



# SMITH-EMERY LABORATORIES

An Independent Commercial Testing Laboratory

781 E. Washington Boulevard - 2nd Floor Los Angeles, California 90021 ♦ (213) 745-5333 ♦ Fax (213) 749-7232

Project No.: 39550-1

March 2, 2011

Lab No.: L-10-1608R1

Client: Ciralight Global, Inc.  
Attn: Jeff Brian  
15303 Ventura Blvd., 9th Floor  
Sherman Oaks, CA 91403

Subject: **Skylight Test**

Standard: AAMA A440-05, Standard/Specification for Windows, Doors, and Unit Skylights

## Summary of Results

Product Manufacturer	Ciralight Global Inc.
Product Type	Fixed Plastic Glazed skylight
Product Series/Model	Suntracker 4×4 Smart Skylight
Primary Product Designator	SKP-C30 1295×1295 (51×51)
Design Pressure	±1440 Pa (±30 psf)
Air Infiltration	1.45 L/s/m <sup>2</sup> (0.29 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	220 Pa (4.5 psf)
Uniform Load Structural Test Pressure	±2880 Pa (±60 psf)
Test Completion Date	October 8, 2010

Reference must be made to Report No. L10-1608, dated on March 2, 2011, for complete test specimen description and detailed test results.



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## REPORT OF TESTS

### Test Specimen:

The skylight sample (Ciralight Global Suntracker 4×4 Smart Skylight ) was delivered by the client on 10/1/2010. The skylight consisted of one clear acrylic dome installed on a square aluminum frame with an overall dimension of approximately 1295 mm × 1295 mm × 673 mm (51"×51"× 26.5"). No mirror, sun tracking system, or screen was installed in the test unit.

All corners of the aluminum frame were mitered and fully welded. The aluminum retaining cap was fastened to the aluminum curb frame by four #8 screws on each side. A square tube cross brace was installed at the mid-span of the aluminum curb frame.

The dome was made of extruded sheet of high impact, optically clear acrylic with nominal thickness of 3.18 mm (0.125 inch). Silicone sealant was applied between the dome and the aluminum retaining cap during the installation.

### Installation:

The skylight unit was mounted according to the manufacturer's instructions onto a test chamber fabricated from 2×8 lumbers and plywood. The skylight was attached to the chamber by three #10 hex head self-tapping screws on each side. The gaps between the aluminum curb frame and test chamber was sealed by tapes. For uniform pressure tests, the gap between the aluminum retaining cap and the aluminum curb frame was also sealed.

The skylight remained in vertical position throughout the test, i.e., the chamber was placed horizontally.



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### Test Result:

The test was performed on 10/08/2010 and the results are summarized as follows:

Section	Test Method	Result	Allowed
5.3.2.1	Air leakage test per ASTM E283, 300 Pa (6.2 psf)	1.45 L/s/m <sup>2</sup> (0.29 cfm/ft <sup>2</sup> )	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> )
<i>The tested specimen exceeds the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.</i>			
5.3.3.2	Water penetration resistance test per ASTM E331, 220 Pa (4.5 psf)	No leakage at the end of test	No leakage.
5.3.4.2	Uniform load deflection per ASTM E330 at ±1440 Pa (±30 psf)	Maximum deflection at mid-span of the dome: positive pressure 5.3 mm (0.210 in) ; negative pressure, 3.4 mm (0.135 in).	No limit
5.3.4.3	Uniform load structural per ASTM E330 at ±2880 Pa (±60 psf)	Permanent deformation at mid-span of aluminum frame for both positive and negative pressure, <0.25 mm (<0.01 in).	No damage; max. permanent deformation: 3.9 mm (0.153 in)

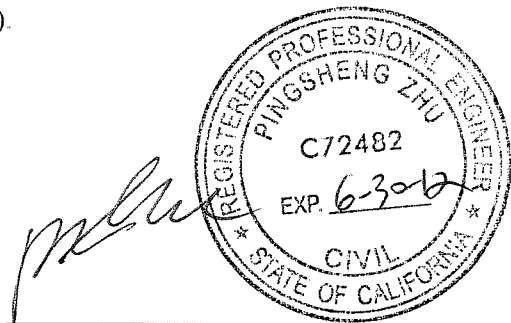
**Conclusion:** The sample tested met the performance requirements specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for SKP-C30 1295×1295 (51×51).

