Architectural Testing

ASTM E 108-TEST REPORT

Report No.: C8127.04-121-24
Test Date: July 3, 2013

Rendered to:

VELUX America, Inc.
Greenwood, South Carolina 29648-5001

PRODUCT TYPE: VELUX SUN TUNNEL™ Skylight
SERIES/MODEL: TGF/TGR 022 0000 with Fire Band

Roof Product Description	Type of Test	Target Classification	Results
TGF - Tubular Daylighting Device	Burning Brand	Class B	Pass

This report contains in its entirety:

Cover Page: 1 page
Report Body: 9 pages
Test Equipment: 1 page
Photographs: 5 pages
Drawings : 3 pages

1.0 Report Issued To: VELUX America, Inc.
P.O. Box 50011418 Evans Pond Road
Greenwood, South Carolina 29648-5001

2.0 Test Laboratory: Architectural Testing, Inc.
130 Derry Court
York, Pennsylvania 17406
717-764-7700

3.0 Project Summary:

3.1 Introduction: This fire test standard aims to measure relative fire characteristics of roof coverings under simulated fire scenarios which originate outside the building. Under controlled laboratory conditions, the behavioral response of materials, products or assemblies as affected by heat and flame are described. The performances of the roof covering systems are described only under specific conditions. Information is not provided by these tests that are applicable to any scenarios other than the specific conditions experienced during testing. Information is not provided by these tests that are applicable to actual fire situations because of the inherent differences between the classes as it pertains to fire source and fire application; no comparison between the classes exist. Results from tests are applicable to the specifics of the test and the aspect in which the tests were conducted, and are not applicable to similar materials or the results of those materials when used in concert with other materials.

3.2 Product Type: VELUX SUN TUNNEL™ Skylight

3.3 Series/Model: TGF/TGR 022 0000 with Fire Band

3.4 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

3.5 Test Dates: 7/3/2013

3.6 Test Sample Source: The TDD specimen tested and described in this report was supplied by VELUX.

3.7 Test Method:

3.7.1 ASTM E108-07a, *Standard Test Methods for Fire Tests of Roof Covering*

3.7.1.1 Section 10 - Burning Brand Only

4.0 Test Details:

4.1 Specimen Description: An assembly of roof-mounted components for a twenty-two inch diameter Tubular Daylight Device, VELUX models TGF/TGR with the standard acrylic clear dome and 2-3/4 inch wide x 82 inch long coated steel protective ring fastened with 1-1/2 inch dry wall fasteners was attached to a mock roof deck consisting of nominal 5/8 in. thick x 40 in. wide x 52 in. long gypsum board fastened at each end to 2 in. x 4 in. lumber. The gypsum board had a 26 inch diameter hole cutout to observe flame penetration on the underside of the deck. The test specimen was set at a 5:12 pitch for the test. See Appendix C for drawings of the assembly and parts.

4.2 Equipment: A Fire Test Apparatus as described in ASTM E108 was used to generate 12 ± 0.5 mph air current of the test. Air speed of the Fire Test Apparatus was calibrated prior to testing. A gas burner with flame temperature of 1630 ±50°F was used to ignite the 1 inch by 1 inch by 6 inch strips of Douglas fir forming a grid of approximately 6 inch square and 2-1/4 inch thick Class B Burning Brands as described in section 10.3.2 of ASTM E108. See Appendix A for a list of all equipment used in test program.

4.2 Burning Brand Procedure: After calibration of equipment, the test specimen described in Section 4.1 was placed into a steel framed holder for testing at a 5:12 pitch. The calibrated wind generator was turned on and brand #1 was ignited in the gas burner. Once the brand was ignited per time durations specified in Section 10.4.2 of ASTM E108, it was placed against the TDD specimen and held in place with 0.032 inch stainless steel wire. Brand #1 was positioned on the test deck so the brand was subjected to direct air currents from the wind generator and flame of the burning brand impinged on the protective ring of the TDD. Once brand #1 extinguished and no evidence of flame, glow, or smoke were apparent, a second brand was ignited and positioned in the same location on the test deck.

4.3 Official Observers:

Name	Company
Ethan Grove	Architectural Testing, Inc.
Scott Gingrich	Architectural Testing, Inc.

