



## Test Report

### Thermal Resistance Measurements According to ASTM C518 on R-50 Systems “Threshold” VIP Insulation Board Supplied by Thermal Visions, Inc.

Prepared For:

Ms. Rita Skinner  
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R & D Services, Inc.  
P.O. Box 2400  
Cookeville, Tennessee 38502-2400

Report: RD14536

A handwritten signature in black ink, appearing to read 'Stuart Ruis', written over a horizontal line.

Stuart Ruis  
President

October 10, 2014

The test results in this report apply only to the specimens tested. The tests conform to the respective test methods except for the report requirements. The report includes summary data but a full complement of data is available upon request. This report shall not be reproduced, except in full, without written approval of R & D Services, Inc. This report must not be used by the client to claim product endorsement by R & D Services, Inc., IAS or any other organization.

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## Thermal Resistance Test Report

Test Number: RD142578TR Date of Test: September 30, 2014

Specimen Number: 1851140926-3 Date of Manufacture: Unknown

HFM File Number: 14-2366

Description of Test Specimen: R-50 Systems- "Threshold" VIP Insulation Board (Specimen 1 of 3)

Test Method: ASTM C 518-10, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report Prepared For: R-50 Systems LLC / Ms. Rita Skinner

Sample Conditioning: Minimum 24 hours at 70 ± 3 °F and 50 ± 5 %RH

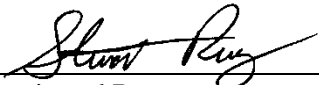
The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518-10.

Heat Flow Meter	<u>24 by 24</u>	inch by inch
Specimen Thickness (as received)	<u>1.116</u>	inch
Tested Specimen Thickness	<u>1.116</u>	inch
Specimen density	<u>NA</u>	lb/ft <sup>3</sup>
Cold plate temperature	<u>50.02</u>	°F
Hot plate temperature	<u>100.04</u>	°F
Average specimen temperature	<u>75.03</u>	°F
Apparent thermal conductivity	<u>0.0189</u>	Btu·in./ft <sup>2</sup> ·hr·°F
Thermal resistivity ( R-per-inch)	<u>NA</u>	ft <sup>2</sup> ·hr·°F/Btu·in.
Thermal resistance of specimen	<u>59.0</u>	ft <sup>2</sup> ·hr·°F/Btu

### Notes:

Calibration factor used for manual calculation: NA  
 Heat Flow Direction: Up  
 Edge guards or cabinet temperature satisfactory: Yes  
 Excessive moisture on cold plate: No  
 Length of time for test (hours): 6.7

The precision of this test is estimated to be 2.5 % (Section 10.8, ASTM C 518-10)

  
 Reviewed By:

10/10/14  
 Date:

\*Abridged ASTM C518 Test Report.



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## Thermal Resistance Test Report

Test Number: RD142579TR Date of Test: September 30 – October 1, 2014

Specimen Number: 1851140926-2 Date of Manufacture: Unknown

HFM File Number: 14-2367

Description of Test Specimen: R-50 Systems- “ Threshold” VIP Insulation Board (Specimen 2 of 3)

Test Method: ASTM C 518-10, “Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.”

Report Prepared For: R-50 Systems LLC / Ms. Rita Skinner

Sample Conditioning: Minimum 24 hours at 70 ± 3 °F and 50 ± 5 %RH

The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518-10.

Heat Flow Meter	<u>24 by 24</u>	inch by inch
Specimen Thickness (as received)	<u>1.128</u>	inch
Tested Specimen Thickness	<u>1.128</u>	inch
Specimen density	<u>NA</u>	lb/ft <sup>3</sup>
Cold plate temperature	<u>50.02</u>	°F
Hot plate temperature	<u>100.04</u>	°F
Average specimen temperature	<u>75.03</u>	°F
Apparent thermal conductivity	<u>0.0191</u>	Btu·in./ft <sup>2</sup> ·hr·°F
Thermal resistivity ( R-per-inch)	<u>NA</u>	ft <sup>2</sup> ·hr·°F/Btu·in.
Thermal resistance of specimen	<u>59.1</u>	ft <sup>2</sup> ·hr·°F/Btu

### Notes:

Calibration factor used for manual calculation: NA  
 Heat Flow Direction: Up  
 Edge guards or cabinet temperature satisfactory: Yes  
 Excessive moisture on cold plate: No  
 Length of time for test (hours): 16.0

The precision of this test is estimated to be 2.5 % (Section 10.8, ASTM C 518-10)

  
 Reviewed By:

10/10/14  
 Date:

\*Abridged ASTM C518 Test Report.



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## Thermal Resistance Test Report

Test Number: RD142580TR

Date of Test: October 1, 2014

Specimen Number: 1851140926-1

Date of Manufacture: Unknown

HFM File Number: 14-2368

Description of Test Specimen: R-50 Systems- "Threshold" VIP Insulation Board (Specimen 3 of 3)

Test Method: ASTM C 518-10, "Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."

Report Prepared For: R-50 Systems LLC / Ms. Rita Skinner

Sample Conditioning: Minimum 24 hours at 70 ± 3 °F and 50 ± 5 %RH

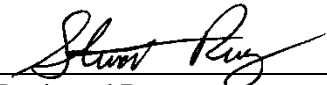
The results in this report were obtained with a heat-flow meter built and operated in accordance with ASTM C 518-10.

Heat Flow Meter	<u>24 by 24</u>	inch by inch
Specimen Thickness (as received)	<u>1.117</u>	inch
Tested Specimen Thickness	<u>1.117</u>	inch
Specimen density	<u>NA</u>	lb/ft <sup>3</sup>
Cold plate temperature	<u>50.02</u>	°F
Hot plate temperature	<u>100.04</u>	°F
Average specimen temperature	<u>75.03</u>	°F
Apparent thermal conductivity	<u>0.0188</u>	Btu·in./ft <sup>2</sup> ·hr·°F
Thermal resistivity ( R-per-inch)	<u>NA</u>	ft <sup>2</sup> ·hr·°F/Btu·in.
Thermal resistance of specimen	<u>59.4</u>	ft <sup>2</sup> ·hr·°F/Btu

### Notes:

Calibration factor used for manual calculation: NA  
 Heat Flow Direction: Up  
 Edge guards or cabinet temperature satisfactory: Yes  
 Excessive moisture on cold plate: No  
 Length of time for test (hours): 8.0

The precision of this test is estimated to be 2.5 % (Section 10.8, ASTM C 518-10)

  
 Reviewed By:

10/10/14

Date:

\*Abridged ASTM C518 Test Report.