

## Jablite Limited

Unit A, Rudford Industrial Estate  
Ford Road  
Ford, Nr Arundel  
West Sussex BN18 0BD

Tel: 01903 725282

e-mail: sales@jablite.co.uk

website: www.jablite.co.uk



**Agrément Certificate**

**21/5858**

Product Sheet 3

## JABLITE FLOOR INSULATION

### JABFLOOR 70 AND 100 — HIGH PERFORMANCE (HP) and (HP+)

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Jabfloor 70 and 100 – High Performance (HP) and (HP+), rigid expanded polystyrene boards for use as thermal insulation in ground-bearing or suspended concrete ground-floors. Jabfloor 70 – High Performance (HP) and (HP+) are suitable for use in new and existing domestic or similar buildings, and Jabfloor 100 – High Performance (HP) and (HP+) are suitable for use in new and existing domestic or similar buildings and non-domestic buildings.

(1) Hereinafter referred to as ‘Certificate’.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

#### KEY FACTORS ASSESSED

**Thermal performance** — the products have a declared thermal conductivity ( $\lambda_D$ ) value of  $0.032 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  for the (HP) boards, and  $0.030 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  for the (HP+) boards (see section 6).

**Condensation risk** — the products can contribute to limiting the risk of condensation (see section 7).

**Floor loading** — the products, when installed in accordance with this Certificate, can support a design loading for domestic and non-domestic applications (see section 9).

**Durability** — the products will have a life equivalent to that of the floor structure in which they are incorporated (see section 12).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 20 April 2021

Hardy Giesler  
Chief Executive Officer



The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)  
Readers **MUST** check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

#### British Board of Agrément

Bucknalls Lane  
Watford  
Herts WD25 9BA

©2021

tel: 01923 665300  
[clientservices@bbacerts.co.uk](mailto:clientservices@bbacerts.co.uk)  
[www.bbacerts.co.uk](http://www.bbacerts.co.uk)

## Regulations

In the opinion of the BBA, Jabfloor 70 and 100 – High Performance (HP) and (HP+), if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



### The Building Regulations 2010 (England and Wales) (as amended)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 9.2 and 9.3 of this Certificate.
<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>26</b>	<b>CO<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy consumption rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
Comment:		The products can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	<b>1.1(b)</b>	<b>Structure</b>
Comment:		The products can contribute to satisfying this Standard, with reference to clause 1.1.1 <sup>(1)(2)</sup> . See sections 9.2 and 9.3 of this Certificate.
Standard:	<b>3.15</b>	<b>Condensation</b>
Comment:		The products can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.4 <sup>(1)(2)</sup> and 3.15.5 <sup>(1)(2)</sup> . See sections 7.1 and 7.6 of this Certificate.
Standard:	<b>6.1(b)</b>	<b>Carbon dioxide emissions</b>
Standard:	<b>6.2</b>	<b>Building insulation envelope</b>
Comment:		The products can contribute to satisfying these Standards, with reference to clauses, or parts of, 6.1.1 <sup>(1)</sup> , 6.1.6 <sup>(1)</sup> , 6.2.1 <sup>(1)(2)</sup> , 6.2.3 <sup>(1)(2)</sup> , 6.2.4 <sup>(1)(2)</sup> , 6.2.5 <sup>(1)(2)</sup> , 6.2.6 <sup>(1)(2)</sup> , 6.2.7 <sup>(1)</sup> , 6.2.8 <sup>(2)</sup> , 6.2.9 <sup>(1)(2)</sup> , 6.2.10 <sup>(1)</sup> , 6.2.11 <sup>(1)(2)</sup> , 6.2.12 <sup>(2)</sup> and 6.2.13 <sup>(1)(2)</sup> . See sections 6.1 and 6.2 of this Certificate.
Standard:	<b>7.1(a)(b)</b>	<b>Statement of sustainability</b>
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard with

reference to clauses 7.1.4<sup>(1)(2)</sup> [Aspects 1<sup>(1)(2)</sup> and 2<sup>(1)</sup>], 7.1.6<sup>(1)</sup> [Aspects 1<sup>(1)(2)</sup> and 2<sup>(1)</sup>] and 7.1.7<sup>(1)(2)</sup> [Aspect 1<sup>(1)(2)</sup>]. See section 6.1 of this Certificate.

**Regulation:** 12

**Building standards applicable to conversions**

**Comment:**

Comments made in relation to these products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1<sup>(1)(2)</sup> and Schedule 6<sup>(1)(2)</sup>.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012 (as amended)

**Regulation:** 23

**Fitness of materials and workmanship**

**Comment:**

The products are acceptable. See section 12 and the *Installation* part of this Certificate.

