

## Jablite Limited

Infinity House  
Anderson Way  
Belvedere  
Kent DA17 6BG

Tel: 020 8320 9100 Fax: 020 8320 9110  
website: www.jablite.co.uk



Agrément Certificate  
**87/1796**  
Product Sheet 1

## JABLITE FLOOR INSULATION

### JABLITE FLOOR INSULATION 70

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Jablite Floor Insulation 70, a rigid expanded polystyrene (EPS) board for use as thermal insulation in ground-bearing or suspended concrete ground-floors in new and existing domestic or similar 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 product has a declared thermal conductivity ( $\lambda_D$ )\* of  $0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  (see section 6).

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

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

**Durability** — the product is dimensionally stable and, when installed with the overlays specified, will remain effective as an insulating material for the life of the building in which it is incorporated (see section 11).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'John Albon'.

Date of Third issue: 12 October 2015

Originally certificated on 12 January 1987

Certificate amended on 17 May 2016 to insert new section 4.2.

John Albon — Head of Approvals  
Construction Products

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas  
Chief Executive

*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 are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

British Board of Agrément  
Bucknalls Lane  
Watford  
Herts WD25 9BA

tel: 01923 665300  
fax: 01923 665301  
[clientservices@bba.star.co.uk](mailto:clientservices@bba.star.co.uk)  
[www.bbacerts.co.uk](http://www.bbacerts.co.uk)

©2015

# Regulations

In the opinion of the BBA, Jablite Floor Insulation 70, 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> | A1       | <b>Loading</b>   |
| <b>Comment:</b>     |          | The product can contribute to satisfying this Requirement. See section 9.2 of this Certificate.          |
| <b>Requirement:</b> | C2(c)    | <b>Resistance to moisture</b>  |
| <b>Comment:</b>     |          | The product can contribute to satisfying this Requirement. See sections 7.1 and 7.4 of this Certificate. |
| <b>Requirement:</b> | L1(a)(i) | <b>Conservation of fuel and power</b>  |
| <b>Comment:</b>     |          | The product can contribute to satisfying this Requirement. See section 6 of this Certificate.            |
| <b>Regulation:</b>  | 7        | <b>Materials and workmanship</b>   |
| <b>Comment:</b>     |          | The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.          |
| <b>Regulation:</b>  | 26       | <b>CO<sub>2</sub> emission rates for new buildings</b>   |
| <b>Regulation:</b>  | 26A      | <b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>                     |
| <b>Regulation:</b>  | 26A      | <b>Primary energy consumption rates for new buildings (applicable to Wales only)</b>                     |
| <b>Regulation:</b>  | 26B      | <b>Fabric performance values for new dwellings (applicable to Wales only)</b>                            |
| <b>Comment:</b>     |          | The product can contribute to satisfying these Regulations. See section 6 of this Certificate.           |



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

|                    |           |   |
|--------------------|-----------|---|
| <b>Regulation:</b> | 8(1)      | <b>Durability, workmanship and fitness of materials</b>   |
| <b>Comment:</b>    |           | The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.   |
| <b>Regulation:</b> | 9         | <b>Building standards applicable to construction</b>  |
| <b>Standard:</b>   | 1.1(b)    | <b>Structure</b>  |
| <b>Comment:</b>    |           | The product can contribute to satisfying this Standard, with reference to clause 1.1.1 <sup>(1)(2)</sup> . See section 9.2 of this Certificate.   |
| <b>Standard:</b>   | 3.15      | <b>Condensation</b>   |
| <b>Comment:</b>    |           | The product 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 7.5 of this Certificate.  |
| <b>Standard:</b>   | 6.1(b)    | <b>Carbon dioxide emissions</b>   |
| <b>Standard:</b>   | 6.2       | <b>Building insulation envelope</b>   |
| <b>Comment:</b>    |           | The product 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 section 6 of this Certificate.  |
| <b>Standard:</b>   | 7.1(a)(b) | <b>Statement of sustainability</b>  |
| <b>Comment:</b>    |           | The product 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 product 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 of this Certificate. |
| <b>Regulation:</b> | 12        | <b>Building standards applicable to conversions</b>   |
| <b>Comment:</b>    |           | Comments made in relation to this product 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> .<br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic).   |



