

2020 suspended timber floor

U-value of floor construction:

Layer	d (mm)	λ layer	λ bridge	Fraction	R layer	R bridge	Description
					0.170		Rsi
1	22	0.130			0.169		Chipboard
2	200	0.035	0.130	0.110	5.714	1.538	insulation / joists
					0.170		Rs (underfloor)
	222 mm				6.224		

Total resistance: Upper limit: 5.083 Lower limit: 4.910 Ratio: 1.035 Average: 4.996 m²K/W
U-value of floor construction: 0.200 W/m²K

Ground parameters:

Perimeter P:	12.64 m	Wall thickness:	300 mm
Area A:	19.42 m²	Ground type:	Clay/silt (λ = 1.5 W/m·K)
P/A:	0.651	Rse:	0.04 m²K/W
Resistance on solum Rg:			0.000 m²K/W
Depth of underfloor space below ground:			0.200 m
Floor height above ground:		0.200 m	
U-value of walls above ground (but below inside floor level):			1.50 W/m²K
Mean wind speed:			5.00 m/s
Wind shielding factor:			0.050
Ventilation openings per metre length:		0.0015 m²/m	

U-value for ground (Ug)	0.822
U-value of floor deck (Uf)	0.200
Ventilation equivalent U-value (Ux)	0.372

U-value overall	0.171
U-value (rounded)	0.17 W/m²K

partfill facing brick externally

Layer	d (mm)	λ layer	λ bridge	Fraction	R layer	R bridge	Description
					0.130		Rsi
1	13	0.180			0.072		Plaster (lightweight)
2	12.5	0.210			0.060		Plasterboard (standard wallboard)
3	45	0.022			2.045		quintherm
4	100	1.130			0.088		Concrete block (dense)
5	50	0.022			2.273		insulation
6	50	R-value			0.440		Cavity unventilated low-E (0.2)
7	105	0.770			0.136		Brick outer leaf
					0.040		Rse
	376 mm (total wall thickness)				5.285		

Total resistance: Upper limit: 5.285 Lower limit: 5.285 Ratio: 1.000 Average: 5.285 m²K/W

U-value (uncorrected) 0.189

U-value corrections

Air gaps in layer 5	ΔU = 0.002	(Level 1)
Wall ties in layer 7	ΔU = 0.000	(2.50 per m², 80.0 mm² cross-section, λ = 17.0)

Total ΔU 0.002

U-value (corrected)	0.191
U-value (rounded)	0.19 W/m²K

Element type: Wall - Timber framed - insulation between studs

Calculation Method: BS EN ISO 6946

140mm timber frame masonry external

Layer	d (mm)	λ layer	λ bridge	Fraction	R layer	R bridge	Description
					0.130		Rsi
1	6	0.400			0.015		Gypsum plaster (1000 kg/m³)
2	12.5	0.210			0.060		Plasterboard
3	20	R-value¹	0.120	0.118	0.810	0.167	Cavity unventilated
4							Vapour control layer
5	140	0.035	0.120	0.150	4.000	1.167	insulation quilt / timber frame
6	9	0.130			0.069		Plywood sheathing
7	50	R-value²			0.770		Cavity unventilated
8							Breather membrane
9	103	0.770			0.134		Brick outer leaf
					0.040		Rse
	341 mm (total wall thickness)				6.028		

¹Specified thermal resistance

²Specified thermal resistance

Total resistance: Upper limit: 5.226 Lower limit: 4.706 Ratio: 1.110 Average: 4.966 m²K/W

U-value (uncorrected) 0.201

U-value corrections

Air gaps in layer 4	ΔU = 0.000	(Level 1)
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Total ΔU 0.000

U-value (corrected)	0.201
U-value (rounded)	0.20 W/m²K

flat roof warm deck

Layer	d (mm)	λ layer	λ bridge	Fraction	R layer	R bridge	Description
					0.100		Rsi
1	12.5	0.210			0.060		Plasterboard ceiling
2	175	R-value	0.130	0.0900	0.160	1.346	Air layer unventilated / joists
3	18	0.130			0.138		OSB roof deck
4							Vapour control layer
5	120	0.022			5.455		PU insulation
6	2	0.250			0.008		EPDM
					0.040		Rse
	328 mm				5.961		

Total resistance: Upper limit: 6.051 Lower limit: 5.974 Ratio: 1.013 Average: 6.013 m²K/W

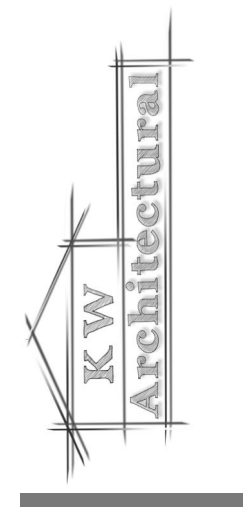
U-value (uncorrected) 0.166

U-value corrections

Air gaps in layer 5	ΔU = 0.000	(Level 0)
Fixings in layer 5	ΔU = 0.006	(8.50 per m², 7.5 mm² cross-section, λ = 17.0)

Total ΔU 0.006

U-value (corrected)	0.172
U-value (rounded)	0.17 W/m²K



PROPOSED EXTENSION TO
DWELLING FOR
MR C. HADDOW
52 WEIRWOOD AVENUE
GARROWHILL
GLASGOW
G69 6HR

NOTE: THESE DRAWINGS IN FULL ARE TO BE USED FOR THE PURPOSE OF OBTAINMENT OF LOCAL AUTHORITY APPROVALS I.E. PLANNING PERMISSION AND BUILDING WARRANTS ONLY WHERE APPLICABLE AND TO BE USED FOR GUIDANCE ONLY. IT IS THE CONTRACTORS RESPONSIBILITY FOR FINAL MEASUREMENTS OF ALL NECESSARY SIZES AND RESPONSIBILITY FOR CORRECTNESS AND COMPLETENESS OF HIS OWN MEASUREMENTS NOT WITH STANDING THE APPROVAL OF THE DESIGNER AND OR BUILDING STANDARDS SURVEYOR.
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revisions: