Architectural Testing

TEST REPORT

Report No.: B1051.01-801-44

Rendered to:

ENTECH SOLAR, INC.
Fort Worth, Texas

PRODUCT TYPE: Plastic Glazed Unit Skylight
SERIES/MODEL: ECS900

SPECIFICATION: AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
Primary Product Designator	Class CW-PG65 744 x 895 (29 x 35) - SKP
Design Pressure	± Pa (±65. 16 psf)
Air Infiltration	0.3 L/s/m^2 (0.06 cfm/ft^2)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Test Completion Date: 06/27/2011

Reference must be made to Report No. B1051.01-801-44, dated 06/30/11 for complete test specimen description and detailed test results.

1.0 Report Issued To: Entech Solar, Inc.
13301 Park Vista Boulevard, Suite 100
Fort Worth, Texas 76177

2.0 Test Laboratory: Architectural Testing, Inc.
2865 Market Loop
Southlake, Texas 76092
817-410-7202

3.0 Project Summary:

3.1 Product Type: Plastic Glazed Unit Skylight

3.2 Series/Model: ECS900

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimen tested successfully met the performance requirements for a Class CW-PG65 744 x 895 (29 x 35) - SKP rating.

3.4 Test Date: 06/27/2011

3.5 Test Location: Architectural Testing, Inc. test facility in Southlake, Texas.

3.6 Test Sample Source: The test specimen was provided by the client. Representative samples of the test specimen will be retained by Architectural Testing for a minimum of four years from the test completion date.

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

3.8 List of Official Observers:

Name	Company
David Friedersdorff	Entech Solar, Inc.
Daniel Reeves	Architectural Testing, Inc.

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 0.7 m^2 (7.2 ft^2)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1146	37.1	1146	37.1

5.2 Frame Construction:

Frame Member	Material	Description
Skylight shell	Aluminum 5052-H32	Stamped aluminum sheet installed at 35° pitch.

	Joinery Type	Detail
All corners	TIG welded	Corners welded full-length

5.3 Weatherstripping: No weatherstripping was utilized.

5.4 Glazing:

Glass Type	Glazing	Glazing Method
Monolithic	1/4" Acrylic	Exterior glazed against back bedding material

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed Skylight	1	689 x 837	27.14 x 32.94	1.00"

5.5 Drainage: No drainage was utilized.

5.6 Hardware: No hardware was utilized.

5.7 Reinforcement: No reinforcement was utilized.

6.0 Installation:

The specimen was installed into a SPF wood buck. The flange was sealed to the curb.

Location	Anchor Description	Anchor Location
Mounting flange	1 5/8" coarse drywall screw	1.00" from edges, 2.00" from corners on 8.00" centers. 6 fasteners per side.

7.0 Test Results: The temperature during testing was 29°C (85°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.3 L/s/m^2 (0.06 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.	1
Water Penetration, per ASTM E 331	N/A	N/A	2
Uniform Load Deflection, per ASTM E 330 taken at long edge of glazing +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	 0.1 mm (<0.01") 0.5 mm (0.02")	 5.0 mm (0.20") max. 5.0 mm (0.20") max.	 3,4
Uniform Load Structural, per ASTM E 330 taken at long edge of glazing +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	 0.0 mm (0.00") 0.3 mm (0.01")	 2.8 mm (0.11") max. 2.8 mm (0.11") max.	 3,4

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 331 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken at long edge of glazing			
+3120 Pa (+65.16 psf)	1.5 mm (0.06")	5.1 mm (0.20") max.	
-3120 Pa (-65.16 psf)	0.8 mm (0.03")	5.1 mm (0.20") max.	3,4
Uniform Load Structural, per ASTM E 330 taken at long edge of glazing			
+6240 Pa (+130.33 psf)	0.3 mm (0.01")	2.8mm (0.11") max.	
-6240 Pa (-130.33 psf)	0.5 mm (0.02")	2.8 mm (0.11") max.	3,4

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 3: Loads were held for 60 seconds.

Note 4: Tape and film were not used to seal against air leakage during structural testing.

The service life of this report will expire on the stated Test Record Retention End Date, at which time such materials as drawings, data sheets, samples of test specimens, copies of this report, and any other pertinent project documentation, shall be discarded without notice.

If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) 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.

