

U-value of building assemblies

EnerPHit with PHPP Versi

3 bedroom house / Climate: London (Central) / TFA: 98 m² / Heating: 31.3 kWh/(m²a) / Freq. overheating: 6 % / PER: 71.7 kWh/(m²a)

Secondary calculation: Equivalent thermal conductivity of still air spaces -> (on th
Wedge-shaped assembly layer -> (on th
Unheated / uncooled attic -> (on th

Assembly no.	Building assembly description					Interior insulation?
01ud	External Wall - New (Brick-block cavity wall)					
Heat transmission resistance [m²KW]						
Orientation of building element	2-Wall	interior R _{si}		0.13		
Adjacent to	1-Outdoor air	exterior R _{se}		0.04		
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Plasterboard on dabs	0.250					25.0
Blockwork (medium dense)	0.510					100.0
Mineral wool insulation (Rockwool NyRock Cavity Slab 032)	0.032					150.0
Air gap	0.030					50.0
Brickwork	1.000					102.5
Percentage of sec. 1	100%	Percentage of sec. 2		Percentage of sec. 3		Total
						42.75
U-value supplement		W/(m²K)		U-value: 0.144		W/(m²K)

Assembly no.	Building assembly description					Interior insulation?
02ud	External Wall - Existing with new internal insulation - Wood Fibre Board					x
Heat transmission resistance [m²KW]						
Orientation of building element	2-Wall	interior R _{si}		0.13		
Adjacent to	1-Outdoor air	exterior R _{se}		0.04		
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Brickwork (existing)	0.800					102.5
Air gap (existing)	0.000					65.0
Blockwork- medium dense (existing)	0.510					100.0
Clay Plaster	0.800					10.0
UdiTHERM	0.038					40.0
Ampatex Varino						
SteicoFlex	0.036	Softwood	0.130			25.0
Plasterboard	0.190					12.5
Percentage of sec. 1	88%	Percentage of sec. 2	11.8%	Percentage of sec. 3		Total
						35.50
U-value supplement		W/(m²K)		U-value: 0.463		W/(m²K)

Assembly no.	Building assembly description					Interior insulation?
03.0952380952381ud	Internal Wall - Existing Party wall					
Heat transmission resistance [m²KW]						
Orientation of building element	2-Wall	interior R _{si}		0.13		
Adjacent to	3-Ventilated	exterior R _{se}		0.13		
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Blockwork	1.000					200.0

Percentage of sec. 1		Percentage of sec. 2		Percentage of sec. 3		Total
100%						20.0
U-value supplement				U-value:		2.174
W/(m²K)						W/(m²K)

Assembly no.		04.09523809523809ud				Roof - Existing Main Roof (Pitched tiled roof with new insulation)				Interior insulation?	
						Heat transmission resistance [m²K/W]					
Orientation of building element		1-Roof				interior R _{si}		0.10			
Adjacent to		1-Outdoor air				exterior R _{se}		0.04			
Area section 1		λ [W/(mK)]		Area section 2 (optional)		λ [W/(mK)]		Area section 3 (optional)		λ [W/(mK)]	
Cement tiles		1.700								Thickness [mm]	
Air gap										12	
Roofing membrane										10	
Mineral wool Insulation 100mm inbetween rafters		0.033								100	
Mineral wool Insulation 100mm below rafters		0.033								100	
VCL											
Percentage of sec. 1		100%		Percentage of sec. 2				Percentage of sec. 3		Total	
										22.2	
U-value supplement				W/(m²K)				U-value:		0.161 W/(m²K)	

Assembly no.		05.09523809523809ud				Roof - Existing Porch Roof (pitched tiled roof with new insulation)				Interior insulation?	
						Heat transmission resistance [m²K/W]					
Orientation of building element		1-Roof				interior R _{si}		0.10			
Adjacent to		1-Outdoor air				exterior R _{se}		0.04			
Area section 1		λ [W/(mK)]		Area section 2 (optional)		λ [W/(mK)]		Area section 3 (optional)		λ [W/(mK)]	
Cement tiles		1.700								Thickness [mm]	
Air gap										12	
Roofing membrane										10	
Mineral wool Insulation 100mm inbetween rafters		0.033								100	
Mineral wool Insulation 100mm below rafters		0.033								100	
Percentage of sec. 1		100%		Percentage of sec. 2				Percentage of sec. 3		Total	
										22.2	
U-value supplement				W/(m²K)				U-value:		0.161 W/(m²K)	

