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PERFORMANCE TEST REPORT

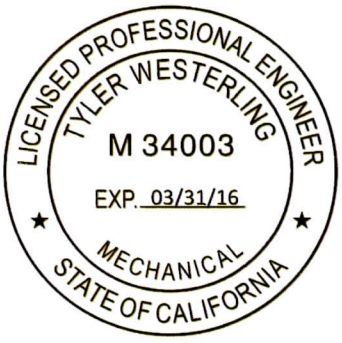
Report No.: E3508.01-301-44

Rendered to:
SKYCO SKYLIGHTS
Costa Mesa, California

SERIES/MODEL: 4896-A-S-CM-SPW-MF
PRODUCT TYPE: Unit Skylight – Plastic Glazed

This report contains in its entirety:

Cover Page:	1 page
Report Body:	7 pages
Sketches:	1 page
Photographs:	1 page
Drawings:	14 pages
Installation Instructions:	3 pages



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Digitally Signed by: Tyler Westerling

Title	Summary of Results **4896-A-S-CM-SPW-MF** **Unit Skylight – Plastic Glazed**
Air Infiltration	0.03 cfm/ft²
Water Penetration Resistance Test Pressure	12.11 psf
Uniform Load Deflection Test Pressure	+20.05 psf / -20.05 psf
Uniform Structural Load Test Pressure	+60.15 psf /-40.10 psf

Test Completion Date: 12/11/2014

Reference must be made to Report No. E3508.01-301-44 dated 01/06/15 for complete test specimen description and detailed test results.

1.0 Report Issued To: Skyco Skylights
2995 Airway Avenue, Suite B
Costa Mesa, California 92626

2.0 Test Laboratory: Architectural Testing, Inc.
4 Rancho Circle
Lake Forest, California 92630
949.460.9600

3.0 Project Summary:

3.1 Series/Model: 4896-A-S-CM-SPW-MF

3.2 Product Type: Unit Skylight – Plastic Glazed

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. Architectural Testing, Inc. was contracted by Skyco Skylights to perform testing on Series/Model: 4896-A-S-CM-SPW-MF curb mounted skylights at the Architectural Testing, Inc. test facility in Lake Forest, California. Test specimen descriptions and results are reported herein.

3.4 Test Dates: 12/09/14-12/11/14

3.5 Test Record Retention End Date: All test records for this report will be retained until December 11, 2018.

3.6 Test Location: Architectural Testing Inc.'s test facility in Lake Forest, California.

3.7 Test Sample Source: The specimens were selected by Architectural Testing, Inc. personnel. The specimens were witnessed during production and tagged prior to shipment on December 5, 2014, (Reference Architectural Testing Test Specimen Selection Report No. E3507.01-301-15, dated December 8, 2014). Representative samples of the test specimens will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimens reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix D. Any deviations are documented herein or on the drawings.

3.0 Project Summary: (Continued)

3.9 List of Official Observers:

Name	Company
Bob Sampson	RCS Consulting
Ryan Marshall	Skyco Skylights
Patrick Walsh	Skyco Skylights
Jarod S. Hardman	Architectural Testing, Inc.

4.0 Test Specifications:

ICC-ES AC16 2011, Acceptance *Criteria for Plastic Glazed Skylights* Sections Part A, A3.1, A3.2, A3.3, A4.3 and Part B 4.1.

ASTM E 283-04, *Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.*

ASTM E 330-02, *Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.*

ASTM E 547-00, *Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 3.38 m^2 (36.37 ft^2)	**Width**		**Length**	
	Millimeters	**Inches**	**Millimeters**	**Inches**
Outside Curb Dimension	2521	99-1/4	1302	51-1/4
Outside Frame Dimension	2546	100-1/4	1327	52-1/4

	Dimension	
	Millimeters	**Inches**
Dome Thickness (Min.)	3	0.12
Dome Height	333	13-1/8
Dome Width	2489	98
Dome Length	1270	50
	Mass	
	Kilograms	**Pounds**
Dome Weight	10.8	24.0

5.0 Test Specimen Description: (Continued)

5.2 Skylight Construction:

Frame Member	Material	Drawing #
Curb frame	6063 T-5 Aluminum	See attached Drawing #ALCM048 and Drawing #ALCM096.
Snap-in perimeter cap	6063 T-5 Aluminum	See attached Drawing #SICP048 and Drawing #SICP096.

	Joinery Type	Detail
Frame corners	Mitered	Corners welded and silicone sealant applied to corner joint inside of condensation track.
Snap-in perimeter cap	Mitered	Cap bead of silicone sealant applied to exterior of miter.

Curb Frame Assembly: The curb frame assembly was formed from nominal 0.075" 6063-T5 Aluminum. Each corner of the frame was mitered and welded along the underside of the entire joint and at the exterior along the vertical seam of the corner. A EPDM gasket was press fit into the top side of the curb frame assembly prior to the installation of the dome.

A nominal 0.075" 6063-T5 Aluminum snap-in perimeter cap was press fit onto the curb frame assembly to retain the polycarbonate dome. The dome was sealed on the underside of the perimeter bite and on the top side of the perimeter bite with a bead of silicone sealant prior to the installation of the snap-in perimeter cap. Each corner of the perimeter cap was mitered and sealed on the exterior side with a bead of silicone sealant.

5.3 Weatherstripping:

Description	Quantity	Location
EPDM Gasket	1 row	Press fit into channel of frame (Drawing #ALCM048/ALCM096), see attached drawing #GSKT048/GSKT096.

5.4 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Glazing Type	Glazing	Glazing Method
Monolithic	0.118" CC1 Polycarbonate	Secured by snap in perimeter cap with 1/2" bead of silicone sealant on top and underside of dome perimeter when secured.

