

OSHA FALL PROTECTION TEST REPORT

Rendered to:

VELUX AMERICA INC.

SERIES/MODEL: CM-1

PRODUCT TYPE: Fixed Acrylic Glazed Curb Mount Skylight

Report No: 90200.01-109-44

Test Date: 04/01/09

Report Date: 10/20/09

Record Retention Date: 04/01/13

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VELUX AMERICA INC.
P.O. Box 5001
(1418 Evans Pond Road)
Greenwood, South Carolina 29648-5001

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Project Summary: Architectural Testing, Inc. was contracted by VELUX America Inc. to perform testing on a Series/Model CM-1, fixed acrylic glazed curb mount skylight. The test specimen description and results are reported herein. The test specimen was provided by the client.

Test Specification: The test specimen was tested to assess compliance with Occupational Safety and Health Administration/U.S. Department of Labor Regulations (Standards- 29 CFR)- 1910.23(e)(8). A 200 lbf weight, fabricated from a bag filled with sand, was placed on the center of the dome for a minimum of 60 seconds and then dropped from a specified height above the dome of the skylight with any permanent visible damage being noted.

Test Specimen Description:

Series/Model: CM-1

Product Type: Fixed Acrylic Glazed Curb Mount Skylight

Overall Size: 48" by 48"

Curb Size: 46-1/2" by 46-1/2"

Overall Area: 16 ft²

Finish: All aluminum was anodized.

Weatherstripping: No weatherstripping was utilized.

Test Specimen Description: (Continued)

Glazing Detail: The skylight dome was constructed of two sheets of free blown acrylic, an interior sheet measuring 0.110" thick and an exterior sheet measuring 0.140" thick, all measured at the center of the dome. The edges of the two sheets were secured to each other with a layer of double-sided adhesive foam tape. The assembled dome was set against the aluminum main frame, resting on double-sided adhesive foam tape and secured with an "L" shaped aluminum cover frame. Double-sided adhesive foam tape was utilized between the cover frame and the dome. The cover frame was secured to the main frame with #12 x 1/4" hex head screws, located 5" from each corner and spaced 16" on center.

Frame Construction: The frame was constructed of extruded aluminum with mitered and welded corners, with silicone on each corner.

Installation: The skylight was installed onto a Spruce-Pine-Fir wood curb with #8 x 1-1/2" long pan head screws, located 5" from corners and spaced 16" on center through pre-drilled holes. The test frame was placed and leveled prior to testing.

Test Results: The results are tabulated as follows:

OSHA Safety Test

<u>Test Method</u>	<u>Load Location</u>	<u>Results</u>
200 lbf	Center of dome	No visible damage

Note: The 200 lbf weight was gently applied perpendicular to the center of each dome. After 60 seconds of rest time, the weight was removed and there was no visible damage to the skylight.

OSHA Safety Drop Test

700 lbf-ft (42" drop height)	Center of dome	See Note #1
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Note #1: At the 42" drop height, both the interior and exterior domes broke and the weight fell through the skylight.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of the retention period, Architectural Testing shall discard such material without further notice. Architectural Testing shall service the test report for the full retention period.

Results obtained are tested values and were secured by using the designated test methods. 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:

Jeremy R. Bender
Technician

Michael D. Stremmel, P.E.
Senior Project Engineer

JRB:dem

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

Appendix-A: Test Equipment (1)

Appendix-B: Photographs (1)

Appendix-C: Drawing (1) Complete drawings packet on file with Architectural Testing, Inc.

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	10/20/09	N/A	Original report issue

Appendix A
Test Equipment

Instrument	Manufacturer	Asset #
200 lbf sand filled sack	Architectural Testing, Inc.	N/A

