



TEST REPORT

Report No.: G4210.01-109-44

Rendered to:

VELUX America LLC
Greenwood, South Carolina

PRODUCT TYPE: Skylight with Curb

SERIES/MODEL: Specials Dome Skylight 0.150 thickness 100% IMA smooth/0.118 thickness
50% IMA smooth white (6' x 6') with CCAM Curb

SPECIFICATION(S): Occupational Safety and Health Administration/U.S. Department of
Labor Regulations (Standards- 29 CFR) - 1910.23(e) (8)

California Code of Regulations, Title 8, Section 3212

Test Date(s): 12/08/16

Report Date: 12/16/16

Test Record Retention End Date: 12/08/20

- 1.0 Report Issued To:** VELUX America LLC
1418 Evans Pond Road
P.O. Box 5001
Greenwood, South Carolina 29648-5001
- 2.0 Test Laboratory:** Architectural Testing, Inc., an Intertek company ("Intertek-ATI")
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Project Summary:

- 3.1 Product Type:** Skylight with Curb
- 3.2 Series/Model:** Specials Dome Skylight 0.150 thickness 100% IMA smooth/0.118 thickness 50% IMA smooth white (6' x 6') with CCAM Curb
- 3.3 Compliance Statement:** Results obtained are tested values and were secured by using the designated test method(s).
- 3.4 Test Date(s):** 12/08/16
- 3.5 Test Record Retention End Date:** All test records for this report will be retained until December 8, 2020.
- 3.6 Test Location:** Intertek-ATI test facility in York, Pennsylvania.
- 3.7 Test Specimen Source:** The test specimen(s) was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek-ATI for a minimum of two years from the test completion date.
- 3.8 Drawing Reference:** The test specimen drawings have been reviewed by Intertek-ATI and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek-ATI per the drawings on file with Intertek-ATI. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

| <u>Name</u> | <u>Company</u> |
|------------------------|----------------|
| Timothy J. McGill | Intertek-ATI |
| Richard E. Hartman III | Intertek-ATI |

4.0 Test Specification(s):

Occupational Safety and Health Administration/U.S. Department of Labor Regulations (Standards- 29 CFR) - 1910.23(e) (8)

California Code of Regulations, Title 8, Section 3212

A 400 lb. weight, fabricated from a bag filled with lead shot, was placed on the center of the dome for a minimum of 60 seconds. The bag was removed and the test unit was inspected for any signs of damage or failure.

Additional Loading:

The specimen was taken to failure using sandbags placed on the center of the dome for a minimum of 60 seconds. The highest load causing penetration or damage was recorded.

5.0 Test Specimen Description:

5.1 Product Sizes:

| Overall Area: 42.1 ft ² | Width (inches) | Length (inches) |
|------------------------------------|----------------|-----------------|
| Overall size | 77-7/8 | 77-7/8 |

| Curb Dimensions | Width (inches) | Length (inches) | Height (inches) |
|-----------------|----------------|-----------------|-----------------|
| CCAM | 75-1/4 | 75-1/4 | 9-1/8 |

5.0 Test Specimen Description: (Continued)

5.2 Frame Construction:

| Frame Member | Material | Description |
|------------------|----------|-----------------------------|
| Inner frame | Aluminum | Extruded |
| Dome clamp cover | Aluminum | Extruded |
| CCAM | Aluminum | Formed aluminum sheet metal |

| | Joinery Type | Detail |
|------------------|--------------|--|
| Skylight corners | Mitered | Miter cut and welded |
| CCAM corners | Coped | Aluminum was wrapped around the interior of the insulation and overlapped itself with one continuous sheet. Aluminum was wrapped around the exterior of the insulation with one continuous sheet, butted, and welded at one corner. The aluminum at the top of the curb was secured by staples located 2-1/2" from the corners and 15" on center and the bottom of the curb was secured by the interior and exterior sheet being crimped together located 2-1/2" from the corners and 10" on center. |

5.3 Reinforcement: No reinforcement was utilized

5.4 Weatherstripping:

| Description | Quantity | Location |
|----------------------|----------|---|
| Custom-shaped gasket | 1 row | Located around the interior perimeter of the inner frame |
| Gasket wick | 4 | One wick was located at each corner inside the custom-shaped gasket |

