

**RADCO TEST REPORT**  
Project No. 196109.R

**Insulated Composite Materials**  
**Tested in Accordance with ASTM C518-04**

Prepared for

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by

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## 1.0 INTRODUCTION

At the request of Cal Poly Corporation, RADCO conducted tests on samples of Composite material in accordance with ASTM C518-04 *Thermal Transmission Properties by Means of Heat Flow Meter Apparatus*.

## 2.0 MATERIAL

Three (3) 10 in. x 10 in. x 3 in. (254.0 mm x 254.0 mm x 76.2 mm) specimens of Composite material were received at RADCO's Long Beach, CA test facility on October 29, 2019.

### 2.1 CONDITIONING

Samples were conditioned for a period of not less than 40 hours at a temperature of  $73.4 \pm 4^{\circ}\text{F}$  ( $23 \pm 2^{\circ}\text{C}$ ) and a relative humidity of  $50 \pm 5\%$ .

## 3.0 TEST PROCEDURES & RESULTS

### 3.1 TEST EQUIPMENT

The tests were conducted using the following equipment:

1. Steel rule graduated to 1mm
2. Sartorius Model GP3202 electronic digital scale
3. Mitutoyo Caliper 8 inch
4. Netzsch HFM446 Lambda Series heat flow meter thermal conductivity instrument

### 3.2 TEST PROCEDURE

Testing was conducted in accordance with ASTM C518-04. Three (3) 10 in. x 10 in. x 3 in. specimens of the product described in Section 2.0 that were provided pre-formed, and tested at their specific mean temperatures of 75°F. Thickness measurements are as reported by the test apparatus. The recorded data and results are shown in the table below.

### 3.3 TEST RESULTS

The recorded data and the results are shown in the following table.

Specimens tested at 75°F	1	2	3
Date of test	10/30/19	10/30/19	10/31/19
Mean temperature during test °F:	75.00	75.00	75.00
Temperature gradient during test °F:	14.07	12.84	13.65
Specimen thickness as tested (in):	2.84	3.12	2.93
Duration of measurement portion of test (hrs:min:sec):	05:14:17	03:26:33	03:13:40
Final specimen mass (wt.) after test (g):	1142.05	1510.45	1069.00
Specimen percent mass (wt.) change:	0.05	-0.06	0.05
Thermal conductivity "k": BTU·in/(Hr.ft <sup>2</sup> .°F)	0.40	0.53	0.42
Thermal resistance "R" per thickness tested: (Hr.ft <sup>2</sup> .°F)/BTU	7.07	5.88	6.92
Density of Specimen (pcf)	15.34	20.18	14.03
Average Thermal resistance "R" per thickness tested: (Hr.ft <sup>2</sup> .°F)/BTU	6.62		

Note 1: Last heat flow meter calibration date = 10/30/19

Note 2: Type of calibration material used = fiberglass

**4.0 PHOTOGRAPHS**

