

Domestic Floor Insulation: Below Chipboard Finish

Jabfloor 70

Jabfloor 70 can be placed above a concrete slab or a precast concrete floor in domestic ground-floor constructions, and finished with a wearing layer of chipboard to satisfy the Building Regulations' U-value requirements.

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.

Rapid construction

No specialised trades or equipment are required

All-dry construction

The use of Jabfloor 70 with a chipboard finish provides an all-dry method of construction, saving up to one week in site time compared to a wet screed.

Permanent

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

Cost-effective.

Jabfloor 70 with a chipboard finish provides a cost-effective solution to floor insulation.

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 flooring-grade chipboard on a concrete or precast ground floor; Certificate number 87/1796.

Table 3. Jabfloor 70 and Jablo Flooring thickness requirements for a U-value of 0.22 W/m²K. Solid Ground Floor Applications - Overslab chipboard 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 | 22 | 25 | 0.22 |
| 0.2 | 47 | 50 | 0.22 |
| 0.25 | 66 | 75 | 0.21 |
| 0.3 | 79 | 100 | 0.2 |
| 0.4 | 93 | 100 | 0.21 |
| 0.5 | 103 | 120 | 0.2 |
| 0.6 | 111 | 120 | 0.21 |
| 0.7 | 117 | 120 | 0.22 |
| 0.8 | 121 | 130 | 0.21 |
| 0.9 | 123 | 130 | 0.22 |
| 1 | 126 | 130 | 0.22 |

Typically to achieve a U-value of 0.22W/m²K add 17mm to the corresponding Jabfloor 70 thickness for the required P/A value.

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.

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:

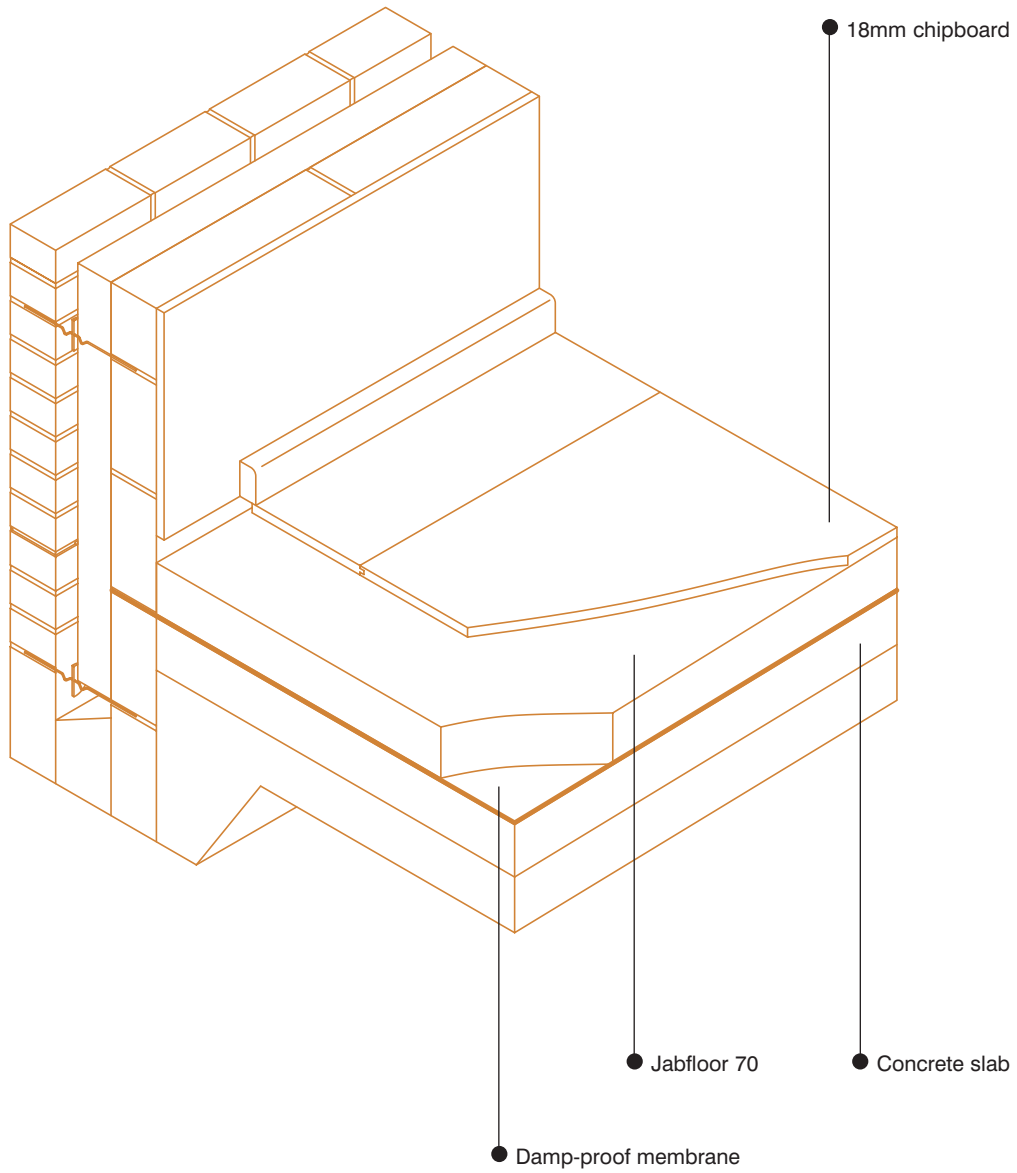
'P' is length of exposed perimeter in metres and 'A' is floor area in square metres.

