

An introduction to **Part L** – U-values

This document provides a wide selection of building fabric constructions with their associated U-values.

It has been produced a support to our publication “An introduction to Part L 2010” which is available from our website at www.rockwool.co.uk/partL

U-value Competency

Rockwool is one of the first organisations to be approved under a new voluntary U-value and Condensation Risk Competency Scheme introduced by the British Board of Agrément (BBA) in association with the Thermal Insulation Manufacturers and Suppliers Association (TIMSA).

Registration under the Scheme provides reassurance to a specifier or user that the services or the data being provided by a scheme member has been subject to a rigorous independent assessment process. They can therefore be assured that this output is representative and reliable.

Calculations provided by qualified Rockwool employees – and those provided by Rockwool as whole – are backed up by the BBA Competent Persons Logo, which signals to a customer that the data provided is credible.

Rockwool have also established a quality control system that ensures that all U-value or condensation risk calculations undertaken by the company are carried out directly by a fully qualified competent person, thus complying with the Scheme’s requirements.

The use of correct U-values is fundamental to compliance with Building Regulations, determining heating and cooling costs for the building occupier and assessing environmental performance.

Rockwool and the BBA encourage organisations that require U-value and Condensation risk calculations to obtain this information from suitably qualified companies.

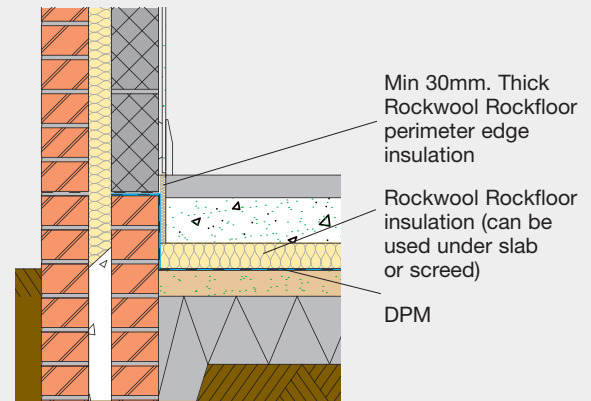


Ground floors: Under floor heating

Construction 1: Ground bearing slab

Rockwool Rockfloor can be installed below the concrete slab or below screed.

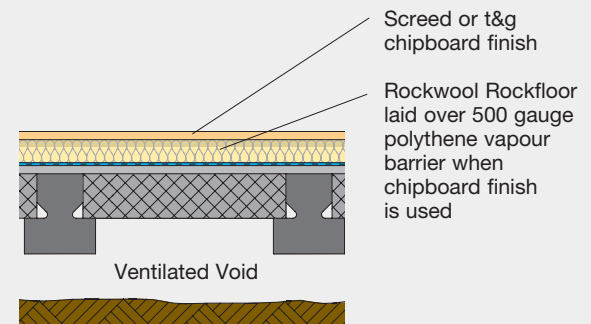
Product U-value	Rockfloor				
	0.25 W/m²K	0.22 W/m²K	0.20 W/m²K	0.18 W/m²K	0.15 W/m²K
*P/A ratio	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
0.1	nil	nil	nil	nil	40
0.2	30	50	65	85	120
0.3	60	80	95	115	150
0.4	75	95	110	130	170
0.5	85	105	120	140	180
0.6	90	110	130	150	190
0.7	95	115	130	150	195
0.8	105	120	140	160	200
0.9	105	125	140	160	200
1.0	110	130	145	165	200



Construction 2: Suspended beam and block

Rockwool Rockfloor is laid over the dense beam and block floor below screed or T&G flooring grade chipboard where floor heights are limited.

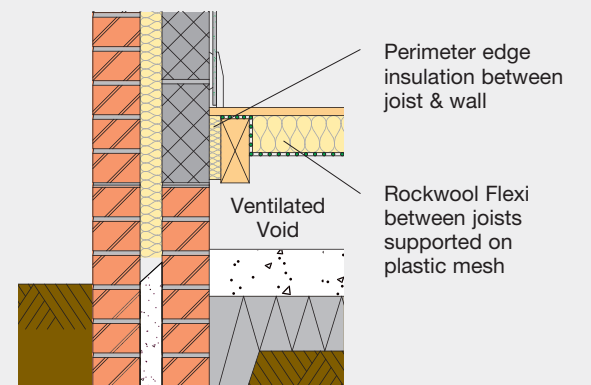
Product U-value	Rockfloor				
	0.25 W/m²K	0.22 W/m²K	0.20 W/m²K	0.18 W/m²K	0.15 W/m²K
*P/A ratio	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
0.1	nil	30	50	65	105
0.2	65	80	100	120	160
0.3	80	100	120	140	180
0.4	95	115	130	150	190
0.5	100	120	135	160	195
0.6	105	125	140	160	200
0.7	105	130	145	165	200
0.8	110	130	145	165	200
0.9	115	130	150	170	205
1.0	115	135	150	170	205



Construction 3: Suspended timber

Rockwool Flexi is installed between joists, supported by polypropylene netting. The insulation should be fitted as close as practical to the underside of floor deck to avoid any air gaps.

Product U-value	Flexi				
	0.25 W/m²K	0.22 W/m²K	0.20 W/m²K	0.18 W/m²K	0.15 W/m²K
*P/A ratio	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
0.1	nil	nil	50	70	120
0.2	70	90	120	140	200
0.3	90	120	140	160	220
0.4	120	140	150	180	220
0.5	120	140	160	200	240
0.6	120	140	180	200	240
0.7	120	140	180	200	240
0.8	140	140	180	200	240
0.9	140	140	180	200	240
1.0	140	140	180	200	240



*P/A = Exposed perimeter length divided by area of the floor (exposed perimeter length is the length of the floor slab edge which is to an external wall or unheated space)

Part L U-value requirement for Ground Floors:
 Extensions: 0.22 W/m²K
 Renovation & Repair work: 0.25 W/m²K
 New build requirement could range between 0.20 and 0.18 W/m²K to achieve a 25% improvement in energy performance standards above 2006 regulations.

