



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





Report Date: 01/09/18

Page 2 of 6

VELUX America LLC 1.0 Report Issued To:

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:

Name Company

Timothy J. McGill Intertek-ATI

Richard E. Hartman III Intertek-ATI





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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."





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6.0 Test Specimen Description:

6.1 Product Sizes:

| Overall Area: 57.5 ft ² | Width (inches) | Height (inches) | | | |
|------------------------------------|----------------|-----------------|--|--|--|
| Overall size | 65-3/4 | 126 | | | |

6.2 Frame Construction:

| Frame Member | Frame Member Material | |
|------------------|-----------------------|----------|
| Inner frame | Aluminum | Extruded |
| Dome clamp cover | Aluminum | Extruded |

| | Joinery Type | Detail | | |
|-------------|--------------|----------------------|--|--|
| All corners | Mitered | Miter cut and welded | | |

6.3 Reinforcement: No reinforcement was utilized

6.4 Weatherstripping:

| Description | Quantity | Location |
|----------------------|----------|------------------------------|
| Custom shaned gasket | 1 row | Located around the interior |
| Custom shaped gasket | 1 row | perimeter of the inner frame |

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.

| Glazing Type | Glazing Method | | | | | |
|------------------|---|--|--|--|--|--|
| 1/8" poly smooth | 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" screws located 2" from all corners and 12" on center. | | | | | |

| Location Quantity | | Daylight Opening (inches) | Glazing Bite (inches) | |
|-------------------|---|---------------------------|-----------------------|--|
| Dome | 1 | 59-3/4 x 120 | 7/8 | |

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

| Location | Anchor Description | Anchor Location |
|----------------|-----------------------------|--------------------------------|
| Aluminum frame | #10 x 1-1/2" pan head screw | 8" from corners, 12" on center |





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8.0 Test Results: The results are tabulated as follows:

8.1 California (and OSHA) minimum loading:

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

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):

| Test Load | Test Load Location Results | |
|------------------|--------------------------------------|-------------------|
| 509 lbf at rest | est Center of dome No visible damage | |
| 612 lbf at rest | Center of dome | No visible damage |
| 718 lbf at rest | Center of dome | No visible damage |
| 826 lbf at rest | Center of dome | No visible damage |
| 939 lbf at rest | Center of dome | No visible damage |
| 1046 lbf at rest | Center of dome | See Note #1 |

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.





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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

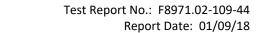
Timothy J. McGill Manager - Product Testing

REH:asm/abo

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

Appendix-A: Photograph(s) (1) Appendix-B: Drawing(s) (16)

This report produced from controlled document template ATI 00514, revised 06/26/14.







Appendix A Photograph(s)



Photo No. 1 View of Tested Specimen



Photo No. 2
Opening Larger Than One Square Foot

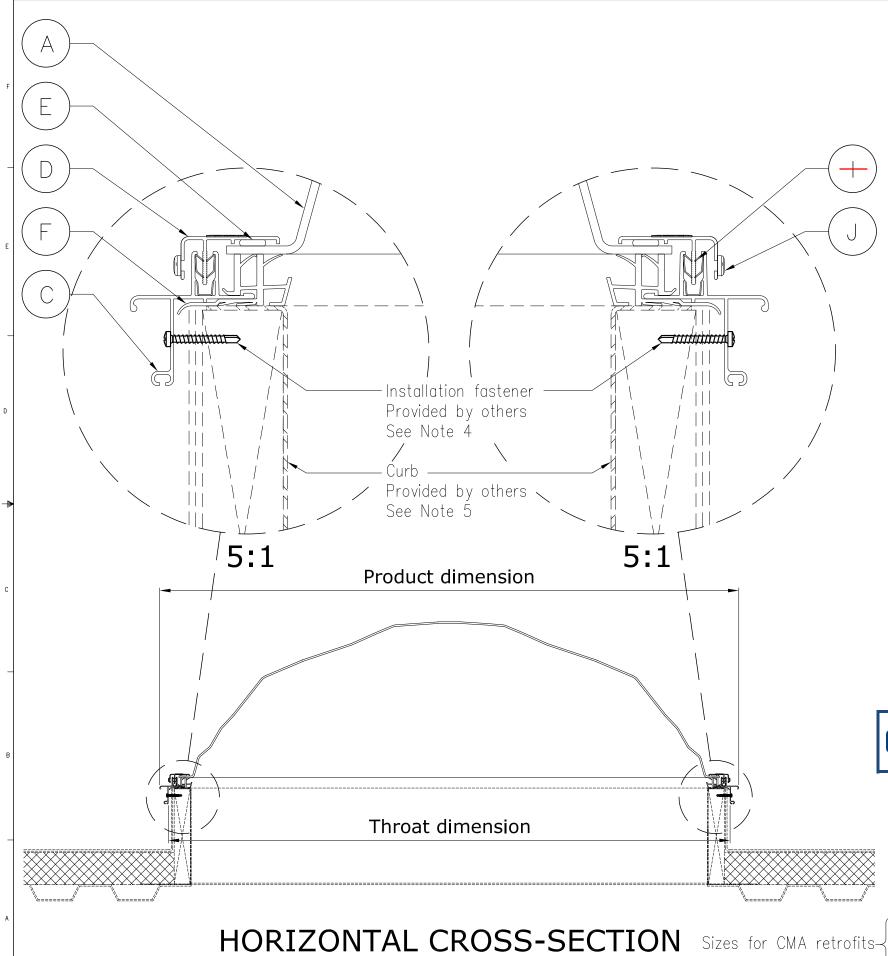




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Appendix B

Drawing(s)