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

|                    |          |   |
|--------------------|----------|---|
| <b>Regulation:</b> | 23       | <b>Fitness of materials and workmanship</b>   |
| <b>Comment:</b>    |          | The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate. |
| <b>Regulation:</b> | 29       | <b>Condensation</b>   |
| <b>Comment:</b>    |          | The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.  |
| <b>Regulation:</b> | 30       | <b>Stability</b>  |
| <b>Comment:</b>    |          | The product can contribute to satisfying this Regulation. See section 9.2 of this Certificate.  |
| <b>Regulation:</b> | 39(a)(i) | <b>Conservation measures</b>  |
| <b>Regulation:</b> | 40       | <b>Target carbon dioxide emission rate</b>  |
| <b>Comment:</b>    |          | The product can contribute to satisfying these Regulations. See section 6 of this Certificate.  |

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

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

# Additional Information

## NHBC Standards 2016

NHBC accepts the use of Jablite Floor Insulation 70, provided it is installed, used and maintained in accordance with this Certificate, 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 product in accordance with harmonised European Standard BS EN 13163 : 2012. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

# Technical Specification

## 1 Description

Jablite Floor Insulation 70 comprises a rigid EPS 70 expanded polystyrene board with the nominal characteristics given in Table 1.

|  |   |
|--|---|
| Size (mm)  | 1200 x 2400                                   |
| Thickness <sup>(1)</sup> (mm)                        | 25, 30, 40, 50, 60, 75, 100, 120, 150 and 200 |
| Nominal density (kg·m <sup>-3</sup> )                | 15  |
| Edge detail  | Plain   |
| Minimum compressive stress at 10% deformation (kPa)* | 70  |

(1) Other thicknesses available on request.

## 2 Manufacture

2.1 Jablite Floor Insulation 70 is manufactured from expanded polystyrene (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, up to 7314 mm long, which is then cut to size and shape.

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 : 2008 and BS EN ISO 14001 : 2004 by British Standards Institute (Certificates FM/01260 and EMS/559414).

## 3 Delivery and site handling

3.1 The product is delivered to site in packs, wrapped in polythene. Each pack of boards contains a label with the manufacturer's trade name, product description, board dimensions, and the BBA logo incorporating the number of this Certificate.

3.2 The product must be protected from prolonged exposure to sunlight and should be stored either under cover or protected with opaque polythene sheeting.

3.3 The product must be stored fully supported and flat on a firm, level, dry base, protected from the weather and raised above damp surfaces. The product 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 product must not be exposed to open flame or other ignition sources. Care must be taken to avoid contact with solvents and materials containing organic components.

The following is a summary of the assessment and technical investigations carried out on Jablite Floor Insulation 70.

## Design Considerations

### 4 Use

4.1 Jablite Floor Insulation 70 is satisfactory for use as floor insulation and is effective in reducing the thermal transmittance (U value) of ground-bearing or suspended concrete ground-floors in new and existing domestic or similar buildings. The product can also be used on suitably-designed 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 is defined as non-shrinkable. Shrinkable fills are defined as material containing more than 35% fine particles (silt and clay) and having 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 product 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 13.5 and 13.6 of this Certificate). Suspended concrete ground-floors incorporating the insulation boards must include suitable ventilation of the sub-floor void or a dpm.

4.4 The overlay to the insulation boards should be:

- a vapour control layer (VCL) (see section 7.3), and
- a cement-based floor screed of minimum 65 mm thickness, laid in accordance with the relevant clauses of BS 8204-1 : 2003 and/or BS 8204-2 : 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 DD CEN/TS 12872 : 2007 and BS EN 12871 : 2010, or
- a concrete slab to BS EN 1992-1-1 : 2004.

### 5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

### 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 : 2007, BS EN ISO 13370 : 2007 and BRE Report BR 443 : 2006 using the declared thermal conductivity ( $\lambda_D$ )\* value of  $0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ .

6.2 The U value of a completed floor will depend on the insulation thickness, the perimeter/area ratio and the floor type. Calculated U values for example constructions are given in Table 2.