External walls: Solid timber frame

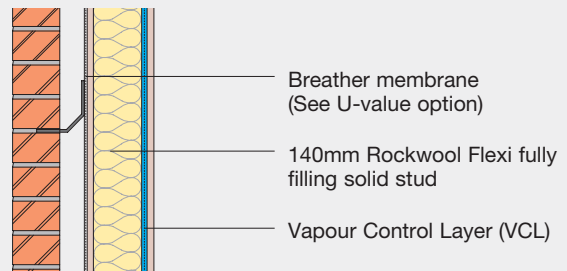
Note: The thermal benefits provided by high performance breather membranes (such as Tyvek Reflex) compared to a standard breather membrane can be demonstrated in tables below including the usage of the airtight vapour control layer DuPont Air Guard

- A. Effective R-value of air cavity with TYVEK Reflex = 0.540 m² K/W
- B. Effective R-value of air cavity with DuPontAirGuard = 0.680 m² K/W

Construction 1: Cold frame

Timber frame* cavity wall, standard construction, 140mm solid studs.
Internal finishes: layer plasterboard

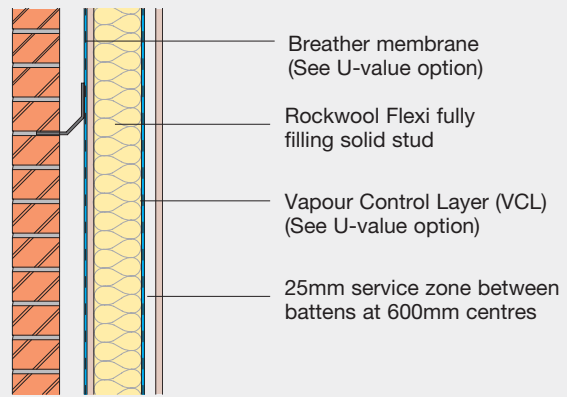
BM type >	U-values	
	Std BM	Tyvek Reflex
VCL type >	standard	standard
140mm Flexi	0.28	0.25
140mm Flexi	0.27	0.24
p/b layers	1 layer plasterboard	



Construction 2: Cold frame with service zone

Timber frame* cavity wall with separate 25mm battened service void, insulation fully filling studs.
Internal finishes: (a) 1 layer plasterboard (b) 2 layers plasterboard.

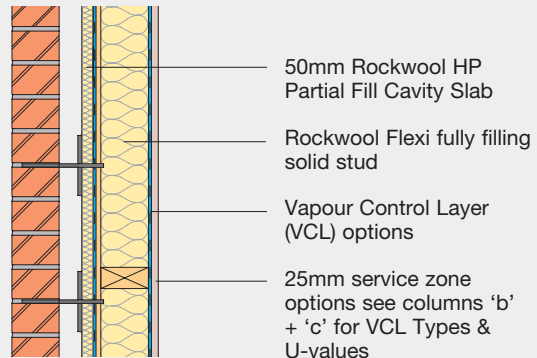
BM type >	U-values		U-values	
	Standard	Tyvek Reflex	Tyvek Reflex	Standard
VCL >	Standard	Standard	DuPont Airguard	DuPont Airguard
140mm Flexi	0.27	0.24	0.22	0.24
120mm Flexi	0.31	0.28	0.25	0.28
p/b layers	1 layer plasterboard			
140mm Flexi	0.26	0.24	0.22	0.24
120mm Flexi	0.30	0.27	0.25	0.27
p/b layers	2 layer plasterboard			



Construction 3: Hybrid frame

Warm/hybrid timber frame* cavity wall with Rockwool Flexi insulation fully filling studs and 50mm Rockwool High Performance Partial Fill to face of sheathing. Internal finishes: 1 layer plasterboard.

Service zone present >	U-values		
	'a' NO	'b' YES	'c' YES
BM type >	Standard	Standard	DuPont Airguard
VCL type >	Standard	Standard	DuPont Airguard
90mm Flexi	0.25	0.24	0.22
100mm Flexi	0.24	0.23	0.21
120mm Flexi	0.22	0.21	0.19
140mm Flexi	0.20	0.19	0.17



* U-values based on 15% timber bridging fraction.

Part L U-value requirements for External Walls:
 Extensions: 0.28 W/m²K
 Renovation & Repair work: 0.30 W/m²K
 New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance standards above 2006 regulations.

External walls: Timber frame (continued)

U-values based on 15% timber bridging

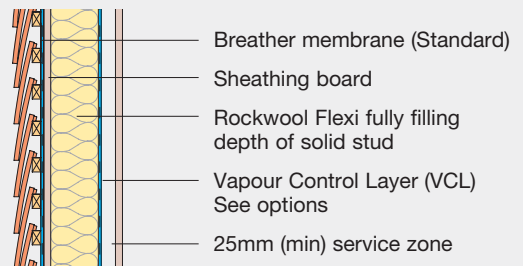
Note: The thermal benefits provided by high performance breather membranes (such as Tyvek Reflex) compared to a standard breather membrane can be demonstrated in tables below including the usage of the airtight vapour control layer DuPont Air Guard

- A. Effective R-value of air cavity with TYVEK Reflex = 0.540 m² K/W
- B. Effective R-value of air cavity with DuPontAirGuard = 0.680 m² K/W

Construction 4: Timber cladding or Tile hanging (Cold frame)

Timber frame* wall with cladding, Rockwool Flexi between studs. Plus 25mm service zone.

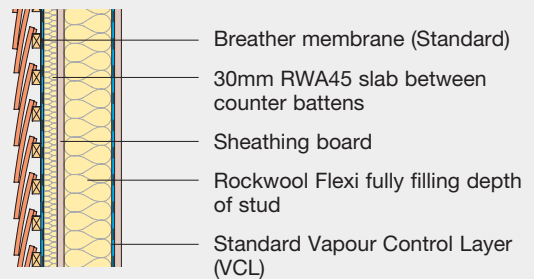
Flexi between studs	U-values	
	Std vcl	DuPont Airguard vcl
120mm	0.33	0.28
140mm	0.28	0.25
200mm	0.22	0.20



Construction 5: Tile hanging (Hybrid frame)

Timber frame* wall with tile hanging, Rockwool Flexi between studs plus 30mm RWA45 slab between 30mm vertical battens.