**Regulation:** 29

**Condensation**

**Comment:**

The products can contribute to satisfying this Regulation. See section 7.1 of this Certificate.

**Regulation:** 30

**Stability**

**Comment:**

The products can contribute to satisfying this Regulation. See sections 9.2 and 9.3 of this Certificate.

**Regulation:** 39(a)(i)

**Conservation measures**

**Regulation:** 40

**Target carbon dioxide emission rate**

**Comment:**

The products can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.4) of this Certificate.

## Additional Information

### NHBC Standards 2021

In the opinion of the BBA, Jabfloor 70 and 100 – High Performance (HP) and (HP+), if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 5.1 *Substructure and ground bearing floors* and 5.2 *Suspended ground-floors*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13163 : 2012.

## Technical Specification

### 1 Description

Jabfloor 70 and 100 – High Performance (HP) and (HP+) comprise rigid grey EPS 70 and EPS 100 expanded polystyrene (EPS) boards respectively, with the nominal characteristics given in Table 1.

**Table 1 Nominal characteristics**

Size (mm)	1200 x 2400
Thickness <sup>(1)</sup> (mm)	25, 30, 40, 50, 60, 75, 100, 120, 150 and 200
Flatness (mm/m)	Class P(30)
Edge detail	Plain
Minimum compressive stress at 10% deformation (kPa)	70 [Jabfloor 70 – High Performance (HP) and (HP+)] 100 [Jabfloor 100 – High Performance (HP) and (HP+)]

(1) Other thicknesses within this range are available on request.

## 2 Manufacture

2.1 Jabfloor 70 and 100 – High Performance (HP) and (HP+) products are manufactured from grey carbon-enriched EPS. The material comprises expandable beads of polystyrene, pre-foamed and fused together in a steam-heated mould under pressure. This produces a block of material, which is then cut to size and shape for each specification.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Jablite Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by Certified Quality Systems Ltd (Certificate GB2005746).

## 3 Delivery and site handling

3.1 The products, which are light and easy to handle, are delivered to site in polythene-wrapped packs incorporating a label bearing the manufacturer's trade name, product description and characteristics, and the BBA logo incorporating the number of this Certificate.

3.2 The products must be protected from prolonged exposure to sunlight and should be stored either under cover or protected with opaque polythene sheeting. Where possible, packs should be stored inside. If stored outside, packs should be stacked flat, and raised above ground level to prevent contact with ground moisture.

3.3 The products must be discarded if damaged or contaminated and, if accidentally allowed to become wet, should be allowed to dry fully before installation.

3.4 The products must not be exposed to open flame or other ignition sources, or to solvents or other chemicals.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Jabfloor 70 and 100 – High Performance (HP) and (HP+).

## Design Considerations

## 4 Use

4.1 Jabfloor 70 and 100 – High Performance (HP) and (HP+) are satisfactory for use as floor insulation and are effective in reducing the thermal transmittance (U value) of suitably designed ground-bearing and suspended concrete ground-floors. Jabfloor 70 – High Performance (HP) and (HP+) are suitable for use in new and existing domestic or similar buildings, and Jabfloor 100 – High Performance (HP) and (HP+) are suitable for use in new and existing domestic or

similar buildings and non-domestic buildings. The products can also be used on beam-and-block floors incorporating Type R2 semi-resisting or resisting blocks to BS EN 15037-2 : 2009 and self-bearing beams to BS EN 15037-1 : 2008.

4.2 Ground-bearing floors should only be used where the depth of compacted fill is less than 600 mm and defined as non-shrinkable. Shrinkable fills are defined as material containing more than 35% fine particles (silt and clay) and with a Plasticity Index of 10% or greater (shrinkable fills are susceptible to clay heave).

4.3 Ground-bearing concrete and suspended concrete ground-floors incorporating the products must include a suitable damp-proof membrane (dpm) laid beneath the insulation, in accordance with the relevant clauses of CP 102 : 1973 and BS 8215 : 1991 (see sections 14.5 and 14.6 of this Certificate).

4.4 Suspended concrete ground-floors incorporating the insulation boards must include suitable ventilation of the sub-floor void (minimum 150 mm void between the underside of the floor and the ground surface) or a dpm. For suspended floors in locations where clay heave is anticipated, an additional void of up to 150 mm may be required to accommodate the possible expansion of the ground below the floor. In such cases where the risk of clay heave has been confirmed by geotechnical investigations by a competent individual, a total void of up to 300 mm may be required.

