

U VALUES OF ELEMENTS

A GUIDE TO THE SPECIFICATION OF INSULATION MATERIALS IN ORDER TO ACHIEVE COMPLIANCE WITH APPROVED DOCUMENT L1B 2006 OF THE BUILDING REGULATIONS FOR SMALL DOMESTIC WORKS. (Issued December 2006)

NOTES

- All data relating to specific products has been sourced from the manufacturers at the time of print.
- They are typical examples and are NOT specifically recommended by Local Authority Building Control.
- All the listed materials must be installed in strict accordance with manufacturers guidance and with due regard to the need to ensure continuity of insulation and a reasonable standard of air tightness.

EXAMPLES OF GROUND FLOOR INSULATION

Compliance with revised Approved Document L1B 2006

Small domestic works

SUSPENDED TIMBER GROUND FLOOR

U-Value achieved minimum 0.22W/m²K

Required thickness of insulation/mm										
Product	K-value	Perimeter/Area Ratio								
		1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2
Kingspan Kooltherm K3	0.021 – 0.024	110	110	110	105	105	100	95	85	70
Celotex GA3000Z	0.023	120	115	110	110	105	100	95	85	70
Kingspan Thermafloor TF70	0.022 – 0.024	120	115	115	110	110	105	100	90	70
Dow Floormate 200- X	0.029	130	120	120	120	120	110	110	100	80
Jablite Jablo	0.030	125	120	120	115	110	105	95	80	55
Rockwool Flexi	0.038	150	140	140	140	140	140	140	120	90
Jablite Jabfloor 70	0.038	145	145	140	135	130	125	115	95	90
Crown Loft Roll	0.044	250	250	250	250	200	200	200	170	150

FLOATING FLOOR

U-Value achieved minimum 0.22W/m²K

Required thickness of insulation/mm										
Product	K-value	Perimeter/Area Ratio								
		1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2
Kingspan* Kooltherm K3	0.021 – 0.024	100	95	95	90	85	80	70	60	40
Kingspan* Thermafloor TF70	0.022 – 0.023	105	100	100	95	90	85	75	65	40
Kingspan Thermafloor TF73	0.029	Nm	Nm	Nm	Nm	Nm	98	93	79	58
Celotex GA3000z	0.023	105	100	100	95	90	85	75	65	40

Note: These are calculated figures and should be adjusted to the nearest manufactures thicknesses
Nm: Not Manufactured
*Laid between battens at 600 centres

SUSPENDED BEAM & BLOCK GROUND FLOOR

U-Value achieved minimum 0.22W/m²K

Required thickness of insulation/mm										
Product	K-value	Perimeter/Area Ratio								
		1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2
Kingspan Kooltherm K3	0.021 – 0.024	75	70	70	70	70	65	60	55	45
Celotex GA3000Z	0.023	80	80	80	75	75	75	70	65	50
Kingspan Thermafloor TF70	0.022 – 0.023	80	80	80	75	75	70	65	60	50
Dow Floormate 200-X	0.029	110	110	110	110	110	100	90	90	70
Polyfoam Floorboard Standard	0.029	110	110	110	110	100	100	100	85	75
Jablite Jablo	0.030	95	90	90	90	85	80	75	65	45
Rockwool Rockfloor	0.038	130	130	125	125	120	115	110	100	80
Jablite Jabfloor 70	0.038	120	115	115	110	105	100	95	80	55

GROUND BEARING SLAB

U-Value achieved minimum 0.22W/m²K

Required thickness of insulation/mm										
Product	K-value	Perimeter/Area Ratio								
		1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2
Kingspan Kooltherm K3	0.021 – 0.024	75	75	70	70	65	60	55	50	35
Celotex GA3000Z	0.023	80	80	75	75	70	65	60	50	30
Kingspan Thermafloor TF70	0.022 – 0.023	80	80	80	75	70	65	60	50	30
Dow Floormate 200-X	0.029	110	110	110	100	90	90	80	70	50
Polyfoam Floorboard Standard	0.029	100	100	100	100	100	85	75	65	50
Jablite Jablo	0.030	105	105	100	95	95	95	80	65	45
Rockwool Rockfloor	0.038	125	120	120	115	110	100	90	80	50
Jablite Jabfloor 70	0.038	135	130	125	125	115	110	100	85	55