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.

Domestic Floor Insulation: Below Chipboard Finish

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Figure 8.



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For buildings such as terraces or blocks of flats and apartments, the measurement should be taken over the total gross ground floor area.

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 better the required U-value.

Table 3 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 3 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 chipboard finish 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 9 and 10. 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.

Where the DPM is positioned below the concrete slab, a vapour-control layer, of minimum 1000g polythene or equivalent, should be laid over the Jabfloor 70. All edges should be overlapped a minimum 150mm and taped, and the material should be turned up 100mm at the perimeter and fixed behind the skirting.

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.

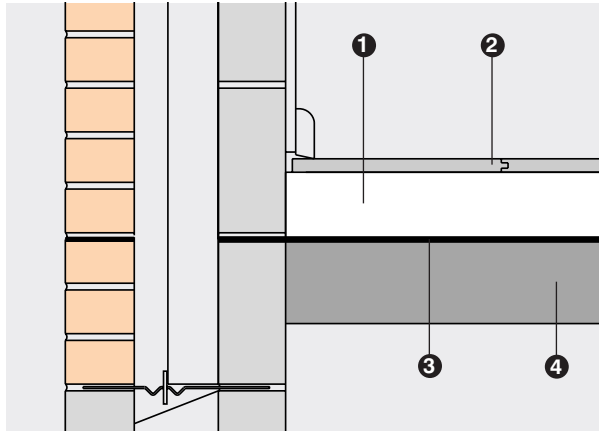
If this is not possible, it is permissible to accommodate the services within the thickness of the

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.

Where subsequent access is required to the services, a removable panel should be provided by cutting out an appropriate area of the chipboard finish and supporting it on battens. The battens should be of preservative-treated timber, securely attached to the concrete slab using masonry nails or screws and plugs, and the chipboard screwed to the batten. See Figure 11.

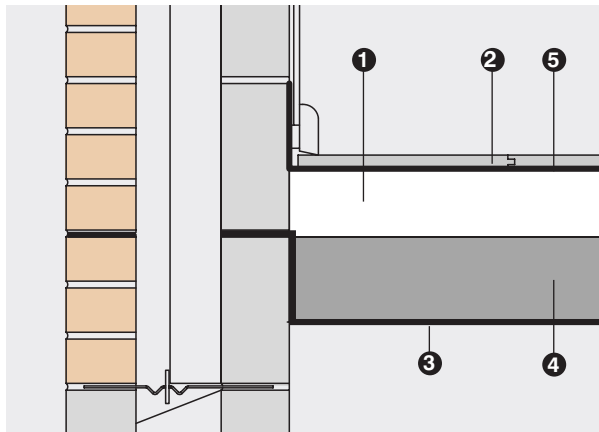
Domestic Floor Insulation: Below Chipboard Finish Jabfloor 70

Figure 9.
Damp-proof membrane
below insulation



1. Jabfloor 70
2. 18mm chipboard
3. Damp-proof membrane
4. Concrete slab

Figure 10.
Damp-proof membrane
below concrete slab



1. Jabfloor 70
2. 18mm chipboard
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5. Vapour-control layer

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Jabfloor 70 should be loose-laid over the prepared surface; all joints should be tightly butted.

The boards should be cut with a sharp knife to fit accurately around services.

Partitions etc.

Where masonry partitions or other heavy structures are to be built directly onto the chipboard floor, the insulation should be interrupted and a solid batten provided along the line of the partition, beneath the chipboard, to provide support. The batten should be of preservative-treated timber, securely attached to the concrete slab using masonry nails or screws and plugs.

