

Calculations

Construction type

FloorsWallsPitched RoofFlat Roof

Wall Type

Cavity wall

Outer Leaf Type

Brick

Inner Leaf Block Density

Dense (1.13)

Inner Leaf Finish

Fairfaced

Cavity Type

Partial Fill

Insulation Thickness

-

40mm

45mm

+

☐

Tick here if you would like to receive the BIM Object for this construction build-up

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→

U

U-value

0.30

W/m².K

0.13

0.30

Click here to view construction build-up

Construction build-up includes:


100mm fairfaced block

Kingspan Kooltherm K108 Cavity Board

50mm clear residual cavity

102.5mm brick.

See website for more details



Kingspan Kooltherm K108 Cavity Board

Project ID : Online
Structure element : Wall
Description : Brick and block cavity wall, partial fill, 2.5 ties per m², cavity less than or equal to 125mm
File reference : 1E13224118.FCF

Calculated 'U' value = 0.30W/m²K (Calculated in accordance with BS EN ISO 6946:2017)

Condensation risk has been assessed up to and including Level 4 Humidity Class (dwellings with high occupancy) within UK worst case environmental conditions.

Element Description	Element Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m²K/W)	Vapour Resistivity (MNs/gm)	Vapour Resistance (MNs/g)	Mean T (K)	Delta T (K)
Outside surface resistance	-	-	0.040	-	-	78.30	0.18
BRICKWORK FACING	102.5	0.770	0.133	42.00	4.31	78.69	0.61
UNV. A/SPACE;	50.0	-	0.665	-	0.05	80.51	3.03
KOOLTHERM K108	40.0	0.018	2.222	-	100.00	87.09	0.13
BLOCKWORK 2000 kg/m³ (k-value = 1.13 W/mK)	100.0	1.130	0.088	45.00	4.50	92.36	0.40
Inside surface resistance	-	-	0.130	-	-	92.85	0.59

Detailed U-value Calculation Results

Total resistance of wall
 $R_T = (R_{upper} + R_{lower}) / 2 = (3.279 + 3.279) / 2 = 3.279 \text{ m}^2\text{K/W}$
(Correction for mechanical fasteners, Delta Uf = 0.0049W/m²K | Correction for air gaps, Delta Ug = 0.0000W/m²K)
(Alpha 0.8 m⁻¹ | Fasteners per square metre 2.5000)
(Fasteners cross-sectional area 12.500 mm² | Thermal conductivity of fastener 17.00 W/mK)
(Delta Uf + Delta Ug) is less than 3% of (1 / Rt) so U = (1 / Rt) = 0.30W/m²K

Not all insulation thicknesses shown may currently be stocked, so please check with Kingspan Insulation Customer Service Department on 01544 388601.

Whilst the information and/or specification contained herein is to the best of our knowledge true and accurate we specifically exclude any liability for errors, omissions or otherwise arising therefrom. Details, practices, principles, values and calculations should be verified as to accuracy and suitability for the required purpose for use.

Detailed U-value Calculation Results (continued)

Total resistance of wall

$$R_T = (R_{upper} + R_{lower}) / 2 = (3.279 + 3.279) / 2 = 3.279 \text{ m}^2\text{K/W}$$

(Correction for mechanical fasteners, Delta Uf = 0.0049W/m²K | Correction for air gaps, Delta Ug = 0.0000W/m²K)

(Alpha 0.8 m⁻¹ | Fasteners per square metre 2.5000)

(Fasteners cross-sectional area 12.500 mm² | Thermal conductivity of fastener 17.00 W/mK)

(Delta Uf + Delta Ug) is less than 3% of (1 / Rt) so U = (1 / Rt) = 0.30W/m²K