

OSHA FALL PROTECTION TEST REPORT

Rendered to:

VELUX AMERICA INC.

SERIES/MODEL: CAP-1

PRODUCT TYPE: Fixed Polycarbonate/Acrylic Glazed Skylight

Report No: 90199.01-109-44

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 CAP-1, fixed polycarbonate/acrylic glazed 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 varying heights above the dome of the skylight starting at 2' until permanent visible damage was noted. The highest impact load resulting in damage was recorded.

Test Specimen Description:

Series/Model: CAP-1

Product Type: Fixed Polycarbonate/Acrylic Glazed Skylight

Overall Size: 72" wide by 72" long

Curb Size: 69-1/2" wide by 69-1/2" long

Overall Area: 36 ft²

Finish: All aluminum was anodized.

Weatherstripping: No weatherstripping was utilized.

Test Specimen Description: (Continued)

Glazing Detail: The skylight dome was constructed of two free blown sheets; an interior acrylic dome measuring 0.120" thick and an exterior polycarbonate dome 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 members. The corners were mitered and welded. The frame was set onto a factory applied aluminum curb. The frame was secured to the curb with #12 x 3/8" long sheet metal screws. The curb was constructed of two sheets of 0.030" thick roll-formed aluminum with a nominal 1" thick foam core and a 1" wide by 3/4" tall wood block at the base of the curb. The interior sheet of aluminum was secured to the wood block with staples spaced 1" on center. The corners of the curb were welded. The base of the curb utilized a 3" wide flange, for attaching the curb to the roof deck.

Installation: The skylight was set onto saw horses and leveled before testing. The skylight did not utilize any wood buck.

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 the dome. After 60 seconds of rest time, the weight was removed and there was no visible damage to the skylight.

OSHA Safety Drop Test

<u>Test Method</u>	<u>Load Location</u>	<u>Results</u>
200 lbf at rest	Center of dome	No visible damage
400 lbf-ft (2' drop height)	Center of dome	See Note #1

Note #1: At the 2' drop height, the exterior dome permanently deformed and the interior dome broke. The weight did not fall 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 lb sand filled sack	Architectural Testing, Inc.	N/A

