BuildDesk U 3.4

uninsulated slab
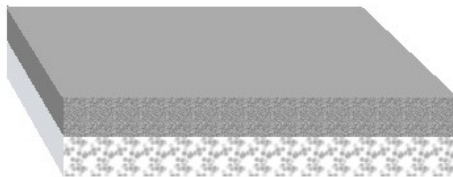
Documentation of the component
Thermal transmittance (U-value)
Source: **own catalogue**
Component: **New ground floor**

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Assignment: Ground floor

		Manufacturer	Name	Thickness [m], number	Lambda [W/(mK)]	Q	R [m²K/W]
		Rsi					0.1700
☑	1	BS EN 12524	Concrete, High density	0.1500	2.000	D	0.0750
☑	2	BS EN 12524	Natural, crystaline rock & Mortar outer leaf (f = 0.067)	0.1500	3.329	D	0.0451
		Rse					0.0000
				0.3000			

U = 0.85 W/(m²K)   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_{max} =   0.25 W/(m²K)   U =   0.85 W/(m²K) R_T=   0.29 m²K/W

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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 [m²]	25.60	
P	Exposed perimeter [m]	21.60	
R_f	Thermal resistance [m²K/W]	0.120	(see construction layer list)
w	Thickness of walls [m]	0.30	

Kind of edge insulation:		no edge insulation
D	Depth of insulation [m]	0.80
d_n	Thickness of insulation [m]	0.08
R_n	Thermal resistance [m²K/W]	2.0

Intermediate results:

B'	Characteristic dimension [m]	2.370
d_t	Equivalent thickness [m]	0.795
U_0	Thermal transmittance [W/(m²K)]	0.851
$\Delta\Psi$	Correction term [W/(mK)]	0.000

U = 0.85 W/(m²K)   **Thermal Transmittance**

L_s = 21.8 W/K   **Steady-state thermal coupling coefficient**
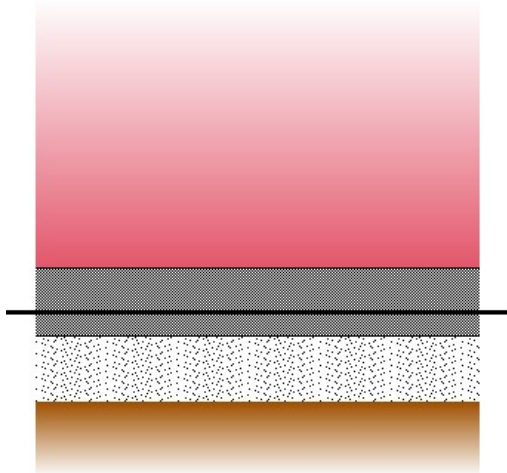
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The list of materials shown below may differ from those in the U-value calculation printout. Only material layers which are used in the heat capacity calculation are listed.

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 <= 0.08 W/(mK)).

OUTSIDE

	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, High density	0.1000	2.000	D	1.00	D	2400.0	D	240.0	-, -, -
1	Concrete, High density	0.0500	2.000	D	1.00	D	2400.0	D	~~120.0~~	A, -, -
2	Natural, crystaline rock & Mortar outer leaf (f = 0.067)	0.1500	3.329	D	1.00	D	2800.0	D	~~420.0~~	A, -, -
	End of calculation - Earth									
		0.3000							**240.0**	

Heat capacity = 240.0 kJ/(m²K)

The following exclusion criteria apply:
 A   ..   The total thickness of the layers exceed 0.1 m.

 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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