(TYPICAL FOR FRAME VERTICAL CROSS-SECTION)

PART SCHEDULE PART NO. DESCRIPTION 3036150A03202 Thermoformed exterior dome A 1 Dynamic exterior dome Polycarbonate, or acrylic, or impact modified acrylic 2 3023590000001 Profile 3023590A03102 Cutting and punching 6063/T5 Aluminum 4 Inner frame 302359 Powder coat color: NCS S 7500-N (Grey) 3023590A03902 Powder coat 3023590A04202 Welding N/A N/A Primer N/A Clamp cover, Inner Frame, & Domes 3023590A05201 Primer placement 3023610000001 Profile 3023610A03102 Cutting and drilling 6063/T5 Aluminum D 4 Dome clamp cover 302360 Powder coat color: NCS S 7500-N (Grey) 3023610A03902 Powder coat 3023600A04201 Welding E N/A Commercial sealant 305660 Silicone for commercial application 3036600A05202 Silicone placement 3036120000001 Profile |3036110003901|Gasket groove cutting 4 High profile gasket 303612 TPE Color: Black 13036110A03101 Gasket cutting 3036110A04202 Gasket welding 305659000002 Profile/cutting 4 Gasket wick Polyethelene felt for wicking 3056590A05202 Wick placement 13062220000001 13062220A05202 Spring clip placement

| | FASTENER SCHEDULE | | | | | | | | | |
|---|-------------------|------|------------|----------|--|----------|--------------------------|-----------|---------|-------------------|
| I | ТЕМ | QTY. | PART | PART NO. | DESCRIPTION | Category | DRAWING NO Commodity No. | Operation | Edition | COMMENTS |
| | J | # | Torx screw | 306225 | Torx Pan head, SST, #2 drill point #10-16x5/8" | 21 | 306225000 | 00 | 01 | Commodity drawing |

GENERAL NOTES

- * Not Visible in this drawing
- 1. Unless noted otherwise, all parts listed are for CD1, CE1, CT1, CG1, CH1, CJ1 Commercial Dome skylights.
- 2. A copy of this drawing plus any other supplemental documentation regarding this skylight model will be maintained at the Skylight Technical Database in the following category location — Technical Data/Submittal Data/
- 3. Horizontal and Vertical Frame Cross—Section part sizes, materials and assembly are identical.
- 4. #8 or larger stainless steel installation fasteners, appropriate for supporting structure. Provided by others. One fastener per hole of
- 5. The CDx skylight installs directly on site built or prefabricated curbs, provided by others.