See Figure 12.

Doorways

The chipboard should be positively supported at external doorways by the use of a solid batten spanning at least the width of the door. The batten should be of preservative-treated timber, securely attached to the concrete slab using masonry nails or screws and plugs. See Figure 13.

At internal doorways, if the tongued-and-grooved joint of the chipboard is lost, a batten should be used to provide support as described above for external doorways.

Chipboard finish

The chipboard should be Type P5 minimum 18mm thick, with tongued-and-grooved edges, as described in BS EN 312 - Particleboards, Specification.

It is important that the recommendations given in BS EN 312 - Particleboards, Specification are followed regarding protection of the chipboard from water spillage in bathrooms, kitchens and utility areas.

Laying should proceed from one corner of the room ensuring that a 10-12mm gap is provided at the perimeter to allow for expansion. Temporary wedges should be placed in expansion gaps during laying to allow the chipboard joints to be tightened; the wedges must be removed after the adhesive has dried.

The boards should be laid with staggered cross joints, and all edges should be glued as laying proceeds using a PVA-based woodworking adhesive.

In corridors, or wherever there are long uninterrupted runs of flooring, the inclusion of a 20mm expansion gap at 10m centres is required in addition to the 10-12mm perimeter gap. A suitable solid timber batten should be installed beneath the expansion joint to provide support. The batten should be of preservative-treated timber, securely attached to the concrete slab using masonry nails or screws and plugs.

REFERENCES

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

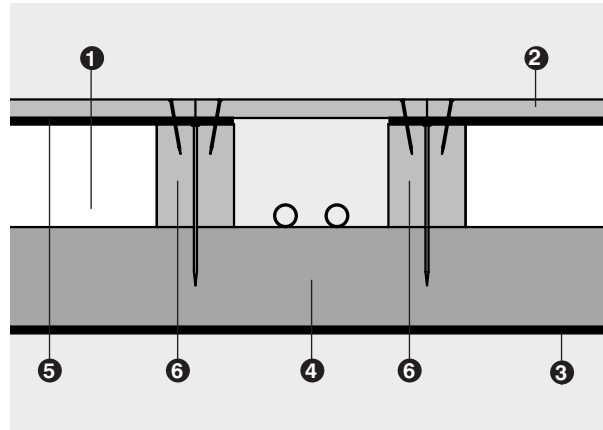
BS EN 312 - Particleboards, Specification

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.

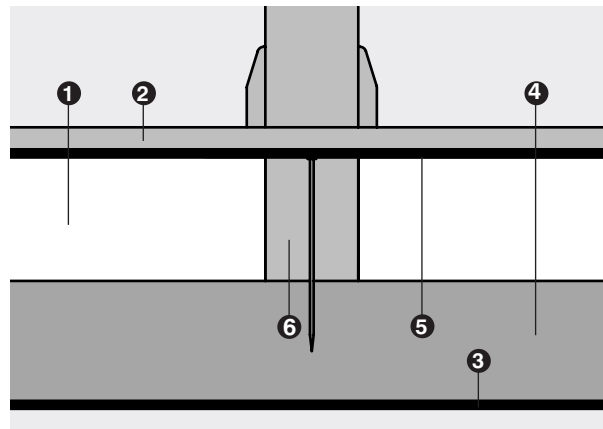
Domestic Floor Insulation: Below Chipboard Finish Jabfloor 70

Figure 11.
Access panels



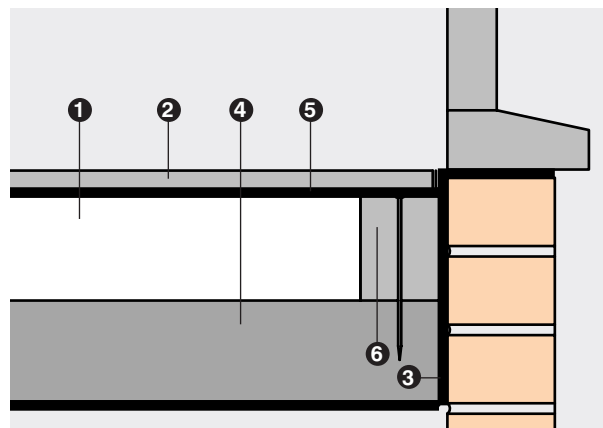
1. Jabfloor 70
2. 18mm chipboard
3. Damp-proof membrane
4. Concrete slab
5. Vapour-control layer
6. Treated timber battens

Figure 12.
Partitions



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Figure 13.
Doorways



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