TEST REPORT

Report No.: F8971.02-109-44

Rendered to:

VELUX America LLC
Greenwood, South Carolina

PRODUCT TYPE: Skylight
SERIES/MODEL: Dynamic Dome Skylight Polycarbonate Smooth (5' x 10') (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): 07/28/16
Report Date: 01/09/18
Test Record Retention Date: 07/28/20
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 Dome Skylight Polycarbonate Smooth (5' x 10') (0.118 thickness)

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

3.4 Test Date(s): 07/28/16

3.5 Test Record Retention End Date: All test records for this report will be retained until July 28, 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>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 Method (intended to address listed 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 screen 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 screen for a minimum of 60 seconds. The highest load causing penetration or damage 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: 57.5 ft²</th>
<th>Width (inches)</th>
<th>Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>65-3/4</td>
<td>126</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 Reinforcement: No reinforcement was utilized

6.4 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>

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

<table>
<thead>
<tr>
<th>Glazing Type</th>
<th>Glazing Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot; poly smooth</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; screws located 2&quot; from all corners and 12&quot; on center.</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>59-3/4 x 120</td>
<td>7/8</td>
</tr>
</tbody>
</table>

7.0 Installation: The specimen was installed into a Spruce-Pine-Fir wood buck.

<table>
<thead>
<tr>
<th>Location</th>
<th>Anchor Description</th>
<th>Anchor Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum frame</td>
<td>#10 x 1-1/2&quot; pan head screw</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 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>509 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>612 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>718 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>826 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>939 lbf at rest</td>
<td>Center of dome</td>
<td>No visible damage</td>
</tr>
<tr>
<td>1046 lbf at rest</td>
<td>Center of dome</td>
<td>See Note #1</td>
</tr>
</tbody>
</table>

*Note #1: At 1046 lbf, the load created on opening larger than one square foot.*

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 (469.5) 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/abo

Attachments (pages):  This report is complete only when all attachments listed are included.
    Appendix-A: Photograph(s) (1)
    Appendix-B: Drawing(s) (16)
Appendix A

Photograph(s)

Photo No. 1
View of Tested Specimen

Photo No. 2
Opening Larger Than One Square Foot
Appendix B

Drawing(s)
HORIZONTAL CROSS-SECTION
(TYPICAL FOR FRAME VERTICAL CROSS-SECTION)
Polycarbonate, or acrylic, or impact modified acrylic

Material

L ±3

209° L1 typ.

W ±3

50mm flat

H 50mm flat

SECTION A-A

Rib detail for 4', 5' & 6' width

Rib detail for 2' & 3' width

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

<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>225.5</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>

Scales

1:15

Unspec. meas. mm 4

General tolerance ± 2

Size B

Specifications – generally

Polycarbonate/Acrylic Alloy 309079.64
Impact modified acrylic (Outer dome) 309209.64
Impact modified acrylic (Inner dome) 309210.64
Acrylic sheets for commercial 309052.64

CDx, CEx

Dome

Material

Polycarbonate, or acrylic, or impact modified acrylic

VELUX SKY-PRS

456 Old Brickyard Rd., Greenwood, South Carolina 29648

Approvals

TMA-A

Product instructions no.

303615

Operation 02

Edition 32

Category 21

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Specifications - generally

Material
6063/T5 Aluminum

Specifications

Extruded Aluminum-Generally

CDx, CEx, CTx, CGx, CHx, CJx

Profile

Inner frame

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

Product instructions no.
302359

Operation
Edition
000
001

This drawing must not be copied, published or used in any other way without permission.
Regardless of tolerance 35° cut must extend past this leg.

DETAIL A
SCALE 2 : 1

<table>
<thead>
<tr>
<th>Size</th>
<th>L</th>
<th>Number of holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 foot</td>
<td>174</td>
<td>2</td>
</tr>
<tr>
<td>3 foot</td>
<td>1062</td>
<td>3</td>
</tr>
<tr>
<td>4 foot</td>
<td>1366</td>
<td>4</td>
</tr>
<tr>
<td>5 foot</td>
<td>1671</td>
<td>4</td>
</tr>
<tr>
<td>6 foot</td>
<td>1976</td>
<td>6</td>
</tr>
<tr>
<td>7 foot</td>
<td>2281</td>
<td>7</td>
</tr>
<tr>
<td>8 foot</td>
<td>2586</td>
<td>8</td>
</tr>
<tr>
<td>10 foot</td>
<td>3195</td>
<td>10</td>
</tr>
<tr>
<td>225</td>
<td>719</td>
<td>2</td>
</tr>
<tr>
<td>305</td>
<td>922</td>
<td>3</td>
</tr>
<tr>
<td>340</td>
<td>1024</td>
<td>3</td>
</tr>
<tr>
<td>403</td>
<td>1329</td>
<td>4</td>
</tr>
</tbody>
</table>

SolidWorks
Edition Date Description of change
C 02 Added CG2 sizes 3/22/16
Max. surface deviation in this area after welding 1mm typ.

