U-value calculations for the rear room

Floor

Material	Thickness (mm)	Fraction (%)	Conductivity (W/mK)	Resistance (m2K/W)
Underlay	2	100	0.08	0.03
Plywood	18	100	0.15	0.12
Kingspan K103	100	100	0.019	5.26
			Total Resistance	5.41
			U-value (W/m2K)	0.18

Back wall

Material	Thickness (mm)	Fraction (%)	Conductivity (W/mK)	Resistance (m2K/W)
Brick	102.5	100	0.6	0.17
Clear cavity	50	100	-	0.18
Kingspan K108	100	100	0.019	5.26
Brick	102.5	100	0.6	0.17
Plasterboard	12.5	100	0.19	0.07
			Total Resistance	5.85
			U-value (W/m2K)	0.17

Side wall

Material	Thickness (mm)	Fraction (%)	Conductivity (W/mK)	Resistance (m2K/W)	Parallel resistance (m2K/W)
Brick	102.5	100	0.6	0.17	0.17
Kingspan K112	100	85	0.018	5.56	2.75
Studwork	100	15	0.14	0.71	
Plasterboard	12.5	100	0.19	0.07	0.07
				Total Resistance	2.99
				U-value	0.33

Wall to garage

Material	Thickness (mm)	Fraction (%)	Conductivity (W/mK)	Resistance (m2K/W)	Parallel resistance (m2K/W)
Ins. plasterboard	53	100	0.022	2.41	2.41
Kingspan K108	125	85	0.018	6.94	3.44
Studwork	125	15	0.14	0.89	
Plasterboard	12.5		0.19	0.07	0.07
				Total Resistance	5.92
				U-value (W/m2K)	0.17

Roof

Material	Thickness (mm)	Fraction (%)	Conductivity (W/mK)	Resistance (m2K/W)
OSB	18	100	0.13	0.14
Kingspan T27	150	100	0.024	6.25
OSB	18	100	0.13	0.14
Plasterboard	12.5	100	0.19	0.07
			Total Resistance	6.59
			U-value (W/m2K)	0.15