



EC1309

Thermal Resistance of a Waterproof Structural Panel

PDF copy, original signed by the Author and the Reviewer

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Thermal Resistance of a Waterproof Structural Panel

1. CLIENT

Multipanel Pty Ltd
Level One
110 Mount Eliza Way
Mount Eliza
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2. DESCRIPTION OF TEST EQUIPMENT

The test equipment used was a LaserComp Fox 600 heat flow meter. The specimen for testing is placed horizontally in the apparatus, with upwards heat flows. The hot and cold plates each have a 250 mm x 250 mm heat flux transducer embedded in their surface. The edges of the specimen are insulated from the room ambient temperature. The uncertainty in individual thermal conductivity and thermal resistance measurements is estimated to be 3%.

3. PROCEDURE

The specimen, supplied by the client, consisted of one piece of grey high-density polyurethane lightweight waterproof structural panel. The sample was 600x600mm and weighed 2308 grams. It was tested at its nominal thickness, to the requirements of ASTM C518-04.


4. RESULTS

Nominal Upper Plate Temperature	13 °C
Nominal Lower Plate Temperature	33 °C
Nominal Difference in Temperature	20 K
Nominal Mean Temperature	23 °C

Calibration Check Date		12 Mar 07
Calibration Check Sample		EPS 02
BRANZ reference		D3891
'grams per sq. metre'		6411.1
Test Date		12 Mar
Test thickness	mm	30.0
Density	kg/m ³	213.7
Temperature difference	K	20.0
Mean Temperature	°C	23.0
Heat-flux	W/m ²	12.91
Thermal resistance	m ² K/W	0.775
Thermal conductivity	W/mK	0.0387
Difference between heat flux transducers	%	3.3

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These measurements comply with the requirements of ASTM C518. The uncertainty in the measurements of thermal conductivity and thermal resistance are estimated to be $\pm 3\%$.

5. REFERENCES

ASTM C518-04 *Standard Test Method for Steady-State Heat Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*.
American Society for Testing and Materials, Philadelphia, PA, 2004.

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