

# U Value Calculations

Approved Document Part L 2010



## Minimum U Values for New Elements in both New & Existing buildings

Element	L1A New Dwellings	L2A New Non Domestic	L1B Existing Dwellings	L2B Existing Non Domestic
Roof - ins. Ceiling	0.2	0.25	0.16	0.16
Roof - ins. Rafter & Flat roofs	0.2	0.25	0.18	0.18
Wall	0.3	0.35	0.28	0.28
Party Wall	0.2			
Floor	0.25	0.25	0.22	0.22
Swimming Pool basin	0.25	0.25	0.25	0.25
Windows	2	2.2	1.6	1.8
Roof lights	2	2.2	1.6	1.8
Curtain Walling	2	2.2		1.8
Pedestrian doors	2	2.2	1.8	1.8
Vehicle doors		1.5		1.5
High use doors		3.5		3.5
Roof ventilation		3.5		3.5

## Minimum U Values for upgrading Existing Elements

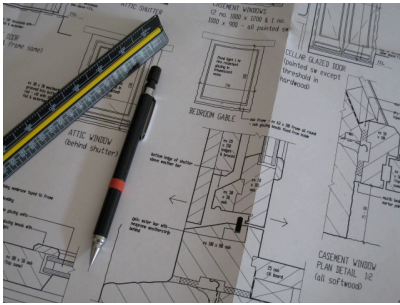
Element	L1B	L2B
Wall - Cavity	If worse then 0.70 - improve to min. of 0.55	If worse then 0.70 - improve to min. of 0.55
Wall - Solid	If worse then 0.70 - improve to min. of 0.30	If worse then 0.70 - improve to min. of 0.30
Floor	If worse then 0.70 - improve to min. of 0.25	If worse then 0.70 - improve to min. of 0.25
Roof - ins. at ceiling	If worse then 0.35 - improve to min. of 0.16	If worse then 0.35 - improve to min. of 0.16
Roof - ins at rafter Flat Roof	If worse then 0.35 - improve to min. of 0.18	If worse then 0.35 - improve to min. of 0.18

# U Value Calculations



## U Values you can trust

U Value Calculations provided by **Energy Saving Experts** follow the conventions in BR 443 and are based on the whole element.



All our calculations, unlike some that are provided by suppliers, take into account all the various corrections required, repeating thermal bridges, and unheated spaces to provide an accurate U Value. This ensures that if BCB want to check them, you can be sure they have been calculated correctly and won't cause any unnecessary problems later on.

U-value Construction					
Element Type	WALL, etc.				
Standard Code	BS 5266:2014				
Construction Details					
Layer	Thickness (mm)	Material Name	Conductivity (W/mK)	Perimeter	Resistance
1	100.00	Brickwork	0.75	1.00	0.133
2	100.00	ACB Block	0.10	0.20	0.100
3	20.00	Mineral Wool Batt	0.040	1.00	2.500
4	20.00	Concrete (200 N/mm <sup>2</sup> ) - Medium Density	1.70	1.00	0.118
5	15.00	Copper Flashband	0.20	1.00	0.750
Total Thickness: 265.00		Upper Resistance: 0.734		Lower Resistance: 0.663	
Element U-value:		0.135			
Element Perimeter Contribution:		0.000			
Element Area Perimeter Contribution:		0.000			
Element Edge Contribution:		0.000			
Element U-value:		0.135 W/m <sup>2</sup> K			
Element Perimeter U-value:		0.12 W/m <sup>2</sup> K			

## U Value Report template

All our U Value calculations are provided to BCB on an easy to read report template which allows for easy checking.

## More than Basic Calculation

All U Values are not just the straightforward thermal resistance of each of the elements that make up a structure, there are more input parameters that must be taken care of so that an accurate U Value is represented. We follow the guidance in BR 443 and use an approved U Value calculator.

## Specific Requirements

Each of the main structures have specific requirements for adjustments and corrections to the basic U Value, as shown below. We carry these out as routine so you know that when you get a U Value calculation from Energy Saving Experts, its going to be a correct one.

## Floor U Values

Floor U Values are subject to most of the different input parameters and its easy to forget that some of these have a considerable impact on the result.

Floor area, exposed perimeter, the ground type, and if edge insulation is to be used will effect all ground floor types. Specific to suspended floors are the U Values of the walls above, thermal resistance of the solum, mean wind speed, the number of air vents, and the wind shielding factor.

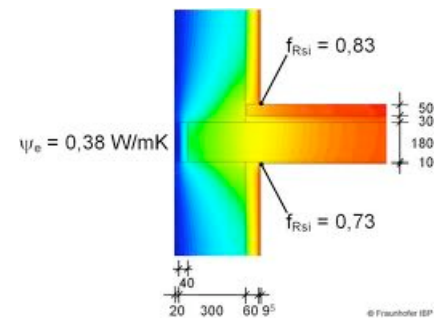
Be reassured, we take care of all this for you.

## Wall U Values

In walls the repeating thermal bridges like mortar joints, plasterboard dabs and timber frame are taken care of automatically when the type of construction is chosen. However, we do make corrections for air gaps in the insulation and the use of steel ties. No correction is required for basalt or plastic ties.

## Roof U Values

Like walls the repeating thermal bridges caused by ceiling joists, timber trussed rafters and other rafters are accounted for when the type of construction is chosen. Corrections are made for air gaps in the insulation, the presence or not of loft hatch insulation and recessed light fittings, and for steel fastenings.



## Unheated Spaces

We also make a correction for when unheated spaces adjoin any of the above, so garages, corridors and stairwells in flats, and roof spaces. All of these which are unheated but form some protection from the outside will have a positive effect on the U Value of a floor, wall or roof.

For further information on how **Energy Saving Experts** can help you, call 01225 862266

[www.energy-saving-experts.com](http://www.energy-saving-experts.com)