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**EVALUATION OF “COLORSEAL VERTICAL” FOAM EXPANSION JOINT MATERIAL  
FOR STEADY STATE THERMAL TRANSMISSION PROPERTIES BY MEANS OF  
A HEAT FLOW METER IN ACCORDANCE WITH ASTM C518 – 04**

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A Report to:	Emseal Corporation 120 Carrier Drive Rexdale, Ontario M9W 5R1
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Proposal No.:	09-006-6587
Report No.:	09-06-M0374-C, Revision 1 3 Pages
Date:	January 14, 2010

## 1.0 INTRODUCTION

At the request of Emseal Corporation, Exova was retained to evaluate a sample of foam expansion joint material for 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”. The details of the proposed service are provided in Proposal No. 09-006-5687

Upon receipt, the sample was assigned the following Exova Sample No.:

Client Sample Identification	Exova Sample No.
“Emseal Colorseal Vertical” Foam Expansion Joint Material	09-06-M0374-C

The material was evaluated in its condensed state. The material was held in a wooden cavity with outside dimensions of 300 mm x 300 mm. The frame height was less than that of the sample so that contact was ensured between the sample and the measurement plates.

## 2.0 PROCEDURE

The sample was evaluated in accordance with the following standard test method:

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

Sample: 300 mm x 300 mm by 100 mm (nominal)  
Conditioning: > 40 hrs at 23°C and 50% RH  
Conditioning Room 3028, MII# A11354  
Test Conditions: 24°C mean temperature  
22°C delta T across the sample  
Apparatus: LaserComp Fox 314 Heat Flow Meter (MII # A14505)  
Orientation: Top and Bottom Faces Horizontal  
Heat Flow Vertical (Through Faces)  
Test Date: 2009-11-12

## 3.0 REVISION

2010-01-14 The report was revised to correct a typographical error in the sample name throughout the report. No technical changes were made.

4.0 RESULTS

A summary of results is presented below. In all cases, SI units are the primary units of measure.

Table 1 – Thermal Transmission Properties			
ASTM C 518 – 04			
Exova Sample No.: 09-06-M0374-C			
Description	Result		
	Units:	Metric	British
<b>Specimen Thickness</b> mm [in.]		100.93	[3.974]
<b>Upper Surface Temperature</b> °C [°F]		13.02	[55.44]
<b>Lower Surface Temperature</b> °C [°F]		35.02	[95.04]
<b>Temperature Differential</b> °C [°F]		22.00	[39.60]
<b>Mean Temperature</b> °C [°F]		24.02	[75.24]
<b>Rate of Heat Flux</b> W/m <sup>2</sup> [Btu/h.ft <sup>2</sup> ]		17.29	[5.48]
<b>Thermal Conductance</b> W/m <sup>2</sup> K [Btu/h.ft <sup>2</sup> .°F]		0.79	[0.14]
<b>Thermal Resistance</b> K.m <sup>2</sup> /W [°F.ft <sup>2</sup> .h/Btu]		1.27	[7.23]
<b>Thermal Conductivity</b> W/m.K [Btu.in./h.ft <sup>2</sup> .°F]		0.0793	[0.5499]
<b>Thermal Resistivity</b> K.m/W [°F.ft <sup>2</sup> .h/Btu.in.]		12.61	[1.819]

5.0 CONCLUSION

The foam expansion joint material submitted by Emseal Corporation has a thermal resistance of 1.3 K·m<sup>2</sup>/W (R-7.2), at test thickness of 100.9 mm (4.0 inches).

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