

OSHA FALL PROTECTION TEST REPORT

Rendered to:

VELUX AMERICA INC.

SERIES/MODEL: CM

PRODUCT TYPE: Fixed Polycarbonate Glazed Curb Mount Skylight

Report No: 88221.01-109-44

Test Date: 12/23/08

Report Date: 01/19/09

Record Retention Date: 12/23/12

OSHA FALL PROTECTION TEST REPORT

Rendered to:

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

Report No.: 88221.01-109-44
Test Date: 12/23/08
Report Date: 01/19/09
Record Retention Date: 12/23/12

Project Summary: Architectural Testing, Inc. was contracted by VELUX America Inc. to perform tests on two Series/Model CM, fixed polycarbonate glazed curb mount skylights. The test specimens description and results are reported herein. The test specimens were supplied by the client.

Test Specification: The test specimens were 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 each skylight starting at 2' until permanent visible damage was noted. The highest impact load resulting in damage was recorded.

Test Specimen Description:

Series/Model: CM

Product Type: Fixed Polycarbonate Glazed Curb Mount Skylight

Test Specimen #1

Overall Size: 1219 mm (48") wide by 2438 mm (96") high

Curb Size: 1181 mm (46-1/2') wide by 2400 mm (94-1/2") high

Overall Area: 3.34 m² (36.0 ft²)

Test Specimen #2

Overall Size: 1829 mm (72") wide by 1829 mm (72") high

Curb Size: 1788 mm (70-3/8") wide by 1788 mm (70-3/8") high

Overall Area: 2.97 m² (32.0 ft²)

Test Specimen Description: (Continued)

The following descriptions apply to all specimens.

Finish: All aluminum was anodized.

Weatherstripping: No weatherstripping was utilized.

Glazing Detail: The skylight dome was constructed of two sheets of free blown polycarbonate, an interior sheet measuring 0.120" thick and an exterior sheet measuring 0.150" thick at the center of the dome. The edges of the polycarbonate sheets were secured to each other with a layer of double-sided adhesive foam tape. The polycarbonate 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 frames were 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 the corners and spaced 16" on center through predrilled holes. The test frame was placed on the floor and leveled prior to testing.

Test Results: The results are tabulated as follows:

Test Specimen #1

| <u>Test Method</u> | <u>Load Location</u> | <u>Results</u> |
|------------------------------|----------------------|-------------------|
| OSHA Safety DropTest | | |
| 200 lbf at rest | Center of dome | No visible damage |
| 400 lbf-ft (2' drop height) | Center of dome | No visible damage |
| 800 lbf-ft (4' drop height) | Center of dome | No visible damage |
| 1200 lbf-ft (6' drop height) | Center of dome | See Note #1 |

Note #1: *At the 6' drop height, the interior and exterior polycarbonate glazing broke, allowing the weight to fall through the skylight.*

Test Results: (Continued)

Test Specimen #2

| <u>Test Method</u> | <u>Load Location</u> | <u>Results</u> |
|-----------------------------|----------------------|-------------------|
| OSHA Safety Drop Test | | |
| 200 lbf at rest | Center of dome | No visible damage |
| 400 lbf-ft (2' drop height) | Center of dome | No visible damage |
| 800 lbf-ft (4' drop height) | Center of dome | See Note #2 |

***Note #2:** At the 4' drop height, the polycarbonate dome deglazed from the frame. The weight of the fall did not allow the load to fall through the skylight.*

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 this retention period, such materials shall be discarded without notice.

Results obtained are tested values and were secured by using the designated test methods. No conclusions of any kind regarding the adequacy or inadequacy of the glazing in the test specimen can be made. 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:

Aaron M. Shultz
Technician

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

AMS:vlm

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

Appendix-A: Photographs (1)

Appendix-B: Drawing (1)

Revision Log

| <u>Rev. #</u> | <u>Date</u> | <u>Page(s)</u> | <u>Revision(s)</u> |
|---------------|-------------|----------------|-----------------------|
| 0 | 01/19/09 | N/A | Original report issue |