EXAMPLES OF WALL CONSTRUCTION

Compliance with revised Approved Document L1B 2006 Small domestic works

CAVITY WALL - TIMBER FRAME 150 & 100x50 studs at 600 & 400mm centres

U-Value achieved minimum 0.30W/m²K

Outer Leaf		Cavity		Inner Leaf		Internal Finish	
mm		mm		mm		mm	
105	Brick	50	Clear Cavity	140	Crown Frametherm roll 35/38 or Crown Frametherm slab 35/38 in studs @ 600 centres	12.5	Plasterboard
105	Brick	50	Clear Cavity	100	<i>Fibreglass</i>	35	Thermaline plus
105	Brick	50	Clear Cavity	100	90mm Isowool HP Batt	28	Thermaline platinum
105	Brick	50	Clear cavity	80	Kingspan Thermawall TW55 between studs	12.5	P/board & skim
105	Brick	50	Clear Cavity	70	Kingspan Kooltherm K12 Framing board between studs	12.5	P/board & skim
105	Brick	50	Clear Cavity	40	Kingspan Kooltherm K12 Framing board between studs	32.5	Kooltherm K18 insulated dry lining board
105	Brick	50	Clear Cavity	40	Kingspan Thermawall TW55 between studs	32.5	Kooltherm K18 insulated dry lining board
105	Brick	50	Clear Cavity	90	<i>Isowool timber frame HP Batt</i>	28	Thermaline plus
105	Brick	50	Clear Cavity	100	Celotex XR3000 between studs	12.5	P/board & skim

TIMBER FRAME WALL

U-Value achieved minimum 0.30W/m²K

	100 x 50 Stud Wall		Internal Finish	
	mm		mm	
Tiles & battens	75	Kingspan Thermawall TW55	22	Gyproc Thermaline Basic
Tiles & battens	100	Fibreglass	35	Gyproc Thermaline Plus
Tiles & battens (or 12.5mm Fireline Board if protected from elements)	75	Celotex Tuff-R GA 3075	25	12mm Celotex T-Break 3012 & 12.5mm Plasterboard
Tiles & battens	70	Kingspan Kooltherm K12 Framing	22	Gyproc Thermaline Basic

DRY LINING TO EXISTING SOLID WALL

U-Value achieved minimum 0.30W/m²K

Existing wall		Dry lining product		Internal finish	
mm		mm		mm	
215	Brick	67.5	Kingspan Kooltherm K18 insulated dry lining board	5	Skim coat
215	Brick	50	Celotex tuff-R GA3000 with joints taped against brickwork and 25mm x 50mm battens @ 600 c/cs fixed through insulation to walls with 12.5 gyproc wallboard internal finish.	12.5	Plasterboard
103	Brick	55	Celotex tuff-R GA3000 with joints taped against brickwork and 25mm x 50mm battens @ 600 c/cs fixed through insulation to walls with 12.5 gyproc wallboard internal finish.	12.5	Plasterboard

FULL FILL CAVITY WALL – BLOCK INNER LEAF

U-Value achieved minimum 0.30W/m²K

Outer Leaf		Full Fill Cavity*		Inner Leaf		Internal finish	
mm		mm		mm		mm	
105	Brick	100	Dritherm 32	100	Block K value of 0.46 or lower, e.g. Plasmor Stranlite	15	Lightweight Plaster
105	Brick	90	Crown Dritherm	100	Block K value of 0.15 or lower, e.g. Topblock Toplite Standard	15	Plaster
105	Brick	85	Crown Dritherm	100	Block K value of 0.15 or lower, e.g. Topblock Toplite Standard	12.5	Plasterboard on dabs
105	Brick	85	Dritherm 32	100	Block K value of 0.27 or lower, e.g. Plasmor Fibolite	15	Lightweight Plaster
105	Brick	75	Dritherm 32	100	Block K value of 0.11 or lower, e.g. Durox Superblock	13	Dense Plaster
105	Brick	50	Crown Dritherm	100	Block K value of 0.34 or lower r, e.g. Plasmor Aglite	45 or 50	Thermaline Super Thermaline platinum
105	Brick	50	Crown Dritherm	100	Block K value of 1.13 or lower	60	Thermaline platinum VC
100	Block K value of 0.27 or better, e.g. Plasmor Fibolite	85	Crown Dritherm	100	Block K value of 0.27 or lower, e.g. Plasmor Fibolite	15	Lightweight plaster
100	Block K value of 0.45 or better, e.g. Topblock Hemelite (3.5N)	75	Dritherm 32	100	Block K value of 0.11 or lower r, e.g. Durox Superblock	12.5	Plasterboard on dabs (note 15mm air gap)
100	Block K value of 0.15 or better, e.g. Topblock Toplite Standard	65	Crown Dritherm	100	Block K value of 0.15 or lower, e.g. Topblock Toplite Standard	12.5	Plasterboard on dabs
105	Brick	100	Dritherm 32	105	Brick		None

