



## 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.