Appendix B

Photographs

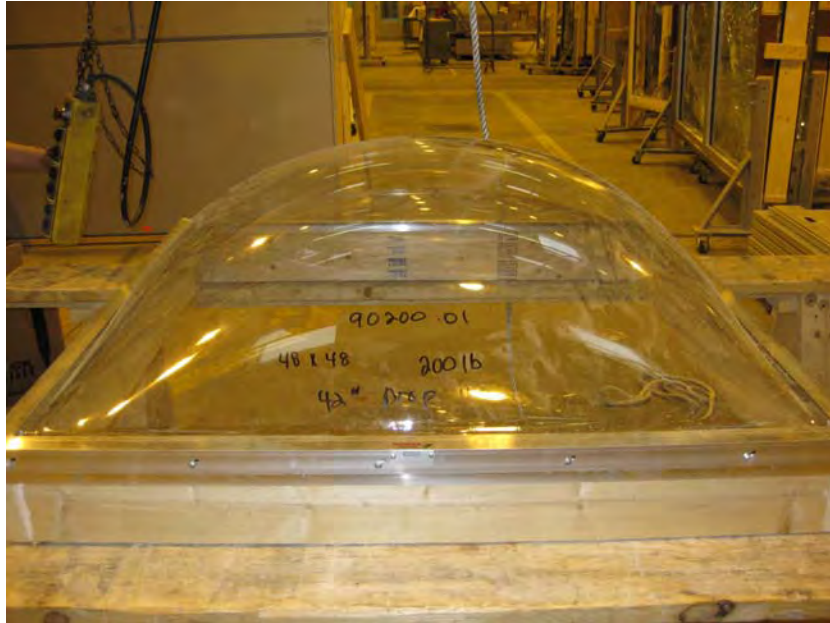


Photo No. 1
Skylight After 200 lbf Load was Taken Off

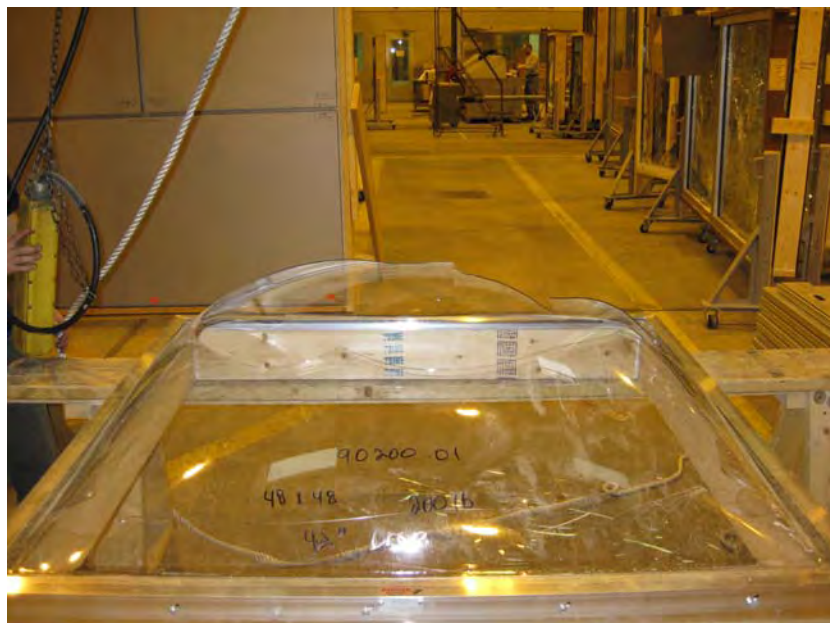
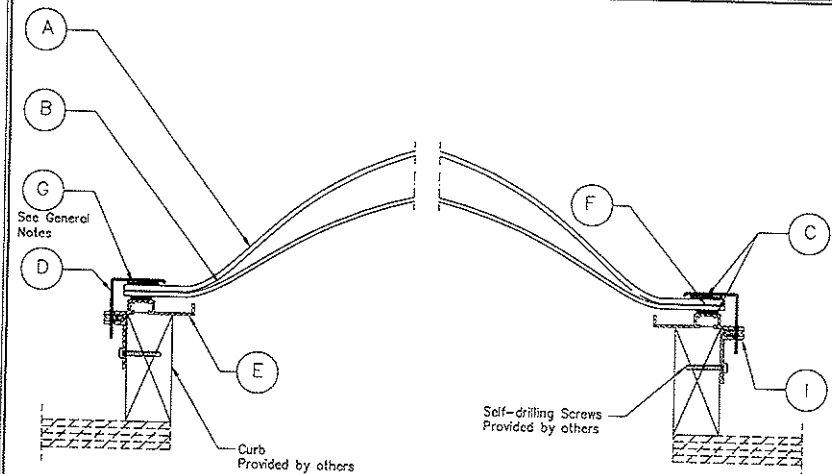


Photo No. 2
Skylight After 42\"/>

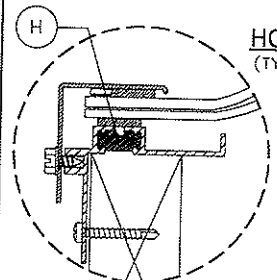
Appendix C

Drawing

Note: Complete drawings packet on file with Architectural Testing, Inc.



HORIZONTAL CROSS-SECTION
(TYPICAL FOR VERTICAL CROSS-SECTION)



HORIZONTAL CROSS-SECTION (THERMALLY-BROKEN VARIANT)
(TYPICAL FOR VERTICAL CROSS-SECTION)

PART SCHEDULE										
ITEM QTY.	PART	PART NO.	DESCRIPTION	DRAWING NO.			COMMENTS			
				Category	Quantity in	Quantity in				
A 1	Outer Dome	303170	Material: 309093.64 309052.64	21	3031	B3D	AC3803	Profile and cutting 21.CM SPECIAL.000.00.05	CM Special Spreadsheet	
B 1	Inner Dome	303169	Material: 309093.64 309052.64	21	3031	B4	DAC3803	Profile and cutting 21.CM SPECIAL.000.00.05	CM Special Spreadsheet	
C 8	Double-sided Tape	303175		21	3031	B5D	AC5204	Foam placement drawing 213022580000001	Profile drawing	
D 1	Frame Cover	302258	Aluminum - 6063-T5	21	3021	B9D	AC0001	Punching drawing 213021B9D	AC1103	Cutting and punching drawing
E 1	Inner Frame	302157	Aluminum type - 6063-T5	21	3021	B7D	AC1103	Welding drawing 213021B7D	AC1103	Cutting drawing
F 4	Double-sided Tape	303187	Closed cell PVC foam with PSA color: black	21	3031	B7D	AC0001	Welding drawing 213021B7D	AC4202	Welding drawing
G 4	Sealant	309002	DOW 1199 or equivalent	21	3043	940	ACS203	Silicone and foam placement drawing		
H 1	Thermal fill and debris bridge (Optional)	-----	BASF Elastocast 7020ER resin BASF Elastocast 70215T isocyanate	21	3090	0200	CS402	Material specification		
				21	3021	B7D	AC0001	Profile drawing		

FASTENER SCHEDULE								
ITEM QUANTITY	PART	PART NO.	DESCRIPTION	DRAWING NO.			COMMENTS	
				Category	Quantity in	Quantity in		
I	Varies	Hex Washer Head Screw	306100 #12-11 x 3/8", Type B Steel metal screw, Finish: Clear zinc	21	3061	0000000003	●	Currently used in production

GENERAL NOTES:
 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/.
 Horizontal and Vertical Cross-Section part sizes, materials and assembly are identical.
 V = Visible
 NV = Non-Visible
 Field mounting screws should be a minimum of 3/16" diameter, stainless steel, with 1" minimum embedment into the supporting curb. Use one screw in every pre-punched hole.
 Item G (Sealant) is used only on Hip Ridge and Pyramid units. Dome units do NOT require item G (Sealant).

This drawing is an instrument of service and may not be reproduced, copied, published or used in any way without written permission.

VELUX Sky-Prod., 1418 Evans Pond Road, Greenwood, South Carolina		Material:	
CM-CURB MOUNTED SKYLIGHT		Reference general Specification	
PRODUCT_CERTIFICATION	Size: B INCHES	Scale: NTS	Checked by/drawn by/date: RLL/JDH/04.28.09
TYPICAL_ARRANGEMENT_WITH	For No.	DRAWING NO.	
PRODUCT_LIST_OF_PARTS	Copy to	Category: 21	Quantity in: CM

Architectural Testing

Test sample complies with these details.
 Deviations are noted.
 Report# 90200.01
 Date 6/3/09 Tech *ZB*