TEST REPORT

Report No.: H0341.03-301-41

Rendered to:

AMERILUX INTERNATIONAL, LLC
De Pere, Wisconsin

TYPE: Translucent Panel
SERIES/MODEL: 25 mm CoverLite>Triple-Wall Lumira filled Clear Panel

Specification: *NFRC 201-2014, "Interim Standard Test Method for Measuring the Solar Heat Gain Coefficient of Fenestration Systems Using Calorimetry Hot Box Methods".*

Summary of Results	
Solar Heat Gain Coefficient (SHGC)	0.54
Unit Size: 39-3/8" x 39-3/8" (1000 mm x 1000 mm) (Non-Standard Size)	
Testing was performed in the 48" Solar Calorimeter ICN# 62060	

Test Completion Date: 05/01/17

Reference must be made to Report No. H0341.03-301-41, dated 06/05/17 for complete test specimen description and data.

1.0 Report Issued To: Amerilux International, LLC
1212 Enterprise Drive
De Pere, Wisconsin 54115

2.0 Test Laboratory: Architectural Testing, Inc.
an Intertek Company ("Intertek-ATI")
2524 East Jensen Avenue
Fresno, California 93706
559-233-8705

3.0 Project Summary:

3.1 Product Type: Translucent Panel

3.2 Series/Model: 25 mm CoverLite>Triple-Wall Lumira filled Clear Panel

3.3 Test Date: 05/01/17

3.4 Overall Size: 39-3/8" x 39-3/8" (1000 mm x 1000 mm) (Non-Standard Size)

3.5 Daylight Opening: 39" x 39" (1000 mm x 1000 mm)

3.6 Test Sample Submitted by: Manufacturer

3.7 Test Sample Submitted for: Validation for Initial Certification (Prototype Unit)

4.0 Test Specification:

NFRC 201-2014, "Interim Standard Test Method for Measuring the Solar Heat Gain Coefficient of Fenestration Systems Using Calorimetry Hot Box Methods".

Testing was conducted in full compliance to NFRC standards

5.0 Test Specimen Description:

5.1 Product Construction:

The panel was constructed of two cells one 0.55 thick to the exterior and one 0.45" thick. Each cell measured 3/4" x 5/16" thick and was filled with Lumira insulation. The cell wall to the exterior and interior of the panel was 0.037" thick while the dividing wall between cells was 0.004" thick.

6.0 Test Results:

6.1 Heat Flows:

1.	Heat Extracted From System (Q_{fluid})	2016.0	Btu/hr
2.	Surround Panel Heat Flow (Q_{sp})	17.1	Btu/hr
3.	Surround Panel Conductance	0.056	Btu/hr·ft^2·F
4.	Heat Across Walls (Q_{walls})	53.3	Btu/hr
5.	Flanking Loss Heat Flow (Q_{fl})	2.970	Btu/hr
6.	Auxiliary energy (Q_{aux})	24.8	Btu/hr
7.	Maximum thermal transmittance ($Q_{u\text{-}factor}$)	11.4	Btu/hr
8.	Net Specimen Heat Flow (Q_s)	1906.5	Btu/hr

6.2 Test Conditions:

1.	Average Interior Air Temperature	77.2	F
2.	Average Exterior Air Temperature	83.9	F
3.	Surround panel inside temperature (t_{sp1})	72.0	F
4.	Surround panel outside temperature (t_{sp2})	109.1	F
5.	Maximum Solar Irradiation Es	334.4	Btu/hr·ft²
6.	Minimum Solar Irradiation Es	329.8	Btu/hr·ft²
7.	Average Solar Irradiation Es	331.5	Btu/hr·ft²
8.	Inlet Fluid Temperature	66.4	F
9.	Outlet Fluid Temperature	68.0	F
10.	Standardized Thermal Transmittance (U_{st})*	0.16	Btu/hr·ft²·F
11.	Maximum Exterior Surface Coefficient ($H_{h\text{-}sun}$)	6.2	Btu/hr·ft²·F
12.	Minimum Exterior Surface Coefficient ($H_{h\text{-}sun}$)	4.4	Btu/hr·ft²·F
13.	Average Exterior Surface Coefficient ($H_{h\text{-}sun}$)	5.3	Btu/hr·ft²·F
14.	Standardized Weather Conductance (h_{stII})	5.1	Btu/hr·ft²·F
15.	Maximum Wind Velocity	0.0	MPH
16.	Minimum Wind Velocity	0.0	MPH
17.	Average Wind Velocity	0.0	MPH
18.	Average Wind Direction (North equals 360 degrees)	0	Degrees
19.	Starting Azimuth	163	Degrees
20.	Ending Azimuth	191	Degrees
21.	Minimum Altitude	68	Degrees
22.	Maximum Altitude	68	Degrees
23.	Water Flow Rate	2.53	gpm

*Determined using ASTM 1199. For details see ATI report B6776.01-301-46-R0.

6.0 Test Results: (Continued)

6.3 Test Duration:

1.	The test parameters were considered stable for five consecutive time constants (minimum of 10 minutes each) from 11:32 to 12:22

6.4 Calibration Information 48 inch Calorimeter ICN 62060:

1.	Moving Pyranometer ICN 4055	01/31/17
2.	Flowmeter ICN 004065	08/16/16
3.	Thermocouple	01/04/12
4.	Surround Panel Conductivity	06/21/13
5.	Power Input	07/02/14
6.	Fluid Temperature	07/02/14
7.	Miscellaneous Power Input Last Calibration	07/02/14
8.	Metering Box Last Calibration	11/16/12
9.	Calibration Transfer Standard	03/08/10

6.4 Calibration Information 84 inch Calorimeter ICN 62061:

1.	Moving Pyranometer ICN Y002956	02/10/17
2.	Flowmeter SN 47558651	10/13/16
3.	Thermocouple	01/05/12
4.	Surround Panel Conductivity	06/21/12
5.	Power Input	02/24/15
6.	Fluid Temperature	02/24/15
7.	Miscellaneous Power Input Last Calibration	02/24/15
8.	Metering Box Last Calibration	12/02/10
9.	Calibration Transfer Standard	11/20/09

This report is a reissue of the original Report No. H0341.01-301-41. This report is reissued in the name of Amerilux International, LLC through written authorization of Wasco Products, Inc.