4.5 The overlay to the insulation boards should be:

- a vapour control layer (VCL) (see section 7.2)
- and
- a cement-based floor screed of minimum 65 mm thickness<sup>(1)</sup>, laid in accordance with the relevant clauses of BS 8204-1 : 2003 and/or BS 8204-2 : 2003, and BS 8000-9 : 2003,
- or
- a wood-based floor (eg tongue-and-groove plywood to BS EN 636 : 2012, flooring grade particle board [Types P5 to P7] to BS EN 312 : 2010 or oriented strand board [OSB] of type OSB/3 or OSB/4 to BS EN 300 : 2006) of a suitable thickness to be determined by a suitably qualified and experienced individual, installed in accordance with PD CEN/TR 12872 : 2014 and BS EN 12871 : 2013,
- or
- a concrete slab in accordance with BS EN 1992-1-1 : 2004.

(1) NHBC only accept ground bearing floor slabs with at least 100 mm thick concrete including any monolithic screed.

4.6 Where a concrete screed or slab finish is laid directly over the product, a polyethylene separating layer/VCL must be installed between the insulation and the concrete to prevent seepage between the boards (see section 14.7). Any gaps between insulation boards or around service openings, visible prior to installing the concrete, must be filled with expanding foam or strips of insulation.

4.7 Loadbearing walls must not be built on the insulation.

4.8 If present, mould or fungal growth should be treated prior to the application of the product.

## 5 Practicability of installation

The products are designed to be installed by a competent general builder, or a contractor, experienced with these types of products.

## 6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) of a floor should be carried out in accordance with BS EN ISO 6946 : 2017, BS EN ISO 13370 : 2017 and BRE Report BR 443 : 2019, using the declared thermal conductivity ( $\lambda_D$ ) values given in Table 2, below.

Table 2 Declared thermal conductivity ( $\lambda_D$  values)

Product	Thermal conductivity ( $W \cdot m^{-1} \cdot K^{-1}$ )
Jabfloor 70 and 100 – High Performance (HP)	0.032
Jabfloor 70 and 100 – High Performance (HP+)	0.030

6.2 The U value of a completed floor will depend on the thickness of the product, the perimeter/area ratio and the floor type. Calculated U values for example constructions are given in Table 3.

**Table 3 Example U values<sup>(1)</sup> ( $W \cdot m^{-2} \cdot K^{-1}$ ) — ground floor construction**

Floor type	Perimeter/ area ratio	EPS grade	Minimum insulation thickness (mm)				
			Target U value ( $W \cdot m^{-2} \cdot K^{-1}$ )				
			0.13	0.15	0.20	0.22	0.25
Ground- bearing concrete floor <sup>(1)(3)</sup>	0.2	Jabfloor 70 and	135	105	55	45	30
	0.4	100 – High	175	145	95	80	65
	0.6	Performance	190	160	110	95	80
	0.8	(HP) – grey	200	170	120	105	90
	1.0		205	175	125	110	90
Suspended beam-and- block floor <sup>(2)(3)</sup>	0.2	Jabfloor 70 and	160	130	80	65	50
	0.4	100 – High	185	155	105	90	75
	0.6	Performance	195	165	115	100	85
	0.8	(HP) – grey	200	170	120	105	90
	1.0		205	175	125	110	95
Ground- bearing concrete floor <sup>(1)(4)</sup>	0.2	Jabfloor 70 and	125	100	55	40	25
	0.4	100 – High	165	135	90	75	60
	0.6	Performance	180	150	105	90	75
	0.8	(HP+) – grey	185	160	110	100	80
	1.0		190	165	115	100	85
Suspended beam-and -block floor <sup>(2)(4)</sup>	0.2	Jabfloor 70 and	150	120	75	60	45
	0.4	100 – High	175	145	100	85	70
	0.6	Performance	185	155	110	95	80
	0.8	(HP+) – grey	190	160	110	100	85
	1.0		190	165	115	105	85

1) Ground-bearing concrete floor construction (Jabfloor 70 or 100 HP or HP+ grey insulation on top of slab, under screed finish) — 65 mm concrete screed  $\lambda = 1.15 W \cdot m^{-1} \cdot K^{-1}$ , polyethylene separating layer, insulation, dpm, 100 mm concrete oversite, 150 mm sand blinded hardcore.

(2) Suspended concrete ground-floor construction (Jabfloor 70 or 100 HP or HP+ grey insulation on top of beam-and-block, below screed finish) — 65 mm concrete screed  $\lambda = 1.15 W \cdot m^{-1} \cdot K^{-1}$ , polyethylene separating layer, insulation, beam-and-block floor (12% beam  $\lambda = 2.00 W \cdot m^{-1} \cdot K^{-1}$ , dense block infill  $\lambda = 1.13 W \cdot m^{-1} \cdot K^{-1}$ , ventilated void.