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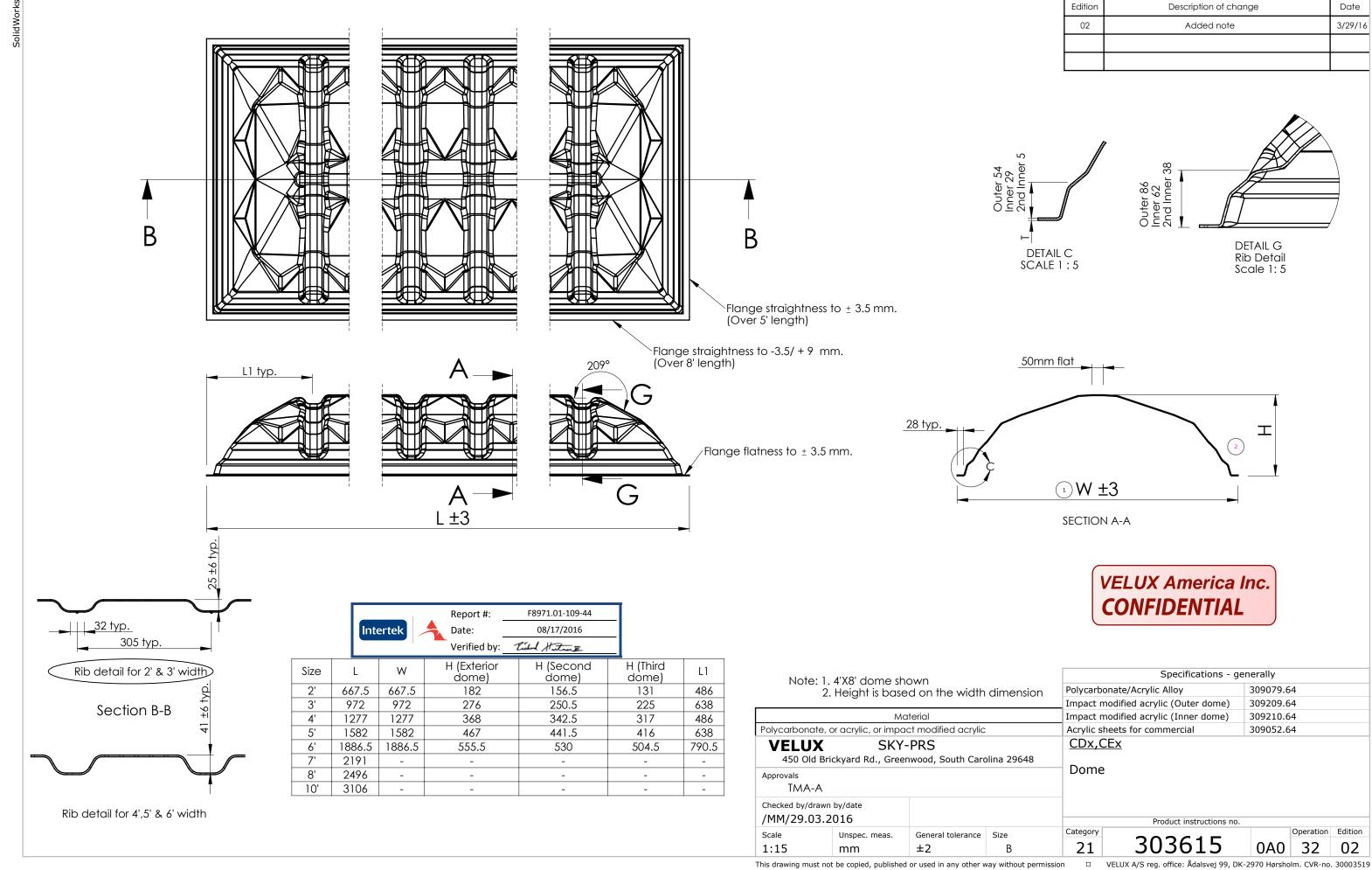
| Intertek | | Date: | 08/17/2016 |
|----------|------|------------------|-------------------|
| | | Verified by: | Richal Hartrante |
| | Size | Throat dimension | Product dimension |
| | 2′ | 717 | 758 |
| | 3′ | 1022 | 1063 |
| | 4′ | 1326.5 | 1368 |
| | 5′ | 1631.5 | 1672.5 |
| | 6′ | 1936 | 1977.5 |
| | 7′ | 2241 | 2282 |
| | 8′ | 2546 | 2857 |
| | 10′ | 3155.5 | 3197 |
| | 225 | 743 | 784 |
| J | 305 | 946 | 987 |
| \ | 0.45 | 40475 | 4000 5 |

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| DIMENSIONS ARE IN MM NE SENERAL TOLERANCES: ANGULAR: ±1 DNE PLACE DECIMAL :±0.5 | DTE: | VELUX. | SK 1418 Evans Po Greenwood, Sou | | |
|--|------|--|---------------------------------------|----------------|--------------------|
| MATERIAL SPECIFICATION | | Commercial Single Dome Skylight CD1, CE1, CT1, CG1, CH1, CJ1 | | | |
| INSH | | Product Certification Typical Arrangement with | | | |
| SPECIFICATION | | Product List of | Parts | | |
| STANDARDS | | SIZE COMMODITY NO. | REV. SCALE: | CKD/DRAWN/DATE | RLE/JDH 04/06/2016 |

1352.5

1393.5

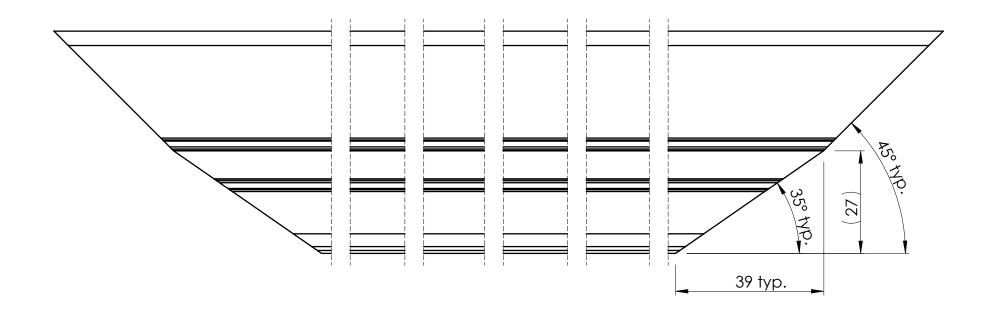


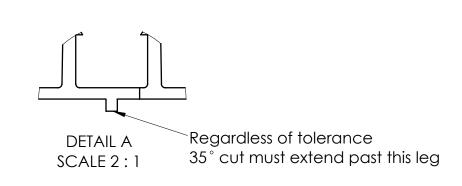
21.5 21.5 21.5 33 VELUX America Inc.

