

# Durox Applications

## Thermal Insulation

### from Tarmac Topblock

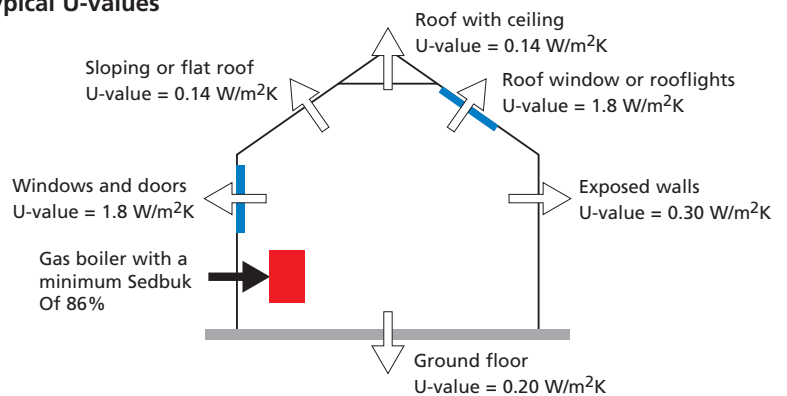
Some typical construction solutions to comply with Building Regulation Part L, Conservation of Heat and Power, are shown on the following pages. As insulation material sizes and their thermal conductivity are subject to change, it is recommended that the U-value of constructions be periodically confirmed by reference to Technical Services or the Topblock website.

From April 2006, Approved Document L1A (new dwellings) of the Building Regulations was introduced so that compliance is demonstrated by showing that the Dwelling emission rate (DER) is no greater than the Target emission rate (TER) of a notional building of the same size as the proposed house. The TER is calculated using standard defaults for the fabric insulation and the heating and hot water systems that are embedded within the SAP 2005 software, resulting in a 20% reduction in CO<sub>2</sub> emissions compared to the previous requirements.

The actual level of fabric insulation required will be dependent upon a number of factors including the fuel type used and the efficiency of the heating system. The diagram below shows typical U-values for the exposed elements of the building, assuming that the fuel type is mains gas, which could form the starting point for the DER calculation.

Approved Document L1B covers the standard of insulation required when building work is carried out on an existing dwelling. When constructing an extension to a dwelling, minimum elemental U-values apply as shown in the table on the following pages.

#### Typical U-values



#### Alternative suitable products:

Products from the Toplite, Hemelite and Topcrete ranges may also be suitable for this application.

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### Elemental U-values for extensions to existing dwellings

Element	Dwellings U-value (W/m <sup>2</sup> K)
Walls	0.30
Floor	0.22
Roof insulation at ceiling level	0.16
Roofs insulation at rafter level	0.20
Roofs (flat)	0.25
Windows, roof windows & rooflights	1.80
Doors with more than 50% of internal face glazed	2.20
Other doors	3.00



### U-values using clear cavity with thermal laminates

Internal finish	U-value of 100mm inner leaf (W/m <sup>2</sup> K)		
	Supabloc	Supabloc 4	Supabloc 7
Thermal laminate			
50mm ThermaLcheck K (2.27 m <sup>2</sup> K/W)	0.28	0.29	0.30
60mm ThermaLine Super (2.43 m <sup>2</sup> K/W)	0.26	0.28	0.29
65mm ThermaLine Super (2.67 m <sup>2</sup> K/W)	0.25	0.26	0.27



### U-values using partial fill insulation

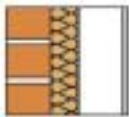
Insulation	Internal finish	U-value of 100mm inner leaf (W/m <sup>2</sup> K)		
		Supabloc	Supabloc 4	Supabloc 7
40mm Kingspan TW50 k = 0.023 W/mK with low-e cavity*	Thermal laminate			
	13mm Dense plaster	0.29	0.31	0.32
	13mm Lightweight plaster	0.29	0.30	0.31
	9.5mm Plasterboard on dabs	0.28	0.30	0.30
	12.5mm Plasterboard on dabs	0.28	0.29	0.30
45mm Kingspan TW50 k = 0.023 W/mK with low-e cavity*	Thermal laminate			
	13mm Dense plaster	0.27	0.29	0.29
	13mm Lightweight plaster	0.27	0.28	0.29
	9.5mm Plasterboard on dabs	0.26	0.28	0.28
	12.5mm Plasterboard on dabs	0.26	0.28	0.28

Note Resistance of low -e cavity 0.64 m<sup>2</sup>K/W

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### U-values using full fill insulation

Insulation	Internal finish	U-value of 100mm inner leaf (W/m <sup>2</sup> K)		
	Thermal laminate	Supabloc	Supabloc 4	Supabloc 7
75mm Dritherm 32 k = 0.032 W/mK	13mm Dense plaster	0.29	0.31	0.32
	13mm Lightweight plaster	0.29	0.31	0.31
	9.5mm Plasterboard on dabs	0.28	0.30	0.31
	12.5mm Plasterboard on dabs	0.28	0.30	0.30
Insulation	Internal finish	U-value of 100mm inner leaf (W/m <sup>2</sup> K)		
	Thermal laminate	Supabloc	Supabloc 4	Supabloc 7
80mm Springvale Ecobead Platinum k = 0.033 W/mK	13mm Dense plaster	0.29	0.30	0.31
	13mm Lightweight plaster	0.28	0.30	0.31
	9.5mm Plasterboard on dabs	0.28	0.29	0.30
	12.5mm Plasterboard on dabs	0.27	0.29	0.30

### Beam & Durox Floor block ground floor to achieve U-value 0.20 (W/m<sup>2</sup>K) or better

Floor Block	Insulation type	Insulation width (mm)									
		P/A ratio	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Durox	Jabfloor 70	20	75	100	105	115	115	120	120	125	125
Durox	Polyfoam Floorboard 220	15	60	85	95	100	105	105	110	110	115
Durox	Celotex	10	40	50	55	55	60	60	60	65	65

**Notes** Floor beams are assumed at 620mm centres  
Some widths of insulation are achieved by combining one or more layers to obtain the overall width  
Floors finished with (minimum) 50mm screed or chipboard

### Beam & Durox Floor block ground floor with Durox Foundation blocks to achieve U-value 0.20 (W/m<sup>2</sup>K) or better

Floor Block	Insulation type	Insulation width (mm)									
		P/A ratio	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Durox	Jabfloor 70	-	65	85	100	105	110	115	115	120	120
Durox	Polyfoam Floorboard 220	-	40	70	90	95	100	100	105	105	110
Durox	Celotex	-	40	45	50	55	55	60	60	60	60

**Notes** Floor beams are assumed at 620mm centres  
Some widths of insulation are achieved by combining one or more layers to obtain the overall width  
Hyphen (-) denotes no insulation required over floor to achieve U-value  
Includes 2 courses of Foundation blocks below ground level  
Floors finished with (minimum) 50mm screed or chipboard

#### Alternative suitable products:

Products from the Toplite, Hemelite and Topcrete ranges may also be suitable for this application.