Appendix B

Photographs

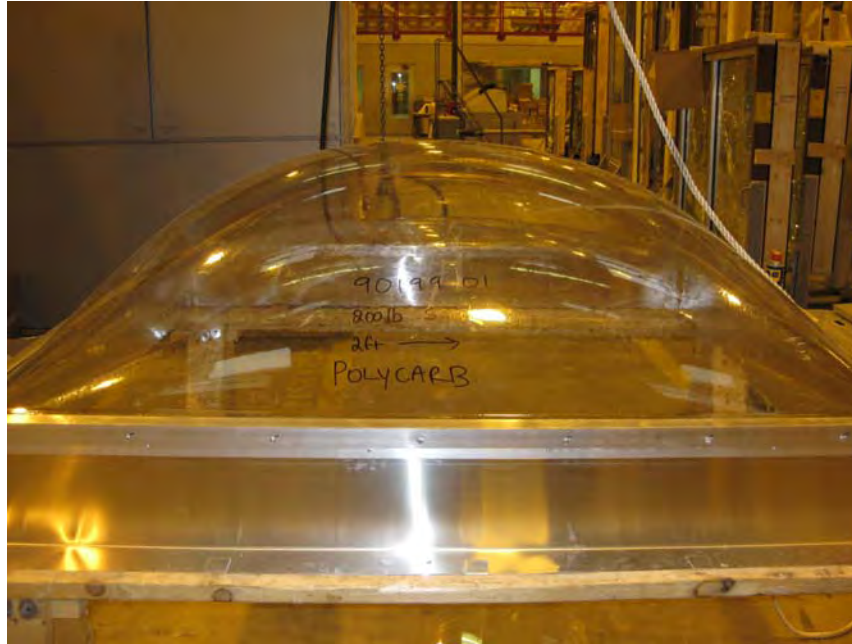


Photo No. 1
CAP-1 (72 x 72) Test Set-Up

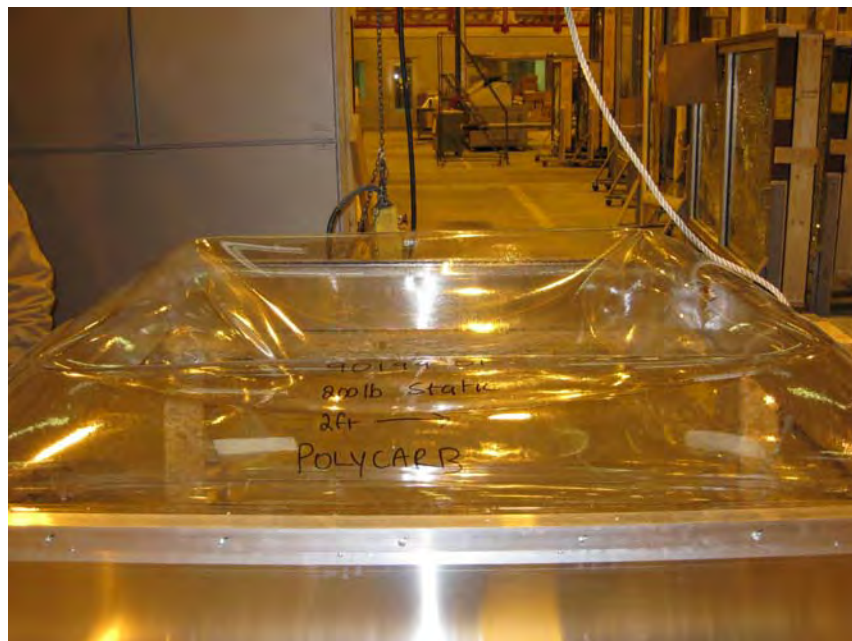
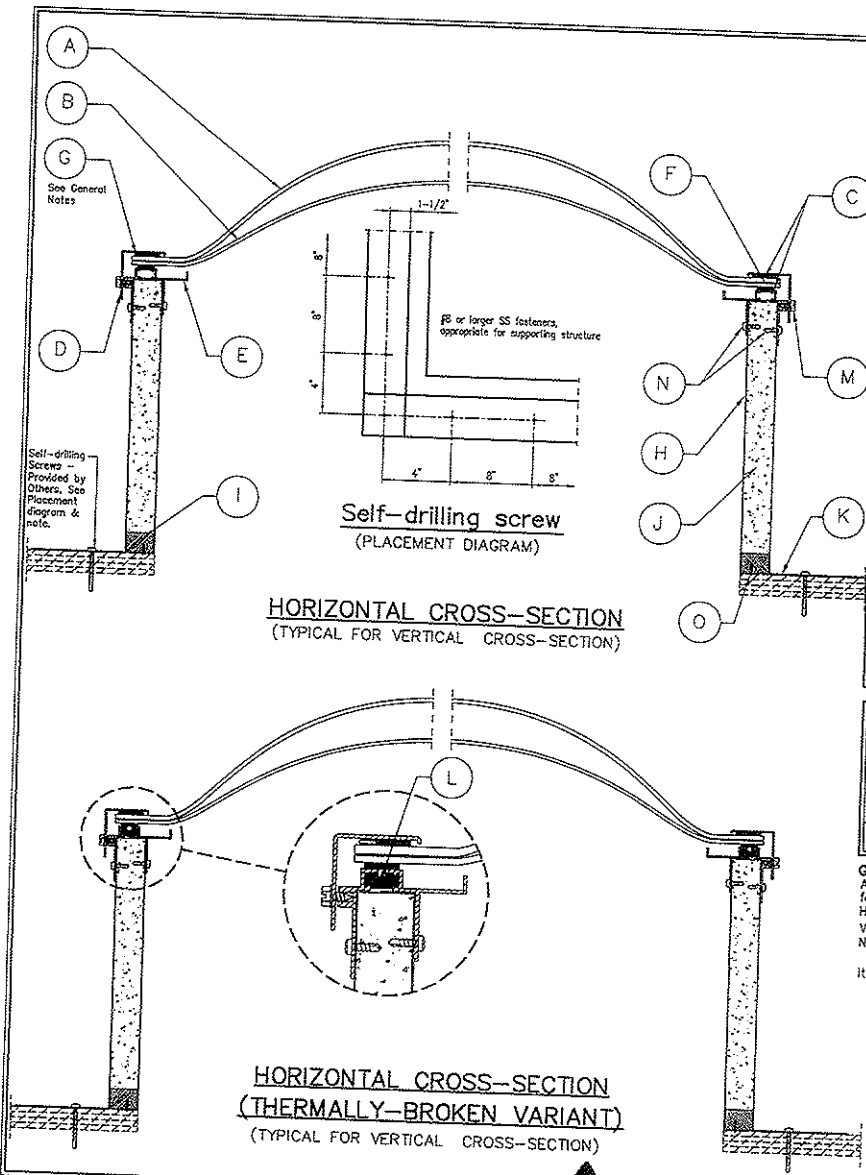