5.0 Test Specimen Description: (Continued)

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glazing in any glazed test specimen(s) can be made.*

| Glazing Type | Interior Glaze | Spacer Type | Exterior Glaze | Glazing Method |
|--------------|-----------------------|-------------|------------------|--|
| 3/8" spacing | 1/8" IMA smooth white | Foam spacer | 5/32" IMA smooth | The glazing was set from the exterior onto a custom-shaped gasket against the extruded aluminum frame. The glazing was secured using an extruded aluminum dome clamp cover with a bead of sealant on the glazing. The dome clamp cover was secured using spring clips and #10 x 5/8" self-tapping pan head screws located 5" from corners and one at the midspan on two sides. |

| Location | Quantity | Daylight Opening (inches) | Glazing Bite |
|----------|----------|---------------------------|--------------|
| Dome | 1 | 72-3/8 x 72-3/8 | 1" |

6.0 Installation:

The specimen was installed into an aluminum CCAM curb. The rough opening allowed for a 1/2" shim space.

| Location | Anchor Description | Anchor Location |
|----------------|--|--|
| Aluminum frame | 8-32 x 3" button head bolt with a washer and a hex nut | 8" from corners and spaced 12" on center |

7.0 Test Results: The results are tabulated as follows:

7.1 California (and OSHA) minimum loading:

| Test Load | Load Location | Results |
|-----------|----------------|-------------------|
| 400 lb. | Center of dome | No visible damage |

Note: The 400 lb. weight was gently applied perpendicular to the center of the dome. After 60 seconds of rest time, there was no visible damage to the glazing.

7.2 Additional loading (applied on the same unit in the listed order):

| Test Load | Load Location | Results |
|------------------|----------------|---------------------------|
| 500 lb. at rest | Center of dome | No visible damage |
| 600 lb. at rest | Center of dome | No visible damage |
| 700 lb. at rest | Center of dome | No visible damage |
| 800 lb. at rest | Center of dome | No visible damage |
| 900 lb. at rest | Center of dome | No visible damage |
| 1000 lb. at rest | Center of dome | No visible damage |
| 1100 lb. at rest | Center of dome | No visible damage |
| 1200 lb. at rest | Center of dome | No visible damage |
| 1300 lb. at rest | Center of dome | No visible damage |
| 1400 lb. at rest | Center of dome | Dome began to deglaze |
| 1500 lb. at rest | Center of dome | No additional damage |
| 1600 lb. at rest | Center of dome | Dome continued to deglaze |
| 1700 lb. at rest | Center of dome | See Note #1 |

Note #1: At 1700 lbs., the dome deglazed and broke causing an opening larger than one square foot.

Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period.

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 Intertek-ATI.

For ARCHITECTURAL TESTING, Inc.

Richard E. Hartman III
Technician

Timothy J. McGill
Manager – Product Testing

REH:asm/cmd

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Photograph(s) (1)

Appendix-B: Drawing(s) (0) Complete drawings packet on file with Intertek-ATI.

Appendix A
Photograph(s)

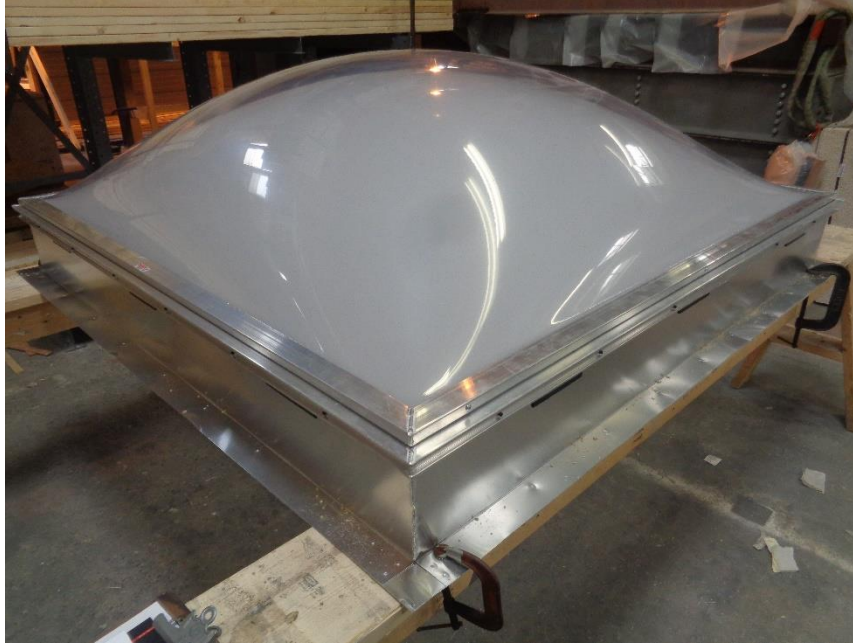


Photo No. 1
View of Tested Specimen



Photo No. 2
View of Tested Specimen with 400 lb. Load Applied

Appendix B

Drawing(s)

Note: *Complete drawings packet on file with Intertek-ATI.*