

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 | | | | 6.58 |
| 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 | 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 |

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) |
|------------------|-------------------|-------------------------|------------------------|-----------------------|
| Plywood | 18 | 100 | 0.13 | 0.14 |
| Kingspan T27 | 150 | 100 | 0.024 | 6.25 |
| Plywood | 12 | 100 | 0.13 | 0.09 |
| Plasterboard | 12.5 | 100 | 0.19 | 0.07 |
| Total Resistance | | | | 6.55 |
| U-value (W/m2K) | | | | 0.15 |