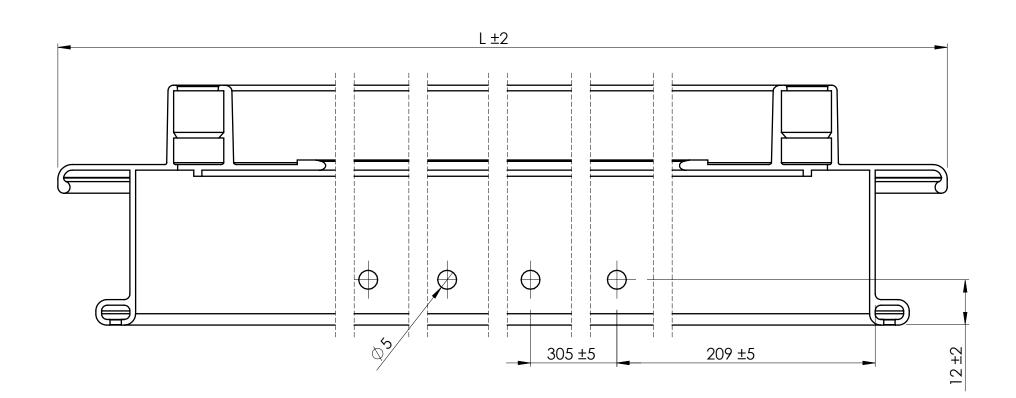
Specifications - generally Material 6063/T5 Aluminum Extruded Aluminum-Generally 309078.64 CDx,CEx,CTx,CGx,CHx,CJx **SKY-PRS VELUX** 450 Old Brickyard Rd., Greenwood, South Carolina 29648 Inner frame Approvals Profile TMA-A Checked by/drawn by/date /MM/20.01.2016 Product instructions no. Operation Edition Category Scale Unspec. meas. General tolerance Size В 21 000 00 01 ±0.5 2:1 mm

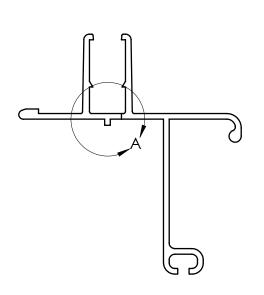
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| Edition | Description of change | Date |
|---------|-----------------------|---------|
| 02 | Added CG2 sizes | 3/22/16 |
| | | |
| | | |









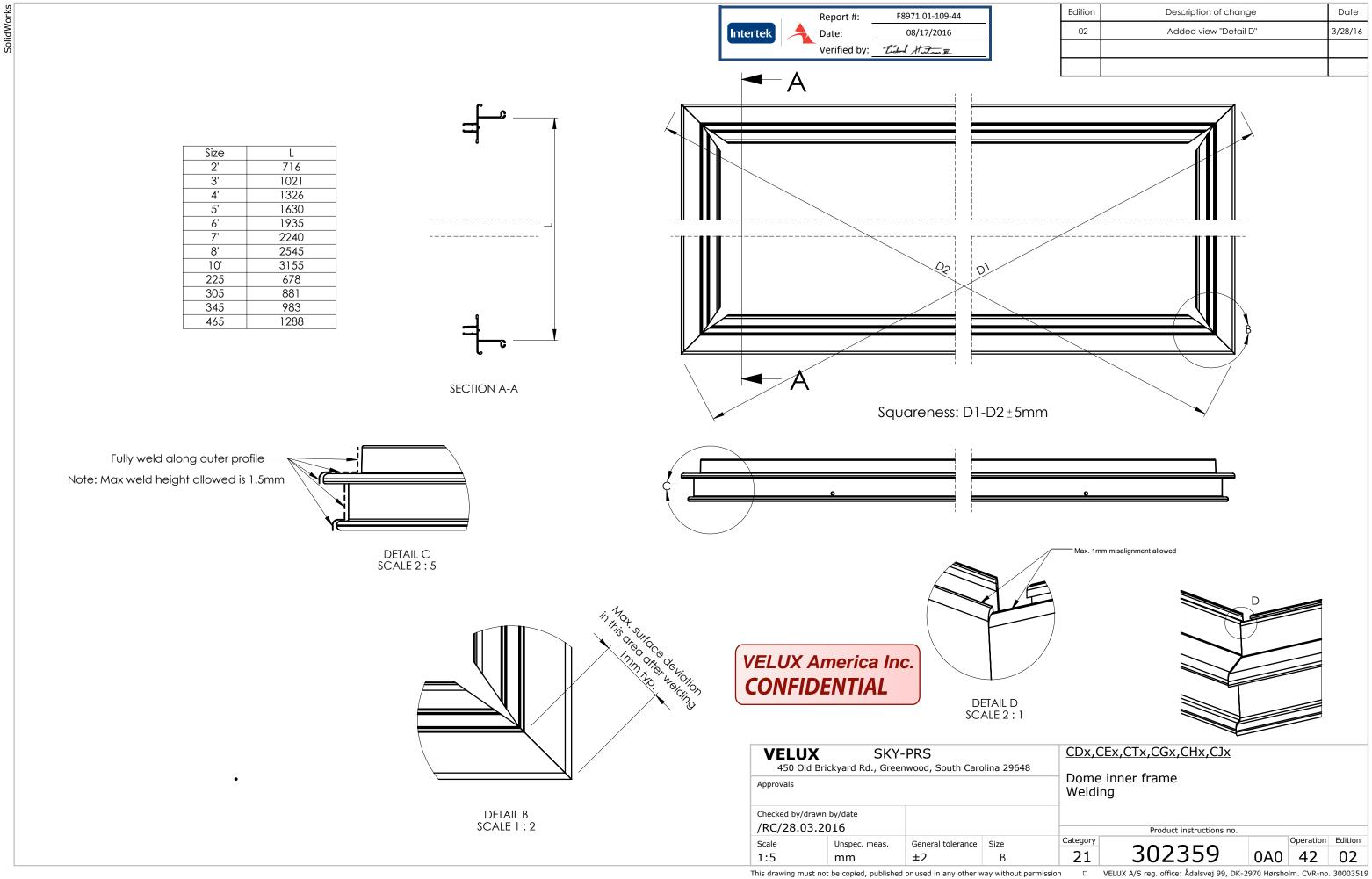
| | nepore m. | |
|---------|-------------------------|-----------------|
| Interte | Date: | 08/17/2016 |
| | Verified by: <u></u> どよ | and Hartman |
| Size | L | Number of holes |
| 2 foot | 757 | 2 |
| 3 foot | 1062 | 3 |
| 4 foot | 1366 | 4 |
| 5 foot | 1671 | 5 |
| 6 foot | 1976 | 6 |
| 7 foot | 2281 | 7 |
| 8 foot | 2586 | 8 |
| 10 foot | 3195 | 10 |
| 225 | 719 | 2 |
| 305 | 922 | 3 |
| 345 | 1024 | 3 |
| 465 | 1329 | 4 |

