TEST REPORT

Report No.: F8967.02-109-44

Rendered to:

VELUX America LLC
Greenwood, South Carolina

PRODUCT TYPE: Skylight
SERIES/MODEL: Dynamic Double Dome Poly Smooth/Poly Smooth (6x6) (0.118/0.118 thickness)

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): 11/21/16
Report Date: 01/09/18
Test Record Retention End Date: 11/21/20
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

3.2 Series/Model: Dynamic Double Dome Poly Smooth/Poly Smooth (6x6) (0.118/0.118 thickness)

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s).

3.4 Test Date(s): 11/21/16

3.5 Test Record Retention End Date: All test records for this report will be retained until November 21, 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 located in Appendix B. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Beatty</td>
<td>Intertek-ATI</td>
</tr>
<tr>
<td>Timothy J. McGill</td>
<td>Intertek-ATI</td>
</tr>
<tr>
<td>Richard E. Hartman III</td>
<td>Intertek-ATI</td>
</tr>
</tbody>
</table>
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 glazing for a minimum of 60 seconds. The bag was removed and the test unit was inspected for any signs of damage or failure.

Additional Testing:

The specimen was taken to failure using sandbags and placed on the center of the glazing for a minimum of 60 seconds. The highest load causing penetration or damage resulting in a one square foot opening was recorded.

5.0 Evaluation Scope:

Intertek Building & Construction (B&C) was contracted by VELUX America LLC, 1418 Evans Pond Road on December 4, 2017 to evaluate the OSHA fall protection testing to the most recent referenced document. Occupational Safety and Health Administration (OSHA)/U.S. Department of Labor Regulations Standard 29 CFR §1910.29 – Fall protection systems and falling object protection-criteria and practices. Section 1910.29(e)(1) requires a cover to be capable of supporting without failure at least twice the maximum intended load that may be imposed on the cover at any one time.

Intertek Building & Construction (B&C) was contracted by VELUX America LLC, 1418 Evans Pond Road on December 4, 2017 to evaluate the Cal/OSHA fall protection testing to the most recent referenced document. California Code of Regulations, Title 8, Section 3212 §(b), which states, "covers shall be capable of safely supporting the greater of 400 lbs or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time."
6.0 Test Specimen Description:

6.1 Product Sizes:

<table>
<thead>
<tr>
<th>Overall Area: 42.0 ft²</th>
<th>Width (inches)</th>
<th>Length (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>77-3/4</td>
<td>77-3/4</td>
</tr>
</tbody>
</table>

6.2 Frame Construction:

<table>
<thead>
<tr>
<th>Frame Member</th>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Frame</td>
<td>Aluminum</td>
<td>Extruded</td>
</tr>
<tr>
<td>Dome clamp cover</td>
<td>Aluminum</td>
<td>Extruded</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Joinery Type</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>All corners</td>
<td>Mitered</td>
</tr>
<tr>
<td></td>
<td>Miter cut and welded</td>
</tr>
</tbody>
</table>

6.3 Weatherstripping:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom-shaped gasket</td>
<td>1 row</td>
<td>Located around the interior perimeter of the inner frame</td>
</tr>
</tbody>
</table>
6.0 Test Specimen Description: (Continued)

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

<table>
<thead>
<tr>
<th>Glazing Type</th>
<th>Interior Glaze</th>
<th>Spacer Type</th>
<th>Exterior Glaze</th>
<th>Glazing Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot; wide gap</td>
<td>1/8&quot; smooth polycarbonate</td>
<td>Double-sided adhesive foam spacer</td>
<td>1/8&quot; smooth polycarbonate</td>
<td>The glazing was set from the exterior onto a custom-shaped gasket against the extruded aluminum frame. The glazing was secured using an aluminum extruded dome clamp cover with a bead of sealant on the glazing. The dome clamp cover was secured using #10 x 5/8&quot; pan head self-tapping screws located 5&quot; from corners and one at the midspan of opposite sides of the glazing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Quantity</th>
<th>Daylight Opening (inches)</th>
<th>Glazing Bite (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dome</td>
<td>1</td>
<td>72-3/8 x 72-3/8</td>
<td>1</td>
</tr>
</tbody>
</table>

7.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood curb. The curb was tight fitting eliminating the need to shim.

