

THE ENSOLTIS CORPORATION THERMAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ENSOLCOMP THERMAL PANEL

REPORT NUMBER

M6516.01-301-46 R2

TEST DATE

10/28/21

ISSUE DATE

11/08/21

REVISED DATE

11/18/21

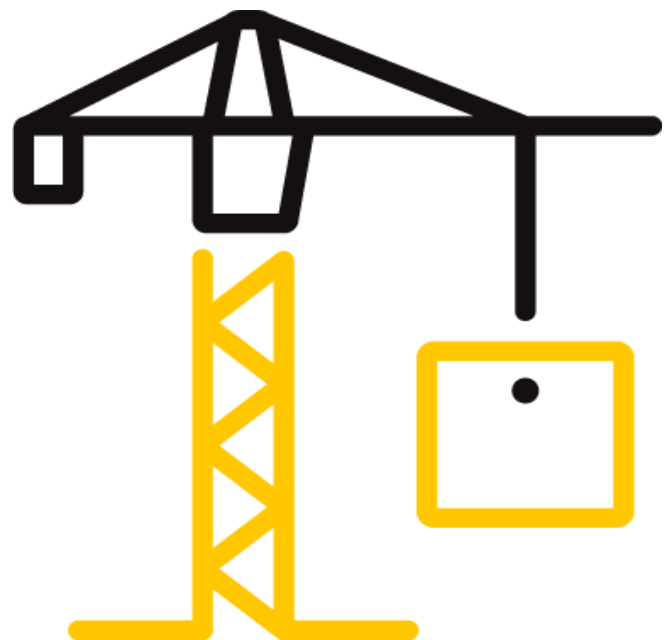
PAGES

9

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-2818(a) (08/05/21)

©2017 INTERTEK



TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

REPORT ISSUED TO

THE ENSOLTIS CORPORATION

15205 Road 28-1/2

Madera, California 93638

SECTION 1

SCOPE

SERIES/MODEL: Ensolcomp Thermal Panel

TYPE: Ensolcomp Thermal Panel System

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by The Ensoltis Corporation to evaluate the thermal performance per ASTM C1363-19. Results obtained are tested values and were secured by using the designated test method. Testing was conducted at Intertek B&C test facility in Fresno, California.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends five years after the test date. Test records, such as detailed drawings, datasheets, or other pertinent project documentation, will be retained for the entire test record retention period. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of five years from the test date.

For INTERTEK B&C:

COMPLETED BY William Simon Smeds

TITLE Technician

SIGNATURE

DATE 11/18/21

WSS:ss

REVIEWED BY Kenny C. White
Business Process

TITLE Manager, IIRC

SIGNATURE

DATE 11/18/21

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2
Date: 11/18/21

SECTION 2
SUMMARY OF TEST RESULTS

Thermal Transmittance (U): 0.13 Btu/hr·ft²·F

SECTION 3
TEST SPECIMEN SUMMARY

SERIES/MODEL	Ensolcomp Thermal Panel
TYPE	Ensolcomp Thermal Panel System
OVERALL SIZE	84" x 84"
TEST SAMPLE SUBMITTED BY	Client

SECTION 4
TEST METHOD

The specimens were evaluated in accordance with the following:

ASTM C1363-19, Standard Test Method for the Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus

SECTION 5
MATERIAL SOURCE/INSTALLATION

The test specimen was provided by the client.

Test Chamber Installation

The test sample was installed in a vertical orientation, the exterior of the specimen was exposed to the cold side.

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
William Simon Smeds	Intertek B&C

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

SECTION 7

TEST SAMPLE DESCRIPTION

CONSTRUCTION	The Ensolcomp Thermal Panel System consisted of one layer of 15/32" CDX Plywood, one layer of synthetic roofing underlayment meeting ICC-ES AC 188, one layer of 2 1/8" thick Ensolcomp Thermal Panel fastened to deck with 3" cap nails, two layers of 30 lb. ASTM roofing felt, one layer of 30-year dimensional shingles meeting ASTM D 3462 fastened to roof deck with 3 1/2" inch roofing nails.
OVERALL SIZE	84" x 84"

**Stated per the client/manufacture and can affect the validity of results*

N/A Non-Applicable

Glass collapse determined using a digital glass and air space meter

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

SECTION 8

THERMAL TRANSMITTANCE (U-FACTOR): MEASURED TEST DATA

Heat Flows

1. Total Measured Input into Metering Box (Qtotal)	485.18 Btu/hr
2. Surround Panel Heat Flow (Qsp)	33.92 Btu/hr
3. Surround Panel Thickness	8.00 inches
4. Surround Panel Conductance	0.0243 Btu/hr-ft ² -F
5. Metering Box Wall Heat Flow (Qmb)	-28.94 Btu/hr
6. EMF vs Heat Flow Equation (equivalent information)	0.0233*EMF + 0.000
7. Flanking Loss Heat Flow (Qfl)	16.09 Btu/hr
8. Net Specimen Heat Loss (Qs)	464.11 Btu/hr