*Full fill systems require cavity to be increased by 10mm in accordance with manufactures details

PARTIAL FILL CAVITY WALL – BLOCK INNER LEAF

U-Value achieved minimum 0.30W/m²K

Outer Leaf		Partial Fill Cavity		Inner Leaf		Internal finish	
mm		mm		mm		mm	
105	Brick	90	40mm Kingspan Thermawall TW50 or 40mm Kingspan Kooltherm K8	100	Block K value of 0.11 or lower, e.g. Durox Superbloc	13	Dense Plaster
100	20mm rendered Topblock Hemelite (3.5N)	85	35mm Kingspan Thermawall TW50, or 35mm Kooltherm K8, or 35mm Celotex tuff-R CW3035	100	Block K value of 0.11 or lower, e.g. Thermalite Turbo	13	Dense Plaster
105	Brick	95	45mm Celotex tuff-R CW3045	100	Block K value of 0.19 or lower, e.g. Durox Superbloc	13	Light weight Plaster
105	Brick	50	Clear cavity	100	Block K value of 0.11 or lower, e.g. Thermalite Turbo	60	Thermaline Super
105	Brick	50	Clear cavity	100	Block K value of 0.34 or lower, e.g. Plasmor Aglite	65	Thermaline Super
105	Brick	100	50mm Celotex tuff -R CW3050	105	Brick		

TYPICAL SOLID WALL CONSTRUCTION

U-Value achieved minimum 0.30W/m²K

External		Block Type		Internal Finish	
mm		mm		mm	
20	Render	215	Thermalite Turbo	40	Gyproc Thermaline Super
20	Render	215	Topblock Toplite Standard	45	Gyproc Thermaline Super
20	Render	215	Durox Supablock	40	Gyproc Thermaline Super
20	Render	215	Thermalite Turbo	42.5	Kooltherm K17 dry-lining board
20	Render	215	Topblock GTI	42.5	Kooltherm K17 dry-lining board
20	Render	215	Durox Supablock	42.5	Kooltherm K17 dry-lining board
20	Render faced with 45mm polyfoam cavityboard	215	Durox Supablock	13	Dense plaster
20	Render	215	Durox Supablock	55	Thermaline Plus or Thermaline Super
20	Render	215	Durox Supablock Topblock GTI Thermalite Turbo	37.5	Kooltherm K18 dry-lining board mechanically fixed to timber battens

TYPICAL BLOCK K VALUES

Compliance with revised Approved Document L1B 2006

BLOCK MANUFACTURER	BLOCK TYPE	N	DENSITY kg/m ³	K VALUE W/mK
Armstrong	Lightweight			0.42
	Dense			1.13
Besblock	Insulite solid			0.34
Celcon	Solar	2.8	460	0.11
		3.5		0.11
	Standard	4	620	0.15
	Hi Strength	7	750	0.19
Durox	Supablock 400	2.8	420	0.10
	Supablock	3.5	480	0.11
	Supablock 4	4	600	0.16
	Supablock 7	7	650	0.17
Forticrete	Lightweight			0.42 – 0.59
	Dense			0.93 – 1.13
Hanson	Ultralite			0.29
	Superlite			0.40
	Fenlite			0.48
	Evalast			1.32
Interfuse	Optilyte			0.20
	Interyte			0.47
	Intercrete			1.13
Lignacite	SP			0.60
	Standard			0.69
Masterblock	Pumalite			0.44
	Lightweight			0.59
	Dense			1.06
Mona Precast	Fibotherm			0.25
	Monalight 100S			0.5
	Monacrete 100			0.59
	GPI			0.51