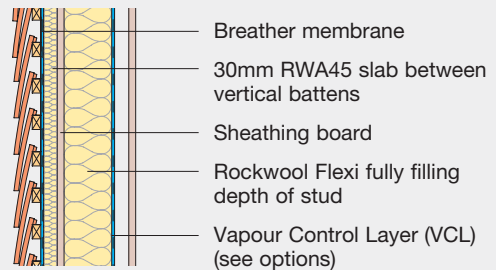
RWA45	Flexi	U-values
30mm	100mm	0.31
30mm	120mm	0.27
30mm	140mm	0.24
30mm	200mm	0.19



Construction 5a: Tile hanging (Hybrid frame)

Timber frame* wall with tile hanging, Rockwool Flexi between studs plus 30mm RWA45 slab between vertical battens and 25mm service zone

RWA45 Between vert/battens	Flexi Between studs	U-values	
		Std vcl	DuPont Airguard vcl
30mm	90mm	0.31	0.27
30mm	100mm	0.29	0.25
30mm	120mm	0.26	0.23
30mm	140mm	0.23	0.20



*U-values based on 15% timber bridging fraction.

Part L U-value requirements for External Walls:

Extensions: 0.28 W/m²K

Renovation & Repair work: 0.30 W/m²K

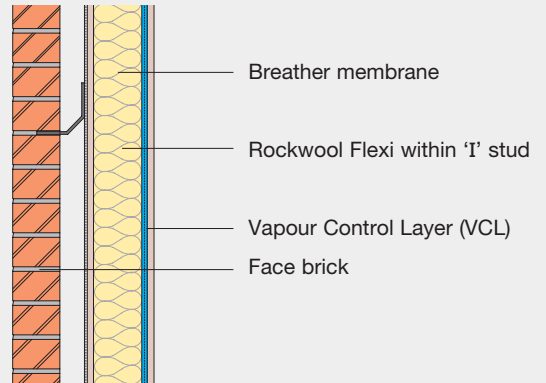
New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance standards above 2006 regulations.

External walls: Timber 'I' stud frame

Construction 6: Timber cold frame/brick/cavity frame vcl

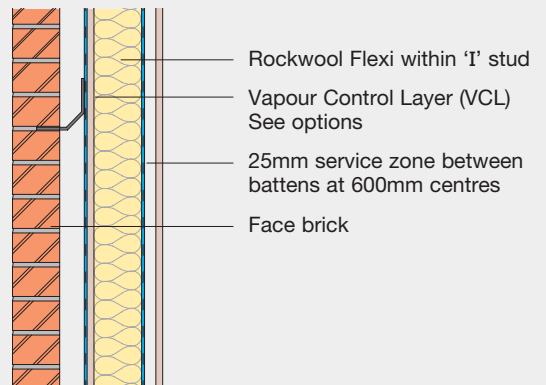
Using I beam studs 145 - 220mm. 8.3% bridging.

BM type >	U-values	
	Std BM	Tyvek Reflex
140 Flexi - 145 stud	0.25	0.23
120 Flexi - 145 stud	0.29	0.26
140 Flexi - 195 stud	0.24	0.22
200 Flexi - 195 stud	0.21	0.19
180 Flexi - 195 stud	0.22	0.19
220 Flexi - 220 stud	0.19	0.18
p/b layers	1 layer plasterboard	



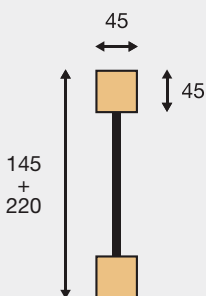
Construction 7: I stud with service zone

BM >	U-values		U-values	
	Standard	Tyvek Reflex	Tyvek Reflex	Standard
VCL type >	Standard	Standard	DuPont Airguard	DuPont Airguard
140mm Flexi - 145 stud	0.24	0.22	0.20	0.22
120mm Flexi - 145 stud	0.27	0.25	0.22	0.24
140mm Flexi - 145 stud	0.23	0.21	0.19	0.21
200mm Flexi - 195 stud	0.20	0.19	0.17	0.18
180mm Flexi - 195 stud	0.21	0.19	0.17	0.18
220mm Flexi - 220 stud	0.18	0.17	0.16	0.17



Note: The thermal benefits provided by high performance breather membranes (such as Tyvek Reflex) compared to a standard breather membrane can be demonstrated in tables above including the usage of the airtight vapour control layer DuPont Air Guard

- A. Effective R-value of air cavity with TYVEK Reflex = 0.540 m² K/W
- B. Effective R-value of air cavity with DuPontAirGuard = 0.680 m² K/W



*U-values based on 8.3% timber bridging fraction.

Part L U-value requirements for External Walls:
 Extensions: 0.28 W/m²K
 Renovation & Repair work: 0.30 W/m²K
 New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance standards above 2006 regulations.

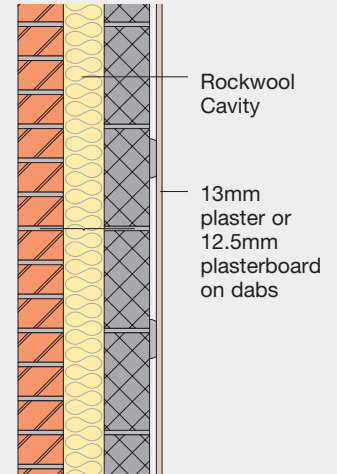
External walls: Masonry cavity walls – Full fill

Rockwool Cavity Slab

Construction 1

102mm Facing brick outer skin, Rockwool Cavity full fill, internal concrete block 100mm.
Internal finishes: (a) plaster (b) plasterboard on dabs

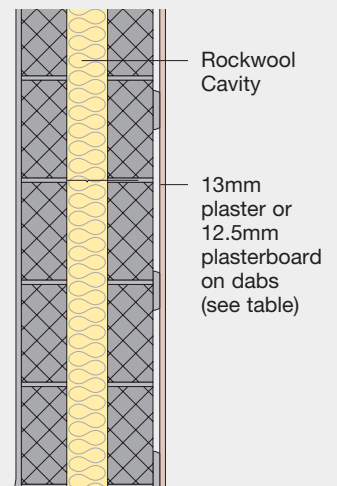
Block type >	Dense 1900-2250kg/m ³		Medium Dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mk		0.510 W/mk		0.190 W/mk		0.150 W/mk		0.110 W/mk	
Finishes >	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster
U-values										
0.30	105mm	110mm	100mm	105mm	90mm	95mm	85mm	90mm	80mm	85mm
0.28	110	115	110	110	100	110	95	100	90	95
0.27	115	120	115	115	100	110	100	105	95	95
0.25	125	130	125	130	115	115	110	115	105	110
0.22	145	150	145	145	135	140	130	135	125	125
0.20	165	170	160	165	150	150	145	150	140	145
0.18	190	195	185	190	170	175	165	170	165	160
0.15	230	235	230	230	215	220	215	220	221	210



