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
Kingspan K108	100	100	0.018	5.56
Brick	102.5	100	0.6	0.17
Plasterboard	12.5	100	0.19	0.07
			Total Resistance	5.96
			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 K108	125	85	0.018	6.94	
Studwork	75	15	0.14	0.54	5.96
Kingspan K108	50	15	0.018	2.78	
Plasterboard	12.5	100	0.19	0.07	0.07
				Total Resistance	6.20
				U-value	0.16

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