Photo No. 2
CAP-1 (72 x 72) Failure

Appendix C

Drawing

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



		PART SCHEDULE						
ITEM	QTY	PART	PART NO.	DESCRIPTION	DRAWING NO.			COMMENTS
					Sheet	Quantity	Revised Date	
A	1	Outer Dome	303170	Material: 309093.64 309052.64	213031	B3D	AC3E03	Profile and cutting
B	1	Inner Dome	303169	Material: 309093.64 309052.64	213031	B4D	AC3E03	CAP Special Spreadsheet
C	8	Double-sided Tape	303175		213031	B3D	AC3E03	Profile and cutting
					213031	B3D	AC3E04	CAP Special Spreadsheet
D	1	Frame Cover	302258	Aluminum - 6063-T5	213022	560000	0001	Foam placement drawing
					213022	560000	0001	Profile drawing
					213021	59D	AC0001	Punching drawing
E	1	Inner Frame	302158	Aluminum type - 6063-T5	213021	59D	AC1103	Cutting and punching drawing
					213021	59D	AC4201	Welding drawing
F	4	Double-sided Tape	303187	Closed coil PVC foam with PSA color: black	213021	57D	AC1103	Profile drawing
					213021	57D	AC4202	Cutting drawing
G	4	Sealant	309002	DOW 1199	213031	B7D	AC0001	Welding drawing
					213031	B7D	AC0001	Commodity drawing
H	1	Inner curb cover	308643	AISI 0.027" mill finish AL	213090	2000	6402	Silicone and foam placement drawing
					213090	2000	6402	Material specification
I	4	Support for foam curb	300090	MDF 3/4" thk	213021	7BD	AC3102	Profile, notching and bending drawing
J	4	Foam board	303172	ISO board 1" thk	213008	8BD	AC1103	Profile and cutting drawing
K	1	Outer curb cover	308642	AISI 0.032" mill finish AL	213031	B5D	000002	Profile and cutting drawing
L	1	Thermal fill and debris (Optional)		BASF Elastocast 7020BR resin BASF Elastocast 7021ST isocyanate	213021	7DD	AC3103	Profile and cutting drawing
					213021	7DD	000004	Profile drawing

		FASTENER SCHEDULE						
ITEM	QUANTITY	PART	PART NO.	DESCRIPTION	DRAWING NO.			COMMENTS
					Sheet	Quantity	Revised Date	
M	Varies	Hex Washer Head Screw	306100	#12-11 x 3/8", Type B Sheet metal screw, Finish: Clear zinc	213008	100000	0003	• - AISI 18-8 stainless Finish: Passivated Clear
N	Varies	Self-drilling screw	306109	(type B5D) Pan head #6 x 1/2"	213008	090000	0004	• - AISI 18-8 stainless Finish: Passivated Clear
O	Varies	Staple	308012	Staples for blow guns & mechanical staple guns	214200	000000	6402	- Material specification

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
 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		Material	
Sky-75M - 1418 Evans Pond Road - Greenwood - South Carolina		Manufacturer	
CAP-SELF FLASHED SKYLIGHT		Specification	
PRODUCT_CERTIFICATION	Scale	Checked by/drawn by/date	
TYPICAL_ARRANGEMENT_WITH	B INCHES	NTS	RL/JDH/04.28.09
PRODUCT_LIST_OF_PARTS	DRAWING NO.		
	Copy to	Commodity No.	Revised Date
		213031	B3D

Architectural Testing
 Test sample complies with these details.
 Deviations are noted.
 Report# 90/99.01
 Date 6/3/09 Tech JPB