Construction 2

Render, 100mm Medium dense block outer skin, Rockwool Cavity full fill, internal concrete block 100mm.
Internal finishes: (a) plaster (b) plasterboard on dabs

Block type >	Dense 1900-2250kg/m ³		Medium Dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mk		0.510 W/mk		0.190 W/mk		0.150 W/mk		0.110 W/mk	
Finishes >	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster
U-values										
0.30	100mm	105mm	95mm	100mm	85mm	90mm	80mm	90mm	75mm	80mm
0.28	110	115	105	110	95	100	90	95	85	90
0.27	115	120	110	115	100	105	95	100	90	95
0.25	125	130	120	125	110	115	105	110	100	105
0.22	145	150	140	145	130	135	125	130	120	125
0.20	160	165	155	160	145	150	140	145	135	140
0.18	185	190	180	185	170	170	160	175	155	160
0.15	230	235	225	230	215	220	210	215	205	210



The U-values have been calculated to BS EN ISO 6946: 1997 and BR443

Notes: The U-values above have been calculated assuming that all walls are lined with plasterboard on dab or lightweight plaster.

Block sizes assumed to be 440 x 215mm, mortar joints assumed to be 10mm wide, wall ties assumed to be stainless steel with a cross-sectional area of no more than 12.5mm² for structural cavities up to 175mm wide. Above 175mm, the cross sectional area of tie wires is assumed to be 25mm².

Part L U-value requirements for External Walls:

Extensions: 0.28 W/m²K

Renovation & Repair work: 0.30 W/m²K

New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance standards above 2006 regulations.

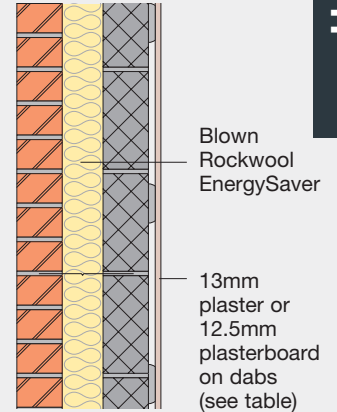
External walls: Masonry cavity walls – Full and partial fill

Rockwool EnergySaver (Blown)

Construction 4

102mm Facing brick outer skin, Rockwool EnergySaver full fill, internal concrete block 100mm. Internal finishes: (a) plaster (b) plasterboard on dabs

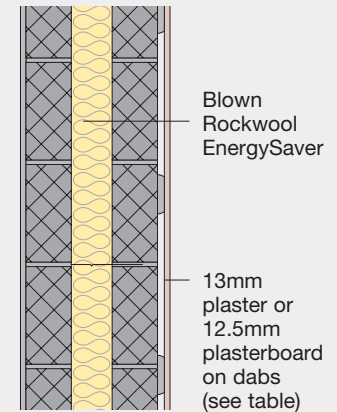
Block type >	Dense 1900-2250kg/m ³		Medium Dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mk		0.510 W/mk		0.190 W/mk		0.150 W/mk		0.110 W/mk	
Finishes >	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster
U-values										
0.30	110mm	115mm	105mm	110mm	95mm	100mm	90mm	95mm	85mm	85mm
0.28	120	120	115	120	105	110	100	105	95	100
0.27	125	125	120	125	110	115	105	110	100	100
0.25	135	140	130	135	120	125	115	120	110	115
0.22	155	160	150	155	140	145	135	140	130	135
0.20	170	175	165	165	155	160	155	155	145	150



Construction 5

Render, 100mm medium dense outer skin (0.510 W/mK), Rockwool EnergySaver blown full fill, concrete block inner skin. Internal finishes: (a) plaster (b) plasterboard on dabs

Block type >	Dense 1900-2250kg/m ³		Medium Dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mk		0.510 W/mk		0.190 W/mk		0.150 W/mk		0.110 W/mk	
Finishes >	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster
U-values										
0.30	105mm	110mm	100mm	105mm	90mm	95mm	85mm	90mm	80mm	85mm
0.28	115	120	110	115	100	105	95	100	90	95
0.27	120	125	115	120	105	110	100	105	95	100
0.25	130	135	130	130	115	120	110	115	105	110
0.22	150	155	150	150	135	140	135	140	115	130
0.20	170	175	165	170	155	155	150	155	145	150

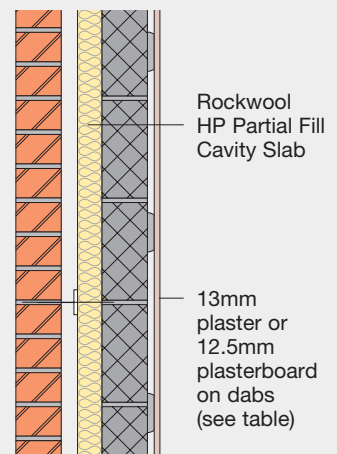


High Performance Partial Fill Cavity Slab

Construction 1

102mm Facing brick outer skin, cavity, Rockwool High Performance Partial fill, internal concrete block 100mm. Internal finishes: (a) plaster (b) plasterboard on dabs

Block type >	Medium Dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	0.510 W/mk		0.190 W/mk		0.150 W/mk		0.110 W/mk	
Finishes >	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster	Pb/dab	plaster
U-values								
0.30	85mm	90mm	75mm	85mm	75mm	80mm	65mm	75mm
0.28	100	100	85	95	80	85	75	80
0.27	100	100	90	95	85	90	80	85
0.25	110	110	100	105	95	100	90	95
0.24	115	115	105	110	100	105	95	100
0.22	125	130	115	125	115	115	105	110
0.20	140	150	130	140	130	135	120	125



External Insulated wall systems

Construction 1: Solid 225mm Existing face brick – Refurbishment (RockShield)

RockShield insulated render system on 225mm face brick.
Internal finishes: Existing plaster.