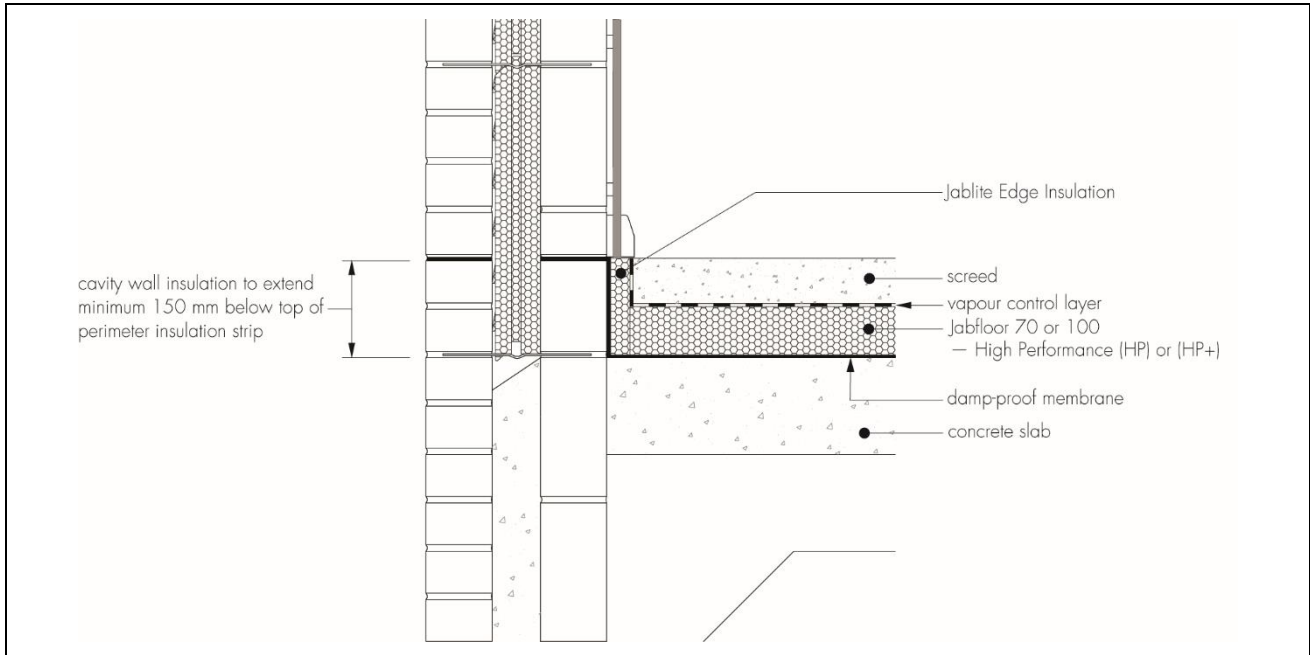
(3) 25 mm edge insulation of Jabfloor 70 or 100 High Performance (HP) grey insulation at 65 mm deep.

(4) 25 mm edge insulation of Jabfloor 70 or 100 High Performance (HP+) grey insulation at 65 mm deep.

## Junctions

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

Figure 1 Junction between the floor and the wall



## 7 Condensation risk

### Interstitial condensation



7.1 Floors will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annex F and the relevant guidance.

7.2 When the product is used above the dpm on a ground-bearing floor or on a suspended concrete floor, a VCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation, unless a risk assessment shows this is not necessary.

7.3 For suspended ground floors, it is not necessary to introduce a VCL as long as adequate sub-floor cross-ventilation is provided.

7.4 For the purposes of assessing the risk of interstitial condensation, the products have the water vapour resistivities shown in Table 4.

Table 4 Water vapour resistivity

Product grade	Water vapour resistivity ( $\text{MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$ )
Jabfloor 70 – High Performance (HP) and (HP+)	100 to 200
Jabfloor 100 – High Performance (HP) and (HP+)	150 to 350

### Surface condensation



7.5 Floors will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point and the junctions with walls are designed in accordance with section 6.3 of this Certificate.



7.6 Floors will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point. Guidance may be obtained from BS 5250 : 2011, Annex F. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

## 8 Behaviour in relation to fire

The Certificate holder has not declared a reaction to fire classification for the product to BS EN 13501-1: 2018. They are not classified as 'non-combustible' or 'of limited combustibility'.