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

| Floor type                    | Perimeter/area ratio | EPS                                 | Minimum insulation thickness (mm)                                 |      |      |      |      |      |
|-------------------------------|----------------------|-------------------------------------|---|------|------|------|------|------|
|                               |                      |                                     | Target U value ( $\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ ) |      |      |      |      |      |
|                               |                      |                                     | 0.13  | 0.15 | 0.18 | 0.20 | 0.22 | 0.25 |
| Ground-bearing concrete floor | 0.2                  | Jablite Floor Insulation 70 (White) | 155   | 120  | 85   | 65   | 55   | 35   |
|                               | 0.4                  |                                     | 205   | 170  | 130  | 110  | 95   | 80   |
|                               | 0.6                  |                                     | 225   | 190  | 150  | 130  | 115  | 95   |
|                               | 0.8                  |                                     | 235   | 200  | 160  | 140  | 125  | 105  |
|                               | 1                    |                                     | 240   | 205  | 165  | 145  | 130  | 110  |
| Suspended concrete floor      | 0.2                  | Jablite Floor Insulation 70 (White) | 180   | 150  | 110  | 90   | 75   | 55   |
|                               | 0.4                  |                                     | 215   | 185  | 145  | 125  | 110  | 90   |
|                               | 0.6                  |                                     | 230   | 200  | 160  | 140  | 120  | 100  |
|                               | 0.8                  |                                     | 235   | 205  | 165  | 145  | 130  | 110  |
|                               | 1                    |                                     | 240   | 210  | 170  | 150  | 135  | 115  |

(1) Construction used:

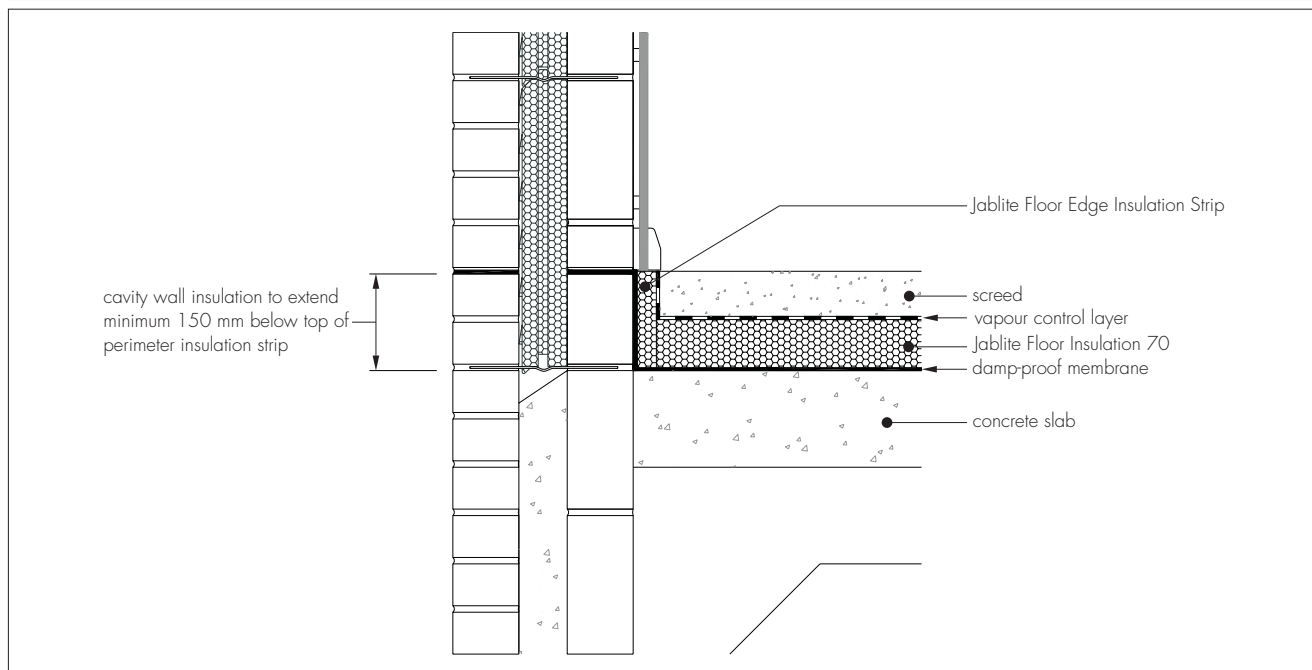
- 300 mm thick perimeter wall with U value of  $0.35 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$
- 100 mm concrete slab with conductivity  $2.06 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  and a minimum 65 mm concrete screed with conductivity  $1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
- underfloor ventilation area is  $0.0015 \text{ m}^2\cdot\text{m}$  (applies to suspended concrete floors only; minimum 150 mm clear ventilated void beneath the floor)
- ground conductivity is  $1.5 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
- all other parameters are default values from BRE Report BR 443 : 2006.