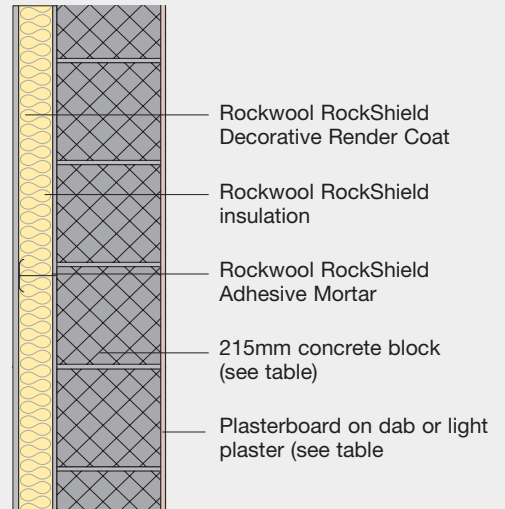
U-values	RockShield With existing Plaster finish
0.35	80mm
0.30	100mm
0.28	105mm
0.25	110mm



Construction 2: Solid masonry wall – New build (RockShield)

RockShield insulated render system on 215mm solid concrete block.
Internal finishes: Plasterboard on dabs or light plaster.

Block type	Medium Dense 1400 1450kg/m³		Aircrete 750kg/m³		Aircrete 600kg/m³		Aircrete 470kg/m³	
	Pb/ dabs	light plaster	Pb/ dabs	light plaster	Pb/ dabs	light plaster	Pb/ dabs	light plaster
W/mK	0.510W/mK		0.190W/mK		0.510W/mK		0.110W/mK	
U-values								
0.30	90	95	75	75	65	65	55	55
0.28	100	105	80	85	75	75	60	65
0.27	105	110	85	90	80	80	65	70
0.25	115	120	95	100	85	90	75	80
0.22	135	145	115	120	105	10	95	100
0.20	150	155	130	135	120	125	110	110
0.18	170	175	150	150	140	145	130	130
0.15	210	210	185	190	180	180	165	170



Part L U-value requirements for External Walls:

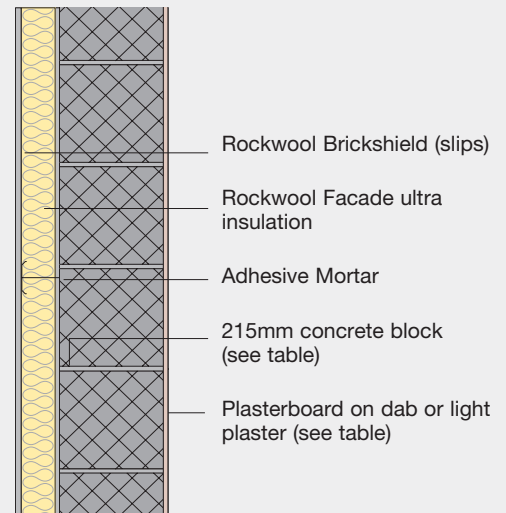
Extensions: 0.28 W/m²K
Renovation & Repair work: 0.30 W/m²K
New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance standards above 2006 standards.

External Insulated wall systems (continued)

Construction 3: Solid masonry wall – New build (BrickShield)

Rockwool BrickShield system on 215mm medium dense block.
Internal finishes: (a) lighter plaster (b) plasterboard on dabs.

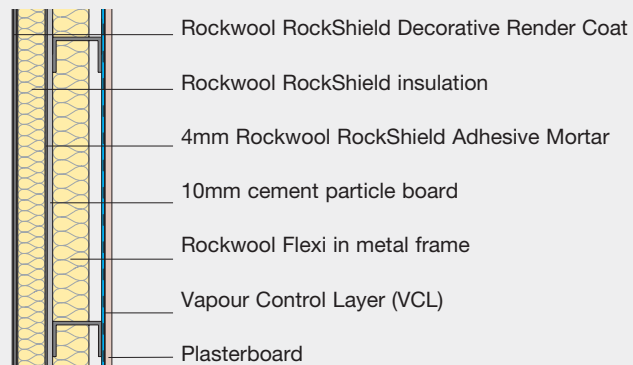
Block type	Medium Dense 1400 1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK	0.510W/mK		0.190W/mK		0.510W/mK		0.110W/mK	
Finishes	Pb/ dabs	light plaster	Pb/ dabs	light plaster	Pb/ dabs	light plaster	Pb/ dabs	light plaster
	U-values							
0.30	100	105	80	85	70	75	55	60
0.28	110	115	90	90	80	85	65	70
0.27	115	120	95	100	85	90	70	75
0.25	125	130	105	110	95	100	80	85
0.22	150	155	125	130	115	120	100	110
0.20	165	170	140	145	135	140	120	125
0.18	195	195	165	170	155	160	140	145
0.15	225	230	205	215	195	200	180	190



Construction 4: Light metal frame – Hybrid frame

RockShield insulated render system on 100mm deep metal studs at 600mm centres with Rockwool Flexi part-filling frame.

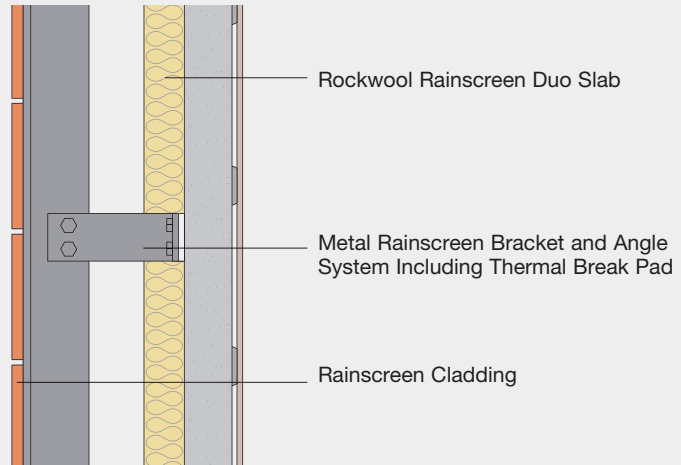
U-values	RockShield Slab Thickness	Flexi thickness in 100mm deep metal Frame
0.30	70mm	50mm
0.28	80mm	50mm
0.27	80mm	60mm
0.25	90mm	40mm
0.22	100mm	70mm
0.20	120mm	60mm
0.20	135mm	70mm