*Respectfully Submitted,*

**SMITH - EMERY LABORATORIES**

Juan Silva

Test Technician



Pingsheng Zhu

Registered Civil Engineer No.: C72482

Registration Expires : 6-30-12

Attachments : Testing Photos; Sample Drawings



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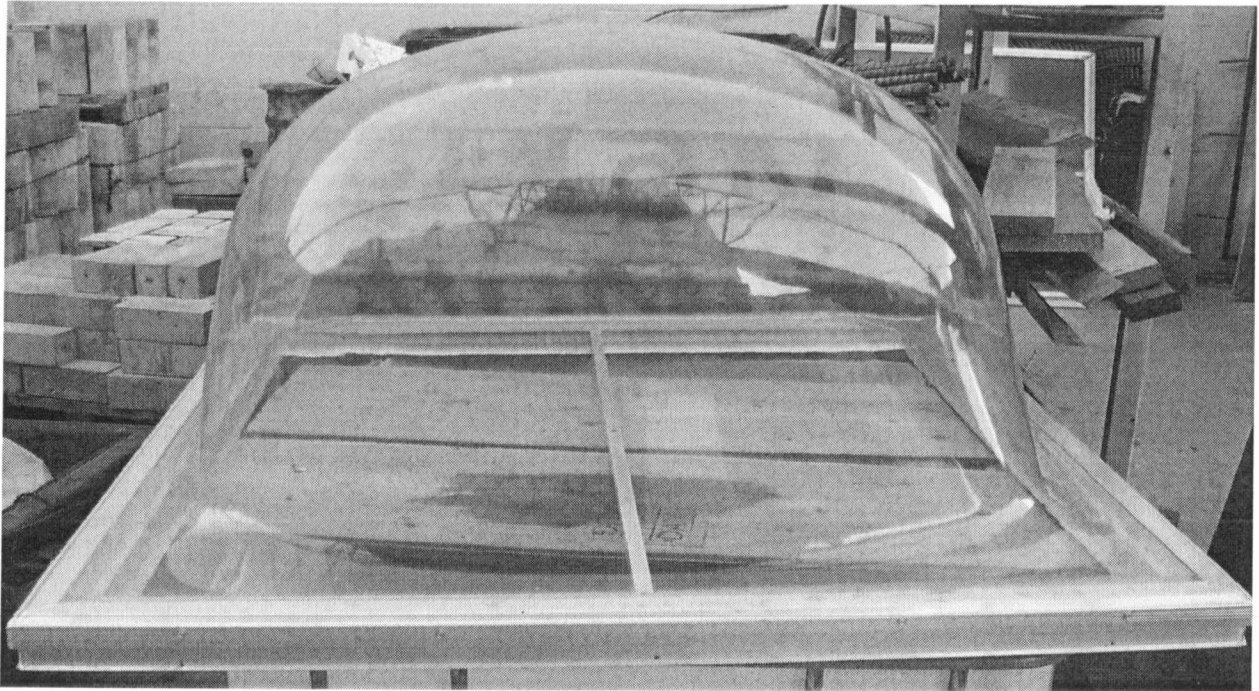


