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### U-value calculation

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

### Wall Type 3 - 119mm SIP

Layer	d (mm)	$\lambda$ layer	$\lambda$ bridge	Fraction	R layer	R bridge	Description
					0.130		Rsi
1	12.5	0.210			0.060		Vapour Check Plasterboard
2							Protect VC Foil Ultra Insulating AVCL
Membrane							
3	25	R-value <sup>1</sup>	0.130	0.125	0.780	0.192	Cavity unventilated
4	11	0.130			0.085		SIP - OSB
5	97	0.030			3.233		SIP - Lambdatherm EPS
6	11	0.130			0.085		SIP - OSB
7							Protect TF200 Breather Membrane
8	50	R-value					Cavity ventilated
9	18	0.125					Timber Cladding
					<u>0.130 #</u>		Rse
	<u>225 mm (total wall thickness)</u>				4.502		

<sup>1</sup>Specified thermal resistance

# this resistance substitutes for Rse and the resistance of layers 8-9 because of the ventilated air layer (layer 8)

Total resistance: Upper limit: 4.419 Lower limit: 4.286 Ratio: 1.031 Average: 4.353 m<sup>2</sup>K/W

U-value 0.230  
**U-value (rounded) 0.23 W/m<sup>2</sup>K**

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 Protect Technical Services

