

TEST REPORT

Intertek

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EVALUATION CENTER
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Mississauga, ON L5T 2L3

RENDERED TO
Southern Cross Building Products, LLC
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Boynton Beach, FL 33426
Attn: Mr. John Schutt

PRODUCT EVALUATED: Green E-Board™
EVALUATION PROPERTY: STEADY-STATE THERMAL TRANSMISSION
PROPERTIES

**Report of Testing for Steady-State Thermal Transmission
Properties in accordance with ASTM C518-04, Standard Test
Method for Steady-State Thermal Transmission Properties by
Means of the Heat Flow Meter Apparatus**

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2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Southern Cross Building Products on Green E-Board™ backer board to evaluate Steady-State Thermal Transmission Properties. Testing was conducted in accordance with ASTM C518-04, "Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus". The evaluation of the backer boards was performed October 20-29, 2008.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were randomly selected on July 25, 2008 by Intertek representative Fred Bao at the manufacturing facility in Shanghai, China. Samples were received at the Mississauga Evaluation Center on October 15, 2008.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Samples consisted of three panels approximately 12" x 12" x 0.5". All specimens were placed in a conditioning chamber for at least 40 hours at 23±2°C (73±5°F), and 50% relative humidity prior to being tested.

4 Testing and Evaluation Methods

Three (3) specimens were tested. Specimens were conditioned for at least 40 hours at $23\pm 2^{\circ}\text{C}$ ($73\pm 5^{\circ}\text{F}$), and 50% relative humidity using a Hot Pack 175 Series Environmental Chamber Model No. 47532, Serial No. 74571 (Inv. No. 280 01 0133). The test specimens were weighed using an Ohaus Model GT4100 scale (Inv. No. 280 01 0075), and then measured for length, width, and thickness in at least three points for each dimension using a Mitutoyo vernier S/N 1045609 (Inv. No. 280 01 0909). The apparent densities for the specimens were calculated. The specimens were then evaluated in accordance with ASTM C518-04 "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus" using a Netzsch Lambda 2000 Heat Flow Meter Model 436/3/1, Serial No. 183A-1204-606000390 (Inv. No. 280-01-0725). Due to the low insulating value of the individual specimens, the specimens were tested all at once, stacked one on top of the other in order to increase the thermal resistance to a value that could be measured.

4.1. TEST STANDARD 1

Thermal Resistance: ASTM C518-04 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

4.1.1. Deviation from Standard Method

The temperature sensors in the Netzsch heat flow meter protrude very slightly from the surfaces of the upper and lower plates and are not mounted in grooves so as to be flush with the surface in contact with the specimens as specified in A1.3.1 of ASTM C518-04.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

The following are the average results from the set of specimens. Complete results for each individual specimen are shown in Appendix A, Test Data.

Specimen	Thermal Resistance at 25 mm (0.984 in.) $\text{m}^2\cdot^{\circ}\text{C}/\text{W}$ ($^{\circ}\text{Fft}^2\cdot\text{h}/\text{Btu}$)	Thermal Resistance at 25.4 mm (1 in.) $\text{m}^2\cdot^{\circ}\text{C}/\text{W}$ ($^{\circ}\text{Fft}^2\cdot\text{h}/\text{Btu}$)
Green E-Board™	0.085 (0.485)	0.086 (0.493)

5.1.1. Statement of Measurement Uncertainty

It was estimated that these results have an overall measurement uncertainty of 0.66% at the 95% confidence level.

6 Conclusion

Intertek has performed testing of Green E-Board™ backer board specimens for Southern Cross Building Products, LLC in accordance with ASTM C518-04 "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus". Complete test data is shown in Appendix A.

Tested by: Dave Carter

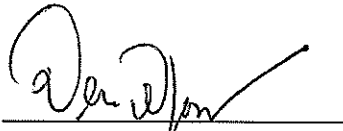
INTERTEK TESTING SERVICES NA LTD

Reported by:



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DJC/WWJ/dc

APPENDIX A
Test Data

Test Data

Test: Steady-State Thermal Transmission

Date: October 29, 2008

Test Method(s): ASTM C518-04 "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus".

Conditioning: 40 hours at a temperature of $23 \pm 2^\circ\text{C}$ and relative humidity of $50 \pm 2\%$

Equipment: Hotpack Conditioning Chamber (inventory number 280 01 0133), Scale (inventory number 280 01 0075), Calipers (inventory number 280 01 0909), Netzsch Heat Flow Meter (inventory number 280 01 0725).

Eng/Tech: Dave Carter

Thermal Transmission Product: Green E-Board™

Property	# 1, #2, #3
Density	912.50 kg/m ³ (56.97 lb/ft ³)
Thickness	36.71 mm (1.445 in.)
Upper Surface Temperature	35.76° C (96.36° F)
Lower Surface Temperature	14.14° C (57.45° F)
Temperature Differential	21.62° C (38.91° F)
Mean Temperature	24.95° C (76.91° F)
Rate of Heat Flux	172.247 W/m ² (54.599 Btu/h·ft ²)
Thermal Conductance	7.967 W/m ² ·K (1.403 Btu/h·ft ² ·°F)
Thermal Resistance	0.126 K·m ² /W (0.713 °F·ft ² ·h/Btu)
Thermal Conductivity	0.292 W/m·K (2.028 Btu·in/h·ft ² ·°F)
Thermal Resistivity	3.419 K·m/W (0.493 °F·ft ² ·h/Btu·in)
Thermal Resistance @ 25 mm (0.984 in)	0.085 K·m ² /W ** (0.485 °F·ft ² ·h/Btu)
Thermal Resistance @ 25.4 mm (1.00 in)	0.086 K·m ² /W (0.493 °F·ft ² ·h/Btu)

** K·m²/W = m²·°C/W