Report #:

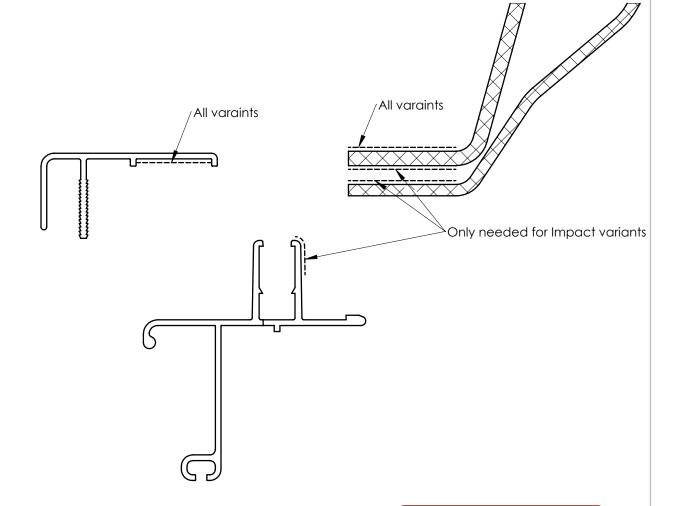
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| VELUX SKY-PRS 450 Old Brickyard Rd., Greenwood, South Carolina 29648 | | | | CDx,CEx,CTx,CGx,CHx,CJx | | | | |
|--|---------------|-------------------|------|----------------------------------|--------------------------|-----|-----------|---------|
| Approvals | | | | Inner frame Cutting and punching | | | | |
| Checked by/drawn by/date | | | | | | | | |
| /REC/21. | 03.2016 | | | | Product instructions no. | | | |
| Scale | Unspec. meas. | General tolerance | Size | Category | 2222 | | Operation | Edition |
| 1:1 | mm | ±1 | С | 21 | 302359 | 0A0 | 31 | 02 |
| his drawing must not be copied, published or used in any other way without permission UKLUX A/S reg. office: Ådalsvej 99, DK-2970 Hørsholm. CVR-no. 30003519 | | | | | | | | |



| Edition | Description of change | Date |
|---------|-----------------------|------|
| | | |
| | | |
| | | |



---- = Primered areas

Notes:

1. Primer should be dry to tacky before installation.

2. Prime using only approved silicone primer.

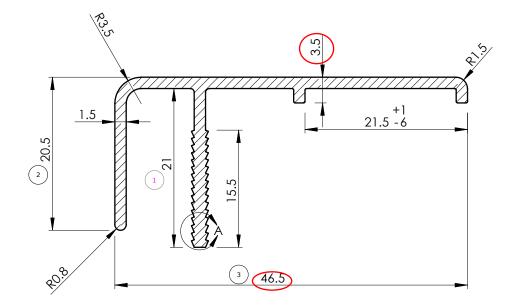
| VELUX SKY-PRS 450 Old Brickyard Rd., Greenwood, South Carolina 29648 | | | CDx, CEx, CTx, CHx, CGx, Cjx | | | | | |
|---|--------------------------|-------------------|------------------------------|-----------------------------------|--------------------------|-----|-----------|---------|
| Approvals | | | | Clamp cover, Inner Frame, & Domes | | | | |
| | | | | Primer Placement | | | | |
| | Checked by/drawn by/date | | | | | | | |
| /MM/29.03 | /MM/29.03.2016 | | | | Product instructions no. | | | |
| Scale | Unspec. meas. | General tolerance | Size | Category | 202250 | | Operation | Edition |
| 1:1 | mm | ± | | 21 | 302359 | 0A0 | 52 | 01 |

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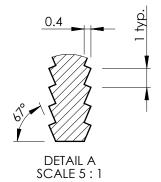
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SolidWorks

| Edition | Description of change | Date |
|---------|-----------------------|------|
| | | |
| | | |
| | | |



