

Domestic Floor Insulation: Below Screed Finish

Jabfloor 70

Jabfloor 70 can be used below a sand/cement screed, above either a concrete slab or a precast concrete floor system in domestic ground-floor constructions to satisfy the Building Regulations' U-value requirements. It can also be used in conjunction with underfloor heating systems to reduce downward heat loss.

Low thermal transmittance

110mm thickness of Jabfloor 70 will typically improve the U-value of a 50m² ground floor from 0.8W/m²K to 0.22W/m²K.

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 a sand/cement screed on a concrete or precast ground floor; 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 2. Jabfloor 70 and Jablo Flooring thickness requirements for a U-value of 0.22 W/m²K. Solid Ground Floor Applications - Overslab screed finish

P/A ratio	Jabfloor U=0.22 W/m ² K (mm)	Commercial Thickness (mm)	Actual U-value (W/m ² K)
0.15	21	25	0.22
0.2	46	50	0.22
0.25	65	75	0.21
0.3	77	100	0.2
0.4	92	100	0.21
0.5	102	120	0.2
0.6	109	120	0.21
0.7	116	120	0.22
0.8	119	120	0.22
0.9	122	130	0.21
1	125	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.

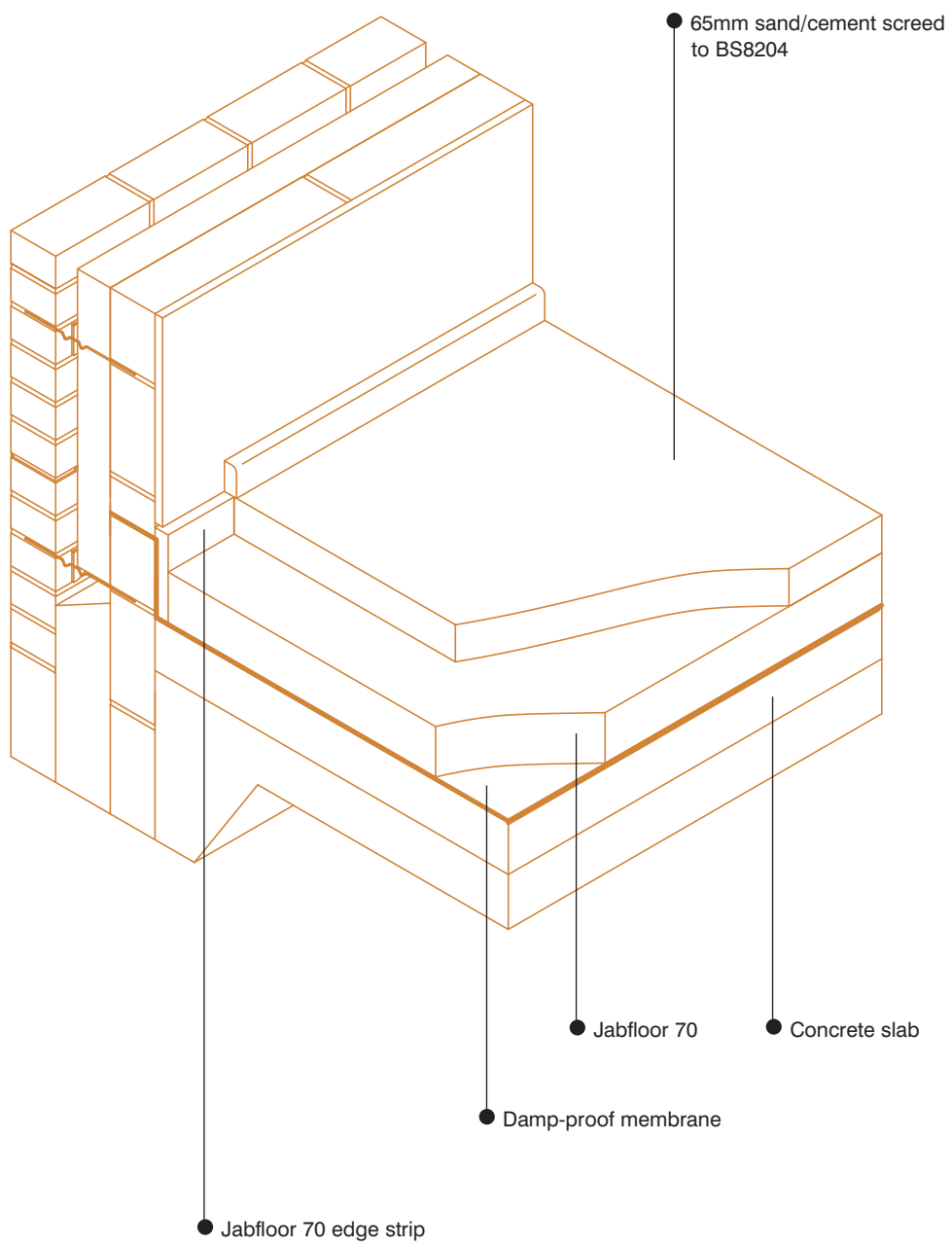
Approved Documents L1A, L1B, L2A & L2B guide you to BS EN ISO 13370 as the method for determining floor U-values based on the floor perimeter and floor area where: 'P' is length of exposed perimeter in metres and 'A' is floor area in square metres.

