



U- Value Calculation Amvic 300 Form

The portion of the walling section bridged by the web was analysed using Psi Therm 2D numerical analysis to determine the heat flow rate (W/m) through the wall at this point. Based on the thermal resistance provided by the homogenous layers, an overall area-weighted thermal resistance was determined for the wall build-up, including the effects of the web section. The results of the web analysis are shown in the table below:

Heat flow (W/m)	2.76744
dT (K)	20
Length (m)	0.4
Equivalent U-value (W/m ² K)	0.34593
Equivalent thermal resistance (m ² K/W)	2.890758246

As outlined in the BRE document BR 443: Conventions for U-value calculations, BRE Press, and as referenced in Technical Guidance Document Part L & BS EN ISO 6946, where mechanical fasteners produce an increase in U-value of less than 3% of the undisturbed U-value, the correction for fasteners can be ignored. In the case of the Amvic 150 form, the addition to the U-value is 2.64% and is therefore ignored.

The increased EPS thickness of the Amvic 300 form, while maintaining the same web, results in an improved U-value of 0.198W/m²K.

Wall U-value	Thermal Conductivity (W/mK)	Thickness (m)	Thermal resistance (m ² K/W)
R _{se} (ISO 6946)		0.040	
Plaster	1	0.0150	0.015
EPS	0.031	0.0735	2.371
Concrete	2	0.1500	0.075
EPS	0.031	0.0735	2.371
Plasterboard	0.21	0.0125	0.060
R _{si} (ISO 6946)		0.130	
Resistance (m ² K/W)		5.061	
Declared value	U-value (W/m ² K)		0.198

Corrected U-Value: 0.20W/m²K

This value does not include the web effect, as it contributes only 2.16% additional heat loss and is therefore omitted under BR 443 and ISO 6946 requirements.

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