Assembly no.		06.09523809523809ud				Floor - lower ground floor (new)				Interior insulation?	
						Heat transmission resistance [m²K/W]					
Orientation of building element		3-Floor				interior R _{si}		0.17			
Adjacent to		2-Ground				exterior R _{se}		0.00			
Area section 1		λ [W/(mK)]		Area section 2 (optional)		λ [W/(mK)]		Area section 3 (optional)		λ [W/(mK)]	
Ceramic Tiles		1.000								Thickness [mm]	
Mineral wool insulation ROCKFLOOR		0.038								20	
RC slab		2.100								200	
Cordek HX 9/13 heave board		0.036								175	
										0	
Percentage of sec. 1		100%		Percentage of sec. 2				Percentage of sec. 3		Total	
										39.5	

U-value supplement W/(m²K)

U-value: **0.181** W/(m²K)

Assembly no. 07.09523809523809ud		Roof - New (Flat Sedum roof to extension)		Interior insulation?	
Orientation of building element: 1-Roof		Heat transmission resistance [m ² K/W]		interior R _{si} : 0.10	
Adjacent to: 1-Outdoor air				exterior R _{se} : 0.04	
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]
sedum					
roofing membrane					
cut-to-falls mineral wool insulation	0.033				
plywood decking	0.130				
Mineral wool insulation between joists	0.033				
Plasterboard					
Percentage of sec. 1	100%	Percentage of sec. 2		Percentage of sec. 3	
					Total
					25.55
U-value supplement:		W/(m ² K)		U-value: 0.141 W/(m ² K)	

Assembly no. 08.09523809523809ud		Floor - Existing ground floor		Interior insulation?	
Orientation of building element: 3-Floor		Heat transmission resistance [m ² K/W]		interior R _{si} : 0.17	
Adjacent to: 2-Ground				exterior R _{se} : 0.00	
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]
Floor finish - Laminated flooring	0.150				
Chipboard	0.130				
Foam insulation	0.035				
DPM	0.000				
concrete	2.100				
Percentage of sec. 1	100%	Percentage of sec. 2		Percentage of sec. 3	
					Total
					20.1
U-value supplement:		W/(m ² K)		U-value: 0.871 W/(m ² K)	

Assembly no. 09.09523809523809ud		External Wall - Existing with new internal insulation - as Back to Earth		Interior insulation?	
Orientation of building element: 2-Wall		Heat transmission resistance [m ² K/W]		interior R _{si} : 0.13	
Adjacent to: 1-Outdoor air				exterior R _{se} : 0.04	
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]
brick outer leaf	0.770				
airspace					
brick inner leaf	0.560				
clay plaster	0.800				
UdiTHERM	0.038				
Ampatex Variano					
SteicoFlex	0.036		0.130		
Gyproc Wallboard	0.190				
Percentage of sec. 1	88%	Percentage of sec. 2	11.8%	Percentage of sec. 3	
					Total
					34.75
U-value supplement:		W/(m ² K)		U-value: 0.454 W/(m ² K)	

Assembly no. 10.0952380952381ud		External Wall - Existing with new internal insulation - Mineral wool (for wall base on ground floor)		Interior insulation? x		
Heat transmission resistance [m²K/W]						
Orientation of building element 2-Wall	interior R _{si} 0.13					
Adjacent to 1-Outdoor air	exterior R _{se} 0.04					
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Brickwork	0.800					102.5
Air gap	0.000					65.0
Blockwork (medium dense)	0.510					100.0
Render, cement-sand	1.000					20.0
Multipor Adhesive	0.180					5.0
Multipor (mineral wool)	0.042					60.0
Multipor Adhesive	0.180					5.0
Percentage of sec. 1 100%		Percentage of sec. 2		Percentage of sec. 3		Total 35.75
U-value supplement		W/(m²K)		U-value: 0.500		W/(m²K)

Assembly no. 11.0952380952381ud		Floor - lower ground floor (new) - Option 2		Interior insulation?		
Heat transmission resistance [m²K/W]						
Orientation of building element 3-Floor	interior R _{si} 0.17					
Adjacent to 2-Ground	exterior R _{se} 0.00					
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Ceramic Tiles	1.000					20
Underfloor heating zone						20
Mineral wool insulation ROCKFLOOR	0.038					200
Screed	1.100					75
Insitu concrete slab	1.000					150
Percentage of sec. 1 100%		Percentage of sec. 2		Percentage of sec. 3		Total 46.5
U-value supplement		W/(m²K)		U-value: 0.176		W/(m²K)

Assembly no. 12.0952380952381ud				Interior insulation?		
Heat transmission resistance [m²K/W]						
Orientation of building element	interior R _{si}					
Adjacent to	exterior R _{se}					
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
Percentage of sec. 1 100%		Percentage of sec. 2		Percentage of sec. 3		Total
U-value supplement		W/(m²K)		U-value:		W/(m²K)