Appendix A
Photographs

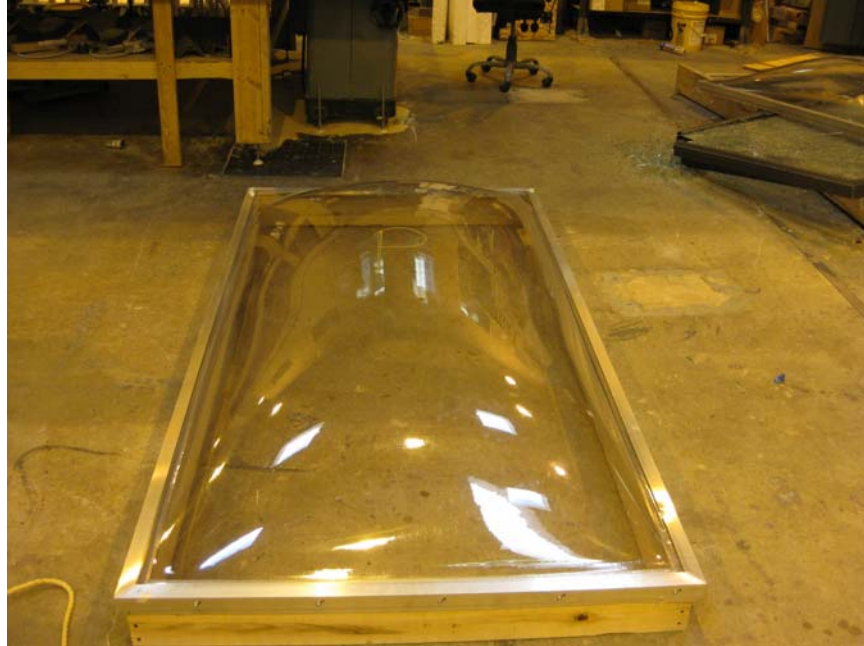


Photo No. 1
48 x 96 Polycarbonate Glazed Skylight Before Testing

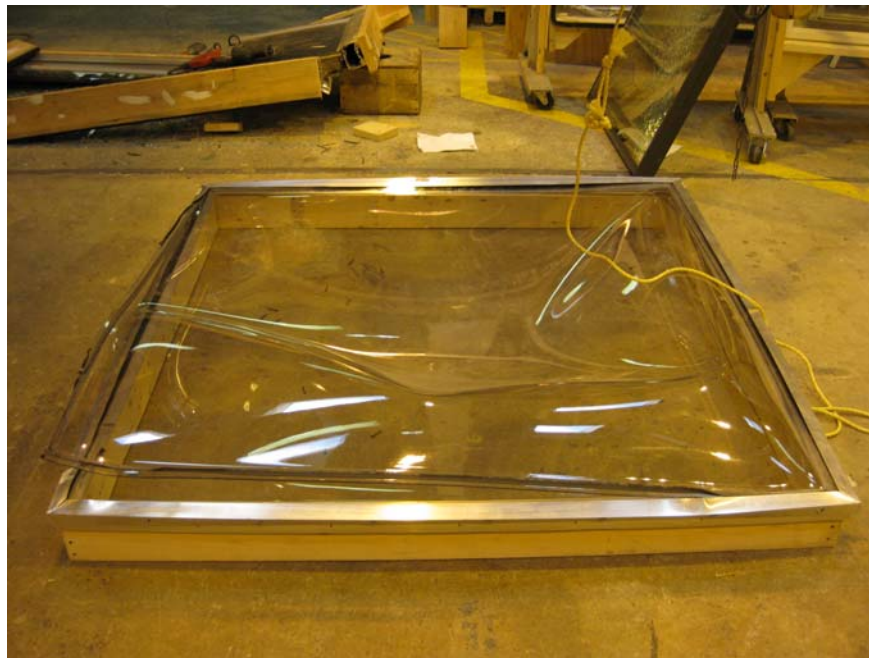
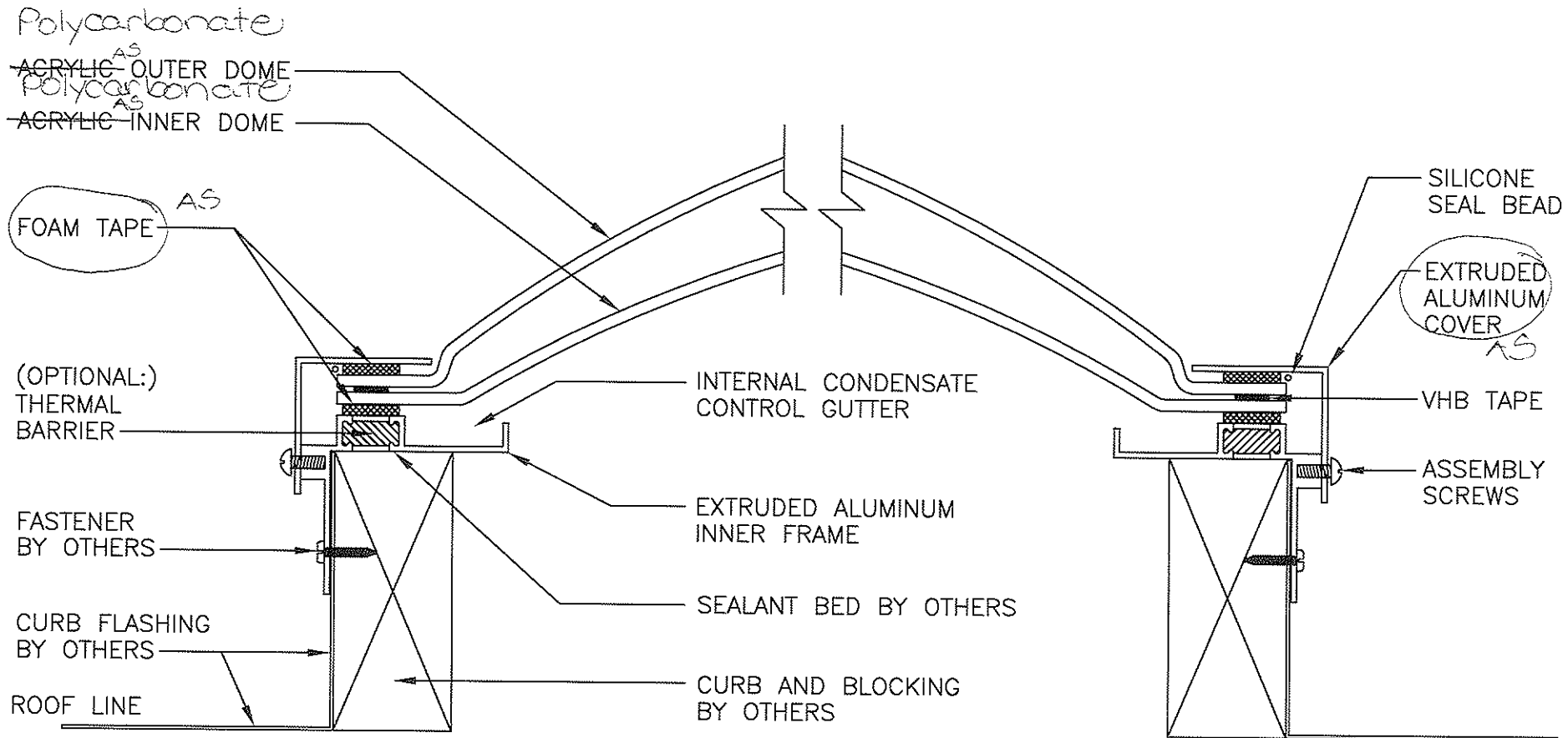


Photo No. 2
72 x 72 Polycarbonate Glazed Skylight After Testing

Appendix B

Drawing



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 88221.01-109-44

Date 1/19/09 Tech AS

| | | | | |
|---|--|--|---------------------------------|--------------------|
| | VELUX 1418 Evans Pond Road Greenwood, SC 29649 1-800-88-VELUX www.VELUXUSA.com | | Name | Date |
| | Sky-Product Management | | Drawn by JDH Checked by WQ | Mar. 05 Mar. 05 |
| Commercial Curb Mounted Acrylic Skylight Double Dome Polycarbonate Model CM - 1 | | | Drawing No. <u>CM-1_01-0305</u> | |