4.3 Calibration Information:

Average Wind Speed: 1052 ft. /min.
Ambient Temperature: 84ºF
Average Flame temperature: 1411 ºF

5.0 Test Observations:

Time (min:sec)	Observations
00:00	Burning Brand #1 placed on TDD
01:00	Smoke in sky light from under Flashing
01:40	Metal shows charring from brand burning outside.
14:24	Brand #1 extinguished
17:00	Brand #2 placed on TDD
33:00	Brand #2 extinguished and test stopped
Results	**Pass BB Condition of Acceptance**

6.0 Test Conclusion:

The test specimen provided to Architectural Testing by VELUX America and described in this test report **met** the conditions of acceptance of ASTM E108-07 Class B Burning Brand procedures.

Architectural Testing will service this report for the entire test record retention period. The service life of this report will expire on the stated Test Record Retention End Date, at which time such materials as drawings, data sheets, samples of test specimens, copies of this report, and any other pertinent project documentation, shall be discarded without notice.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Ethan Grove

Ethan Grove
Technician

Digitally Signed by: Matthew D. Freeborn

Matthew Freeborn
Program Manager – Fire Testing

EJG:ddr

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Test Equipment (1)
Appendix-B: Photographs (5)
Appendix-C: Drawings (3)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	07/17/13	N/A	Original report issue

Appendix A
Test Equipment

Instrument	Manufacturer	Model	Description	ATI Number
Anemometer	ALNOR	RVA501	Wind vein anemometer	63192
ASTM E 108 Apparatus	Architectural Testing	N/A	Test Apparatus	63656
Oven	Quality Labs Inc.	N/A	Brand conditioning oven	N/A
Thermostat	Omega	HH509	Muti-meter style with thermocouple	63522
Thermocouple	Omega	K	Welded thermocouple	63277
Temperature / Humidity Transmitter	Comet	T7510	Temperature and humidity transmitter (sample & test deck conditioning room)	63240
Moisture Meter	Delmhorst	RDM-3	Moisture meter	63199
Scale	A and A Scales LLC	VS700	Scale to weigh brands prior to testing	63272

Appendix B

Photographs

Photo No. 1
TDD Mounted to Test Deck (Pre-Test)

Photo No. 2
Underside of Test Deck (Pre-Test)

Photo No. 3
Class B Brand Ignited on Gas Burner

Photo No. 4
Burning Brand #1 Placement (During Test)

Photo No. 5
Underside of Deck During Brand #1 Exposure

Photo No. 6
Extent of Damage After Brand #1

Photo No. 7
Burning Brand #2 (During Test)

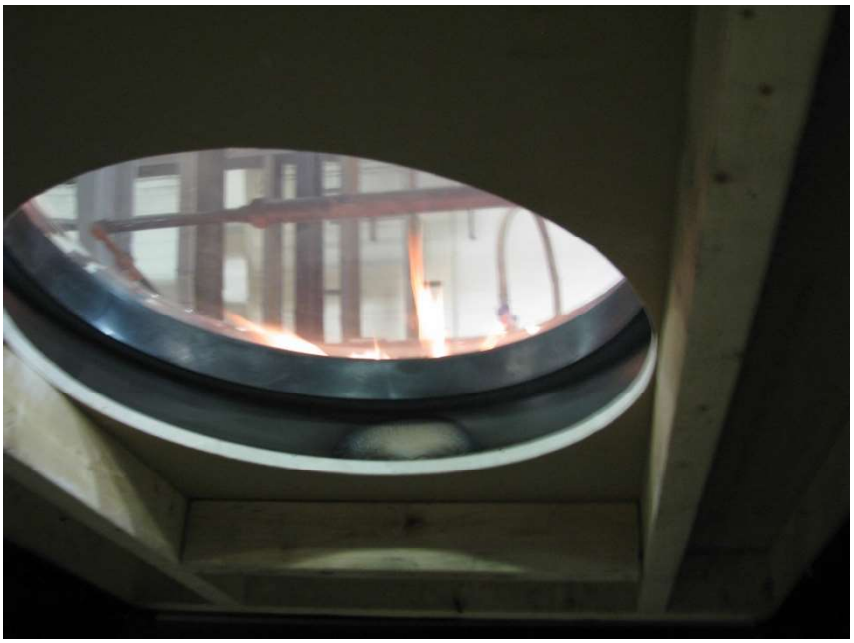

Photo No. 8
Underside of Deck During Brand #2 Exposure

Photo No. 9
Extent of Damage After Brand #2