

U-value calculations for the alterations to the extension

Floor

Material	Thickness (mm)	Fraction of area (%)	Conductivity (W/mK)	Resistance (m2K/W)
Cement	65	100	0.6	0.11
Kingspan TF70	140	100	0.022	6.36
Concrete	65	100	0.6	0.11
Total Resistance				6.47
U-value (W/m2K)				0.15

Front Wall

Material	Thickness (mm)	Fraction of area (%)	Conductivity (W/mK)	Resistance (m2K/W)
Brick	102.5	100	0.6	0.17
Clear cavity	50	100	-	0.18
Kingspan K108	115	100	0.019	6.05
Brick	102.5	100	0.6	0.17
Plasterboard	12.5	100	0.19	0.07
Total Resistance				6.64
U-value (W/m2K)				0.15

Extension-garage wall

Material	Thickness (mm)	Fraction of area (%)	Conductivity (W/mK)	Resistance (m2K/W)
Brick	102.5	100	0.6	0.17
Knauff DriTherm	85	100	0.032	2.66
Brick	102.5	100	0.6	0.17
Plasterboard	12.5	100	0.19	0.07
Total Resistance				3.06
U-value (W/m2K)				0.33

Roof

Material	Thickness (mm)	Fraction of area (%)	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