Photo 1 - Skylight Sample

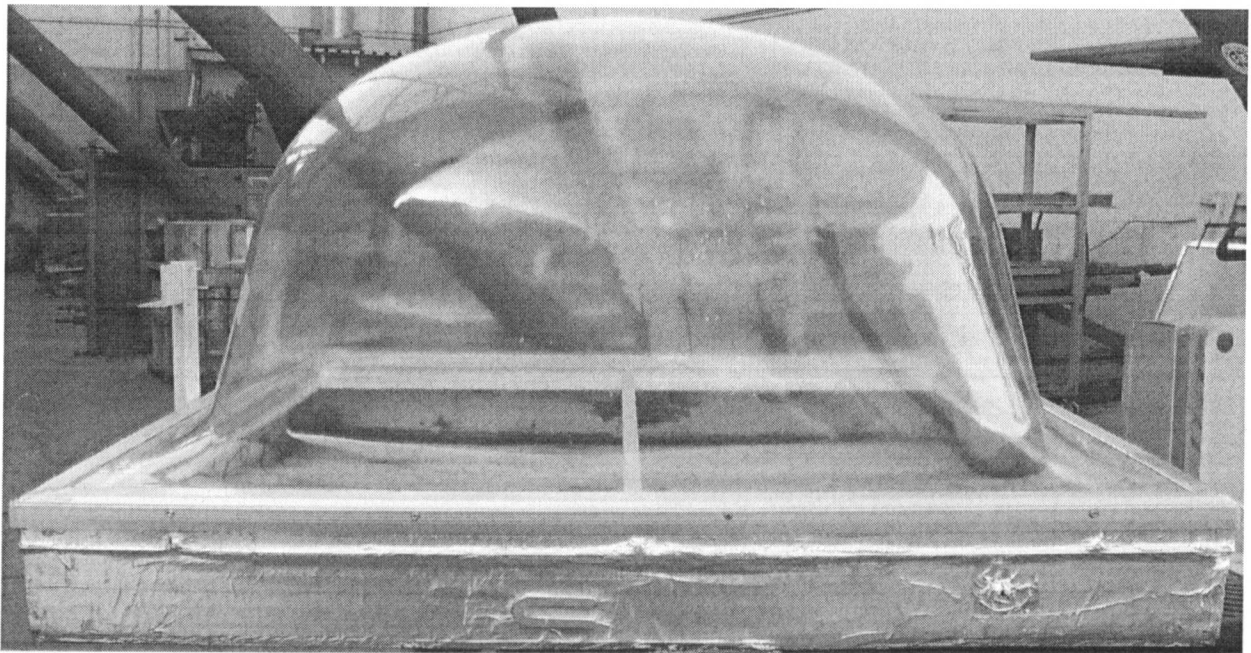


Photo 2 - Skylight Installed on Chamber



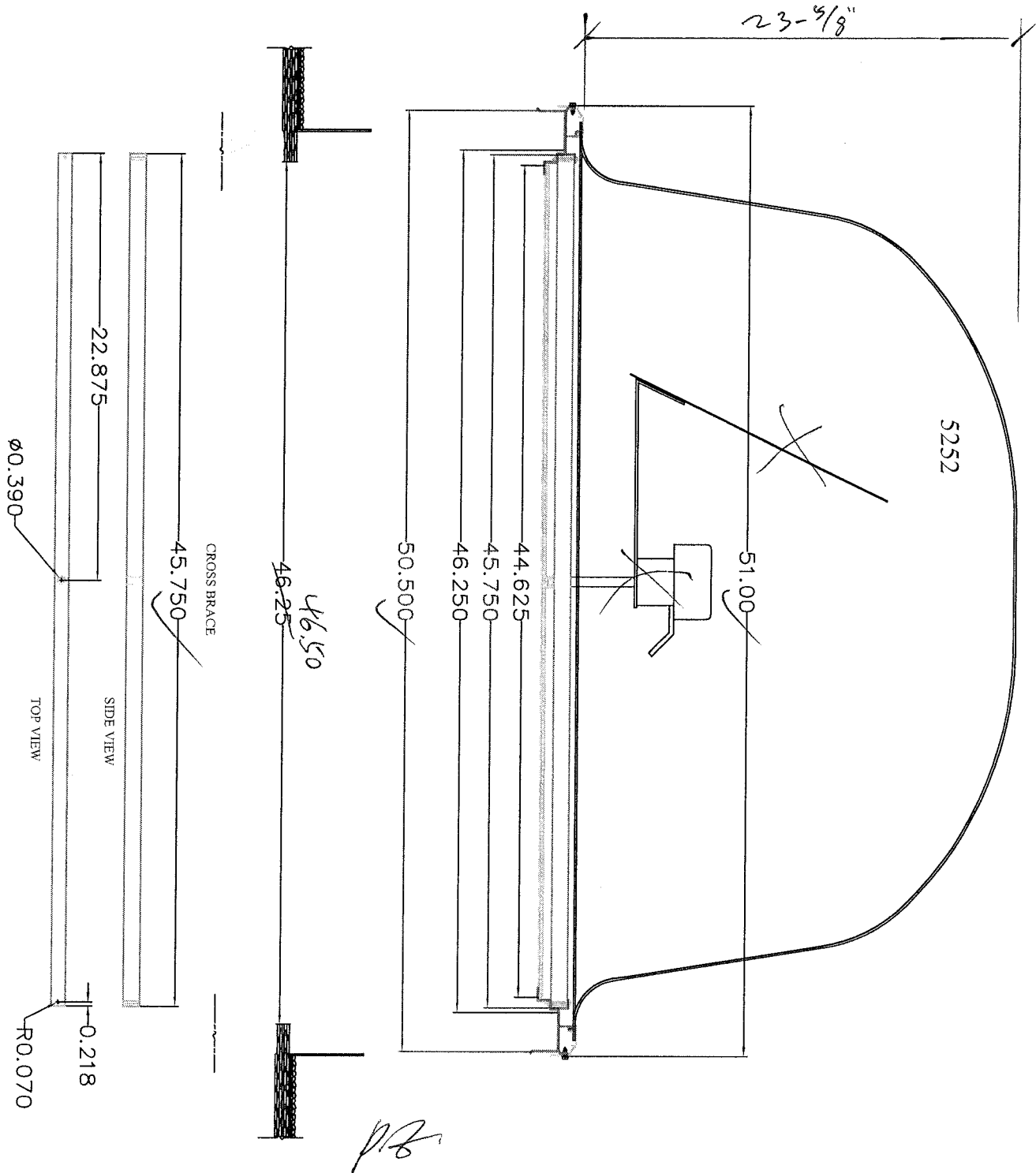
