

Domestic Floor Insulation: Below Ground-Supported Slab

Jabfloor 70

Jabfloor 70 can be used below the concrete slab in domestic solid ground-floor constructions to satisfy the Building Regulations' U-value requirements.

Low thermal transmittance

115mm thickness of Jabfloor 70 will typically improve the U-value of a 50m² ground floor from 0.8W/m²K to 0.22W/m²K.

Versatile

Jabfloor 70 can be used above or below the damp-proof membrane.

Permanent

Jabfloor 70 is rot-proof and durable and will remain effective for the life of the building.

Rapid construction

No specialised trades or equipment are required.

Easy to handle

Jabfloor 70 is manufactured from expanded polystyrene (EPS), and is lightweight and easy to handle.

APPROVALS

Jabfloor 70 has been assessed and approved by the British Board of Agrément for use below the concrete slab in solid ground floors; Certificate number 87/1796.

TYPE

Jabfloor 70 is supplied as EPS 70 as defined in BS EN 13163. Flame-retardant additive material is available to order.

DIMENSIONS

Standard size, 1200 x 2400mm.
Thickness, 25, 40, 50, 60, 75, 100 and 120mm other thicknesses available to order.

Table 1. Jabfloor 70 and Jablo Flooring thickness requirements for a U-value of 0.22 W/m²K. Solid Ground Floor Applications - Underslab

P/A ratio	Jabfloor U= 0.22 W/m ² K (mm)	Commercial thickness (mm)	Actual U-value (W/m ² K)
0.15	27	40	0.2
0.2	52	60	0.21
0.25	70	75	0.22
0.3	83	100	0.2
0.4	98	100	0.22
0.5	108	120	0.21
0.6	116	120	0.22
0.7	120	120	0.22
0.8	126	130	0.22
0.9	128	130	0.22
1	130	130	0.22

Typically to achieve a U-value of 0.20W/m²K add 17mm to the corresponding Jabfloor 70 thickness for the required P/A value.