Max. 1mm misalignment allowed

Squareness: D1-D2±5mm

Fully weld along outer profile
Note: Max weld height allowed is 1.5mm

Size | L
---|---
2" | 716
3" | 1021
4" | 1326
5" | 1631
6" | 1935
7" | 2240
8" | 2545
10" | 3155
225 | 678
305 | 881
345 | 983
465 | 1288

SECTION A-A

DETAIL C
SCALE 2 : 5

DETAIL D
SCALE 2 : 1

Max. weld height allowed is 1.5mm

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

--- = Primed areas

Only needed for Impact variants

CDx, CEx, CTx, CHx, CGx, Cjx

Clamp cover, Inner Frame, & Domes

Primer Placement
Extruded Aluminum—Generally

Material

<table>
<thead>
<tr>
<th>Scale</th>
<th>Unspec. meas.</th>
<th>General tolerance</th>
<th>Size</th>
<th>Category</th>
<th>Operation</th>
<th>Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>mm</td>
<td>±.5</td>
<td>A</td>
<td>21</td>
<td>000</td>
<td>00 01</td>
</tr>
</tbody>
</table>

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Notes:
1. Cross sectional area- 138 mm sq.
2. Break Corners-.38R
3. Purchased lineal length is 120’
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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Fully Weld along outer profile

SECTION A-A

Squarness: D1-D2 ≤ 5mm

Scale 1:1

<table>
<thead>
<tr>
<th>Size</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>709</td>
</tr>
<tr>
<td>3&quot;</td>
<td>1014</td>
</tr>
<tr>
<td>4&quot;</td>
<td>1319</td>
</tr>
<tr>
<td>5&quot;</td>
<td>1623</td>
</tr>
<tr>
<td>6&quot;</td>
<td>1928</td>
</tr>
<tr>
<td>7&quot;</td>
<td>2233</td>
</tr>
<tr>
<td>8&quot;</td>
<td>2538</td>
</tr>
<tr>
<td>10&quot;</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>

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

Specifications - generally

Material
VELUX SKY-PRS

Profile gasket

Specifications

<table>
<thead>
<tr>
<th>Measure</th>
<th>Tol.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2.5</td>
<td>0.35</td>
</tr>
<tr>
<td>2.5–4</td>
<td>0.4</td>
</tr>
<tr>
<td>4–6.3</td>
<td>0.5</td>
</tr>
<tr>
<td>6.3–10</td>
<td>0.7</td>
</tr>
<tr>
<td>10–16</td>
<td>0.8</td>
</tr>
<tr>
<td>16–54</td>
<td>1</td>
</tr>
</tbody>
</table>

Angles ±1°

Notes:
1. Cross sectional area- 300.7 mm² sq.
2. Purchased lineal length is 120"
Snip corner as shown

Max 1mm flashing allowed in this area

SECTION B-B
SCALE 1 : 1

Depth of condensation groove
Max. 9
Min. 8

SolidWorks

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

CDx, CEx, CTx, CGx, CHx, CJx
Gasket groove cutting

CDx, CEx, CTx, CGx, CHx, CJx
Gasket groove cutting
Max. surface deviation in this area after welding 1mm typ.

Max. 2mm flashing allowed in this area
All other areas 3mm flashing allowed

Max. 1mm flashing allowed in this area

Max. 1mm flashing allowed in this area

SECTION A-A

<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>
</tr>
<tr>
<td>4</td>
<td>1268</td>
<td>1322</td>
</tr>
<tr>
<td>5</td>
<td>1573</td>
<td>1627</td>
</tr>
<tr>
<td>6</td>
<td>1878</td>
<td>1932</td>
</tr>
<tr>
<td>7</td>
<td>2183</td>
<td>2237</td>
</tr>
<tr>
<td>8</td>
<td>2488</td>
<td>2541</td>
</tr>
<tr>
<td>10</td>
<td>3077</td>
<td>3131</td>
</tr>
<tr>
<td>225</td>
<td>671</td>
<td>675</td>
</tr>
<tr>
<td>252</td>
<td>824</td>
<td>878</td>
</tr>
<tr>
<td>345</td>
<td>926</td>
<td>980</td>
</tr>
<tr>
<td>465</td>
<td>1221</td>
<td>1285</td>
</tr>
</tbody>
</table>
Material: Wool felt for wicking (grey)

Specifications - generally

<table>
<thead>
<tr>
<th>Scale</th>
<th>Unspec. meas.</th>
<th>General tolerance</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>mm</td>
<td>±1</td>
<td>A</td>
</tr>
</tbody>
</table>

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Profile/cutting

CDx, CE, CTx, CGx, CHx, CJx

Approvals

TMA-B

Report #: F8971.01-109-44
Date: 08/17/2016
Verified by: [Signature]

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

This drawing must not be copied, published or used in any other way without permission
Place wicks in all four corners

Wick must not extend beyond this surface

Wick must contact all 4 posts

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CONFIDENTIAL

Wick placement

Gasket

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

Report #: F8971.01-109-44
Date: 08/17/2016
Verified by: [Signature]

CDx,CEx,CTx,CGx,CHx,CJx

Product instructions no.

Category 21
Operation 0A
Edition 52

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VELUX A/S reg. office: Ådalsvej 99, DK-2970 Hørsholm. CVR-no. 30003519
**VELUX America Inc. CONFIDENTIAL**

**Specifications - generally**

<table>
<thead>
<tr>
<th>Material</th>
<th>Specifications - generally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx Pan head, SST, #2 drill point #10-16x5/8&quot;</td>
<td>Stainless steel screws 414010.64</td>
</tr>
<tr>
<td>VELUX SKY-PRS</td>
<td>CDx, CEx, CTx, CGx, CHx, CJx</td>
</tr>
<tr>
<td>450 Old Brickyard Rd., Greenwood, South Carolina 29648</td>
<td>Torx screw</td>
</tr>
</tbody>
</table>

**Approvals**

TMA-A

**Checked by/drawn by/date**

/MM/20.01.2016

---

**Torx screw**

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