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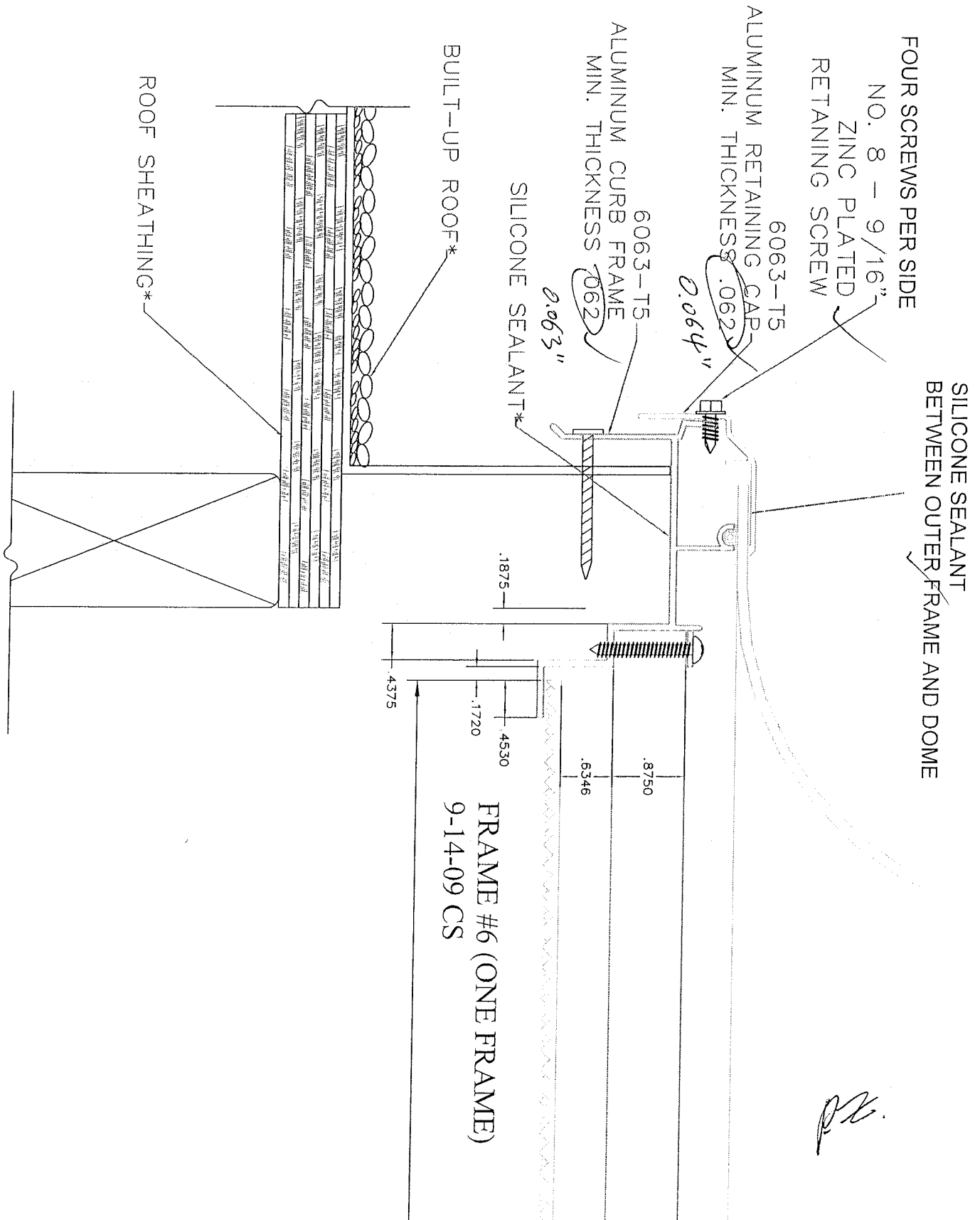
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