## 9 Floor loading

9.1 The compressive strengths of the products at 10% deformation to BS EN 826 : 2013 are as given in Table 5.

Product	Compressive strength (kPa)
Jabfloor 70 – High Performance (HP)	70
Jabfloor 70 – High Performance (HP+)	70
Jabfloor 100 – High Performance (HP)	100
Jabfloor 100 – High Performance (HP+)	100



9.2 Jabfloor 70 – High Performance (HP) and (HP+) are suitable for the domestic occupancies defined in this Certificate when covered with a suitable floor overlay and finish (see section 4.5), and are capable of resisting a uniformly distributed load of  $1.5 \text{ kN}\cdot\text{m}^{-2}$  or a concentrated load of 2 kN for category A1 and A2 (domestic) situations, as defined in BS EN 1991-1-1 : 2002 and its UK National Annex, Table NA.2.

9.3 Jabfloor 100 – High Performance (HP) and (HP+) are suitable for the domestic and non-domestic occupancies defined in this Certificate when covered with a suitable floor overlay and finish (see section 4.5) and are capable of resisting a uniformly distributed load of  $3 \text{ kN}\cdot\text{m}^{-2}$  for category B (offices) and  $4 \text{ kN}\cdot\text{m}^{-2}$  for category C33 (non-domestic), or a concentrated load of 2.7 kN for category B (offices) and 4.5 kN for category C33 (non-domestic) as defined in BS EN 1991-1-1 : 2002 and its UK National Annex, Table NA.2. Further assessment is necessary in the case of duty walkways and floors subject to physical activities.

9.4 The performance of the floor construction will depend on the insulation properties and type of floor covering used (including thickness and strength). Where the products are used under a concrete slab, resistance to concentrated and distributed loads is a function of the slab specification. Further guidance on the suitability of floor coverings can be found in BS EN 13810-1 : 2002, DD CEN/TS 13810-2 : 2003, BS 8204-1 : 2003 and BS EN 312 : 2010, and from the flooring manufacturer.

## 10 Incorporation of services

10.1 De-rating of electrical cables should be considered where the insulation restricts air cooling of cables; the product must not be used in direct contact with electrical heating cables or hot water pipes.

10.2 Where possible, electrical conduits, gas and water pipes or other services should be contained within ducts or channels within the concrete slab of ground-bearing floors. Where this is not possible, the services may be accommodated within the insulation, provided they are securely fixed to the concrete slab. Electrical cables should be enclosed in a suitable conduit. With hot pipes, the insulation must be cut back to maintain an air space.

10.3 Where water pipes are installed, either within the slab or the insulation, they must be pre-lagged with close-fitting pipe insulation, eg extruded polyethylene foam. Pipes installed above the insulation will not require lagging, although some provision needs to be made for expansion and contraction.

10.4 Where the products are installed on a floor of a suspended beam-and-block design, all services must be installed so as not to impair the floor performance.

10.5 On overlay board floors, in situations where access to the services is desirable, a duct may be formed by mechanically fixing to the floor, timber bearers of the same thickness as the insulation to provide support for a particle board cover. The duct should be as narrow as possible, and not exceed 400 mm in width or the maximum particle board spans given in PD CEN/TR 12872 : 2014 without intermediate support. Services should be suitably fixed to the floor base and not to the insulation boards (see section 6.3 with regard to limiting heat loss).



## 11 Maintenance

As the products are confined within the floor and have suitable durability (see section 12), maintenance is not required.

## 12 Durability



The products are durable, rot-proof and dimensionally stable and, when installed with the overlays specified in this Certificate, will remain effective as an insulating material for the life of the building in which they are incorporated.

## 13 Re-use and recyclability

Jabfloor 70 and 100 – High Performance (HP) and (HP+) expanded polystyrene (EPS) is fully recyclable.

## Installation

### 14 General

14.1 Installation of Jabfloor 70 and 100 – High Performance (HP) and (HP+) must be in accordance with the Certificate holder's installation instructions and the requirements of this Certificate.