<table>
<thead>
<tr>
<th>Location</th>
<th>Anchor Description</th>
<th>Anchor Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Frame</td>
<td>#8 x 1-1/2&quot; pan head screws</td>
<td>8&quot; from corners, 12&quot; on center</td>
</tr>
</tbody>
</table>
8.0 Test Results: The results are tabulated as follows:

8.1 California (and OSHA) minimum loading:

<table>
<thead>
<tr>
<th>Test Load</th>
<th>Load Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 lbf</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Test Load</th>
<th>Load Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>600 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>700 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>800 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>900 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>1000 lbf at rest</td>
<td>Center of dome</td>
<td>Dome inverted, frame rolled</td>
</tr>
<tr>
<td>1100 lbf at rest</td>
<td>Center of dome</td>
<td>No additional damage</td>
</tr>
<tr>
<td>1200 lbf at rest</td>
<td>Center of dome</td>
<td>No additional damage</td>
</tr>
<tr>
<td>1300 lbf at rest</td>
<td>Center of dome</td>
<td>No additional damage</td>
</tr>
<tr>
<td>1400 lbf at rest</td>
<td>Center of dome</td>
<td>Dome continued to invert</td>
</tr>
<tr>
<td>1500 lbf at rest</td>
<td>Center of dome</td>
<td>No additional damage</td>
</tr>
<tr>
<td>1600 lbf at rest</td>
<td>Center of dome</td>
<td>See note #1</td>
</tr>
</tbody>
</table>

*Note #1:* At 1600 lbf, specimen deglazed causing penetration of the weight.

9.0 Conclusion:

The specimen was evaluated in accordance with Occupational Safety and Health Administration (OSHA)/U.S. Department of Labor Regulations Standard 29 CFR §1910.29(e)(1) to be capable of supporting twice the maximum intended load, up to (450) ft-lb.

The specimen was evaluated in accordance with California Code of Regulations, Title 8, Section 3212 §(b) to be capable of safely supporting loads exceeding 400 ft-lb.
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  Timothy J. McGill
Technician  Manager – Product Testing

REH: asm/cmd/abo

Attachments (pages): This report is complete only when all attachments listed are included.
  Appendix-A: Photograph(s) (1)
  Appendix-B: Drawing(s) (17)
Appendix A

Photograph(s)

Photo No. 1
View of Tested Specimen

Photo No. 2
View of Tested Specimen with 400 Pound Load
Appendix B

Drawing(s)
Rib detail for 4', 5' & 6' width

<table>
<thead>
<tr>
<th>Size</th>
<th>L</th>
<th>W</th>
<th>H (Exterior dome)</th>
<th>H (Second dome)</th>
<th>H (Third dome)</th>
<th>L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>667.5</td>
<td>667.5</td>
<td>182</td>
<td>156.5</td>
<td>131</td>
<td>486</td>
</tr>
<tr>
<td>3</td>
<td>772</td>
<td>772</td>
<td>276</td>
<td>250.5</td>
<td>225</td>
<td>638</td>
</tr>
<tr>
<td>4</td>
<td>1277</td>
<td>1277</td>
<td>368</td>
<td>342.5</td>
<td>317</td>
<td>486</td>
</tr>
<tr>
<td>5</td>
<td>1582</td>
<td>1582</td>
<td>467</td>
<td>441.5</td>
<td>416</td>
<td>638</td>
</tr>
<tr>
<td>6</td>
<td>1886.5</td>
<td>1886.5</td>
<td>555.5</td>
<td>530</td>
<td>504.5</td>
<td>790.5</td>
</tr>
<tr>
<td>7</td>
<td>2191</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>2496</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>3106</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: 1. 4X8' dome shown
2. Height is based on the width dimension

Material
- Polycarbonate/Acrylic Alloy
- Impact modified acrylic (Outer dome)
- Impact modified acrylic (Inner dome)
- Acrylic sheets for commercial

Specifications - generally
- Poly carbonate/ Acrylic alloy 309079.64
- Impact modified acrylic (Outer dome) 309020.64
- Impact modified acrylic (Inner dome) 309210.64
- Acrylic sheets for commercial 309052.64

Note: This drawing must not be copied, published or used in any other way without permission.
**Material**

6063/T5 Aluminum

**Specifications - generally**

Extruded Aluminum-Generally

**VELUX**

SKY-PRS

450 Old Brickyard Rd., Greenwood, South Carolina 29648

**Approvals**

TMA-A

**Checked by/drawn by/date**

/MM/20.01.2016

**Scale**

2:1

**Unspec. meas.**

mm

**General tolerance**

±0.5

**Size**

B

**Category**

21

**Product instructions no.**

302359

**Operation**

000

**Edition**

00 01

This drawing must not be copied, published or used in any other way without permission

VELUX A/S reg. office: Ådalsvej 99, DK-2970 Hørsholm. CVR-no. 30003519
Regardless of tolerance, the 35° cut must extend past the leg.

### Table: Number of Holes per Size

<table>
<thead>
<tr>
<th>Size (Foot)</th>
<th>Number of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

### Notes:
- **CDxx, CEx, CTx, CGx, CHx, Cjx**
- **SKY-PRS**
- **Inner frame**
- **Cutting and punching**

**VELUX America Inc. CONFIDENTIAL**
Max. surface deviation in this area after welding 1mm typ.

SECTION A-A

Fully weld along outer profile

Note: Max. weld height allowed is 1.5mm

DETAIL C
SCALE 2 : 5

Max. 1mm misalignment allowed

DETAIL D
SCALE 2 : 1

VEILUX America Inc.
CONFIDENTIAL

VEILUX
459 Old Brickyard Rd., Greenwood, South Carolina 29648

Dome inner frame
Welding

CDx,CEx,CTx,CGx,CHx,CJx

Product instructions no.

Category 21

VEILUX A/S reg. office: Ådalsvej 99, DK-2970 Hørsholm. CVR.no. 30003519

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Scale
Unspec. meas. General tolerance Size

Date 28.03.2016

Operation 42
Edition 02

Made by

Checked by

Approved by

0A0

/RC/28.03.2016

±2mm 1:5

Welding

Dome inner frame
CDx,CEx,CTx,CGx,CHx,CJx

CDx,CEx,CTx,CGx,CHx,CJx

Size L

2' 7 16
3' 10 21
4' 13 26
5' 16 30
6' 19 35
7' 22 40
8' 25 45
10 31 55
225 67 8
305 88 1
345 98 3
465 12 80

1:5
Notes:
1. Primer should be dry to tacky before installation.
2. Prime using only approved silicone primer.

--- = Primed areas

CDx, CEx, CTx, CHx, CGx, Cjx

Clamp cover, Inner Frame, & Domes

Primer Placement

SolidWorks

VELUX America Inc. CONFIDENTIAL
Specifications - generally

Material

<table>
<thead>
<tr>
<th>Material</th>
<th>Specifications - generally</th>
</tr>
</thead>
<tbody>
<tr>
<td>6063/T5 Aluminum</td>
<td>Extruded Aluminum-Generally 309078.64</td>
</tr>
<tr>
<td>VELUX SKY-PRS</td>
<td>CDx, CEx, CTx, CHx, CGx, CJx</td>
</tr>
<tr>
<td>450 Old Brickyard Rd., Greenwood, South Carolina 29648</td>
<td>Dome clamp cover Profile</td>
</tr>
</tbody>
</table>

Approvals

TMA-A

Checked by/drawn by/date
/MM/21.03.2016

Notes:
1. Cross sectional area- 138 mm sq.
2. Break Corners-.38R
3. Purchased lineal length is 120"
SECTION A-A

For polycarbonate (Impact) only

Center ±5

Center hole is for any length larger than 5ft.

For standard acrylic, impact modified acrylic, & PC (Certified) only

2 foot 709
3 foot 1014
4 foot 1318
5 foot 1623
6 foot 1928
7 foot 2233
8 foot 2538
10 foot 3147
225 671
305 874
345 976
465 1281

Note: 1. Cutting drawing is for both the dome clamp cover and the tall dome clamp cover.
2. Pre drilled 4mm hole goes through both legs of clamp cover.

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This drawing must not be copied, published or used in any other way without permission
Fully Weld along outer profile

SECTION A-A

Squarness: D1-D2≤±5mm

Note: welding drawing is for both the dome clamp cover and the tall dome clamp cover

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>L (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>709</td>
</tr>
<tr>
<td>3</td>
<td>1014</td>
</tr>
<tr>
<td>4</td>
<td>1319</td>
</tr>
<tr>
<td>5</td>
<td>1623</td>
</tr>
<tr>
<td>6</td>
<td>1928</td>
</tr>
<tr>
<td>7</td>
<td>2233</td>
</tr>
<tr>
<td>8</td>
<td>2538</td>
</tr>
<tr>
<td>10</td>
<td>3148</td>
</tr>
<tr>
<td>225</td>
<td>734</td>
</tr>
<tr>
<td>305</td>
<td>937</td>
</tr>
<tr>
<td>345</td>
<td>1039</td>
</tr>
<tr>
<td>465</td>
<td>1344</td>
</tr>
</tbody>
</table>

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Silicone squeeze out allowed in this area

Notes:
Silicone bead shape is not important.
Min/Max diameter is used to determine total area.
No gaps in silicone allowed.
No squeeze out allowed on lens.
Specifications - generally

Material

Material | TPE for Gaskets | Specifications – generally
---|---|---
VELUX | CDx, CEx, CTx, CGx, CHx, CJx | See chart

Notes:
1. Cross sectional area: 300.7 mm sq.
2. Purchased lineal length is 120"
Snip corner as shown

Max 1mm flashing allowed in this area

Depth of condensation groove

Max: 9
Min: 8
Max. surface deviation in this area after welding 1mm typ.

Max. 2mm flashing allowed in this area
Max. 1mm flashing allowed in this area

All other areas 3mm flashing allowed

Max. 1mm flashing allowed in this area

SECTION A-A

Max. surface deviation in this area after welding 1mm typ.

<table>
<thead>
<tr>
<th>Size</th>
<th>L</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>659</td>
<td>713</td>
</tr>
<tr>
<td>3</td>
<td>964</td>
<td>1017</td>
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<tr>
<td>4</td>
<td>1268</td>
<td>1322</td>
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<tr>
<td>5</td>
<td>1573</td>
<td>1627</td>
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<td>6</td>
<td>1878</td>
<td>1932</td>
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<td>2183</td>
<td>2237</td>
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<td>2488</td>
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<td>225</td>
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<td>345</td>
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<td>980</td>
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<tr>
<td>465</td>
<td>1231</td>
<td>1285</td>
</tr>
</tbody>
</table>

VELUX America Inc.
CONFIDENTIAL
Wool felt for wicking (grey)

Material:

25 ±2

<table>
<thead>
<tr>
<th>Operation</th>
<th>Category</th>
<th>Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product instructions no.

21 305659 000 00 02

Scale

2:1

Unspec. meas.

mm

General tolerance

±1

Size

A

Specifications - generally

Foam gasket wick mat'l commercial domes | 309212.64

CDx,CEx,CTx,CGx,CHx,CJx

Gasket wick

Profile/cutting

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VELUX A/S reg. office: Ådalsvej 99, DK-2970 Hørsholm. CVR-no. 30003519
Wick must not extend beyond this surface

Wick must contact all 4 posts

Place wicks in all four corners

DETAIL A
SCALE 1 : 2

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VELUX SKY-PRS
450 Old Brickyard Rd., Greenwood, South Carolina 29648

Gasket

Wick placement

Scale | Unspec. meas. | General tolerance | Size
--- | --- | --- | ---
1:10 | mm | ±1 | A

Product instructions no. 305659

This drawing must not be copied, published or used in any other way without permission
Align spring clips with inner frame drilled holes ±50mm

Push spring clip past shoulder
**Material**

Torx Pan head, SST, #2 drill point #10-16x5/8"  

**Specifications - generally**

Stainless steel screws  

CDx, CEx, CTx, CGx, CHx, CJx  

**Torx screw**

**Approvals**

VELUX  

SKY-PRS  

450 Old Brickyard Rd., Greenwood, South Carolina 29648

**Product instructions no.**

<table>
<thead>
<tr>
<th>Category</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>00</td>
</tr>
<tr>
<td>Edition</td>
<td>01</td>
</tr>
</tbody>
</table>

**Report #:** F8967.01-109-44  
**Date:** 11/21/2016  
**Verified by:**

---

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