Digitally Signed by: Anthony D. Brown

Tony Brown
Technician

Digitally Signed by: Andy Cost

Andy Cost
Laboratory Manager

DR:hd

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (3)

Appendix A

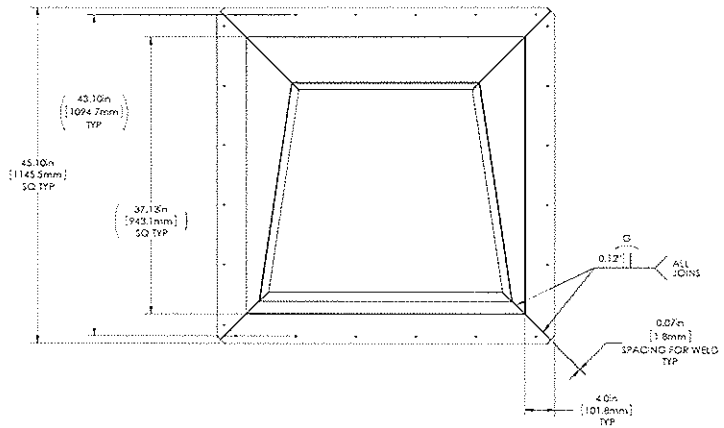
Alteration Addendum

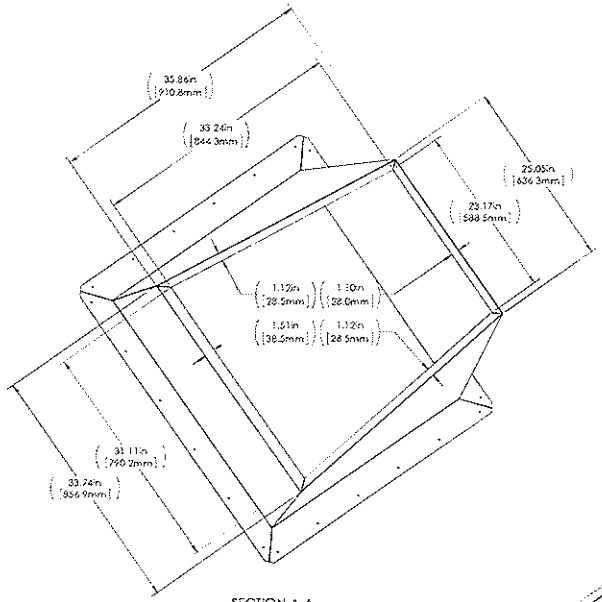
***Note**: No alterations were required.*

Appendix B

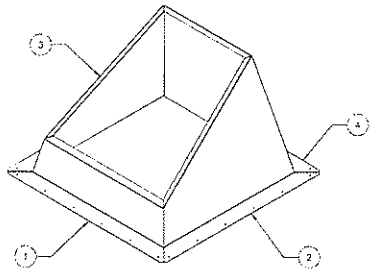
Drawings

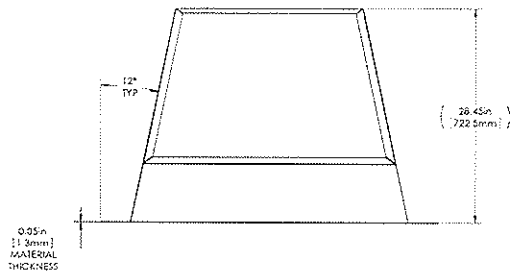
REVISIONS						
REV.	DESCRIPTION	DATE	DES.	ENG.	CHK.	APP.
-	INITIAL RELEASE	-	-	-	-	-

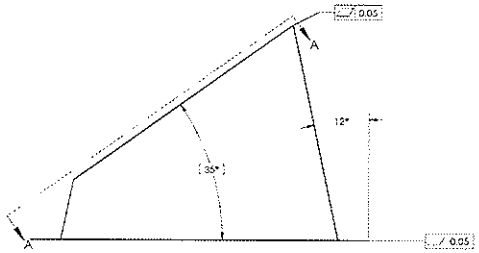




SECTION A-A







PRELIMINARY

ITEM NO.	DRAWING_NUMBER	Description	QTY.
1	ECS1-21000	ECS900, FRONT PANEL, SKYLIGHT SHELL	1
2	ECS1-21001	ECS900, RIGHT PANEL, SKYLIGHT SHELL	1
3	ECS1-21002	ECS900, LEFT PANEL, SKYLIGHT SHELL	1
4	ECS1-21003	ECS900, REAR PANEL, SKYLIGHT SHELL	1

NOTES
1. TOLERANCE ON LINEAR DIMENSIONS IS ±0.05". TOLERANCE ON ANGULAR DIMENSIONS IS ±1°. (TOLERANCES IN TITLE BLOCK DO NOT APPLY).
2. MATERIAL: ALUMINUM ALLOY 5052-H32
3. WEIGHT:15.80 lbs

Architectural Testing

Test sample complies with these details. Deviations are noted.