14.2 Typical methods are shown in Figures 2 to 4. Reference should also be made to BRE Report BR 262 : 2002.

Figure 2 Ground-bearing concrete floor — concrete slab overlay

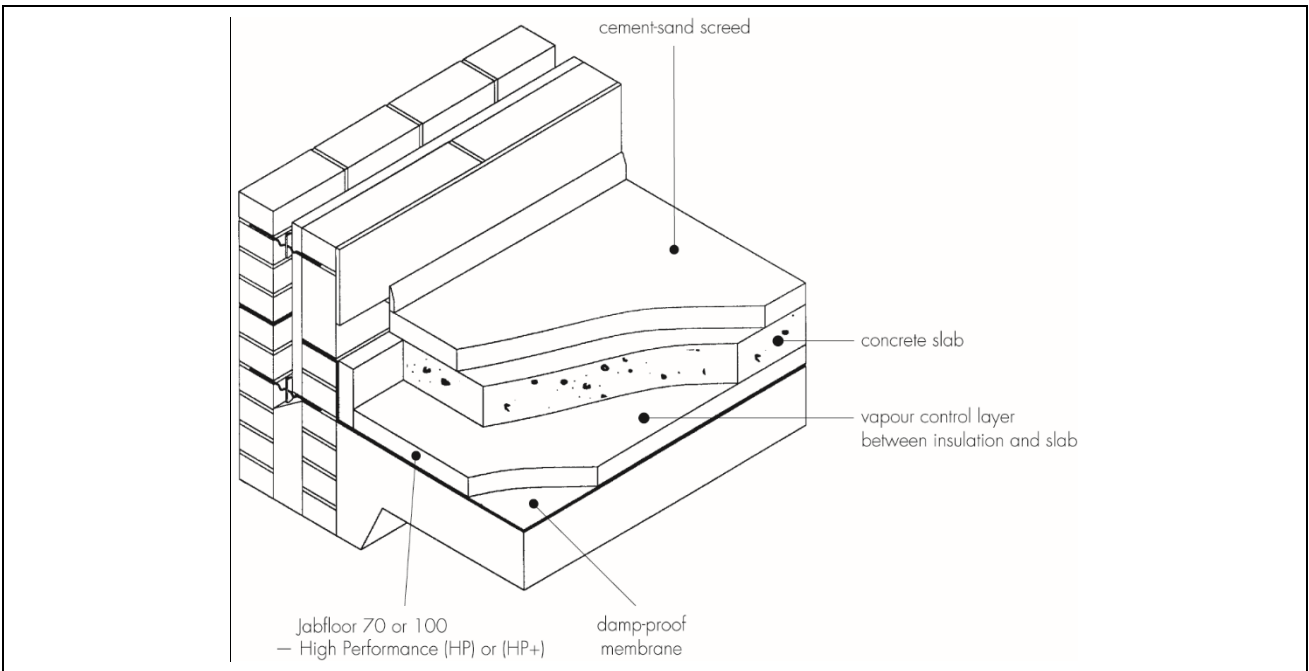


Figure 3 Ground-bearing concrete floor — screed overlay

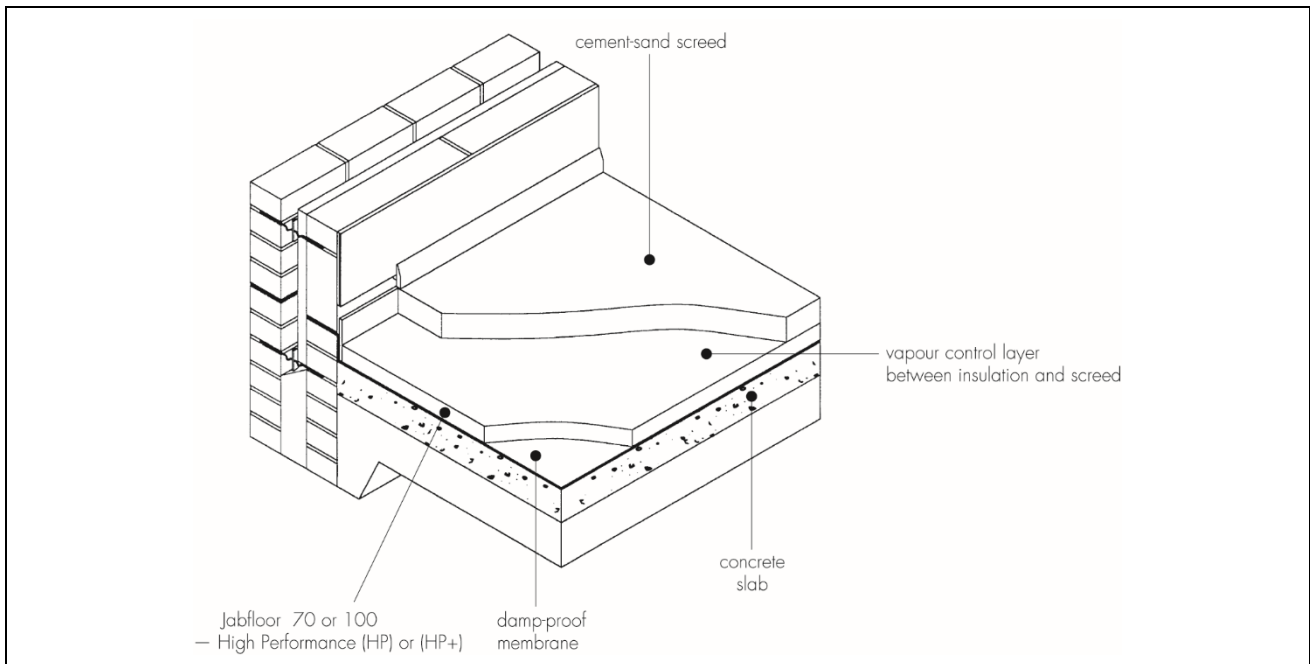
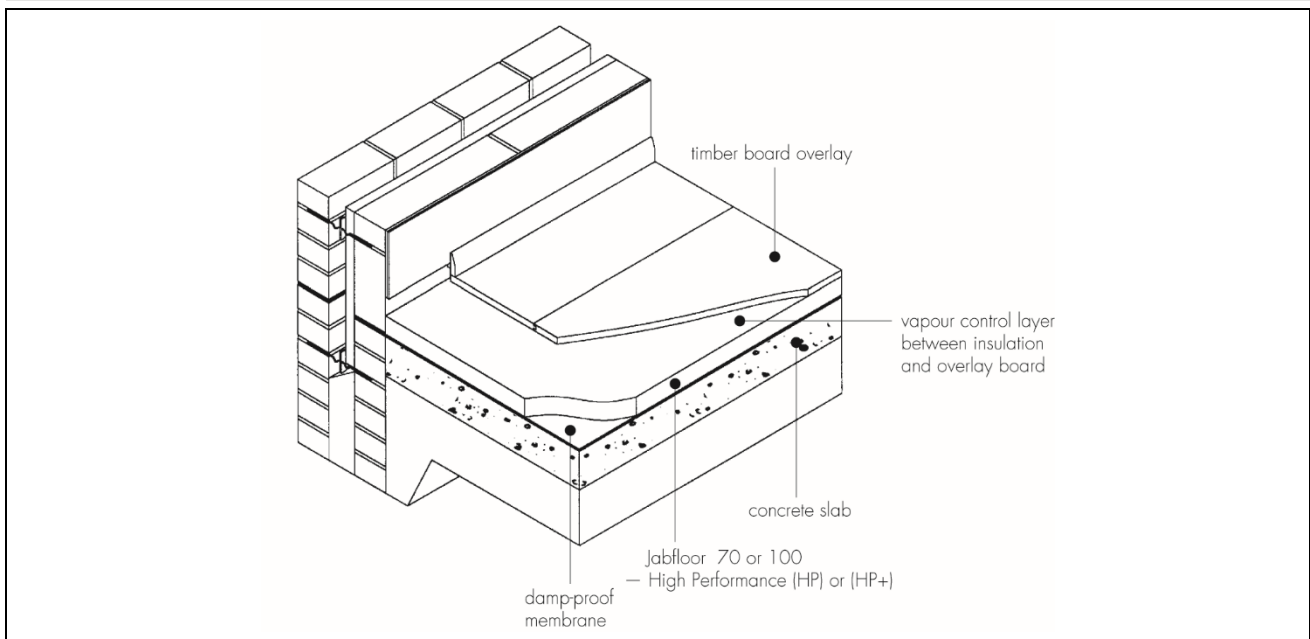


Figure 4 Ground-bearing concrete floor — timber board overlay



14.3 In ground-bearing concrete floors (see Figures 2 to 4), the concrete floor slab over which the boards are laid should be left for as long as possible to maximise drying out and dissipation of constructional moisture, in accordance with BS 8203 : 2017, Section 3.1.2.

14.4 The concrete floor surface should be smooth, level and flat to within 5 mm when measured with a two-metre straight-edge. Irregularities greater than this must be removed. Minor irregularities (up to 10 mm deep) may be levelled with mortar or thin screed.

14.5 Where the insulation is used over ground-bearing concrete floor slabs, a suitable dpm in accordance with CP 102 : 1973 should be laid to resist moisture from the ground. If a liquid-type damp-proof membrane is applied to the slabs, it should be of a type compatible with expanded polystyrene, and allowed to dry out fully before laying the insulation.

14.6 Where the insulation is used on hardcore bases beneath ground-bearing concrete slabs, the hardcore must be compacted and blinded with a thin layer of sand before application of the dpm, followed by the insulation boards.

14.7 A VCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation if necessary (see section 7.2). Where a concrete screed or slab finish is to be laid over the product, a polyethylene separating layer/VCL must be installed between the insulation and the concrete to prevent seepage between the boards.

14.8 The insulation can be used on suitable beam-and-block suspended concrete floors (see section 4.1).

14.9 Where a screed or concrete slab is laid over the insulation, vertical upstands of insulation of a sufficient depth to fully separate the screed or slab from the wall, should be provided. If used, a suitable cavity wall insulation material should be extended below the dpc level to provide edge insulation to the floor.

