

# Insulation Table for Use on New Build Extensions, Loft Conversions, Dormers and Renovation of Dwellings

Type of Insulation (Revision 8)	Thickness Required in mm for L1b (New Build Extensions,Loft Conversions,Dormers and Renovation of Dwellings)											
	Pitched Roof Between & Under Rafters	Pitched Roof Warm Deck	Pitched Roof Between & over Ceiling Joists	Flat Roof Warm deck	Flat Roof Between Joists	Walls	Dormer Fronts & Cheeks 100mm stud	Ground Floors 0.22W/m2/K		Upper Floors 0.22W/m2/K		K Value
								Timber	Solid	Timber	Concrete	
0.2W/m2/K	0.2W/m2/K	0.16W/m2/K	0.2W/m2/K	0.2W/m2/K	0.3W/m2/K	0.3W/m2/K						
Kingspan Thermapitch TP10	75mm between & 50mm under	100mm	100mm between & 50mm over	-	100mm between & 35 under	-	100mm	-	-	-	-	0.023
Kingspan Kooltherm K7	70mm between & 50mm under	100mm	100mm between & 50mm over	-	100mm between & 30mm under	-	100mm	-	-	-	-	0.022
Kingspan TR31 includes 6mm plywood	-	-	-	96mm above & 25 between	-	-	-	-	-	-	-	0.023
Kingspan Thermawall TW50	-	-	-	-	-	50mm	-	-	-	-	-	0.023
Thermawall K 18 drylining board	-	-	-	-	-	72.5mm	-	-	-	-	-	0.023
Thermawall K17 drylining board	-	-	-	-	-	72.5mm	-	-	-	-	-	0.027
Kingspan Thermafloor TF70	-	-	-	-	-	-	-	120mm	80mm	125mm	-	0.023
Polyfoam	-	-	-	-	-	-	-	-	100mm	-	-	0.027
Jabfloor 70	-	-	-	-	-	-	-	-	100mm	-	-	0.038
Rockfloor	-	-	-	-	-	-	-	200mm	130mm Rock Floor	250mm	-	0.038
Rockwool	-	-	100mm between 170mm over	160mm Duo Rock	250mm	-	-	-	-	-	-	0.036
Drytherm	-	-	100mm between 170mm over	-	250mm	100mm Full using 0.34 block	-	-	-	-	-	0.036
Fibreglass	-	-	100mm between & 170mm over	-	-	-	-	-	-	-	-	0.04
Celotex GA3000	-	100mm	100mm between & 50mm over	-	-	-	-	-	-	-	-	0.023

P/A	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
Suspended Timber Floor Rockwool	200 mm	200mm	200mm	200mm	200mm	200mm	200mm	170mm	150mm	Nil
Suspended Timber Floor Rockfloor	150mm	150mm	140mm	140mm	140mm	140mm	140mm	120mm	90mm	Nil
Suspended Beam and Block Rockfloor	130mm	130mm	125mm	125mm	120mm	115mm	110mm	100mm	80mm	Nil
Ground Bearing Slab Rockfloor	125mm	120mm	120mm	115mm	110mm	100mm	90mm	80mm	50mm	Nil
Ground Bearing Slab Celotex Ca 30002	80mm	80mm	80mm	75mm	75mm	70mm	60mm	55mm	35mm	Nil
Ground Bearing Slab Kingspan TF70	80mm	80mm	80mm	75mm	75mm	70mm	60mm	55mm	35mm	Nil
Ground Bearing Slab JabFloor 70	100mm	100mm	100mm	100mm	75mm	75mm	75mm	55mm	35mm	Nil
Ground Bearing Slab Polyfoam XPS	100mm	100mm	100mm	100mm	90mm	90mm	75mm	65mm	50mm	Nil

## Extension

U-values for new pitched roofs with insulation between rafters or at ceiling level are unaltered but all others are reduced. The new maximum U-values are:

Element	U-value W/m <sup>2</sup> K
Walls	0.30
Floors	0.22
Flat roof or roof with integral insulation	0.20
Pitched roof (insulation at ceiling level)	0.16
Pitched roof (insulation at between rafters)	0.20
Windows, roof windows and roof lights	1.80
Doors with more than 50% of the internal surface area glazed	2.20
Other doors	3.00

Areas of windows, roof windows and doors should not be greater than 25% of floor area of the extension plus area of any windows or doors no longer exist or no longer exposed as a result of extension works.

The new Approved Document also provides optional approaches to allow more design flexibility concerning U-values or, alternatively, SAP 2005 can be used.

## Change of Use

The new Approved Document provides more detailed guidance than was previously available concerning buildings or parts of buildings being converted to dwellings:

New thermal elements (walls, floors and roofs) are to have U-values at least that as given above.

Where more than 25% of the surface area of an element is being renovated, the whole of the element will need to be upgraded to achieve the following U-values.

Element being renovated	U-value W/m <sup>2</sup> K
Walls	0.35
Floors	0.25
Flat roof or roof with integral insulation	0.25
Pitched roof (insulation at ceiling level)	0.16
Pitched roof (insulation at between rafters)	0.20

Where existing thermal elements are to be retained, and are below a specified 'threshold U-value', they will need to be upgraded to achieve the following U-values.

Element being retained or renovated	Threshold U-value W/m <sup>2</sup> K	Improved U-value W/m <sup>2</sup> K
Cavity walls	0.70	0.55
Other all types	0.70	0.35
Floors	0.70	0.25
Pitched roof (insulation at ceiling level)	0.35	0.16
Pitched roof (insulation at between rafters)	0.35	0.20
Flat roof or roof with integral insulation	0.35	0.25

For thermal elements being retained or renovated, guidance is provided to cover circumstances where improvement may not be technically or functionally feasible, or would not achieve a simple payback within 15 years.

SAP 2005 can also be used as an alternative approach.