Rainscreen Duo-slab

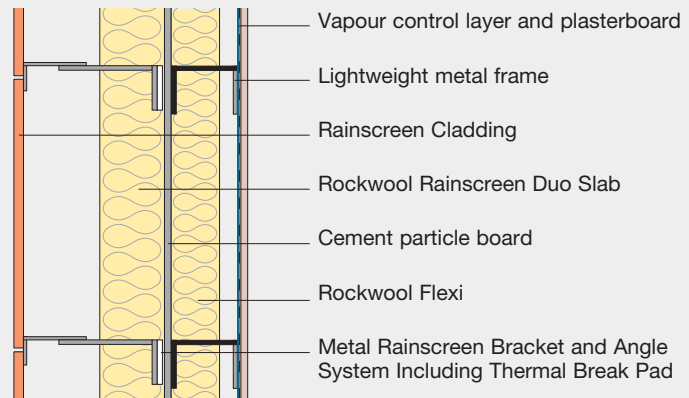
Construction 1: Rainscreen Duo Slab on 150mm Reinforced Concrete.
Internal finishes: (a) plaster (b) plasterboard on dabs

Internal Finish	a	b
Rainscreen Duo Slab Thickness (mm)	U-values W/m ² K	U-values W/m ² K
125	0.35	0.34
150	0.32	0.31
175	0.28	0.28
190	0.27	0.27
200	0.26	0.26
215	0.25	0.25
230	0.24	0.24
275	0.22	0.22
325	0.22	0.20



Construction 2: Rainscreen Duo Slab on 150mm deep metal studs at 600mm centres with Rockwool Flexi 140mm part-filling frame.

Rainscreen Duo Slab Thickness (mm)	RW Flexi Thickness	U-values W/m ² K
50	140	0.34
75	140	0.30
100	140	0.27
125	140	0.25
140	140	0.24
150	140	0.23
175	140	0.22
225	140	0.20



- Tables based on pointless scenarios where only the rainscreen brackets bridge the thermal insulation layer.
- A thermal bridging allowance of 0.1 W/m²K has been added to the wall U-value (e.g. a calculated U-value of 0.25 will be increased to 0.35 W/(m²K) to allow for predicted bridging).

(Based on data supplied by the BRE using a 5mm thick thermal break pad and brackets at 600mm x 600mm fixing matrix). Rockwool recommend all U-value calculations for rainscreen application be verified by the cladding manufacturer utilising 3D thermal modelling software.

Twin skin metal cladding: Roofs & walls

Rockwool Cladding Roll

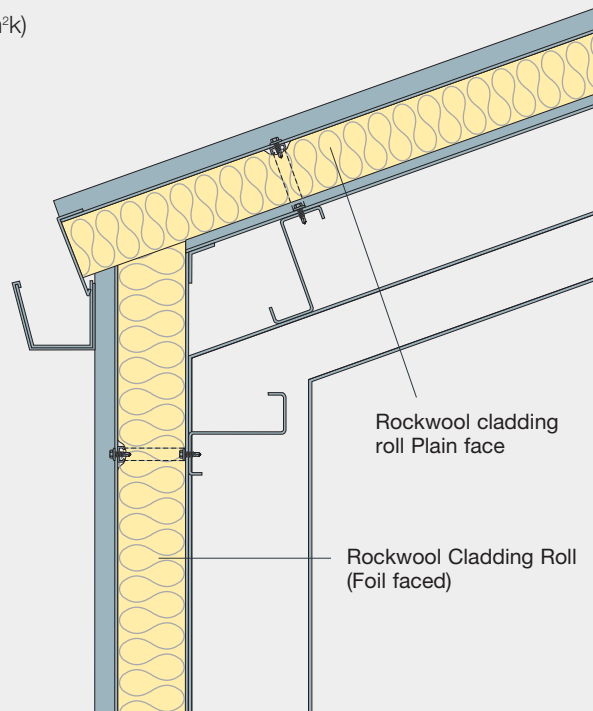
Construction 1: Roofs

The U-values below are based on Euroclad Elite systems using Rockwool Cladding Roll (thermal conductivity 0.040 W/m²k)

Application	Roof
Products	Rockwool Plain faced Cladding roll
U-values	Thickness range
0.25	180-200mm
0.20	240-260mm
0.18	260-280mm
0.16	300-340mm

Construction 2: Walls

Application	Walls
Products	Rockwool Foil faced Cladding roll
U-values	Thickness range
0.28	150mm
0.25	170-180mm
0.23	180-200mm
0.22	200-210mm
0.20	210-220mm



Cladding systems require a complex calculation method using 3 dimensional modelling, hence thickness range shown may vary pending specific system type.

Euroclad offers solutions to allow architectural requirements to be met, whilst providing the required strengths and cost advantages associated with cladding systems. Confirmation of systems and u-values should therefore be obtained from Euroclad Ltd. For further details of Euroclad systems visit www.euroclad.com (+44 (0)2920 790 722

2010 Part L U-value requirements for External Walls:

Extensions: 0.28 W/m²K

Renovation & Repair work: 0.30 W/m²K

New build requirement could range between 0.27 and 0.24 W/m²K to achieve a 25% improvement in energy performance above 2006 standards.

Part L U value requirements for Roofs:

Extensions, Renovation & Repair work: 0.18 W/m²K

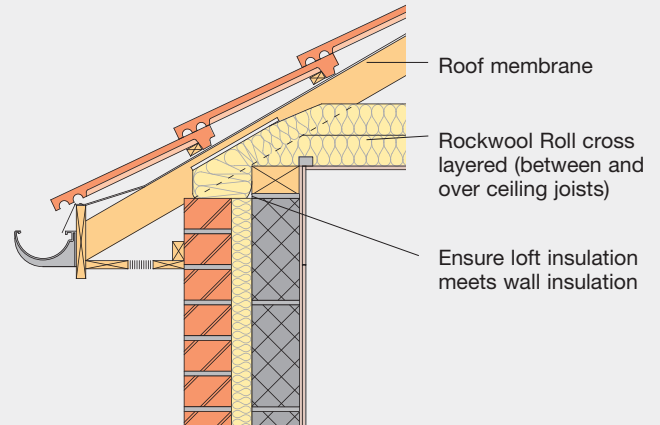
New build requirement could range between 0.16 and 0.13 W/m²K to achieve a 20 – 28% improvement in energy performance standards.