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 5.



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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 next thickest nominal size should be used in order to provide a performance which betters the required U-value.

Table 2 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 2 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 screed and will have no adverse effect on the fire performance of the floor. Euroclass E, flame-retardant material, is available to order.

INSTALLATION

Concrete slab

The concrete slab should have a level, evenly-tamped surface; a floated or screeded finish is not necessary. The slab should be left as long as possible after laying to allow it to dry out.

Precast concrete floors

Where Jabfloor 70 is used in conjunction with a suspended precast concrete floor, care should be taken that there is not excessive variation in level between individual units. If Jabfloor 70 spans between high points, then a levelling screed

or compound should be used; the use of dry sand as a levelling medium is not satisfactory.

Damp-proof membrane

Jabfloor 70 should not be regarded as a damp-proof membrane (DPM), and a suitable DPM must be used to protect floors in contact with the ground. The membrane may be positioned either above or below the concrete slab, see Figures 6 and 7; liquid membranes are positioned above the concrete slab.

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.

Services

Providing the work is carried out in accordance with the relevant Byelaws or Regulations, electrical conduits, gas and water pipes can be accommodated within the thickness of the concrete slab.

If this is not possible, it is permissible to accommodate the services within the thickness of the insulation providing pipes etc are securely fixed to the slab. Jabfloor 70 should not be allowed to come into direct contact with PVC-sheathed cable, nor closer than 12mm to hot-water pipes; pipes should be haunched with a sand/cement mix or lagged using a proprietary material intended for this purpose.

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Jabfloor 70 should be loose-laid over the prepared surface; all joints should be tightly butted and taped with 75mm-wide adhesive tape to

prevent the ingress of screed between the boards. The boards should be cut with a sharp knife to fit accurately around services, and taped as necessary.

Screeding

The recommendations of the appropriate parts of BS 8204 should always be followed.

Sand/cement screeds should be at least 65mm thick. In order to minimise cracking or curling, the screed should be laid so that jointless areas do not exceed 15m² and with the ratio of length to width not exceeding 1.5:1.

If these limits cannot be observed, the use of a light-gauge galvanised-metal reinforcement, placed centrally in the screed, will help to distribute shrinkage cracks evenly.

During the screeding operations, the surface of the insulation should be protected from impact damage or excessive trafficking by the use of spreader boards.

REFERENCES

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

BS 8204 Screeds, bases and in-situ floorings.

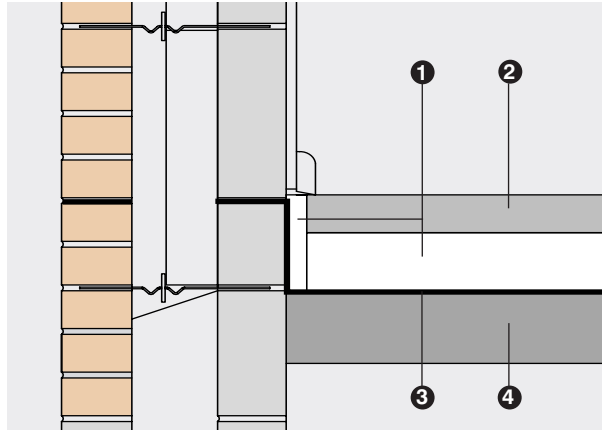
BS EN ISO 13370 Thermal performance of buildings - Heat transfer via the ground - Calculation methods.

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

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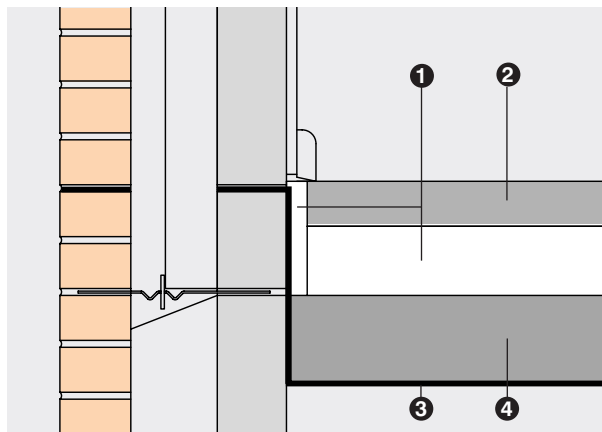
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Figure 6.
Damp-proof membrane
below insulation



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

Figure 7.
Damp-proof membrane
below concrete slab



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