	Monacrete 100S			1.13
Plasmor	Fibolite	3.5	850	0.25
		7	900	0.27
	Aglite	4.2	1050	0.32
		7		0.32
		10.5		0.37
	Stranlite	4.2	1375	0.46
		7	1375	0.46
	Plascon	7	1950	1.06
		10.5	1950	1.06
RMC	Readyblock 1100			0.34
	Readyblock 1400			0.59
	Readyblock Dense			1.13
Stock Blocks	Ultralite			0.25
	Insulite			0.40
	Lyta			0.56
	Dense Concrete			0.99 – 1.25
Thermalite	Turbo	2.8	480	0.11
	Shield	4	550	0.15
	Hi strength	7	730	0.19
	Hi – Strength	10		0.20
Topblock	Supabloc			0.11
	Supabloc 4			0.16
	Supabloc 7			0.17
Topblock	Hemelite	3.5	1360	0.45
		7	1450	0.47
		10		0.49
	Toplite GTI	2.8	480	0.11
	Toplite Standard	3.5	630	0.15
	Toplite 7	7	730	0.19
	Topcrete Fair Face			0.99
	Topcrete Dense			1.28

EXAMPLES OF PITCHED ROOF INSULATION

Compliance with revised Approved Document L1B 2006

Small domestic works

VENTED COLD DECK PITCHED ROOF - INSULATION BETWEEN RAFTERS

U-Value achieved minimum 0.20W/m²K

	K-Value	Solution/mm
Crown Rafter Roll 32 & Polyfoam Linerboard	0.035 (therm res. 1.695)	130 between rafters & 45.5 linerboard under rafters
Kingspan Thermapitch	0.022 – 0.023	75 between rafters & 50 under rafters*
Kingspan Kooltherm K7	0.021 – 0.024	70 between rafters & 50 under rafters*
Celotex RXR3000 & Celotex GA3000	0.023	170 between rafters (160mm where using a breathable membrane) or 100 between rafters & 40mm under rafters with plasterboard applied directly under or 50 between rafters & 65 under rafters, with plasterboard attached to 25mm deep counter battens to create air space
Rockwool Flexi	0.038	220mm between rafters
Web Dynamics Thinsulex & Insulation with K value of 0.023 or better	(R-value 1.69) 0.023	One layer thinsulex under rafters with plasterboard attached to 25mm deep counter battens to create air space & 80mm (70mm where using a breathable membrane) insulation such as Kingspan or Celotex between rafters*
* Where rafters are only 100mm deep, battens should be provided to their underside to maintain a 50mm air gap above the insulation as necessary.		

WARM DECK PITCHED ROOF – INSULATION ABOVE THE RAFTERS

U-Value achieved minimum 0.20W/m²K

	K-Value	Solution/mm
Kingspan Thermapitch	0.022 – 0.023	100 over rafters
Celotex GA3000	0.023	100 over rafters
Celotex GA3000	0.023	60 over & 50 between rafters
Jabroof Panel	0.038	190 over rafters

VENTED COLD DECK PITCHED ROOF - INSULATION BETWEEN & OVER CEILING JOISTS

U-Value achieved minimum 0.16W/m²K

	K-Value	Solution/mm
Crown Wool	0.044	100mm between & 170mm over
Rockwool Roll	0.044	100mm between & 170mm over
Crown Wool & Polyfoam Supadeck	0.044 0.029	100mm Crown Wool between & 130mm supadeck over
Kingspan Thermapitch	0.022-0.023	100 between & 50 over

EXAMPLES OF FLAT ROOF INSULATION

Compliance with revised Approved Document L1B 2006

Small domestic works

COLD DECK FLAT ROOF – INSULATION BETWEEN JOISTS AND BETWEEN AND UNDER JOISTS

U-Value achieved minimum 0.20W/m²K

Product	K-Value	Notes	Solution - o/all thickness in mm
Jablite Board	0.038	Data taken from manufactures technical staff and based on typical timber roof with 50 wide joists at 400 c/c and a 12.5 plasterboard ceiling	160 between joists and 50 under
Jablo Board	0.030	Ditto	120 between joists and 50 under or 150 between and 30 under
Crown Frametherm Batt & Polyfoam Linerboard	0.035 & 0.029	Ditto	140 batt between joists & 45.5/9.5 Linerboard under
Kingspan Thermapitch TP10	0.022 – 0.024	Ditto	170 between joists or 130 between joists and 20 under
Celotex GA 3000	0.023	Ditto	180 between joists
Celotex XR3000 and GA3000	0.023	Ditto	100 XR3000 between joists and 40 GA3000 under

