



ACURLITE STRUCTURAL SKYLIGHTS
STRUCTURAL PERFORMANCE TEST REPORT

Model "Pyramid"
Glazed Aluminum Skylight

NCTL-110-10178-1

NATIONAL CERTIFIED TESTING LABORATORIES



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STRUCTURAL PERFORMANCE TEST REPORT

Client: Acurlite Structural Skylights
1017 North Vine Street
Berwick, PA 18603

Report No: NCTL-110-10178-1
Test Date: 05/19/06
Report Date: 05/30/06
Expiration Date: 05/31/10
Revision Date: 04/17/07

Test Specimen: Acurlite Structural Skylights' Model "Pyramid" Glazed Aluminum Skylight
SKG HC75 75 98x98.

Test Method: AAMA/WDMA 1600/I.S.7-2000 (Editorial Revisions 2003), "Voluntary
Specification for Skylights"

TEST SPECIMEN DESCRIPTION

General: The test specimen was a square based pyramid type glazed aluminum skylight measuring 98-1/4" long by 98-1/4" wide by 32-1/2" high overall. The curb measured 96" long by 96" wide. The specimen consisted of four (4) equal triangular sides. From base to peak, each joint consisted of an exterior hip cap fastened to an interior hip rafter with twelve (12) evenly spaced #10x1-1/2" screws with sealed washers. The assembly screws were concealed via an aluminum snap cap located at each base to peak joint. Each hip rafter was fastened to the base with two (2) #14 20x3/4" truss head bolts and to the peak with two (2) 3/8 hex head 1/4" 20x1" through a 1/4" thick ridge plate. The base was of welded mitered corner construction. The base was thermally broken using poured urethane thermal barriers, debridged to 3/16". An extruded aluminum cap was fastened to the base using eight (8) evenly spaced #12x1" tek screws with a sealed washer. One (1) 4" long extruded aluminum glass rest angle was located at 16" from each end and at midspan of each base member. An extruded aluminum cover was located at the peak.

Glazing: Each lite was exterior glazed using sealed insulating glass with interior and exterior flexible vinyl glazing gaskets and exterior hip cap retainers. The overall insulating glass thickness was 1" consisting of one (1) lite of 1/4" thick heat strengthened glass to the exterior, one (1) lite of laminated glass and one (1) space created by a desiccant-filled aluminum spacer system. The laminated glass consisted of two (2) lites of 3/16" heat strengthened glass and a 0.060" PVB interlayer.

Weeps: One (1) weep hole with plastic weep cover measuring 1/4" in diameter was located at midspan of all base members. One (1) weep hole measuring 1/4" in diameter was located at 2" from each end and at midspan of the interior base channel.

Weatherseals: No weatherseals employed.

Interior & Exterior Surface Finish: Clear anodized aluminum.

Sealant: The frame corners, cap perimeter and all glazing perimeters were sealed with a silicone sealant.

Installation: The specimen was fastened to the test buck around the entire curb perimeter with three (3) evenly spaced 3/8" x 3" lag bolts per side.

TEST RESULTS

| <u>Para. No.</u> | <u>Title of Test</u> | <u>Measured</u> | <u>Allowed</u> |
|------------------|--|--|---------------------------|
| 4.1.5 | Air Infiltration – ASTM E283 1.57 psf (25 mph) | 0.1 cfm / ft ² (0.04 cfm / ft ²) | 0.3 cfm / ft ² |
| | Air Infiltration 6.24 psf (50 mph) | 0.1 cfm / ft ² (0.08 cfm / ft ²) | 0.1 cfm / ft ² |
| | Air Infiltration 12.0 psf (68.5 mph) | 0.1 cfm / ft ² (0.10 cfm / ft ²) | ----- |
| 4.1.6 | Water Penetration – ASTM E331 WTP= 15.0 psf | No Leakage | No Leakage |
| 4.1.8 | ** Uniform Load Structural – ASTM E330 112.5 psf exterior 112.5 psf interior | 0.023" 0.024" | 0.284" 0.284" |

** No glass breakage or permanent damage causing the unit to be inoperable.

Note: For structural loads, the AAMA 1605.1 load test procedure was followed as required by AAMA/WDMA 1600/I.S.7-2000 for plastic skylights.

TESTS COMPLETED 05/19/06

The tested specimen meets (or exceeds) the performance levels specified in Table 2.3.1 of AAMA/WDMA 1600/I.S.7-2000 for air infiltration. The listed results were secured by using the designated test methods and indicate compliance with the performance requirements of the referenced specification paragraphs for the SKG HC75 75 98x98 product designation.

Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years. The results obtained apply only to the specimen tested. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen may be drawn from this test. This report does not constitute certification of the product which may only be granted by a certification program validator.

NATIONAL CERTIFIED TESTING LABORATORIES



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APPENDIX A

Estimated Uncertainty of Measurements

As required by Section 5.10.3 of ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories", listed below is the estimated expanded uncertainties for the applicable measurements in this report:

| | |
|---------------------------------|---|
| <i>Test Pressures:</i> | $\pm 0.2 \text{ psf } (\pm 10 \text{ Pa})$ |
| <i>Air Leakage:</i> | $\pm 0.12/A \text{ cfm/ft}^2 (\pm 0.06/A \text{ L/ (sec} \cdot \text{m}^2))$ <i>Where A is the area of the test specimen</i> |
| <i>Deflection Measurements:</i> | $\pm 0.002 \text{ inches } (\pm 0.05 \text{ mm})$ |

All of the above expanded uncertainties are determined from combined standard uncertainties and a coverage factor $k = 2.00$ based on a normal distribution, and define an interval estimated to have a level of confidence of 95%.