

Documentation of the component
Thermal transmittance (U-value) according to BS EN ISO 6946

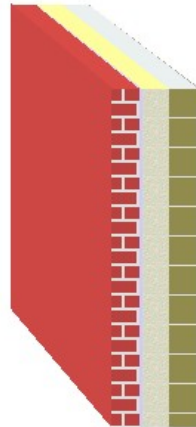
15. May 2026
Page 1/2

Source: **Projects - Main Constructions**

Component: **Brick Cavity - lightweight - 0.19 - PIR** info@energydigest.co.uk | 01206 670 278

OUTSIDE

INSIDE



Assignment: External wall

	Manufacturer	Name	Thickness [m], number	Lambda [W/(mK)]	Q	R [m²K/W]
	Rse					0.0400
☒ 1	Generic Building Materials	Brick outer leaf & Mortar outer leaf (f = 0.000 / automatic disregard acc. BRE 443)	0.1020	0.770	D	0.1325
☒ 2	Celotex Ltd	Unvent Low E cavity - 10mm, heat flow horizontal	0.0100	0.028	C	0.3630
☒ 3	Polyisocyanurate (PIR) - General Purpose	Polyisocyanurate (PIR) - General Purpose	0.0900	0.022	E	4.0909
	Fixings	Double triangle stainless steel No./m²:	2.5/m²	17.000	D	-
	Fixings	equivalent diameter: 0.004 m / alpha: 0.800				
	Air gaps	Level 1: dU" = 0.01 W/(m²K)				
☒ 4	H+H Celcon Ltd.	Celcon Solar Block 440x215 & Mortar outer leaf (f = 0.067)	0.1000	0.165	D	0.6048
☒ 5	Generic Building Materials	Plaster dabs -Gypsum [1200 kg/m³]	0.0015	0.430	D	0.0035
☒ 6	Generic Building Materials	Standard wallboard (plasterboard up to 700kg/m³)	0.0125	0.210	D	0.0595
	Rsi					0.1300
0.3160						

$$R_T = R_{si} + \sum R_i + R_{se} = 5.42 \text{ m}^2\text{K/W}$$

Correction to U-value for	according to	delta U [W/(m²K)]
Mechanical fasteners	BS EN ISO 6946 Annex F	0.0027
Air gaps	BS EN ISO 6946 Annex F	0.0057
		0.0084

$$U = 1/R_T + \sum \Delta U = 0.19 \text{ W/(m}^2\text{K)}$$

- Q .. The physical values of the building materials has been graded by their level of quality. These 5 levels are the following
- A** .. A: Data is entered and validated by the manufacturer or supplier. Data is continuously tested by 3rd party.
 - B** .. B: Data is entered and validated by the manufacturer or supplier. Data is certified by 3rd party
 - C** .. C: Data is entered and validated by the manufacturer or supplier.
 - D** .. D: Information is entered by BuildDesk without special agreement with the manufacturer, supplier or others.
 - E** .. E: Information is entered by the user of the BuildDesk software without special agreement with the manufacturer, supplier or others.

$$U = \boxed{0.19 \text{ W/(m}^2\text{K)}} \quad R_T = \boxed{5.42 \text{ m}^2\text{K/W}}$$

Documentation of the component
Heat capacity

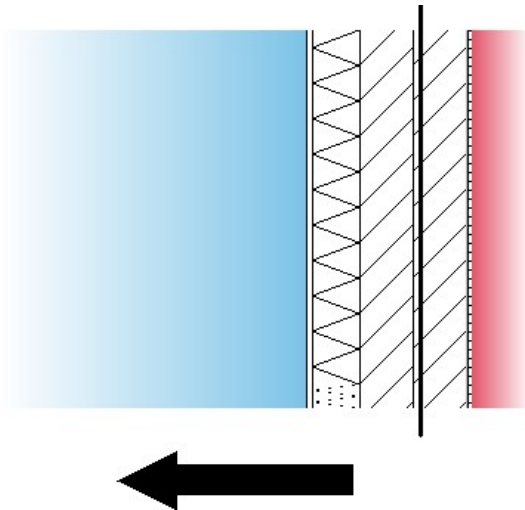
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Page 2/2

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The list of materials shown below may differ from those in the U-value calculation printout. Only material layers which are used in the heat capacity calculation are listed.

Single material layers shown in the U-value calculation printout may be separated to meet the exclusion criteria:

- A .. The total thickness of the layers exceed 0.1 m.
- B .. The mid point in the construction is reached.

For insulation layers the following criteria applies:

- C .. An insulating layer is reached (defined as $\lambda \leq 0.08 \text{ W/(mK)}$).

	Name	Thickness [m]	lambda [W/(mK)]	Q	Thermal capacity [kJ/(kgK)]	Q	Density [kg/m³]	Q	Thermal mass kJ/(m²K)	Criteria Exclusion
	End of calculation - Cold									
1	Brick outer leaf & Mortar outer leaf (f = 0.000 / automatic disregard acc. BRE 443)	0.1020	0.770	D	0.80	D	1700.0	D	138.7	A, -, C
2	Unvent Low E cavity - 10mm, heat flow horizontal	0.0100	0.028	C	1.01	C	1.3	C	0.0	A, -, C
3	Polyisocyanurate (PIR) - General Purpose	0.0900	0.022	E	0.92	E	32.0	E	0.0	A, -, C
4	Celcon Solar Block 440x215 & Mortar outer leaf (f = 0.067)	0.0140	0.165	D	1.00	D	460.0	D	6.4	A, -, -
4	Celcon Solar Block 440x215 & Mortar outer leaf (f = 0.067)	0.0860	0.165	D	1.00	D	460.0	D	39.6	-, -, -
5	Plaster dabs -Gypsum [1200 kg/m³]	0.0015	0.430	D	1.00	D	1200.0	D	1.8	-, -, -
6	Standard wallboard (plasterboard up to 700kg/m³)	0.0125	0.210	D	1.00	D	700.0	D	8.8	-, -, -
	Start of calculation - Warm									
		0.3160							50.1	

Heat capacity = 50.1 kJ/(m²K)

The following exclusion criteria apply:

- A .. The total thickness of the layers exceed 0.1 m.
- C .. An insulating layer is reached (defined as $\lambda \leq 0.08 \text{ W/(mK)}$).

Q .. The physical values of the building materials has been graded by their level of quality. These 5 levels are the following

- A** .. A: Data is entered and validated by the manufacturer or supplier. Data is continuously tested by 3rd party.
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