Report# B1057.01

Date 7/22/14 Tech HD

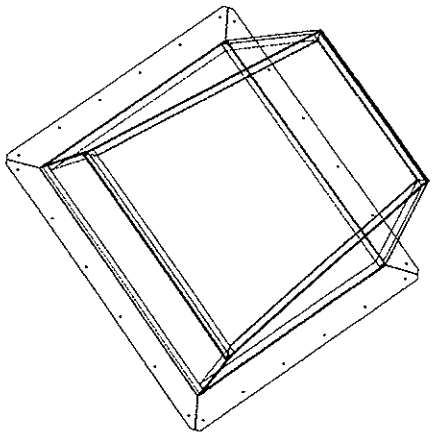
	DESIGNER	KEN MORAN	05/02/2011
	ENGINEER	DAVID FREDERICKSEN	05/02/2011
	CHECKER	DON SPEARS	05/02/2011
	APPROVER	A.J. MADANI	05/02/2011
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED		
	TOLERANCES ON: 2 PL DEC. ±.01 in 3 PL DEC. ±.005 in.		
SCALE 1:8	FRACTIONS ±1/32 in ANGLES ±0° 15'		63
	MACHINED SURFACE FINISH		
SHEET: 1 of 1	ALL PRIMARY DIMENSIONS ARE IN INCHES [mm]		

ENTECH SOLAR
13301 PARK VISTA BLVD
SUITE 100
FORT WORTH, TX 76177

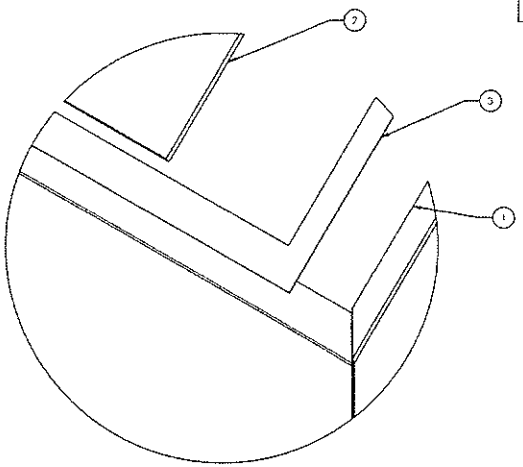
ECS900, WELDMENT, SKYLIGHT SHELL

SIZE	DWG. NO	REV
D	ECS1-20000	-

REVISIONS						
REV.	DESCRIPTION	DATE	DES.	ENG.	CHK.	APP.
-	INITIAL RELEASE	-	-	-	-	-

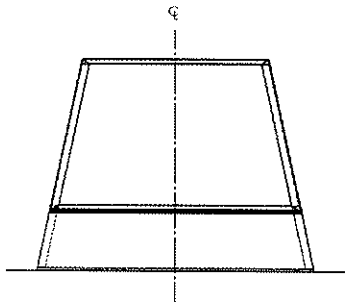


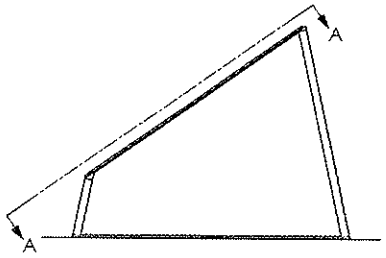
SECTION A-A

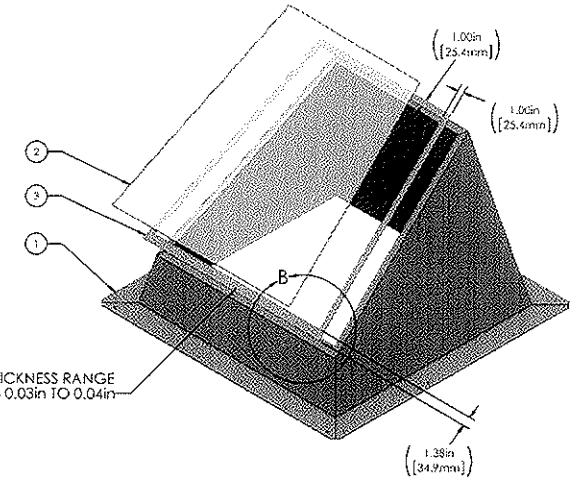


APPLY ITEM 3 TO UPPER FLANGE SURFACE
OF ITEM 1 FOR BONDING OF ITEM 2 TO ITEM 1

DETAIL B
SCALE 1 : 2







ASSEMBLED THICKNESS RANGE
OF ITEM 3 IS 0.03in TO 0.04in

ITEM NO.	DRAWING NUMBER	DESCRIPTION	QTY.
1	ECS1-20001	ECS900, SKYLIGHT SHELL WELDMENT WITH FITED INSULATION & METPET	1
2	ECS1-21012	ECS900, UPPER ACRYLIC, FLAT, LENS	1
3	795	DOW CORNING SILICONE BUILDING SEALANT	AR