Pitched roofs: Insulation between and over ceiling joists

Construction 1

100mm Rockwool Roll between joists (with the additional thickness of Rockwool Roll laid over joists shown in table below).

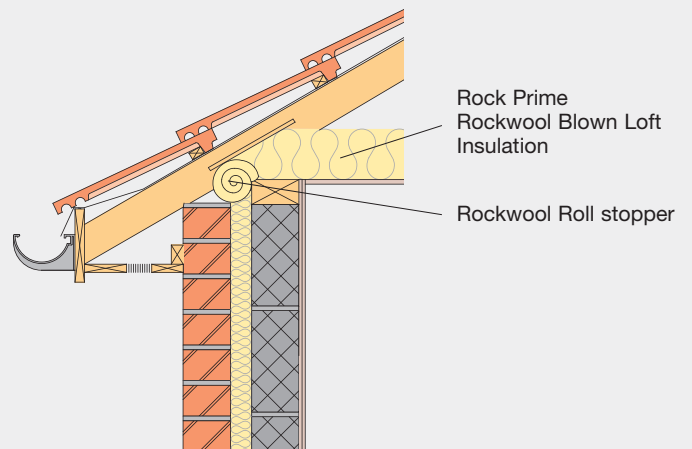
Insulation Thickness	First layer between joists (mm)	Additional layer over joists (mm)	Total thickness (mm)
U-values			
0.16	100	170	270
0.14	100	200	300
0.13	100	220	320
0.12	100	250(100+150)	350
0.11	100	300(100+200)	400
0.10	100	320(100+220)	420



Construction 2

Tiled pitched roof, 100mm Rockwool RockPrime Blown loft insulation between joists (with the additional thickness over joists shown in table below).

Insulation Thickness	First layer between joists (mm)	Additional layer over joists (mm)	Total thickness (mm)
U-values			
0.16	100	170	270
0.14	100	210	310
0.13	100	230	330
0.12	100	260	360
0.11	100	290	390
0.10	100	325	425



Part L U-value requirements for insulation at Ceiling Level:

Extensions, Renovation & Repair work: 0.16 W/m²K

New build requirement could range between 0.16 – 0.13 W/m²K to achieve a 25% improvement in energy performance standards.

Pitched roofs: Insulation at rafter line

Warm Pitched Roof

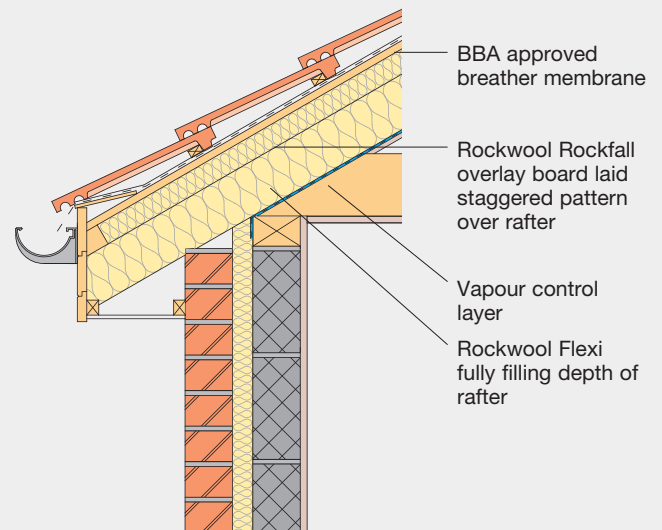
Construction 1: Insulation between and over rafter

The Rockfall system is totally fire safe, minimises thermal bridging & provides an effective acoustic barrier against external noise pollution. The system comprises of a high density Rockwool Overlay board mechanically fixed over the rafters and the Rockwool Flexi fitted between rafters. An air tight VCL membrane is stapled to the underside of the rafters finished with 12.5mm plasterboard.

Rafter Thickness	38mm			
Rafter Spacing	400mm		600mm	
Timber Bridging	9.5%		6.3%	
Insulation Thickness	Overlay Board (mm)	Flexi Between (mm)	Overlay Board (mm)	Flexi Between (mm)
U-values				
0.20	60	140	50	140
0.18	50	180	70	140
0.16	60	200	50	200
0.15	60	220	50	220
0.13	80	230	70	220

Rafter Thickness	47mm			
Rafter Spacing	400mm		600mm	
Timber Bridging	11.8%		7.8%	
Insulation Thickness	Overlay Board (mm)	Flexi Between (mm)	Overlay Board (mm)	Flexi Between (mm)
U-values				
0.20	60	140	50	140
0.18	60	180	50	140
0.16	70	200	60	200
0.15	70	220	50	220
0.13	80	230	80	230

Flexi Thickness table	
140mm	Single thickness
180mm	2 x 90mm
200mm	2 x 100mm
220mm	100mm +120mm
230mm	90mm +140mm



Part L U-value requirements at rafter line:

Extensions, Renovation & Repair work: 0.18 W/m²K

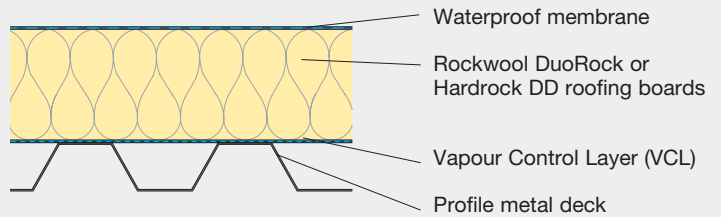
New build requirement could range between 0.18 – 0.13 W/m²K to achieve a 25% improvement in energy performance standards.

Warm flat roofs

Construction 1: Insulation above metal deck

Single ply membrane or built up roofing felt on Rockwool DuoRock or Hardrock DD roofing boards on approved VCL on profiled metal deck.