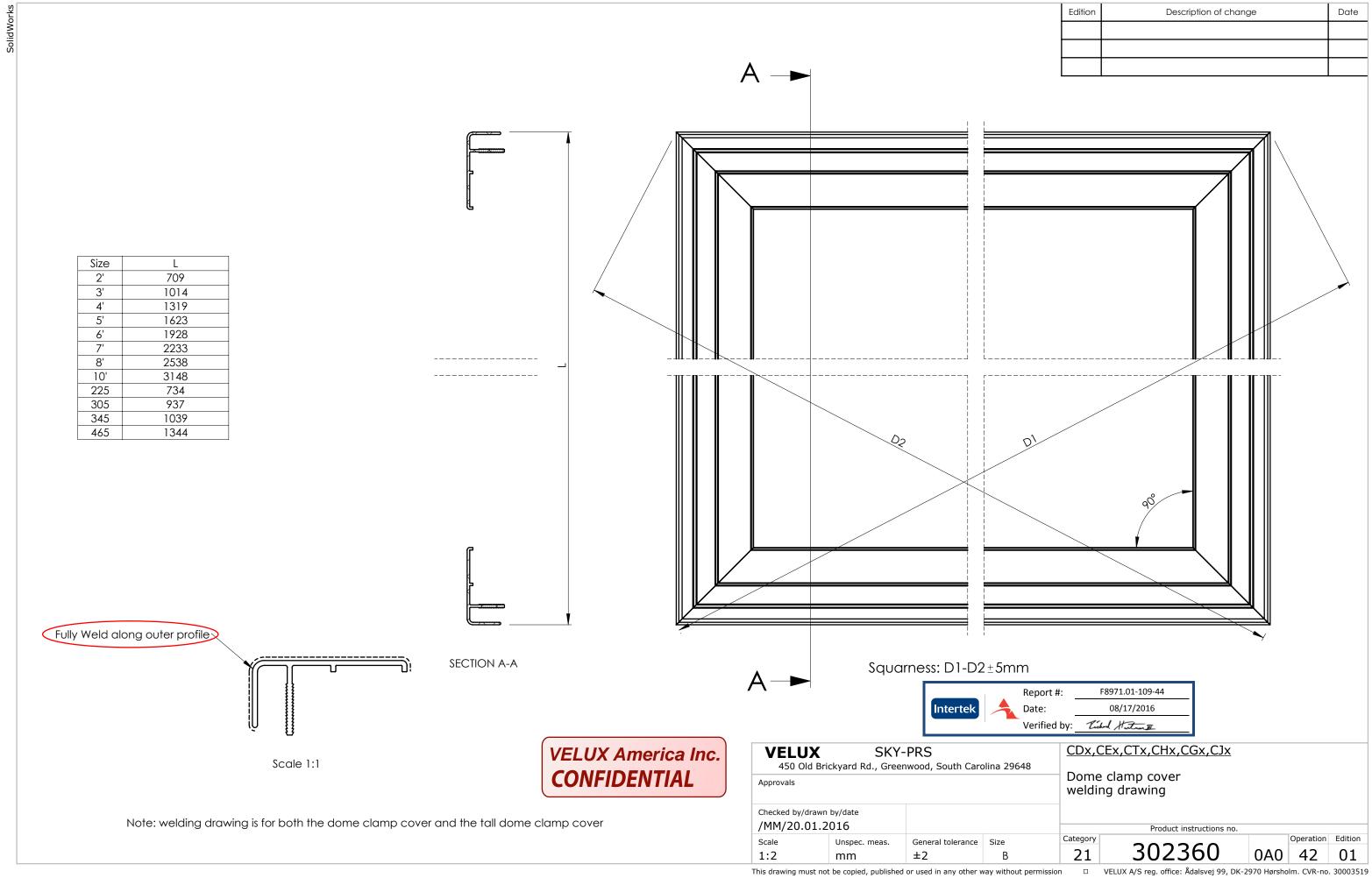
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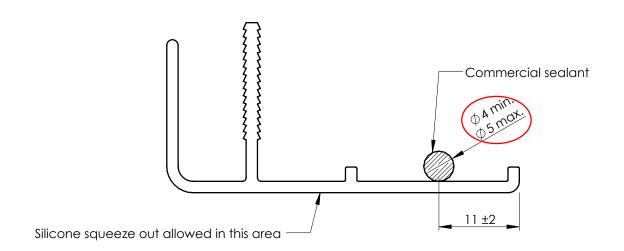
Notes:

- Cross sectional area- 138 mm sq.
 Break Corners- .38R
 Purchased lineal length is 120"

| | Мс | ıterial | Specifications - generally | | | | | |
|--|---------------|-----------------------|----------------------------|-----------------------------|-------------------------|-----------|--------------|------------|
| 6063/T5 Aluminum | | | Extruded | Aluminum-Generally | 309078.6 | 309078.64 | | |
| VELUX SKY-PRS 450 Old Brickyard Rd., Greenwood, South Carolina 29648 | | | | x,CTx,CHx,CGx,CJx | | | | |
| Approvals TMA-A | •• | | | Dome clamp cover Profile | | | | |
| Checked by/draw | ** | | | | Product instructions no | | | |
| Scale 2:1 | Unspec. meas. | General tolerance ±.5 | Size A | Category 21 | 302361 | 000 | Operation 00 | Edition 01 |



| Edition | Description of change | |
|---------|-----------------------|---------|
| 02 | Added note | 3/29/16 |
| | | |
| | | |