## 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. An example of an acceptable junction detail is shown in Figure 1.

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 The product has a water vapour resistivity exceeding  $100 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$ .

7.3 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.

### Surface condensation



7.4 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.



7.5 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

8.1 The product has a Class F reaction to fire classification\* in accordance with BS EN 13501-1 : 2007, but can also be supplied as Class E when requested.

8.2 When properly installed, the product will not add significantly to any existing fire hazard. The product will be contained within the floor by the overlay until the overlay itself is destroyed. Therefore, the product will not contribute to the development stages of a fire or present a smoke or toxic hazard.

8.3 Electrical cables running within the polystyrene should be enclosed in a suitable conduit, eg rigid PVC.

## 9 Floor loading

9.1 The Certificate holder has declared a designation code of CS(10)70\* in accordance with BS EN 13163 : 2012 (compressive stress at 10% deformation to BS EN 826 : 2013) for Jablite Floor Insulation 70.



9.2 The product is suitable for the domestic occupancies defined in this Certificate when covered with a suitable floor overlay (see section 4.4), and is 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, National Annex Table NA.2, or BS 6399-1 : 1996 Table 1. Further assessment is necessary in the case of duty walkways and floors subject to physical activities.

9.3 The performance of the floor construction will depend on the insulation properties and type of floor overlay used (including thickness and strength). Where the product is 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 overlays 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 Maintenance

As the product is confined within the floor and has suitable durability (see section 11), maintenance is not required.

## 11 Durability



The product is rot-proof, 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 it is incorporated.

## 12 Reuse and recyclability

Jablite Floor Insulation 70 expanded polystyrene (EPS) is fully recyclable.

## Installation

### 13 General

13.1 Installation of Jablite Floor Insulation 70 must be in accordance with the Certificate holder's installation instructions and the requirements of this Certificate.