Areas

1. Test Specimen Projected Area (As)	49.00 ft ²
2. Metering Box Opening Area (Amb)	69.44 ft ²
3. Metering Box Baffle Area (Ab1)	60.56 ft ²
4. Surround Panel Interior Exposed Area (Asp)	20.44 ft ²

Test Conditions

1. Average Metering Room Air Temperature (th)	69.80 F
2. Average Cold Side Air Temperature (tc)	-0.40 F
3. Average Guard/Environmental Air Temperature	74.00 F
4. Metering Room Average Relative Humidity	10.94 %
5. Metering Room Maximum Relative Humidity	11.07 %
6. Metering Room Minimum Relative Humidity	10.80 %
7. Measured Cold Side Wind Velocity (Perpendicular Flow)	11.22 mph
8. Measured Warm Side Wind Velocity (Parallel Flow)	0.04 mph
9. Measured Static Pressure Difference Across Test Specimen	0.00" ± 0.04" H ₂ O

Average Surface Temperatures

1. Metering Room Surround Panel	67.92 F
2. Cold Side Surround Panel	-0.29 F

The sample was inspected for the formation of frost or condensation, which may influence the surface temperature measurements. The sample showed no evidence of condensation/frost at the conclusion of the test.

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2
Date: 11/18/21

SECTION 9

THERMAL TRANSMITTANCE (U-FACTOR): CALCULATED TEST DATA

Results

1. Thermal Conductance	0.15 Btu/hr·ft ² ·F
2. Thermal Resistance	6.73 hr·ft ² ·F/Btu
3. Overall Thermal Resistance (Ru)	7.41 hr·ft ² ·F/Btu
4. Warm Side Surface Resistance (Rh)	0.59 hr·ft ² ·F/Btu
5. Cold Side Surface Resistance (Rc)	0.09 hr·ft ² ·F/Btu
6. Warm Side Surface Conductance (hh)	1.70 Btu/hr·ft ² ·F
7. Cold Side Surface Conductance (hc)	10.57 Btu/hr·ft ² ·F
8. Thermal Transmittance of Test Specimen (U)	0.13 Btu/hr·ft ² ·F

SECTION 10

TEST DURATION

1. The environmental systems were started at 13:45 hours, 10/27/21.
2. The test parameters were considered stable for two consecutive four hour test periods from 23:12 hours, 10/27/21 to 07:12 hours, 10/28/21.
3. The thermal performance test results were derived from 03:12 hours, 10/28/21 to 07:12 hours, 10/28/21.

ANSI/NCSS Z540-2-1997 type B uncertainty for this test was 1.75%.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called "Shared Risk Approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

The direction of heat transfer was from the interior (warm side) to the exterior (cold side) of the specimen. The ratings were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy. The data acquisition frequency is 5 minutes.

Required annual calibrations for the Intertek B&C, 'thermal test chamber' (ICN 004287) in Fresno, California were last conducted in February 2021 in accordance with Intertek B&C calibration procedure. A CTS Calibration verification was performed February 2021. A Metering Box Wall Transducer and Surround Panel Flanking Loss Characterization was performed March 2021.

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

SECTION 11

SURFACE TEMPERATURES

1	2	3	4
1	1	1	8
9	10	11	12
13	14	15	16

	WARM SIDE (F)	COLD SIDE (F)
1	65.75	1.40
2	65.42	0.66
3	65.19	0.58
4	64.69	0.51
5	64.47	0.92
6	64.06	0.87
7	64.73	1.19
8	63.91	0.14
9	64.01	0.60
10	64.19	0.42
11	64.10	0.80
12	63.70	0.02
13	63.28	-0.33
14	63.26	-0.30
15	63.25	0.40
16	63.49	0.00
AVERAGE	64.22	0.49

TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

SECTION 12
PHOTOGRAPHS



TEST REPORT FOR THE ENSOLTIS CORPORATION

Report No.: M6516.01-301-46 R2

Date: 11/18/21

SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
.01 R0	11/08/21	N/A	Original Report Issue
.01 R1	11/09/21	1 - 4	Company Name; Overall Specimen Size; Test Sample Description
.01 R2	11/18/21	4	Test Sample Description