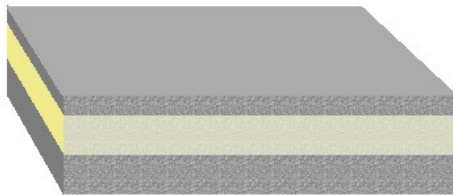


Documentation of the component
Thermal transmittance (U-value)
Source: **Projects - Main Constructions**
Component: **Slab - 150 PIR - 0.12**

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INSIDE



OUTSIDE

Assignment: Ground floor

	Manufacturer	Name	Thickness [m], number	Lambda [W/(mK)]	Q	R [m²K/W]
	Rsi					0.1700
☒	1	Generic Building Materials	Concrete screed (1800 kg/m³)	0.0750	1.150 D	0.0652
☒	2	Polyisocyanurate (PIR) - General Purpose	Polyisocyanurate (PIR) - General Purpose	0.1500	0.022 E	6.8182
☒	3	BS EN 12524	Concrete, High density	0.1500	2.000 D	0.0750
	Rse					0.0000
			0.3750			

$U = 0.12 \text{ W/(m}^2\text{K)}$

Explanation see next page

- 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.

$$U = \boxed{0.12 \text{ W/(m}^2\text{K)}} \quad R_T = \boxed{7.13 \text{ m}^2\text{K/W}}$$

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Thermal transmittance (U-value)

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Source: **Projects - Main Constructions**Component: **Slab - 150 PIR - 0.12**info@energydigest.co.uk | 01206 670 278

Slab-on-ground floor according to BS EN ISO 13370

Input data:

λ	Thermal conductivity [W/(mK)]	1.50 (Thermal conductivity of the ground)
A	Floor area [m ²]	10.78
P	Exposed perimeter [m]	9.30
R_f	Thermal resistance [m ² K/W]	6.958 (see construction layer list)
w	Thickness of walls [m]	0.30

Kind of edge insulation: horizontal edge insulation

D	Depth of insulation [m]	0.80
d_n	Thickness of insulation [m]	0.08
R_n	Thermal resistance [m ² K/W]	2.0

Intermediate results:

B'	Characteristic dimension [m]	2.318
d_t	Equivalent thickness [m]	11.053
U_o	Thermal transmittance [W/(m ² K)]	0.124
$\Delta\Psi$	Correction term [W/(mK)]	-0.007

 $U = 0.12 \text{ W/(m}^2\text{K)}$ **Thermal Transmittance** **$L_s = 1.3 \text{ W/K}$** **Steady-state thermal coupling coefficient**

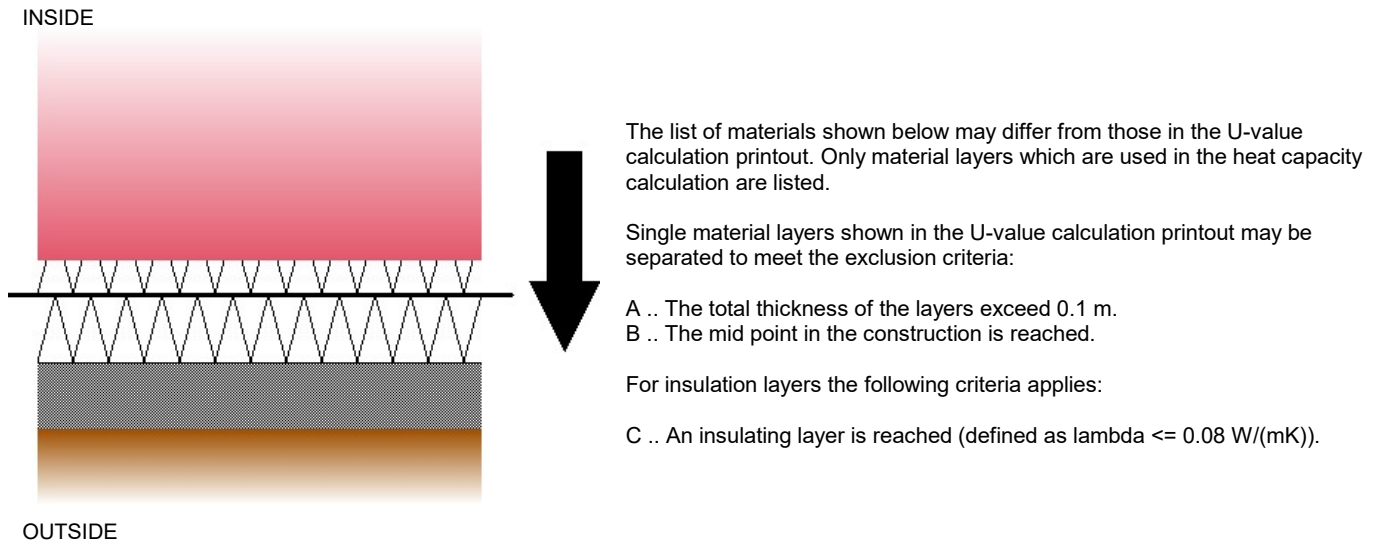
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Heat capacity

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Source: **Projects - Main Constructions**

Component: **Slab - 150 PIR - 0.12**
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Name	Thickness [m]	lambda [W/(mK)]	Q	Thermal capacity [kJ/(kgK)]	Q	Density [kg/m³]	Q	Thermal mass kJ/(m²K)	Criteria Exclusion
Start of calculation - Warm									
1 Concrete screed (1800 kg/m³)	0.0750	1.150	D	1.00	D	1800.0	D	135.0	-, -, -
2 Polyisocyanurate (PIR) - General Purpose	0.0250	0.022	E	0.92	E	32.0	E	0.0	-, -, C
2 Polyisocyanurate (PIR) - General Purpose	0.1250	0.022	E	0.92	E	32.0	E	0.0	A, -, C
3 Concrete, High density	0.1500	2.000	D	1.00	D	2400.0	D	360.0	A, -, C
End of calculation - Earth									
	0.3750							135.0	

Heat capacity = 135.0 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

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