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EFFECTIVE THERMAL RESISTANCE OF EPS PANELS

Prepared for:
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The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.

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EFFECTIVE THERMAL RESISTANCE TESTING OF EPS

INTRODUCTION:

This report presents the results of Effective Thermal Resistance Tests conducted on samples of InSoFast EPS Panel. The testing was authorized by Mr. Ed Scherrer of InSoFast, LLC on March 24, 2009. The testing and data analysis were completed on March 25, 2009.

The scope of our work was limited to conducting effective thermal resistance tests on the samples submitted and reporting the results.

SUMMARY OF RESULTS:

Sample	Effective R Value	Density, lbf/ft^3
EPS	4.45	1.39

SAMPLE IDENTIFICATION:

The sample was identified as a 12” x 12” x 1” panel of EPS insulation.

TEST METHOD:

The specimen was allowed to condition at standard laboratory conditions of 72 ± 4°F and 50 ± 5% relative humidity for at least 40 hours prior to testing. The thermal resistance testing was conducted using ASTM Standard C518-04, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus" as a procedural guide. The specimen was placed in a Netzsch Heat Flow Meter; model HFM 436/3/1 ER. Steady-state heat flux measurements were made at a mean temperature of approximately 75°F using a hot face temperature of approximately 100°F and a cold face temperature of approximately 50°F. Specimen thermal resistance and thermal conductivity were determined by comparing the heat flux measurements of the specimen to measurements made on a known Standard Reference Material. Resistance values obtained from the Heat Flow Meter are best utilized for homogenous specimens.

Test Method	Test Method Title	Notes/Deviations from Method
ASTM C518-04	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	The effective thermal resistance testing was conducted using ASTM Standard C518-04, as a procedural guide.

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CALIBRATED TEST EQUIPMENT:

Netzsch Heat Flow Meter, model HFM 436/3/1 ER, S# 284A-1107-606000788, calibrated 12/08
Mitutoyo Caliper 12", ID MM160-008, calibrated 9/08
Mitutoyo Digimatic Indicator, ID MM160-083, calibrated 11/08
Ohaus Balance, model GT2100, calibrated 7/08

UNCALIBRATED TEST EQUIPMENT:

Neslab Chiller, model RTE-110, S# 89CML91040-7

TEST DATA:

ASTM C518 Results

SAMPLE IDENTIFICATION:	Trial #1	Trial #2
Thickness, in	1.050	1.050
Density lbs/ft^3	1.39	1.39
TEST CONDITIONS:		
Temperature Gradient °F/in	51.12	51.13
Mean Temperature, °F	75.45	75.49
Temperature Range, °F	53.68	53.68
Test Time, min	32.22	15.35
RESULTS:		
Thermal Conductivity, Btu·in/(h·ft²·°F)	0.236	0.235
Thermal Conductance, Btu/(h·ft²·°F)	0.225	0.224
Thermal Resistivity, °F·ft²·h/Btu/in	4.23	4.25
Thermal Resistance, °F·ft²·h/Btu	4.44	4.46
Average Thermal Resistance, °F·ft²·h/Btu	**4.45**	

Density

Sample	Reading	Width, in.	Length, in.	Height, in.	Volume, ft^3	Weight, lb	Density, pcf
EPS	1	12.045	12.041	1.046	0.09	0.12	**1.39**
	2	12.039	12.027	1.052			
	3	12.037	12.026	1.053			
	Average	12.04	12.03	1.05			

REMARKS:

The test materials will be retained for 14 days from the date of this report and then discarded unless we receive written notification requesting otherwise.