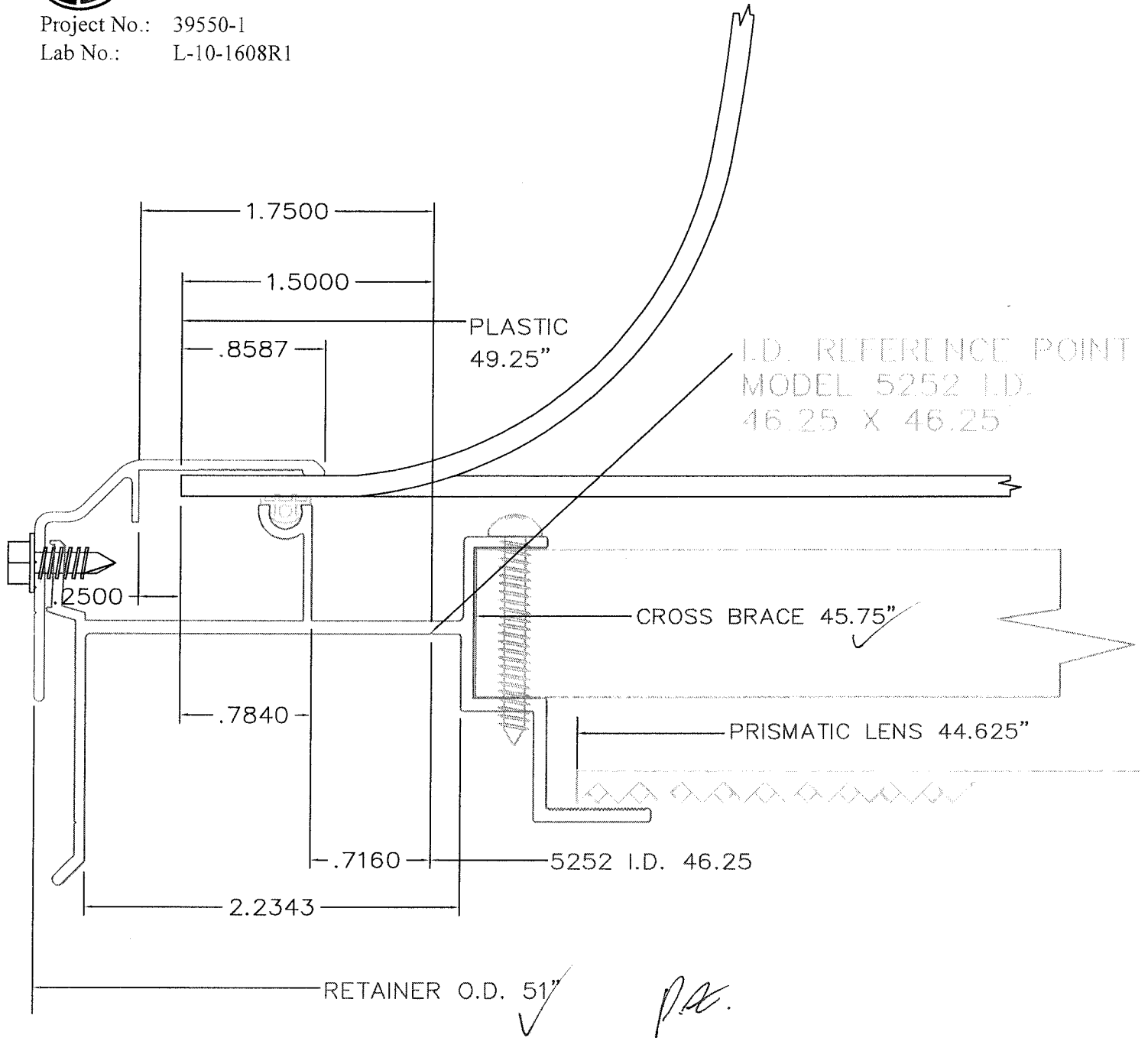
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## CIRALIGHT SUNTRACKER 2

