

TECHNICAL SUPPLEMENT

JULY 2009

WALL SYSTEM THERMAL PERFORMANCE TOTAL R-VALUES

This technical supplement outlines certified total R-values for James Hardie® external cladding products. The below information will assist in both satisfying the minimum deemed to satisfy Building Code of Australia (BCA) thermal resistance requirements or used with verification

software tools. Refer to the BCA for minimum thermal resistance requirements for each climate zone. For further information on sustainable and energy efficient building, please visit www.jameshardie.com.au or Ask James Hardie™ on 13 11 03.

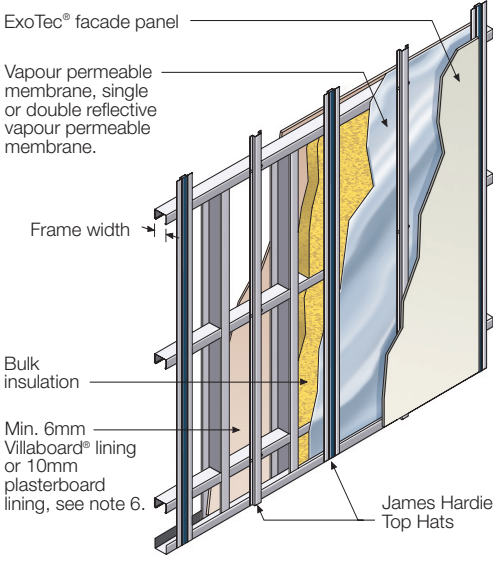
WALL SYSTEM THERMAL PERFORMANCE TOTAL R-VALUES

WALL CONFIGURATION	Frame width (mm)	Maximum stud spacing (mm)	Vapour permeable membrane	INSULATION			Total R value (summer or winter) m ² K/W
				Single reflective vapour permeable membrane	Double reflective vapour permeable membrane	Bulk insulation	
External Cladding fixed direct to frame: Scyon™ Stria™, Axon™ and Linea™ cladding, EasyLap™ panel, HardiFlex® and PanelClad® sheets, HardiTex® base sheets, HardiPlank® and PrimeLine® cladding and the ComTex® facade panel and fixing system.							
	Timber frame						
	70 or 90	600	✓				0.41
	70 or 90	600		✓			0.90
	70 or 90	600			✓		0.90
	70 or 90	600	✓			R 1.5	1.72
	90	600	✓			R 2.0	2.22
	90	600	✓			R 2.5	2.72
	120	600	✓			R 3.0	3.22
	Metal frame						
	When a thermal break is installed, the above timber frame total R values may be used. (Thermal break must have a minimum value R = 0.2 otherwise use the values below)						
	No thermal break installed.						
	90	450	✓			R 2.0	1.50
	90	600	✓			R 2.0	1.60
90	450	✓			R 2.5	1.70	
90	600	✓			R2.5	1.90	
Scyon™ Matrix™ cladding fixed to 19mm Scyon™ cavity trim							
	Timber frame						
	70 or 90	600	✓				0.60
	70 or 90	600		✓			1.12
	70 or 90	600			✓		1.70
	70 or 90	600	✓			R 1.5	1.91
	70 or 90	600		✓		R 1.5	2.43
	90	600	✓			R 2.0	2.41
	90	600		✓		R 2.0	2.94
	90	600	✓			R 2.5	2.91
	90	600		✓		R 2.5	3.44
	120	600	✓			R 3.0	3.41
	120	600		✓		R 3.0	3.95
	Metal frame						
	Scyon™ cavity trim fixed either on or off stud						
	90	600	✓			R 2.0	1.50
	90	600	✓			R 2.5	1.70
	Scyon™ cavity trim fixed on stud						
	90	600		✓		R 2.0	1.70
90	600		✓		R 2.5	2.00	
Scyon™ cavity trim fixed off stud							
90	600		✓		R 2.0	2.00	
90	600		✓		R 2.5	2.20	

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WALL SYSTEM THERMAL PERFORMANCE TOTAL R-VALUES (continued)

WALL CONFIGURATION	Frame width (mm)	Maximum stud spacing (mm)	Vapour permeable membrane	INSULATION			Total R value (summer or winter) m ² K/W	
				Single reflective vapour permeable membrane	Double reflective vapour permeable membrane	Bulk insulation		
ExoTec[®] facade panel and ComTex[®] facade panel fixed to James Hardie 35mm steel top hats.								
 <p>ExoTec[®] facade panel</p> <p>Vapour permeable membrane, single or double reflective vapour permeable membrane.</p> <p>Frame width</p> <p>Bulk insulation</p> <p>Min. 6mm Villaboard[®] lining or 10mm plasterboard lining, see note 6.</p> <p>James Hardie Top Hats</p>	Timber frame							
	70 or 90	600	✓				0.60	
	70 or 90	600		✓			1.11	
	70 or 90	600			✓		1.78	
	70 or 90	600	✓			R 1.5	1.92	
	70 or 90	600		✓		R 1.5	2.60	
	90	600	✓			R 2.0	2.42	
	90	600		✓		R 2.0	3.12	
	90	600	✓			R 2.5	2.92	
	90	600		✓		R 2.5	3.64	
	120	600	✓			R 3.0	3.42	
	120	600		✓		R 3.0	4.15	
	Metal Frame							
	90	600	✓			R 2.0	1.60	
	90	600		✓		R 2.0	2.20	
	90	600	✓			R 2.5	1.80	
90	600		✓		R 2.5	2.40		

NOTES

1. The above published Total R-Values for the above building system configurations were independently assessed in accordance with AS/NZS 4859.1 : 2002 'Materials For The Thermal Insulation of Buildings', by certified engineers and industry organisations.
2. For external cladding fixed to 35mm thick treated timber battens, Total R values for 'External Cladding Fixed to James Hardie 35mm steel top hats' on a timber frame may be used. The specifier is responsible to undertake specific design and detailing for areas outside the scope of James Hardie literature.
3. Timber frame results are for thermal path only.
4. Metal frame results take the effects of thermal bridging into account.
5. Metal frames results are for 0.55mm BMT(k=50W/m.K) with a 35mm maximum flange.
For 0.8mm BMT steel frames, subtract 0.072 from total R value.
For 1.2mm BMT steel frames, subtract 0.133 from total R value.
For 1.6mm BMT steel frames, subtract 0.164 from total R value.
6. If Villaboard[®] lining or any other minimum 6mm thick James Hardie internal lining product is used for the internal layer, 0.04 must be subtracted from the total R-Value.
7. The single reflective vapour permeable membrane was assumed to have an e= 0.87 and e=0.03.
8. The double reflective vapour permeable membrane was assumed to have an e= 0.03 and e=0.03.
9. Bulk insulation and membranes must be suitable for intended use and be installed as per manufacturer's recommendations.
10. Building Code of Australia (BCA) outlines some recommended thermal break materials with an R=value of 0.2.
11. For Scyon[™] Linea[™] cladding the total R value may be increased by 0.1 due to the product's thickness.

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