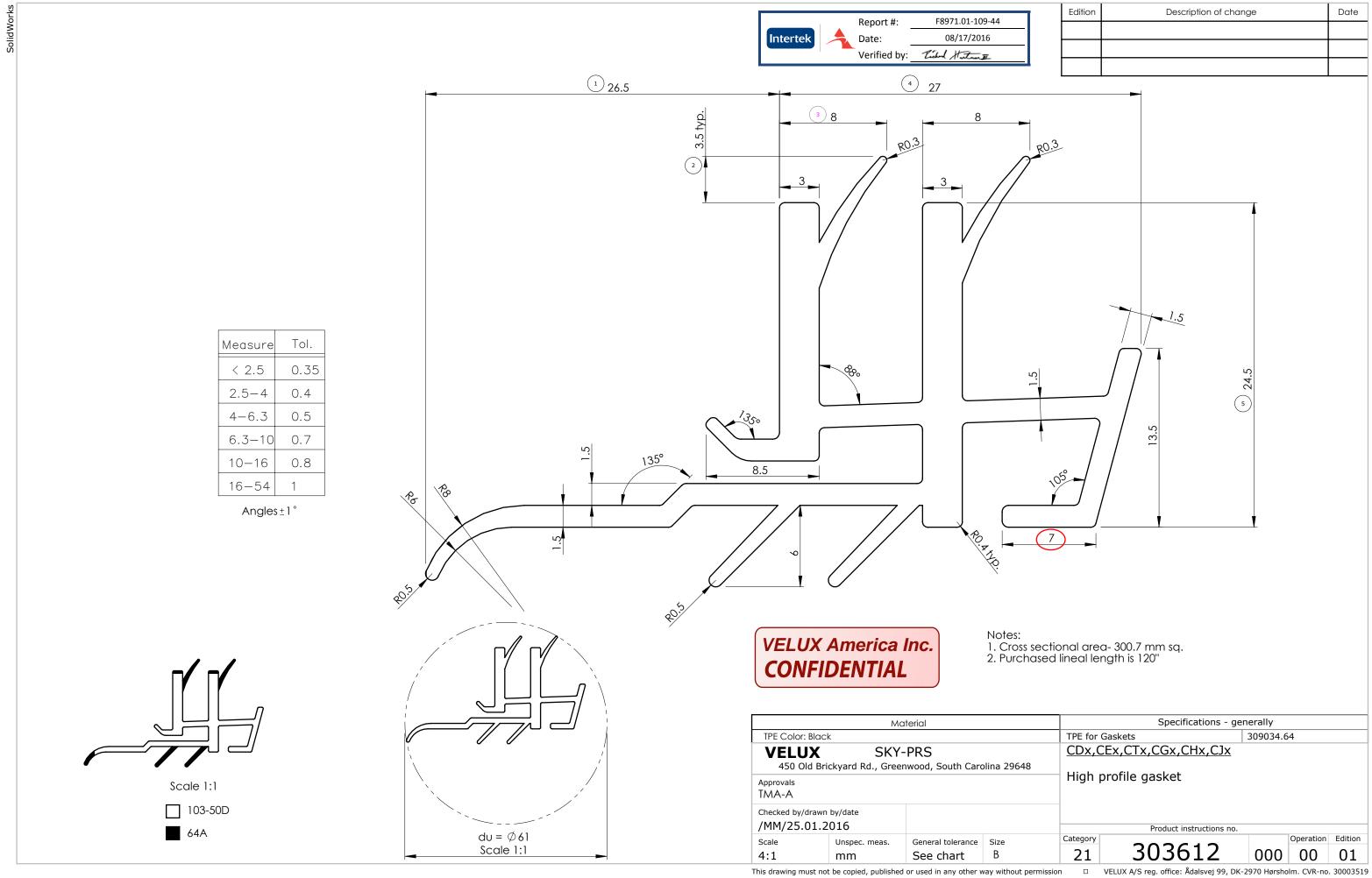


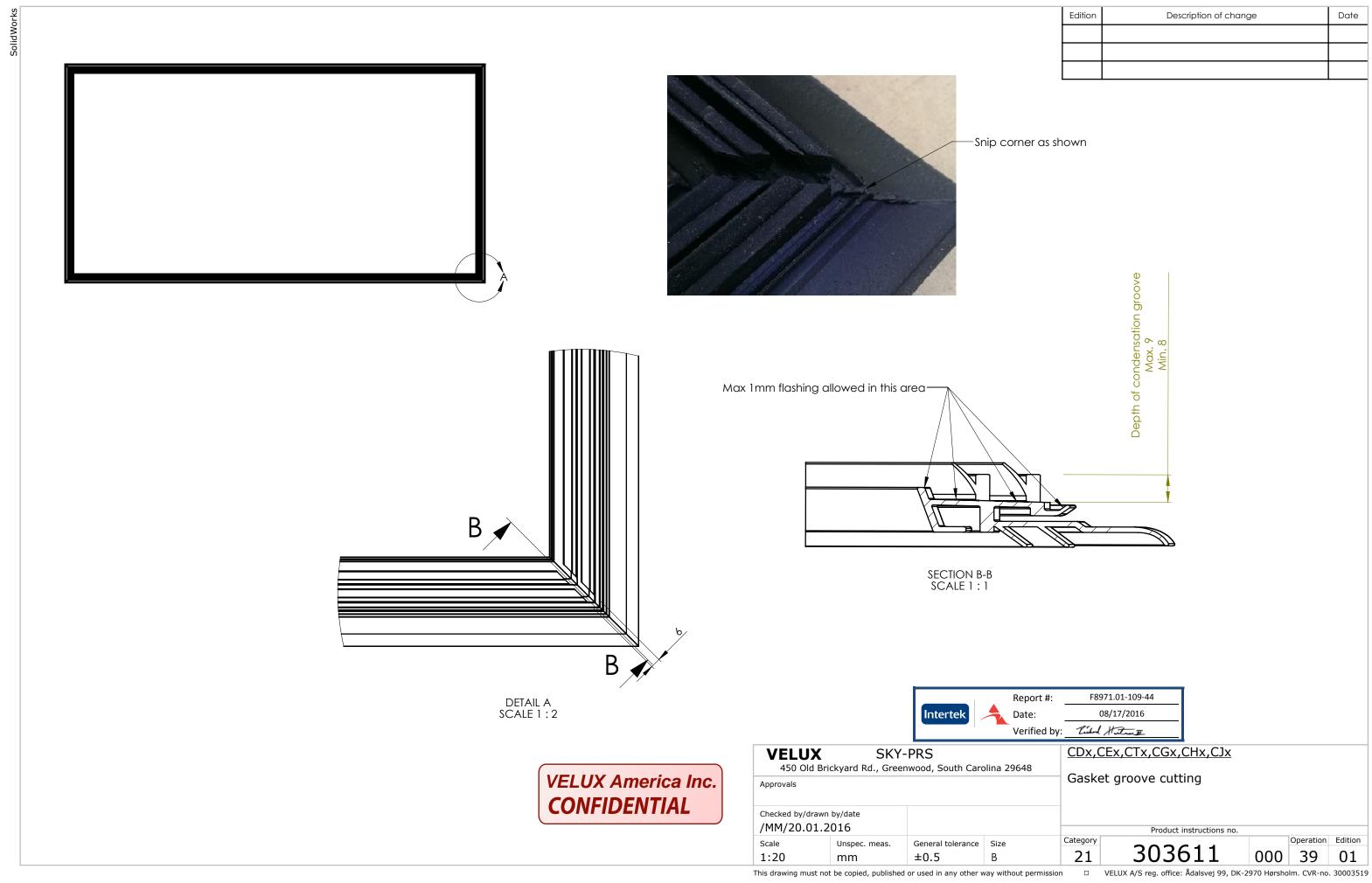
Notes:

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.







SolidWorks Edition Description of change Date 02 Revised material description 3/29/16 25 ±2 **VELUX America Inc.** CONFIDENTIAL F8971.01-109-44 Report #: Intertek 08/17/2016 Date: Verified by: Richard Hartam III Material Specifications - generally Wool felt for wicking (grey) Foam gasket wick mat'l commercial domes 309212.64 CDx,CEx,CTx,CGx,CHx,CJx **VELUX** SKY-PRS 450 Old Brickyard Rd., Greenwood, South Carolina 29648 Gasket wick Approvals TMA-B Profile/cutting Checked by/drawn by/date

Category

21

 ± 1

General tolerance

Unspec. meas.

mm

/MM/29.03.2016

Scale

2:1

000

Operation Edition

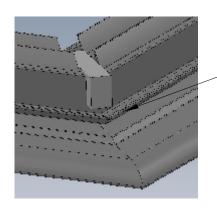
02