WARM DECK FLAT ROOF – INSULATION ABOVE JOISTS OR ABOVE AND BETWEEN

U-Value achieved minimum 0.20W/m²K

	K-Value	Notes	Solution - o/all thickness in mm
Celotex Tempcheck Deck (composite deck)	0.023	Data taken from manufactures technical staff and based on typical roof with 50 wide timber joists at 400 c/c and a 12.5 plasterboard ceiling	105 (TD3105) for built up roofing and 115 (TD3115) for single ply membranes
Celotex Extra-R XR3000	0.023	Ditto	100
Kingspan TherमारooF TR31 (composite ceck)	0.022-0.024	Ditto Tape joints in under layer for vapour control	96 plus 25 Kingspan TP10 between joists and directly under
Polyfoam Roofboard Standard (for single ply membranes only)	0.029	Data taken from manufactures technical staff and based on typical roof with 50 wide timber joists at 400 c/c and a 12.5 plasterboard ceiling	135
Knauf Krimpact rock fibre slab		Ditto	175
Jablite Jabdec	0.036	Ditto	183 (with mech fixing) 163 (without)

TYPICAL INSULATION K VALUES

Compliance with revised Approved Document L1B 2006

	PRODUCT	K-VALUE W/mK	KNOWN AVAILABLE THICKNESSES/mm	USE
Owens Corning Crown	Dritherm	0.035 0.036 0.037	50 65 75, 85 & 100	cavity wall
	Dritherm 32	0.032		Cavity wall
	Dritherm Plus	0.036	75, 85 & 100	cavity wall
	Frametherm 35	0.035	90 & 140	Timber frame, inter rafter
	Frametherm 40	0.040	90 & 140	Timber frame, inter rafter
	Frametherm 44	0.044	90 & 140	Timber frame, inter rafters
	Universal slab	0.035	100	Walls roofs floors
	Wool/Loft roll	0.044	100, 150, 170 & 200	Walls roofs floors
Owens Corning Polyfoam	Cavity board	0.029	25, 30, 35, 40, 50 & 60	cavity wall
	Roofboard Standard	0.029 0.034	35, 50, 60 & 75 90	warm deck roof
	Floorboard Standard	0.029	25, 35, 50, 65 & 75	Floors
	Supadeck	0.029	113mm Polyfoam insulation & 18mm ply decking	loft decking
	Raftersqueeze	0.030	50 & 75	Inter rafter
Celotex	tuff-R CW2000	0.019	17, 20, 25, 29, 33, 36, 40, 44 & 48	cavity wall
	Tempchek Deck 5.5mm ply & insulation	0.019	75.5	Warm deck flat roof
	<i>Double-R GA3000Z</i>	0.023	12, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 90	flat/pitch roof, floor, Wall
Rockwool	Flexi	0.038		
	Timber batt or roll	0.037	60, 80, 90, 100 & 150	Timber frame, inter rafter, timber floor
	Cavity wall batt	0.036	50, 65, 75, 100, 125 & 150	cavity wall
	Rockfloor	0.036	30, 40, 50, 60 & 70	concrete floor
	Roll batts	0.037	80, 100, 150	pitched roof, floor
Jablite	Jablo	0.030		
	Jabfloor 70 (was Flooring)	0.038	25, 40, 50, 60, 75, 100 & 120	floor
	Jabwall & Jablok	0.038	40, 50, 60 & 75	cavity wall
	Jabfil (was Fulfil)	0.038	75 & 100	cavity wall
	Board (was Insulation board)	0.038	25, 40, 50, 60, 75 & 100	wall lining, Inter rafter
	Jabroof panel	0.036	65, 95, 145, & 190	inter rafter