The specimen was installed into an extruded polystyrene foam panel with an R-value of 18 using silicone caulking. Tracking system azimuth and altitude are read every minute and the calorimeter is moved to a position normal to the sun from chart stored in computer. The calorimeter is located at 2524 East Jensen in Fresno, California near the northeast corner of the lot elevated approximately 15 feet from ground level. The foreground is desert, the background is industrial buildings.

The estimated uncertainty of this test is 2.80%

This was determined using ANSI/NCSL Z540-2-1997 type B evaluation as described in section 4.3 of this specification. For assumptions used for this calculation or for a description of the procedure contact the "Individual-In-Responsible-Charge" that signed this report.

"This test method does not include separate procedures to determine the heat flows due to either air movement or nighttime U-factor effects. As a consequence, the SHGC results obtained do not reflect the overall performance which may be found in field installations due to temperature differences, wind, shading, air leakage effects, and the thermal bridge effects specific to the design and construction of the fenestration system opening."

"Since there is a wide variety of fenestration system openings in residential, commercial and industrial buildings, it is not feasible to select a "typical" surround panel construction in which to mount the fenestration test specimen. The selection of a relatively high thermal resistance surround panel places the focus of the test on the solar performance of the system. Therefore, it should be recognized that the solar heat gain coefficient results obtained from this test method, for ideal laboratory conditions in a highly insulating surround panel, should only be used for fenestration product comparisons or as input to performance analyses which also include thermal, air leakage and thermal bridge effects due to the surrounding building structure. To determine air leakage effects for windows and doors, refer to Test Method ASTM E 283. For thermal transmittance refer to Test Method ASTM C 1199."

Ratings included in this report are for submittal to an NFRC-licensed IA for certification purposes and are not meant to be used for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) are to be used for labeling purposes.

Detailed drawings, representative samples of the test specimen and a copy of this report will be retained by Architectural Testing for a period of four years. This report is the exclusive property of the client so named herein and relates only to the fenestration product tested. This report may not be reproduced, except in full, without the approval of the laboratory.

For INTERTEK-ARCHITECTURAL TESTING, INC.
Test Performed by:

Jerry Bontilao, BSME
Solar Technician

Tyler Westerling, P.E.
Senior Project Engineer
Individual-In-Responsible-Charge

JB:ss

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

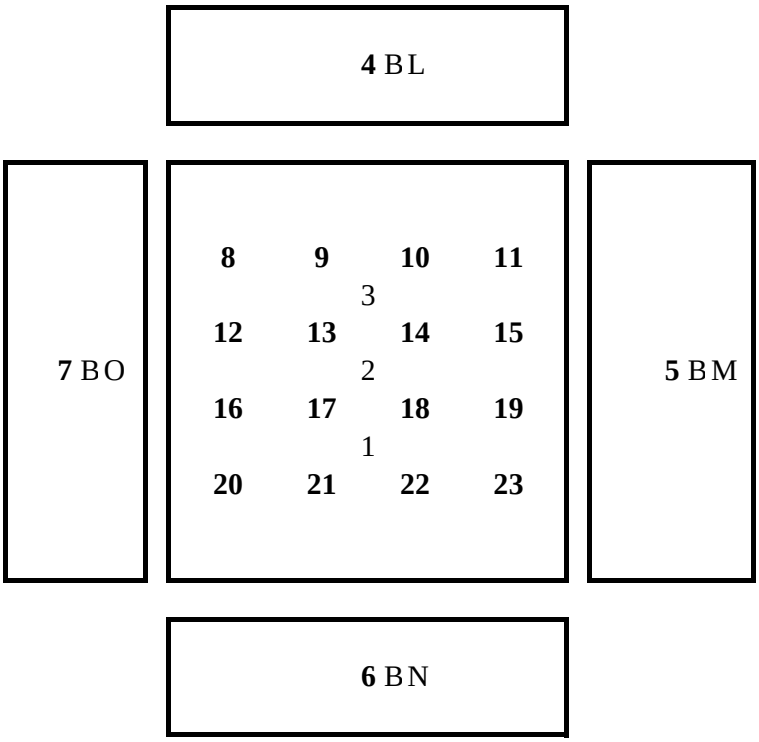
Appendix-A: Heat Exchanger Thermocouple Location and Temperatures (1)

Appendix-B: Drawings (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	06/05/17	All	Original Report Issue. Work requested by Tim Fikkert of Amerilux International, LLC

Appendix A
Absorber Plate Thermocouple Layout



Air Top	1	75.6 F
Air Center	2	81.6 F
Air Bottom	3	74.5 F

Location	4	71.0 F	Location	14	69.2 F
Location	5	70.5 F	Location	15	69.3 F
Location	6	70.0 F	Location	16	70.0 F
Location	7	70.9 F	Location	17	73.8 F
Location	8	69.6 F	Location	18	69.4 F
Location	9	69.9 F	Location	19	71.0 F
Location	10	69.9 F	Location	20	71.8 F
Location	11	69.7 F	Location	21	69.0 F
Location	12	69.2 F	Location	22	70.6 F
Location	13	69.3 F	Location	23	69.6 F

Appendix B
Drawings