13.2 Typical methods of installation 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

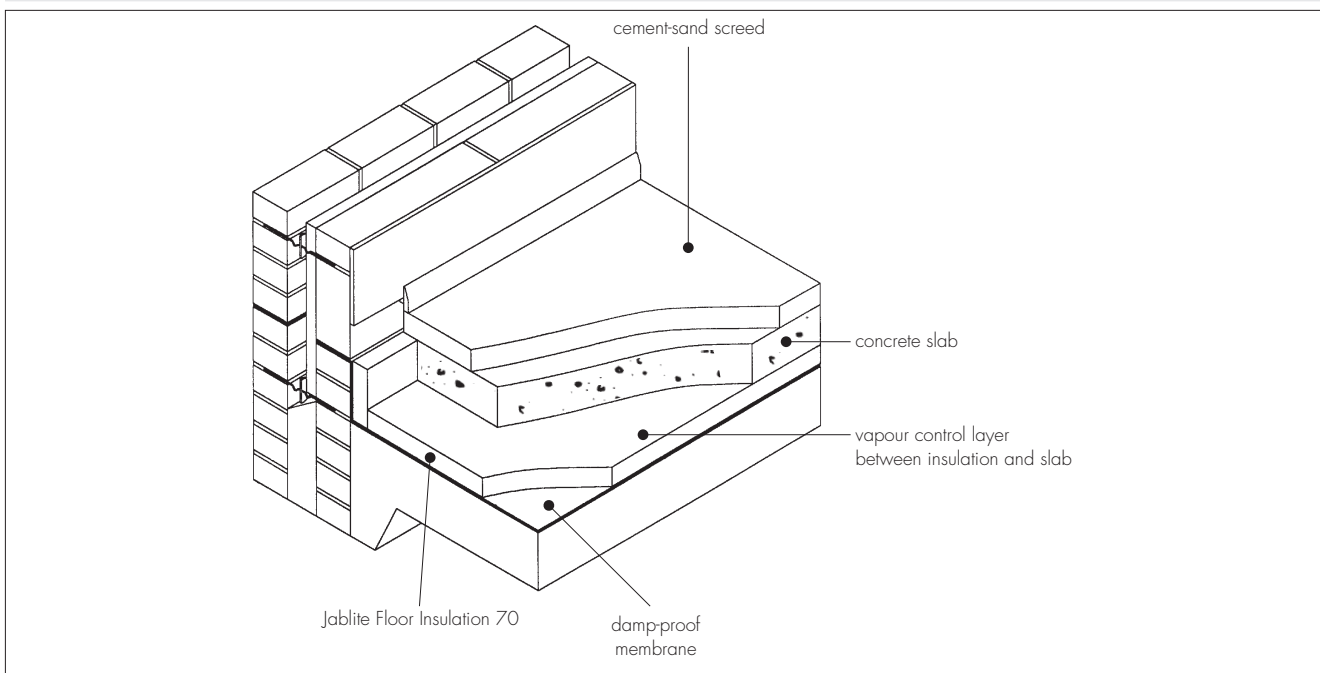


Figure 3 Ground-bearing concrete floor — screed overlay

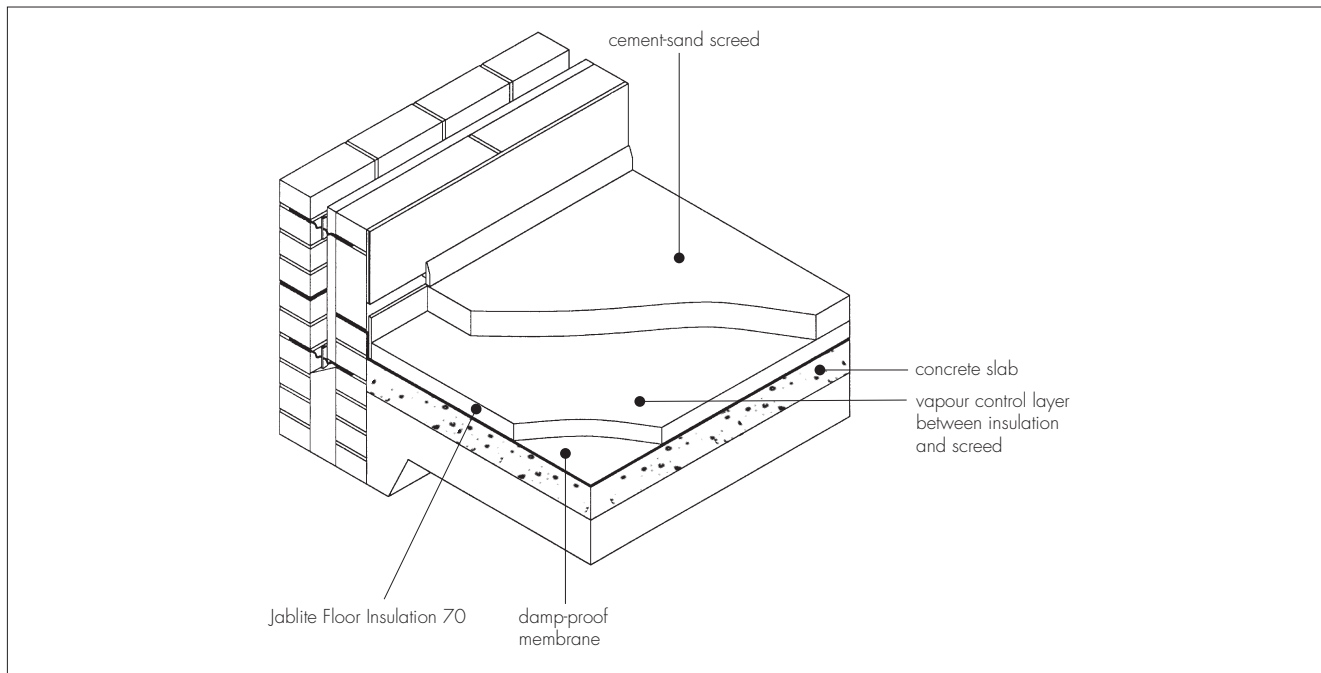
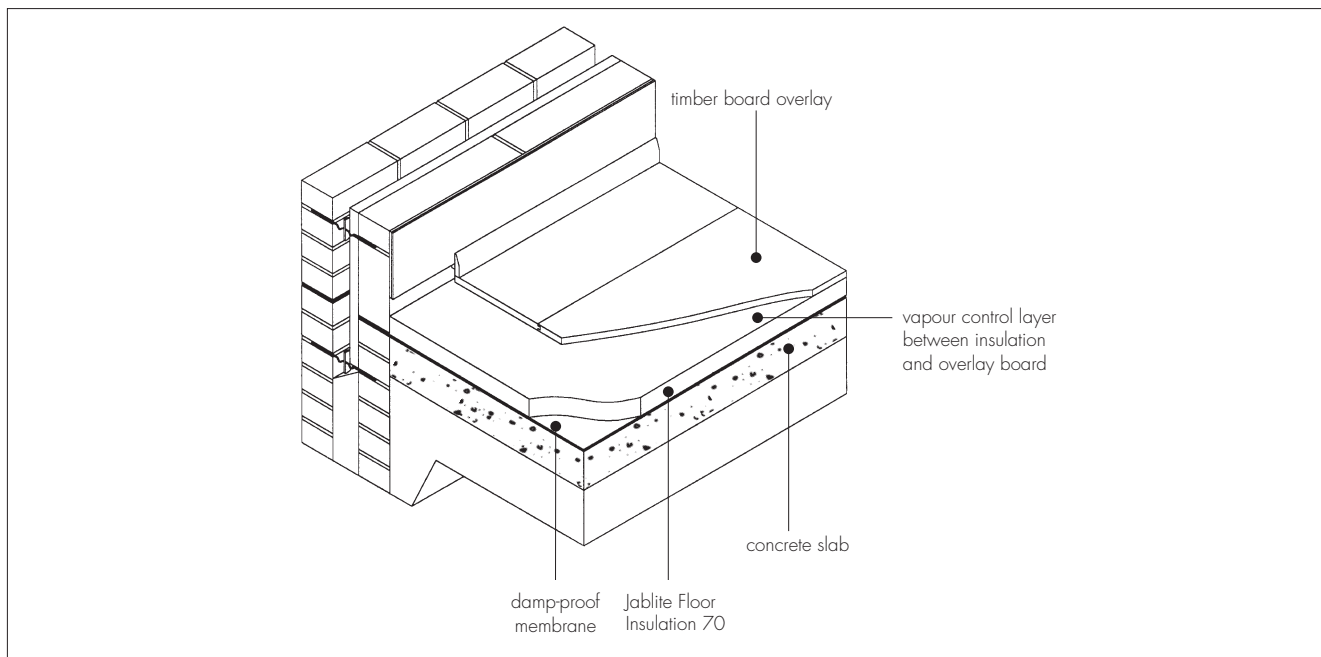


Figure 4 Ground-bearing concrete floor — timber board overlay



13.3 In ground-bearing concrete floors (see Figures 2 to 4), the concrete floor slab over which the product is laid should be left for as long as possible to maximise drying out and dissipation of constructional moisture, in accordance with BS 8203 : 2001, Section 3.1.2.

13.4 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.

13.5 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 dpm is applied to the slabs, it should be of a type compatible with expanded polystyrene and be allowed to dry out fully before laying the insulation.

13.6 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.

13.7 A VCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation.

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

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

13.10 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 be protected from damage by traffic and moisture sources such as water spillage and plaster droppings.

## 14 Procedure

14.1 The product is 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.

14.2 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.

