

Enhanced U-values – an explanation

Executive Summary

When using Pinewood’s standard construction details and associated Psi values for the timber frame junctions, for the Quantum 17 and Quantum™ 19 systems, the U-values are enhanced by 0.02 W/m2K. So our Quantum 19 system now delivers 0.17W/m2K and the Quantum 17 system, delivers 0.15 W/m2K. This is without any additional cost.

The implications of this are significant. Either wall thicknesses can be reduced by 25mm without compromising on performance or the reduction in the U-value can help reduce the amount of PVs required or reduce the need for high performance windows.

More details

Timber Frame System	Wall thickness ¹ (mm)	Y-Value range ² (SAP 2009) W/m2K	U-values with or without using Pinewood’s PSI values (W/mK)	
			Not using Psi Values	Using Psi Values
Quantum 19	317	0.045 – 0.065	0.19	0.17
Quantum 17	342	0.030 - 0.045	0.17	0.15

1. Wall thickness assumes 50mm cavity, standard brick width and 12.5mm plasterboard with 3mm skim.
2. Y-value range is dependent upon house design and these are expected figures based on past experience and should be used as a guide only. The exact Y-value will require detailed calculation by the SAP assessor.

The above table summarizes the enhancement of the U-values when using Pinewood’s Psi value parameters for the various non-repeating thermal bridges as defined in Appendix K of SAP 2009.

We can achieve the enhanced U-value because the Psi value already includes for an element of the repeating thermal bridge timber in its calculations. By factoring this into our U-value calculations for the wall make ups, we can gain a more accurate view of the performance of our wall panels and the effect of the repeating thermal bridging. Once calculated out, the enhancements generate approximately a 10% improvement in the U-values. It is however important that the reader understands that this enhancement can only be claimed when using Pinewood’s standard details. These are available on request. Please contact us on 01767 651218 or by email at info@pinewood-structures.co.uk