Rochdale Building Control Guide

Approved Document L1 B

Conservation of fuel & power in existing dwellings

coming into effect 1st October 2010

As of 1st October 2010 the elemental U value of windows, walls and roofs are due to change, the following guide provides examples which comply with the amended requirements.

Further information is also provided with respect to fixed building services.

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Doors and windows

Windows are to achieve WER (window energy rating) band C or a U value of 1.6 W/m^{2}K, which equates to
4mm glass 20m air gap argon filled, 4mm glass with low e coating to inner pane.

Doors should achieve 1.8 w/m^{2}K which is equivalent to the current standard for windows.

Area of windows and doors

The area of glazing in extensions should not exceed 25% of the floor area plus the area of any existing openings which will be covered up by the extension.

An alternative to this simple calculation would be either an area weighted U value calculation or the whole dwelling calculation method using SAP 2009 as described in the approved document.

Wall constructions to achieve U value 0.28 W/m^{2}K

Full fill cavity wall

Outer Leaf	Full Fill Cavity	Inner Leaf	Internal finish
102 Brickwork	110mm rock wool cavity batts (k=0.036)	100mm blockwork (k=0.19)	12.5mm plasterboard on dabs
102 Brickwork	100 Dritherm cavity slab 32 (k=0.032)	100mm blockwork (k=0.11)	12.5mm plasterboard on dabs
102 Brickwork	105 Dritherm cavity slab 32 (k=0.032)	100mm blockwork (k=0.32)	12.5mm plasterboard on dabs
102 Brickwork	100mm Dritherm (k=0.037)	100mm blockwork (k= 0.11)	12.5mm plasterboard on dabs
20mm render, 100 blockwork (k=0.57)	100mm rock wool cavity batts (k=0.036)	100mm blockwork (k= 0.11)	12.5mm plasterboard on dabs
20mm render, 100 blockwork (k=0.57)	85mmDritherm cavity slab 32 (k=0.032)	100mm blockwork (k= 0.19)	12.5mm plasterboard on dabs
102mm brickwork	115 Dritherm cavity slab 32 (k=0.032)	102mm brickwork	

Partial fill cavity wall

Outer leaf	Partial fill cavity	Inner leaf	Internal finish
102mm brickwork	50mm clear cavity, 60mm Kingspan Thermawall	100mm blockwork inner leaf (k=0.11)	12.5mm plasterboard on dabs
102mm brickwork	50mm clear, 65mm Celotex	100mm blockwork (k=0.11)	Dense plaster
102mm brickwork	50mm clear cavity	100mm blockwork (k=0.19)	60mm Insulation (k=0.023) & 12.5mm plasterboard
102mm brickwork	50mm clear cavity, 50mm Celotex CW 3000 (k=0.019)	100mm blockwork (k=0.11)	Plasterboard on dabs
100mm blockwork (k=0.19) with 13mm render	50mm clear, 50mm Kingspan Thermawall	100mm blockwork (k= 0.11)	12.5mm plasterboard on dabs
102mm brickwork	50mm clear cavity	100mm blockwork (k=0.27)	65mm Insulation (k=0.023) & 12.5mm plasterboard.
102mm brickwork	50mm clear cavity, 50mm Kingspan	100mm blockwork (k=0.32)	25mm insulation (k=0.023) & 12.5mm plasterboard.

Timber frame wall

External finish	100 x 50mm stud wall	Internal finish
Tiles & battens	100mm Kingspan	20mm Kingspan &12.5mm plasterboard
Tiles & battens	100mm Celotex	12mm Celotex &12.5mm plasterboard
Tiles & battens	100mm Crown Frametherm (k=0.035)	25mm Insulation (k=0.023) &12.5mm plasterboard

Timber frame cavity wall

Outer leaf	Cavity	Inner Leaf	Internal finish
102 brick	50mm clear cavity	140mm Crown frametherm 35 between studs	20mm Insulation (k=0.023) & 12.5mm plasterboard
102 brick	50mm clear cavity	100mm Crown frametherm 35 between studs	20mm Insulation (k=0.023) & 12.5mm plasterboard
102 brick	50mm clear cavity	100mm Kingspan between studs	20mm Kingspan & 12.5mm plasterboard
102 brick	50mm clear cavity	100mm rockwool timber batt between studs (k=0.037)	25mm Insulation (k=0.023) & 12.5mm plasterboard
102 brick	50mm clear cavity	120mm Kingspan between studs	12.5m plasterboard

