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U-value calculation
by BRE U-value Calculator version 2.03
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Element type: Roof - Structural insulated panel
Calculation Method: BS EN ISO 6946

194mm Flat Roof with Green Roof Covering

Layer	d (mm)	λ layer	λ bridge	Fraction	R layer	R bridge	Description
					0.100		Rsi
1	12.5	0.210			0.060		Plasterboard (standard wallboard)
2	22	R-value[1]	0.130	0.0800	0.530	0.169	Air layer unventilated
3							Protect VC Foil Ultra Insulating AVCL
4	11	0.130			0.085		SIP - OSB
5	172	0.030	0.130	0.0200	5.733	1.323	Lambdatherm
6	11	0.130			0.085		SIP - OSB
7							Protect VP400 Plus LR
8	50	R-value					Air layer ventilated
9	19	0.130					Plywood sheathing
10	25	0.110					Green Roof Covering
					0.100 #		Rse
	323 mm (total roof thickness)				6.692		

[1]Specified thermal resistance
this resistance substitutes for Rse and the resistance of layers 8-10 because of the ventilated air layer (layer 8)

Total resistance: Upper limit: 6.410 Lower limit: 6.257 Ratio: 1.025 Average: 6.333 m²K/W

U-value 0.158
U-value (rounded) 0.16 W/m²K

The U value result has been determined as follows:

Bridging:

A thermal bridge percentage for the timber studs of 12.5% has been used in accordance with BR 443: 2006 Conventions for U values (section 4.5.1 (ii)).

Correction level:
A correction level of 0 has been used in accordance with Table F1 of BS EN ISO 6946: 2017 Building components and Building elements - Thermal transmittance - Calculation methods.
Please check to confirm and advise if any amendments are required.

Calculated By **Connor Smith** – Technical Officer