	Jabsqueeze	0.038	80, 105, 145	loft conversions
	Jabroof board	0.036	From 20mm in 5mm increments	warm deck flat roof
	Jabdec	0.036	From 33mm in 5mm increments	warm deck flat roof
	Jabtherm	0.036	From 20mm in 5mm increments	warm deck flat roof
Kingspan	Kooltherm K7	0.022 – 0.024	25 – 70 in 5mm increments	inter & over rafter
	Thermapitch TP10	0.022 – 0.023	20 – 200 in 5mm increments	inter & over rafter
	TherमारooF TR26	0.022 – 0.023	45 – 130 in 5mm increments	warm deck flat roof
	Kooltherm K2 & K5	0.022 – 0.024	30 – 70 in 5mm increments	warm deck flat roof
	Kooltherm K8	0.022 – 0.024	20 – 50 in 5mm increments	cavity wall
	Thermawall TW51	0.025	25 – 50 in 5mm increments	cavity wall
	Thermawall TW50	0.022 – 0.023	20 – 65 in 5mm increments	cavity wall
	Thermawall TW55	0.022 – 0.023	20 – 100 in 5mm increments	Timber frame
	Kooltherm K12	0.022 – 0.024	20 – 105 in 5mm increments	Timber frame
	Kooltherm K3	0.022 – 0.024	20 – 115 in 5mm increments	floors
	Thermafloor TF70	0.022 – 0.023	20 – 120 in 5mm increments	floors
	TherमारooF TR20	0.026 0.025 0.024	45, 50, 60, 70 & 75 80, 85, 90, 95, 100, 105 & 110 120, 125, 130, 135 & 140	Warm deck flat roof
	TherमारooF TR31 composite board of 6mm ply & insulation	0.022 – 0.023	51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, 116, 126, 131, 136, 146, 156, 161 & 166	Warm deck flat roof
	TherमारooF TR29	0.026 0.025 0.024	50, 55, 60, 65, 70 & 75 85, 90, 95, 100, 105, 110 & 115 125, 135, 140, 145 & 150	Warm deck flat roof
Thermafloor TF73 composite board of 18mm chipboard & insulation	0.029	20 – 130 in 5mm increments	floor	
Dow Styrofoam	Floormate 200-X	0.029	25, 35, 50, 60, 70, 80, 100 & 120	floors
	Roofmate SL-X & LG-X	0.029 0.031	25, 35, 50, 60, 70, 80, 100 & 120 130, 140 & 150	flat roofs
	Roofmate RL-X	0.029	25, 35, 50, 60, 70, 80, 100 & 120	warm deck flat roof
	Roofmate PR-X & RL-X	0.029	25, 35, 50, 60, 70, 80, 100 & 120	warm deck pitched roof
	Styrofoam IB-X	0.029	25, 35, 50, 60, 70, 80, 100 & 120	wall lining
	Wallmate CW-X	0.029	25, 35, 50, 60, 70, 80, 100 & 120	cavity wall
Web Dynamics	Thinsulex (multifoil)	r-value 1.69 u-value 0.53	30	Pitched roof

TYPICAL DRY LINING BOARDS THERMAL RESISTANCE

Compliance with revised Approved Document L1B 2006

	PRODUCT	TOTAL THERMAL RESISTANCE/m ² K/W	THICKNESS/mm
Owens Corning Polyfoam	Liner Board extruded polystyrene & 9.5mm plasterboard	0.81	27
		1.035	34.5
		1.185	39.5
		1.335	44.5
		1.560	52
		1.695	56.5
Owens Corning Polyfoam Plus	Liner Board extruded polystyrene & 9.5mm plasterboard	1.837	47.5
		1.467	37.5
		1.097	27.5
British Gypsum Gyproc	Thermaline REVEAL phenolic foam & wallboard	0.60	18
	Thermaline BASIC Low density expanded polystyrene & wallboard	0.36	22
		0.55	30
		0.80	40
		1.05	50
	Thermaline PLATINUM High density expanded polystyrene & wallboard	0.59	28
		0.97	40
		1.38	50
		1.73	60
	Thermaline PLUS extruded polystyrene vapour layer & wallboard	0.68	27
		0.94	35
		1.12	40
		1.30	45
		1.57	50
		1.73	55
	Thermaline SUPER phenolic foam, vapour layer & wallboard	1.16	30
		1.72	40
		1.99	45
2.27		50	
Tri-line mineral wool & wallboard	0.70	32	
	1.01	42	
	1.32	52	

