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

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)

Total ΔU 0.000

U-value (corrected) 0.201
U-value (rounded) 0.20 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

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

revisions: