (304 mm). See manufacturers Installation Instructions for more details.

Model TSF12 Skylights meet the FM Approval requirements for a Severe Hail (SH) rating as tested with 2.0 in. (51 mm) diameter frozen ice balls.

Model TSF12 Skylights meet the FM Approval requirements for Class A flame spread from an exterior source at a slope of 5 in 12.

Fire tests indicate that if a sprinkler is installed directly under skylight, steps shall be taken to prevent the skylight from interfering with the sprinkler's operation.

Model TSF9

FM Approved American Skylights Model TSF9 double dome, self-flashing curb skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with a 9 in. (229 mm) base to frame height and an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TSF9 double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).

Model TSF9 Skylights meet the FM Approvals requirements for a 75 psf (3.6 kPa) Wind Rating when its self-flashing curb is secured to the roof deck with minimum #10 self-tapping, galvanized deck screws. Fasteners are secured through pre-drilled holes on all four sides of the self-flashing curb base and spaced maximum 12 in. o.c. (304 mm). See manufacturers Installation Instructions for more details.

Model TSF9 Skylights meet the FM Approval requirements for a Severe Hail (SH) rating as tested with 2.0 in. (51 mm) diameter frozen ice balls.

Model TSF9 Skylights meet the FM Approval requirements for Class A flame spread from an exterior source at a slope of 5 in 12.

Fire tests indicate that if a sprinkler is installed directly under skylight, steps shall be taken to prevent the skylight from interfering with the sprinkler's operation.

2 DESCRIPTION

The American Skylights models TCM, TSF12 and TSF9 Skylights are described as follows:

- 2.1** Model TCM double dome, curb mounted skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6 ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TCM double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).

- 2.2** Model TSF12 double dome, self-flashing curb skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6 ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with a 12 in. (305 mm) base to frame height and an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TSF12 double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).
- 2.3** Model TSF9 double dome, self-flashing curb skylight is provided with an aluminum frame design and custom size applications equal to or less than 75 x 100 in. [6 ft. 3 in. x 8 ft. 4 in. (1.9 x 2.5 m)] and are fabricated with a 9 in. (229 mm) base to frame height and an inner and outer dome formed out of minimum 0.125 in. (3.175 mm) thick Polycarbonate. Model TSF9 double dome skylights are available in thermally broken and non-thermally broken designs with two glazing options (monolithic outer and monolithic inner or monolithic outer and prismatic inner).

All three models are Approved as described in the Approval Guide.

3 EXAMINATIONS AND TESTS

- 3.1** Samples were submitted for examination and testing. Test samples were witnessed by an FM Approvals representative on October 10, 2018 and were considered to be representative of standard production and were examined or tested as indicated below. All data is on file at FM Approvals along with other documents and correspondence applicable to this program.
- 3.2** All testing and analysis considered appropriate was conducted and verified to be in compliance with the Standards defined in Section 1.3.
- 3.3** All performance requirements and tests required by the Standard have been met. See Table 1 below for details.

Table 1

| Standard Number | Section | Test Name | Justification/Comments |
|------------------------|----------------|---|--|
| 4431 | 4.1 | Spread of Flame Test for Skylights from an Exterior Ignition Source | Meets Class A at 5 in 12 slope |
| 4431 | 4.2 | Simulated Hail Resistance Test Using Freezer Ice Balls | Meets Severe (SH) Hail Rating using 2.0 in. (51 mm) Diameter Ice Balls |
| 4431 | 4.3 | Simulated Impact Test for Skylights | Meets FM Approvals Impact Requirements |
| 4431 | 4.4 | Simulated Wind Uplift Resistance for Skylights | Meets 75 psf (3.6 kPa) Wind Rating |
| 4431 | 4.5 | Windborne Debris Ratings for Windstorm Resistant Fenestrations (Approval Standard 4350) | Optional – Not Tested |

4 MARKING

- 4.1 The manufacturer shall mark each skylight with the manufacturer's name and product trade name. In addition, each item must be marked with the Approval Mark of FM Approvals.
- 4.2 Markings denoting Approval by FM Approvals shall be applied by the manufacturer only within and on the premises of manufacturing locations under the FM Approvals Surveillance program.
- 4.3 The manufacturer agrees that use of the FM Approvals name or Approval Mark is subject to the conditions and limitations of the Approval by FM Approvals. Such conditions and limitations must be included in all references to Approval by FM Approvals.
- 4.4 Product intended for use in Canada shall be provided with caution and warning labels in both English and French.

5 REMARKS

- 5.1 Continued Approval is based upon fabrication and construction of model TCM, TSF12 and TSF9 skylights in accordance with this Approval Report, satisfactory field experience and continued use of acceptable quality control procedures as determined by Surveillance Audits.
- 5.2 Additional guidance for the use of model TCM, TSF12 and TSF9 skylights are outlined in FM Global Property Loss Prevention Data Sheets 1-10.

6 SURVEILLANCE AUDIT

The manufacturing facilities at the following location shall be visited on a routine basis. The facility processes and quality control procedures in place have been determined to be satisfactory to manufacture products identical to that tested and Approved. An FM Approved Products/Specification Tested Revision Request Form shall be submitted to FM Approvals for requesting to manufacture products at any additional or alternate manufacturing facilities which are not listed below.

Audit Location:

American Skylights
1218 Corporate Dr. E
Arlington, TX 76006
United States

7 MANUFACTURER'S RESPONSIBILITIES

- 7.1 Documentation that is applicable to this approval is on file at FM Approvals and listed in the Documentation File, Section 8, of this report. No changes of any nature shall be made unless notice of the proposed change has been given and written authorization obtained from FM Approvals. The FM Approved Products/Specification Tested Revision

Request Form (F 619) shall be forwarded to FM Approvals as notice of proposed changes.

- 7.2 When TCM, TSF12 and TSF9 skylights are to be installed for an FM Global insured, the manufacturer shall forward all submittals required by this Approval Report to the appropriate FM Global Operations Center for review and acceptance.
- 7.3 The manufacturer shall supply all instructions, materials, equipment, and assistance necessary for the complete, proper and satisfactory installation and testing of the TCM, TSF12 and TSF9 skylights. Complete installation drawings shall be furnished and shall pertain to the specific skylights supplied.
- 7.4 In accordance with the Master Agreement, the manufacturer shall make full and immediate disclosure to FM Approvals of all information concerning any defect in, or potential hazard of, the product or service manufactured or provided by the Customer which is Approved by, or being examined by, FM Approvals. The manufacturer shall make all necessary arrangements for the investigation of complaints / anomalies applicable to this approval and shall keep records of all complaints / anomalies including actions taken.

8 DOCUMENTATION

The following document describes model TCM, TSF12 and TSF9 skylights and is on file at FM Approvals.

| Document Title | Issue Date |
|--|---------------|
| Surveillance Audit Manual for American Skylights at 1218 Corporate Dr. E Arlington, TX 76006 USA | February 2019 |

9 CONCLUSION

Model TCM, TSF12 and TSF9 skylights described in section 1.4 meet FM Approvals requirements. Since a duly signed Master Agreement is on file for this manufacturer, Approval is effective the date of this report.

PROJECT DATA RECORD: PR449451