### Timber-based board overlay (Figure 4)

14.3 Before laying the plywood, particle board or OSB overlays, 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.

14.4 Where the insulation is laid above a dpm, a polyethylene VCL of at least 0.125 mm (500 gauge) thickness is laid between the insulation and the timber board overlay. The VCL should have 150 mm overlaps, taped at the joints, and be turned up 100 mm at the walls.

14.5 Timber-based overlay boards as specified in section 4.4 of this Certificate are laid with staggered cross-joints, in accordance with DD CEN/TS 12872 : 2007 and BS EN 12871 : 2010.

14.6 An expansion gap between the overlay board and the perimeter walls should be provided at the rate of 2 mm per metre run or a minimum of 10 mm, whichever is the greater.

14.7 Where there are long, uninterrupted lengths of floor (eg corridors), proprietary expansion joints should be installed at intervals, on the basis of a 2 mm gap per metre run of overlay board.

14.8 Before the overlay boards are interlocked, a waterproof PVA adhesive is applied to the joints.

14.9 Once the overlay board is laid, temporary wedges are inserted between the walls and the floor to maintain tight joints until the adhesive has set.

14.10 When the wedges are removed, and before the skirting boards are fixed, suitable compressible filler, eg foamed polyethylene, should be fitted around the perimeter of the floor between the overlay board and the walls.

14.11 Where there is a likelihood of regular water spillage (eg in kitchens, bathrooms, shower and utility rooms), additional particle board protection should be considered, eg by a continuous flexible vinyl sheet flooring, with welded joints, turned up at abutments and cove skirting.

### Cement-based screed overlay (Figure 3)

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

### Concrete slab overlay (ground-bearing only) (Figure 2)

14.13 Perimeter edge pieces are cut and placed around the edges and taped at joints. A polyethylene VCL, at least 0.125 mm thick (500 gauge), is laid over the insulation. The VCL should have 150 mm overlaps, taped at the joints, and be 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.

## 15 Incorporation of services

15.1 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.

15.2 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.

15.3 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.

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

15.5 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 DD CEN/TS 12872 : 2007 without intermediate support. Services should be suitably fixed to the floor base and not to the insulation boards.

## 16 Tests

As part of the assessment resulting in the issue of a previous Certificate, tests were carried out to determine:

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

## 17 Investigations

17.1 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.

17.2 A re-examination was made of the data and investigations on which previous Certificates were based. The conclusions drawn from the original data remain valid.

17.3 Existing data relating to the thermal insulation properties, and equilibrium moisture content of the material were examined.

17.4 An assessment of the risk of interstitial condensation in typical constructions was made.

## Bibliography

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 6399-1 : 1996 *Loading for buildings — Code of practice for dead and imposed loads*

BS 8000-9 : 2003 *Workmanship on building sites — Cementitious levelling screeds and wearing screeds — Code of practice*

BS 8203 : 2001 *Code of practice for installation of resilient floor coverings*

BS 8204-1 : 2003 *Screeds, bases and in-situ floorings — Concrete bases and cement sand levelling screeds to receive floorings — Code of practice*

BS 8204-2 : 2003 *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 *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 *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 *Eurocode 2 : Design of concrete structures — General rules and rules for buildings*

BS EN 12871 : 2010 *Wood-based panels — Performance specifications and requirements for load bearing boards for use in floors, walls and roofs*

BS EN 13163 : 2012 *Thermal insulation products for buildings — Factory made expanded polystyrene (EPS) products — Specification*

BS EN 13501-1 : 2007 *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 *Precast concrete products — Beam-and block floor systems — Concrete blocks*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 13370 : 2007 *Thermal performance of buildings — Heat transfer via the ground — Calculation methods*

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

CP 102 : 1973 Code of practice for protection of buildings against water from the ground

DD CEN/TS 12872 : 2007 *Wood-based panels — Guidance on the use of load-bearing boards in floors, walls and roofs*

DD CEN/TS 13810-2 : 2003 *Wood-based panels — Floating floors — Test methods*

BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*

BRE Report (BR 443 : 2006) *Conventions for U-value calculations*

## Conditions of Certification

### 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.