5.0 Test Specimen Description: (Continued)

5.4 Glazing: (Continued)

Location	Quantity	Daylight Opening		Bite
		Millimeters	Inches	
Dome	1	2438 x 1219	96 x 48	1"

5.5 Drainage:

Drainage Method	Size	Quantity	Location
Weep hole	1/4" diameter	8	One at each corner and mid-span of each side through frame between snap in cap receiver and press fit gasket receiver.

5.6 Hardware: No hardware was utilized.

5.7 Reinforcement: No reinforcement was utilized.

6.0 Installation: The specimens were witnessed during installation by Architectural Testing, Inc. personnel and checked for compliance with manufacturer installation instructions.

The specimen was installed onto a nominal 2x8 Spruce-Pine-Fir curb. The rough opening allowed for a 1/2" shim space. A bead of silicone sealant was applied to the top side of the curb and the skylight was compressed against the curb.

Location	Anchor Description	Anchor Location
Full perimeter of skylight	#10 x 1-3/4" slotted hex head screw with neoprene bonded steel washer	3" from each corner and 12" on center spacing for long spans and 3" from each corner and 15-1/2" on center spacing for short spans.

7.0 Test Sequence:

4896-A-S-CM-SPW-MF

Air Infiltration Test	Test Specimen #1
Water Penetration Test	Test Specimen #1
Uniform Load Tests	Test Specimen #1

8.0 Test Procedure: The following test procedure was followed:

8.1 Air Infiltration:

8.1.1 The specimens were tested in accordance with ASTM E 283.

8.1.2 The test pressure was 1.57 psf and the maximum allowable air leakage was 0.30 cfm/ft^2.

8.2 Water Penetration (*Reference Photo No. 1*):

8.2.1 The specimens were tested to a four cycle water penetration test in accordance with ASTM E 547 in a horizontal orientation (no slope).

8.2.2 Water was applied at the minimum rate of 3.4 L/m^2 · min (5.0 U.S. gal/ft^2 · h). Each cycle shall consist of 5 minutes with the pressure applied and 1 minute with the pressure released, during which the water spray is continuously applied. The total test duration was a maximum of 24 minutes.

8.2.3 The air pressure differential was 12.11 psf.

8.3 Uniform Load Deflection (*Reference Photo No. 2*):

8.3.1 The specimens were conditioned at standard laboratory conditions for 40 hours at 23°C (73°F) at 50% relative humidity as described in *Procedure A* of ASTM D618-08 prior to uniform load testing.

8.3.2 50% of the allowable load was applied and held for one minute. Deflection readings were recorded. The load was then released and permanent set readings were recorded between two to five minutes.

8.3.3 100% of the allowable load was applied and held for one minute. Deflection readings were recorded. The load was then released and permanent set readings were recorded between two to five minutes.

8.3.4 Tests were then repeated for negative loading.

8.4 Uniform Load Structural:

8.4.1 50% of the structural test pressure was applied and held for one minute. The load was then released and permanent set readings were recorded between two to five minutes.

8.0 Test Procedure: (Continued)

8.4.2 100% of the structural test pressure was applied and held for one minute. The load was then released and permanent set readings were recorded between two to five minutes.

8.4.3 Tests were then repeated for negative loading.

9.0 Test Results: The temperature during testing was 29°C (84°F). The results are tabulated as follows:

Title of Test	Results										Note
Air Leakage, Infiltration per ASTM E 283 at 1.57 psf	0.03 cfm/ft²										1, 6
Water Penetration, per ASTM E 547 at 12.11 psf	Pass - No water leakage										6
Uniform Load Deflection, per ASTM E 330 taken on the dome	**Deflection**					**Permanent Set**					
	1	2	3	4	5	1	2	3	4	5	
+20.05 psf	0.02	0.00	0.00	0.30	0.28	0.00	0.00	0.00	0.00	0.00	2, 3, 5, 6
-20.05 psf	0.00	0.00	0.00	0.40	0.39	0.00	0.00	0.00	0.00	0.00	2, 3, 5, 6
Uniform Load Structural, per ASTM E 330 taken on the dome											
+60.15 psf	0.00	0.00	0.00	1.16	1.15	0.00	0.00	0.00	0.01	0.01	2, 3, 4, 5, 6
-40.10 psf	0.01	0.00	0.00	0.87	0.87	0.00	0.00	0.00	0.02	0.02	2, 3, 5, 6

Note 1: The air infiltration rate was calculated by dividing the amount of leakage (cfm) by the area (ft²) of the complete assembly.

Note 2: Loads were held for 60 seconds.

Note 3: Reference Appendix B for linear transducer locations.

Note 4: During positive uniform structural loading no excessive deflection and no damage to fasteners, frame or dome occurred.

Note 5: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

9.0 Test Results: (Continued)

Note 6: The tested specimen meets (or exceeds) the performance requirements specified in ICC-ES AC16 2011, Acceptance Criteria for Plastic Glazed Skylights Sections Part A, A3.1, A3.2, A3.3, A4.3 and Part B4.1.

Note 7: Additional uniform load tests of ICC-ES AC16 2011, Acceptance Criteria for Plastic Glazed Skylights Sections A3.2 and B4.1 were not performed under exemption #2 of each section.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period.

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 specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

Digitally Signed by: Jarod Hardman

Jarod S. Hardman
Laboratory Manager

Digitally Signed by: Tyler Westerling

Tyler Westerling, P.E.
Senior Project Engineer

JSH: ss

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Alteration Addendum (1)
- Appendix-B: Sketches (1)
- Appendix-C: Photographs (1)
- Appendix-D: Drawings (14)
- Appendix-E: Installation Instructions (3)