

OSHA FALL PROTECTION TEST REPORT

Rendered to:

VELUX AMERICA INC.

SERIES/MODEL: CAP-1

PRODUCT TYPE: Fixed Polycarbonate/Acrylic Glazed Skylight

Report No: 90198.01-109-44

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: 48" wide by 96" long

Curb Size: 46-1/2" wide by 94-1/2" long

Overall Area: 32 ft²

Finish: All aluminum was anodized.

Test Specimen Description: (Continued)

Weatherstripping: No weatherstripping was utilized.

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.

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 either 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	No visible damage

Test Results: (Continued)

OSHA Safety Drop Test: (Continued)

<u>Test Method</u>	<u>Load Location</u>	<u>Results</u>
800 lbf-ft (4' drop height)	Center of dome	No visible damage
1200 lbf-ft (6' drop height)	Center of dome	No visible damage
1600 lbf-ft (8' drop height)	Center of dome	See Note #1

***Note #1:** At the 8' 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 (48 x 96) Test Set-Up

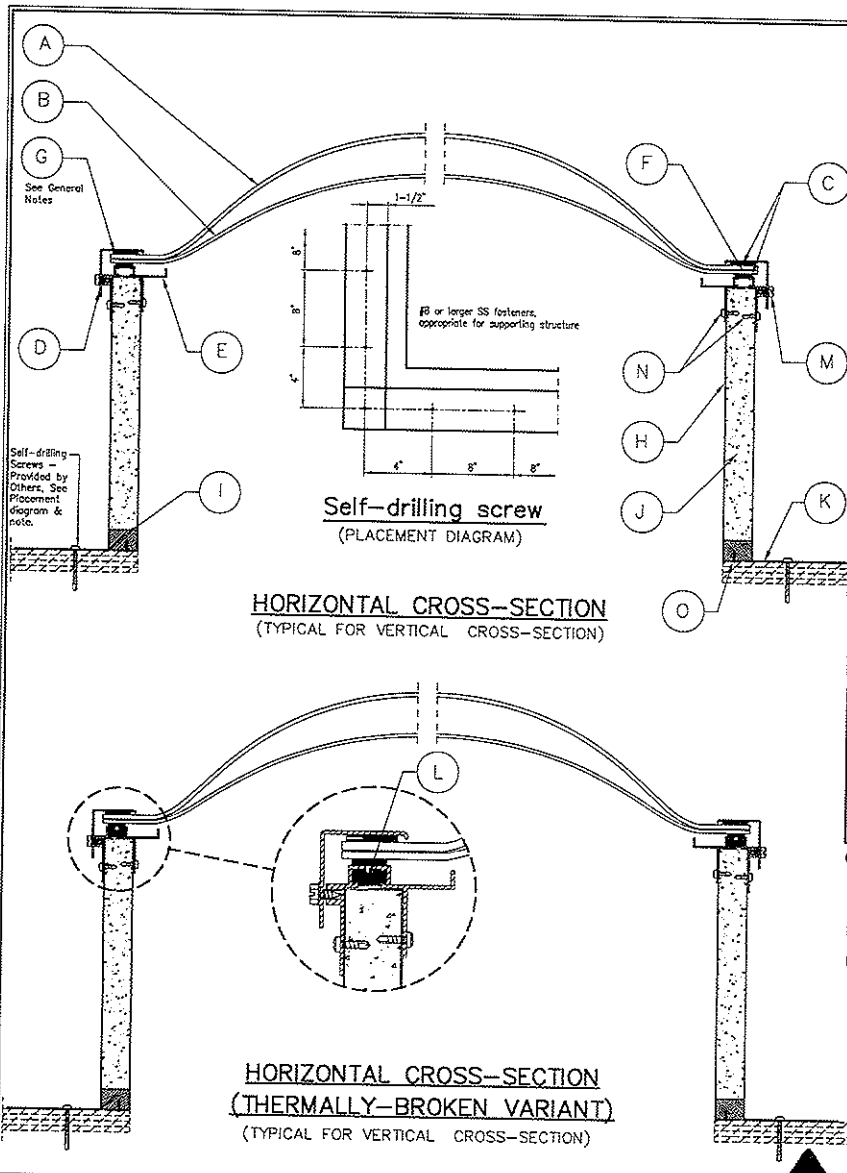


Photo No. 2
CAP-1 (48 x 96) Impactor Fell Through Exterior Glazing Sheet

Appendix C

Drawing

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



PART SCHEDULE									
ITEM	QTY	PART	PART NO.	DESCRIPTION	DRAWING NO.		COMMENTS		
					Company No.	Revised Edition			
A	1	Outer Dome	303170	Material: 309093.64 309052.64	213031	B3D	AC3803	Profile and cutting 21.CAP SPECIAL.000.00.01	CAP Special Spreadsheet
B	1	Inner Dome	303169	Material: 309093.64 309052.64	213031	B4D	AC3803	Profile and cutting 21.CAP SPECIAL.000.00.01	CAP Special Spreadsheet
C	8	Double-sided Tape	303175		213031	B3D	AC05204	Foam placement drawing	
D	1	Frame Cover	302258	Aluminum - 6063-T5	213022	5800	000001	Profile drawing	
E	1	Inner Frame	302158	Aluminum type - 6063-T5	213021	59D	AC1103	Cutting and punching drawing	
F	4	Double-sided Tape	303187	Closed cell PVC foam with PSA color: black	213021	59D	AC4201	Welding drawing	
G	4	Sealant	309002	DOW 1199	213043	3940	AC5203	Stitch and foam placement drawing	
H	1	Inner curb cover	308643	AlSI 0.027" mill finish AL	213021	57D	AC3102	Profile, notching and bending drawing	
I	4	Support for foam curb	300090	MDF 3/4" thk	213000	890	AC1103	Profile and cutting drawing	
J	4	Foam board	303172	ISO board 1" thk	213031	B500	000002	Profile and cutting drawing	
K	1	Outer curb cover	308642	AlSI 0.032" mill finish AL	213021	7D	AC3103	Profile, notching and bending drawing	
L	1	Thermal fill and debris (Optional)	-----	BASF Elastocast 70206R resin BASF Elastocast 70215T isocyanate	213021	57D	000004	Profile drawing	

FASTENER SCHEDULE								
ITEM	QUANTITY	PART	PART NO.	DESCRIPTION	DRAWING NO.		EXPOSED	COMMENTS
					Company No.	Revised Edition		
M	Varies	Hex Washer Head Screw	306100	#12-11 x 3/8", Type B Sheet metal screw, Finish: Clear zinc	213081	0000	000003	● - AISI 18-8 stainless Finish: Passivated Clear
N	Varies	Self-drilling screw	306109	(Type B5D) Pan head #5 x 1/2"	213080	0990	000004	● - AISI 18-8 stainless Finish: Passivated Clear
O	Varies	Staple	306012	Staples for blow guns & mechanical staple guns	214200	0000	000402	- - 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/Submital 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 Box-PSK, 1418 Evans Road, Greenwood, South Carolina			
Tolerance General		Specification	
Size	Inches	Scale	Drawn by/Drawn by/Date
B	INCHES	NTS	RL/JDH/04.28.09
File No.	DRAWING NO.		
Copy to	Company No.	Revised Edition	
	211CAPSP5000	61	XX

Architectural Testing
 Test sample complies with these details.
 Deviations are noted.
 Report# 90198.01
 Date 6/3/09 Tech JB