NOTES
1. APPROX WEIGHT:29 lbs

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B10572.01

Date 7/22/11 Tech HO

PRELIMINARY

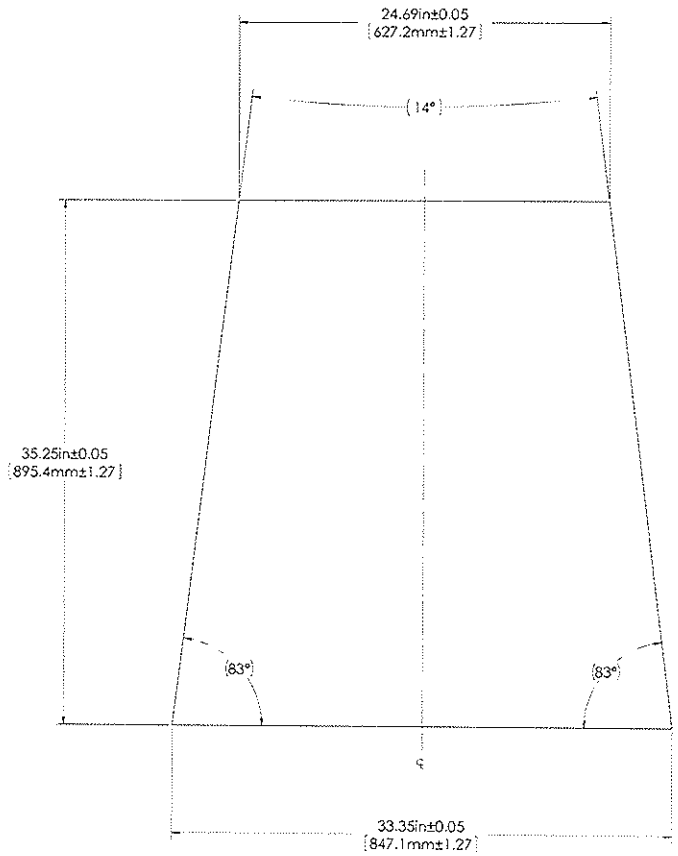
	DESIGNER	KEA MORAN	06/24/2011
	ENGINEER	DAVID FRIEDERSDORFF	06/24/2011
	CHECKER	DON SPEARS	06/24/2011
	APPROVER	A.J. McDANIAL	06/24/2011
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED:		
SCALE 1:8	TOLERANCES ON: 2 PL DEC. ±.01 in; 3 PL DEC. ±.005 in; FRACTIONS ±1/32 in; ANGLES ±0° 15'; 63; MACHINED SURFACE FINISH.		
SHEET: 1 of 1	ALL PRIMARY DIMENSIONS ARE IN INCHES [mm]		

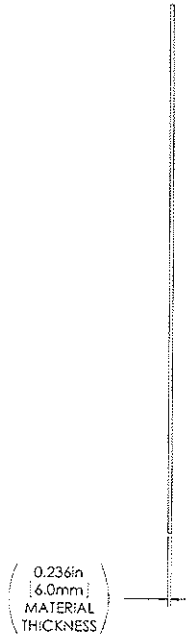
ENTECH SOLAR
13301 PARK VISTA BLVD
SUITE 100
FORT WORTH, TX 76177

ECS900, SKYLIGHT SHELL WELDMENT, INSULATION & METPET, UPPER DIFFUSER

SIZE	DWG. NO.	REV
D	ECS1-20002	-

REVISIONS						
REV.	DESCRIPTION	DATE	DES.	ENG.	CHK.	APP.
-	INITIAL RELEASE	-	-	-	-	-





Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B1051.01

Date 7/22/11 Tech HB

NOTES
1. MATERIAL: ACRYLIC DP-30 (ACRYLIC FFX) STIPPLED SHEET, 0.236" THICK OR EQUIVALENT
2. WEIGHT: 10.47 lbs

PRELIMINARY

	DESIGNER	KEN MORAN	04/22/2011
	ENGINEER	DAVID FREDERICKSON	04/22/2011
	CHECKER	DON SPEARS	04/22/2011
	APPROVER	A.J. VAGANAI	04/22/2011
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED		
	TOLERANCES ON: 2 PL DEC. ±.01 in; 3 PL DEC. ±.005 in		
SCALE 1:4	FRACTIONS ±1/32 in; ANGLES ±0° 15'; 63		
	MACHINED SURFACE FINISH: √		
SHEET: 1 of 1	ALL PRIMARY DIMENSIONS ARE IN INCHES [mm]		

ENTECH SOLAR
13301 PARK VISTA BLVD
SUITE 100
FORT WORTH, TX 76177

ECS900, UPPER ACRYLIC, FLAT, LENS

SIZE	DWG. NO	REV
D	ECS1-21012	-