U-VALUES

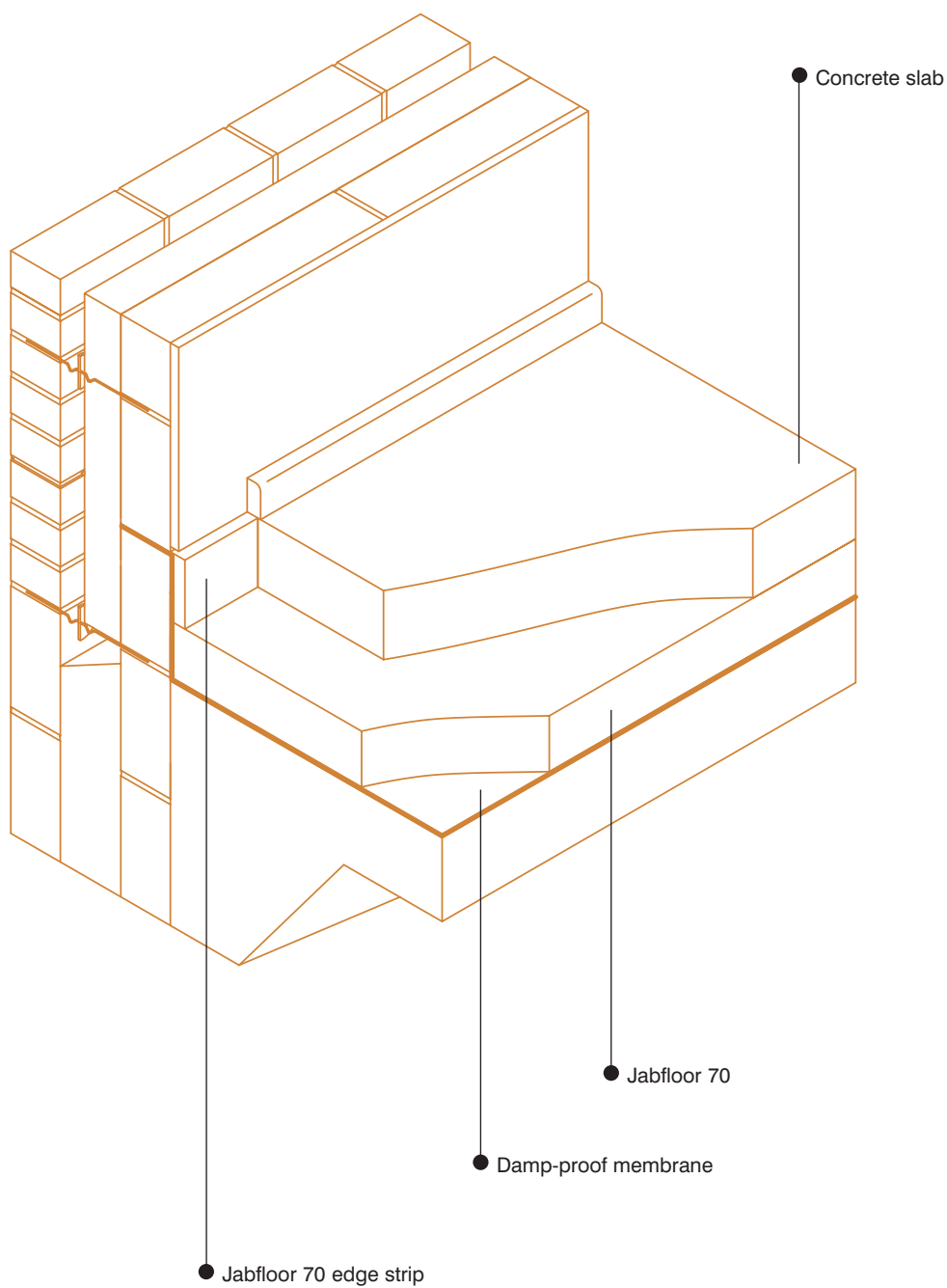
The rate of heat loss through a ground floor varies with its size and shape. The thickness of insulation required to meet a given U-value will similarly depend on the size and shape of the floor.

Approved Documents L1A, L1B, L2A, & L2B guide you to BS EN 13370 as the method for determining floor U-values based on the floor perimeter and floor area where: 'P' is length of exposed perimeter in metres and 'A' is floor area in square metres.

The measurement of both the floor area and perimeter should be made on the internal finished surface of the walls enclosing the heated space; unheated areas such as garages, porches and storage spaces need not be included. For buildings such as terraces or blocks of flats and apartments, the measurement should be taken over the total gross ground floor area.

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Figure 1.



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In most cases, the actual thickness of Jablite required according to this calculation will not correspond with the nominal thicknesses available. The nearest available nominal size should be used which will provide a performance which betters the required U-value.

Table 1 shows the required thickness of Jabfloor 70 to meet a U-value of 0.22W/m²K. These values are based on a k-value (Lambda value) of 0.038W/mK for the insulation. A U-value of 0.20W/m²K can typically be achieved by adding a thickness of 17mm of Jabfloor 70 to the figure shown in Table 1 for the corresponding P/A value.

FIRE

Solid ground floors are not required to provide fire resistance. When properly installed, the EPS insulation is fully protected by the concrete slab and will have no adverse effect on the fire performance of the floor. Euroclass E, flame-retardant additive material, is available to order.

INSTALLATION

Damp-proof membrane

Jabfloor 70 should not be regarded as a damp-proof membrane (DPM).

A suitable DPM must be provided, positioned either above or below the Jabfloor 70, or on top of the concrete slab; see Figures 2-4. Liquid membranes are positioned above the slab. The hardcore should be blinded before receiving either the Jabfloor 70 or the DPM.

If a liquid DPM is used, care should be taken that it is compatible with Jabfloor 70 and that it is completely dry before the insulation is laid.