14.10 To limit the risk of damage from condensation and other sources of dampness, the insulation and overlays should only be laid after the construction is made substantially weathertight, eg after glazing. During construction, the insulation and overlay must also be protected from damage by traffic, moisture sources (such as water spillage) and plaster droppings.

## 15 Procedure

15.1 The products are cut to size (using a sharp knife or fine-toothed saw), as necessary, and laid with closely butted, staggered cross-joints, ensuring that all spaces are completely filled.

15.2 The laying pattern should ensure that all cut edges are at the perimeter of the floor or some other feature, eg matwells, thresholds or access ducts. Spreader boards should be used to protect the insulation.

### Cement-based screed overlay

15.3 Perimeter edge pieces are cut and placed around the edges and taped at joints. A polyethylene VCL with a minimum thickness of 0.125 mm (500 gauge) is laid over the insulation. The VCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. A properly compacted screed of a minimum 65 mm thickness is then laid over the top. The relevant clauses of BS 8204-1 : 2003 should be followed.

### Concrete slab overlay (ground-bearing only)

15.4 Perimeter edge pieces are cut and placed around the edges and taped at joints. A polyethylene VCL with a minimum thickness of 0.125 mm (500 gauge) is laid over the insulation. The VCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. The concrete slab is laid to the required thickness in accordance with BS 8000-9 : 2003 and BS 8204-1 : 2003.

### Timber-based board overlay

15.5 Before laying the overlay, preservative-treated timber battens, in accordance with BS 8417 : 2011, are positioned at doorways and access panels. Adequate time should be allowed for preservatives to be fixed and the solvents from solvent-based preservatives to evaporate.

15.6 A polyethylene VCL with a minimum thickness of 0.125 mm (500 gauge) is laid between the insulation and the timber board overlay. The VCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls.

15.7 Timber-based overlay boards (see section 4.5) are laid with staggered cross-joints, in accordance with PD CEN/TR 12872 : 2014 and BS EN 12871 : 2013.

## Technical Investigations

## 16 Tests

Results of tests were assessed to determine:

- compressive stress at 10% deformation
- thermal conductivity
- density
- dimensional accuracy.

## **17 Investigations**

17.1 Existing data on durability and properties in relation to fire were evaluated.

17.2 A calculation was undertaken to confirm the declared thermal conductivities ( $\lambda_D$ ).

17.3 A series of U value calculations was carried out.

17.4 A condensation risk analysis was carried out.

17.5 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

## Bibliography

- BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 8000-9 : 2003 *Workmanship on building sites — Cementitious levelling screeds and wearing screeds — Code of practice*
- BS 8203 : 2017 *Code of practice for installation of resilient floor coverings*
- BS 8204-1 : 2003 + A1 : 2009 *Screeds, bases and in-situ floorings — Concrete bases and cement sand levelling screeds to receive floorings — Code of practice*
- BS 8204-2 : 2003 + A2 : 2011 *Screeds, bases and in-situ floorings — Concrete wearing surfaces — Code of practice*
- BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*
- BS 8417 : 2011 + A1 : 2014 *Preservation of wood — Code of practice*
- BS EN 300 : 2006 *Oriented Strand Boards (OSB) — Definitions, classification and specifications*
- BS EN 312 : 2010 *Particleboards — Specifications*
- BS EN 636 : 2012 + A1 : 2015 *Plywood — Specifications*
- BS EN 826 : 2013 *Thermal insulating products for building applications — Determination of compression behaviour*
- BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*
- NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
- BS EN 1992-1-1 : 2004 + A1 : 2014 *Eurocode 2 : Design of concrete structures — General rules and rules for buildings*
- BS EN 12871 : 2013 *Wood-based panels — Performance specifications and requirements for load bearing boards for use in floors, walls and roofs*
- BS EN 13163 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made expanded polystyrene (EPS) products — Specification*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13810-1 : 2002 *Wood-based panels — Floating floors — Performance specifications and requirements*
- BS EN 15037-1 : 2008 *Precast concrete products - Beam-and-block floor systems — Beams*
- BS EN 15037-2 : 2009 + A1 : 2011 *Precast concrete products — Beam-and block floor systems — Concrete blocks*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 13370 : 2017 *Thermal performance of buildings — Heat transfer via the ground — Calculation methods*
- CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*
- DD CEN/TS 13810-2 : 2003 *Wood-based panels — Floating floors — Test methods*
- PD CEN/TR 12872 : 2014 *Wood-based panels – Guidance on the use of load-bearing boards in floors, walls and roofs*
- BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*
- BRE Report (BR 443 : 2019) *Conventions for U-value calculations*

### 18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.