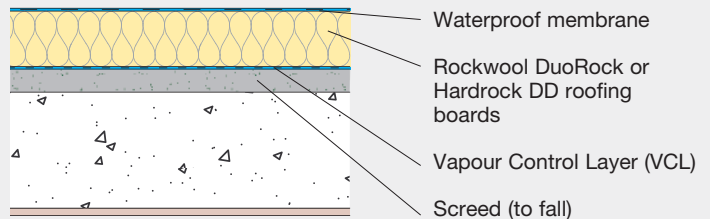
U-value W/m²K	Insulation Thickness (mm)	
	Hardrock DD	Duorock
0.25	150mm	145mm
0.22	170mm	165mm
0.20	185mm	195mm
0.18	210mm	210mm
0.16	235mm	230mm
0.13	285mm	280mm



Construction 2: Insulation above concrete deck

Single ply membrane or built up roofing felt on Rockwool DuoRock or Hardrock DD roofing boards on approved VCL on screed to falls on 150mm dense concrete deck. Ceiling finish 13mm plaster.

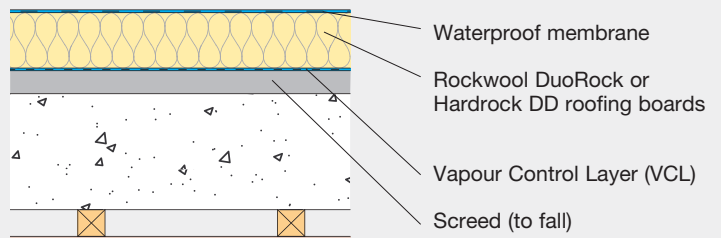
U-value W/m²K	Insulation Thickness (mm)	
	Hardrock DD	Duorock
0.25	145mm	140mm
0.22	165mm	160mm
0.20	180mm	175mm
0.18	200mm	195mm
0.16	225mm	225mm
0.13	280mm	270mm



Construction 3: Insulation above concrete deck (plasterboard and timber ceiling)

Single ply membrane or built up roofing felt on Rockwool DuoRock or Hardrock DD roofing boards on approved VCL on screed to falls on 150mm dense concrete deck. Ceiling finish 50mm timber battens & 12.5mm plasterboard.

U-value W/m²K	Insulation Thickness (mm)	
	Hardrock DD	Duorock
0.25	135mm	130mm
0.22	155mm	150mm
0.20	170mm	170mm
0.18	190mm	185mm
0.16	220mm	210mm
0.13	270mm	265mm



Part L U-value requirements for insulation at Flat Roofs:

Extensions: 0.18 W/m²K

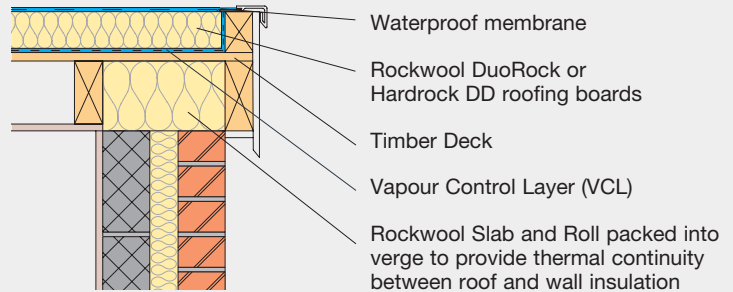
Renovation & Repair work: 0.18 W/m²K

New build requirement could range between 0.18 and 0.13 W/m²K to achieve a 25% improvement in energy performance standards.

Warm flat roofs (continued)

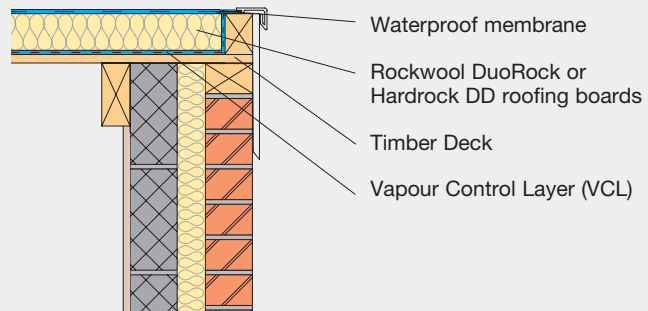
Construction 4: Insulation above timber deck

U-value W/m²K	Insulation Thickness (mm)	
	Hardrock DD	Duorock
0.25	135mm	130mm
0.22	155mm	155mm
0.20	170mm	165mm
0.18	190mm	185mm
0.16	215mm	210mm
0.13	270mm	260mm



Construction 5: Timber deck without ceiling

U-value W/m²K	Insulation Thickness (mm)	
	Hardrock DD	Duorock
0.25	145mm	140mm
0.22	165mm	160mm
0.20	180mm	175mm
0.18	200mm	195mm
0.16	225mm	220mm
0.13	280mm	270mm

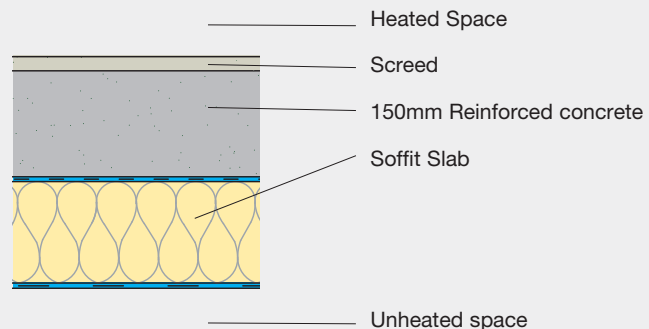


Exposed floors: Soffits

Rockwool soffit liner slab fixed to underside of concrete soffits, offers high degree of thermal insulation fire protection to the concrete floor.

Rockwool soffit liner is available plain faced, tissue faced and foil faced. For high impact solutions a bonded 6mm Promat HD board is supplied as the facing.

Application >	Soffits
Product	Rockwool Soffit Liner
U-values	thickness range
0.25	120mm
0.22	140mm
0.20	160mm
0.18	180mm
0.16	210mm
0.15	220mm



*U-values based on 0.8 stainless steel fixings per sqm.

Contact us

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Email: **info@rockwool.co.uk**
Web: **www.rockwool.co.uk**

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CF35 6NY
UK

Technical Support

Our technical team can provide expert practical advice on Rockwool products and solutions, including:

- technical specifics such as U-value calculations and condensation risk
- product selection
- installation guidance
- acoustic information
- passive fire protection
- meeting building regulations