Solid walls

External leaf	Dry lining product	Internal finish
215mm brickwork	70mm Kingspan (k=0.023)	12.5mm plasterboard.
215mm brickwork	65mm Kingspan, 25 x 50mm battens	12.5mm plasterboard
102mm brickwork	70mm Kingspan, 25 x 50mm battens	12.5mm plasterboard
20mm render & 215mm blockwork (k=0.11)	45mm Kingspan (k=0.023)	12.5mm plasterboard
20mm render & 215mm blockwork (k=0.19)	55mm Kingspan (k=0.023)	12.5mm plasterboard
20mm render & 215mm blockwork (k=0.32)	65mm Kingspan (k=0.023)	12.5mm plasterboard
20mm render & 215mm blockwork (k=0.11)	45mm Kingspan (k=0.023)	50 x 25mm battens & 12.5mm plasterboard

Roof constructions to achieve U value of 0.18 W/m^{2}K

Vented cold deck pitch roof- Insulation between & under rafters.

Product	k-Value	Solution
Kingspan	0.023-0.021	100 between rafters, 50mm under rafters
Celotex GA 3000	0.023	100mm between rafters 50mm under rafters or 100mm between rafters & 45mm under rafters with 25 x 50mm battens between insulation and plasterboard.
Crown rafter roll 32 & Kingspan Insulation	0.032 0.023	125mm between rafters 50mm under rafters
Web dynamics Thinsulex & Insulation with K value 0.023	1.69 0.023	One layer under rafters with 25 deep battens and 12.5mm plasterboard finish. 100mm insulation between rafters.

Warm deck pitched roof

Product	K-Value	Solution
Kingspan Thermapitch TP10	0.023	125mm over rafters
Celotex XR 3000	0.023	125mm over rafters
Jabroof panel	0.036	200mm over rafters

Warm deck flat roof

Product	K-value	Solution
Celotex TD3000	0.023	126mm
Kingspan	0.023	120mm or 100mm over 30mm between joists.
Polyfoam roof board	0.029	150mm
Jablite jabdeck	0.036	190mm

Cold deck flat roof

Product	K- Value	Notes	Solution
Celotex XR 3000 and GA 3000	0.023	50mm wide joists at 400mm centres underdrawn with 12.5mm plasterboard ceiling	100mm between joists, 50mm under. or 140 between and 20mm under.
Celotex	0.023	Ditto	200 between joists
Kingspan	0.023	Ditto	140mm between joists, 20mm under or 100mm between & 50mm under.
Jablo board	0.038	Ditto	180mm between joists, 50mm under.

Roof constructions to achieve U value of 0.16 Wm^2K

Vented cold deck pitched roof- insulation between & over ceiling joists

Product	K-Value	Solution
Crown wool Rockwool wool	0.044	100mm between & 170mm laid over ceiling joists
Kingspan	0.023	100mm between & 50mm laid over joists
Crown wool & Polyfoam Supadeck (bonded plywood)	0.044 0.029	100mm Crown wool between & 130mm Supadeck over

Floors remain unchanged and are still required to achieve 0.22 W/m^2K.

All the U values were calculated using NHER U value calculator.

Continuity of insulation & fixed services

Lighting

75% (3 per 4) of new or replacement light fittings should be low energy light fittings with lamps having a luminous efficacy greater than 45 lamp lumens per circuit-watt and a total output greater than 400 lamp lumens.

Continuity of insulation

As before Insulation to walls, floor and roof is to be continuous to limit thermal bridging & air leakage, examples are shown in the *Accredited construction details* which can be downloaded from www.planningportal.gov.uk

Providing information

The building owner is to be provided with sufficient information about the building, fixed building services, controls and their maintenance requirements, so that the building may be operated in such a manner as to use no more fuel and power than is reasonable.

Controlled services

Controlled services including ventilation, heating and hot water systems should be commissioned in accordance with procedures in the *domestic building services compliance guide* and the *domestic ventilation compliance guide*

Traditional Heating systems have the following minimum efficiencies.

Gas fired boiler efficiency 88% (SEDBUK 2009) or 90% (SEDBUK 2005)

Oil fired boiler efficiency 88% (SEDBUK 2009) or 90% (SEDBUK 2005)

For further guidance and information on other heating systems please refer to *domestic building services compliance guide*