ITEM NO.	DESCRIPTION	QTY.	PART NO.	SOURCE
1	Polycarbonate Dome	1	4100	Replex Plastics (OH)
2	Aluminum Retaining Cap	1	4200	Solar Industries (CA)
2a	Weather Stripping Sealant			
3	Aluminum Curb Cap (Mid Tray Assembly)	1	4810	Solar Industries (CA)
3a	Upper lens (integrated with Alum. Cap)	1	4500	Malcolite (IL)
3b	Curb Cap Screw package with sponges	1		
3c	Silicone Sealant			
4	Lower Lens	1	4500	Malcolite (IL)
5	4x4 Light Well (.04 x 46.5 x 48" typ)	4	4700 / 161000486	Angel & Giroux, (CA); Empire Metals (AZ)
5a	Light Well Screw package	1		
5b	Double Sided Foam Sealant Tape			
6	GPS Controller Assembly - Complete	1	4400-A	Suntron (TX)
6a	Actuator	1	ML4125-8135	Honeywell (MN)
7	Single Mirror Assembly - Complete	1	4300	All Metals, (TX)
7a	Mirror (Aluminum reflector coated with super reflective Oxide layer system. ASTM: e-1651 (95% refl.)	1	4310	All Metals, (TX)
7b	Single Mirror Bracket	1	4320	All Metals, (TX)
7c	Single Mirror Post 3"	1	4325	Team Pride, (TX)
7d	Single Mirror Bolt Package	1	4330-A	