Jabfloor 70

Jabfloor 70 should be loose-laid over the prepared surface; all joints should be tightly butted. If the concrete slab is to be poured directly onto the Jabfloor 70, the joints should be covered with 75mm-wide adhesive tape to prevent the ingress of concrete or grout between the boards.

Vertical upstands of Jabfloor 70 edge strip should be used around the perimeter to prevent cold bridging.

Concrete slab

The concrete slab is laid to the required thickness and either tamped or power-floated to provide the required finish. During these operations, the surface of the Jabfloor 70 or the DPM should be protected from impact damage or excessive trafficking by the use of spreader boards. Similarly, the insulation and membrane upstand should also be protected using timber boards.

REFERENCES

BRE Report 262. Thermal insulation: avoiding risks - Third edition 2002.

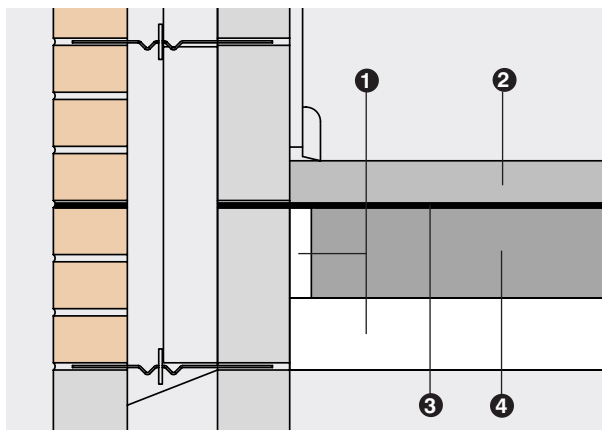
BS EN ISO 13370 Thermal performance of buildings - Heat transfer via the ground - Calculation methods.

BS EN 13163 Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS) - Specification.

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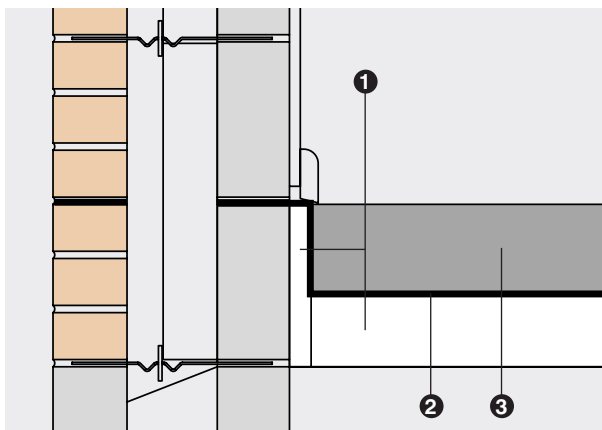
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Figure 2.
Damp-proof membrane
above concrete slab



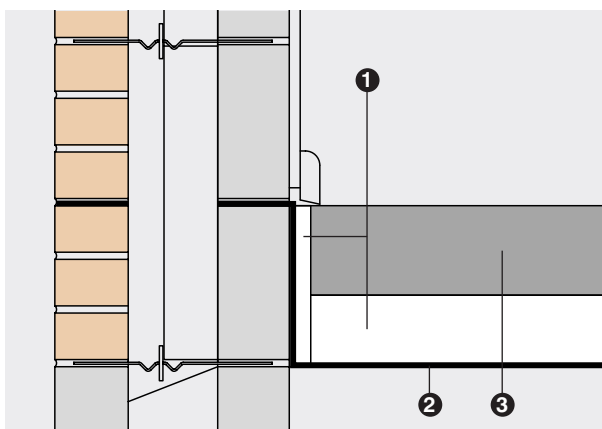
- 1. Jabfloor 70
- 2. 65mm Sand/cement screed
- 3. Damp-proof membrane
- 4. Concrete slab

Figure 3.
Damp-proof membrane
above insulation



- 1. Jabfloor 70
- 2. Damp-proof membrane
- 3. Concrete slab

Figure 4.
Damp-proof membrane
below insulation



- 1. Jabfloor 70
- 2. Damp-proof membrane
- 3. Concrete slab