Kingspan	Thermawall TW52 rigid urethane & 12.5mm plasterboard	0.80	32.5
		0.95	37.5
		1.15	42.5
		1.35	47.5
		1.55	52.5
		1.70	57.5
		1.90	62.5
		2.10	67.5
		2.25	72.5
		2.45	77.5
		2.65	82.5
		2.80	87.5
		3.10	92.5
3.30	97.5		
Kingspan	Thermawall TW56 rigid urethane & 12.5mm plasterboard	0.95	32.5
		1.20	37.5
		1.40	42.5
		1.55	47.5
		1.80	52.5
		2.00	57.5
		2.20	62.5
		2.45	67.5
		2.65	72.5
		2.85	77.5
		3.10	82.5

INDICATIVE U VALUES FOR WINDOWS

Compliance with revised Approved Document L1B 2006

Domestic works

NOTE

The window/fully glazed door energy rating should be Band D or better, or alternatively, the window should have a u-value of 1.8w/m²k or better.

Doors with more than 50% of their internal face area glazed should have an overall u value of 2.2w/m²k
When available, manufacturers' certified u-values should be used in preference to the data in these tables.

WINDOW, ROOFLIGHT AND DOOR AREA PROVISION IN EXTENSIONS TO DWELLINGS

The area of openings in an extension should not exceed 25% of the floor area of the extension plus the area of any windows/doors that, as a result of the extension works, no longer exist or are exposed

INDICATIVE U VALUES FOR WINDOWS AND ROOFLIGHTS

U-Value required minimum 1.8W/m²K

	Type of frame*					
	Window with wood or PVC-U frame			Window with metal frame with 4mm thermal break		
	6mm gap	12mm gap	16mm gap or more	6mm gap	12mm gap	16mm gap or more
Double glazing (low-E, ε ⁿ =0.05, Air filled)	-	-	1.8	-	-	-
Double glazing (low-E, ε ⁿ =0.1, Argon filled)	-	-	1.8	-	-	-
Double glazing (low-E, ε ⁿ =0.05, Argon filled)	-	1.8	1.7	-	-	-
Triple glazing (low-E, ε ⁿ =0.2, Air filled)	-	1.7	1.6	-	-	-
Triple glazing (low-E, ε ⁿ =0.15, Air filled)	-	1.7	1.6	-	-	-
Triple glazing (low-E, ε ⁿ =0.1, Air filled)	-	1.6	1.5	-	-	-
Triple glazing (low-E, ε ⁿ =0.05, Air filled)	-	1.5	1.4	-	-	1.8
Triple glazing (low-E, ε ⁿ =0.2, Argon filled)	-	1.6	1.5	-	-	-
Triple glazing (low-E, ε ⁿ =0.15, Argon filled)	1.8	1.5	1.4	-	-	1.8
Triple glazing (low-E, ε ⁿ =0.1, Argon filled)	1.8	1.5	1.4	-	-	1.8
Triple glazing (low-E, ε ⁿ =0.05, Argon filled)	1.7	1.4	1.3	-	1.8	1.7

* Also see following tables for necessary adjustments to these indicative u-values

The following adjustments should be made to these u-values:

Metal Frames	Adjustment to u-value	
	Window	Rooflight
No thermal break	+0.3	+0.7
Thermal break 4mm	0	+0.3
Thermal break 8mm	-0.1	+0.2
Thermal Break 12mm	-0.2	+0.1
Thermal break 20mm	-0.3	0
Thermal break 32mm	-0.4	-0.1

Wood or PVC-U Frames	Adjustment to u-value
	Rooflight
Double glazed	+0.2
Triple glazed	+0.2

INDICATIVE U VALUES FOR GLAZED/PARTIALLY GLAZED DOORS

Where doors are fully glazed the table for indicative u-values for windows roof lights should be used. Where the door is half glazed (approximately) the u-value of the door is the average of the appropriate window u-value and that of the non glazed part of the door.

e.g. a solid wooden door (u-value of 3.0W/m²k) half glazed with double glazing (low-E, hard coat, argon filled, 6mm gap, u-value 2.5W/m²k) has a resultant u-value of 2.75W/m²k (0.5x(3.0+2.5))