00

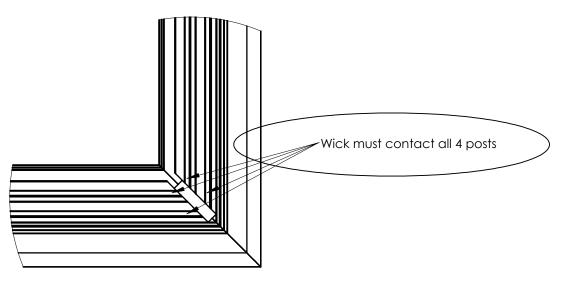
Product instructions no.

305659

| Edition | Description of change | Date |
|---------|-----------------------|---------|
| 02 | Added note | 3/29/16 |
| | | |
| | | |



Wick must not extend beyond this surface



DETAIL A **SCALE 1:2**

Place wicks in all four corners

Intertek

Report #:

Date: Verified by: F8971.01-109-44 08/17/2016

Richard Hartman

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VELUX SKY-PRS

450 Old Brickyard Rd., Greenwood, South Carolina 29648

Approvals

Checked by/drawn by/date /MM/29.03.2016

Scale Unspec. meas. 1:10 mm

General tolerance

Wick placement

Gasket

Category 21

305659

Product instructions no.

CDx,CEx,CTx,CGx,CHx,CJx

0A0

Operation Edition 52

02

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