

## EcoTherm Insulation (UK) Ltd

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Agrément Certificate  
**14/5157**  
Product Sheet 1

### ECOTHERM ECO RANGE FOR FLOORS, WALLS AND PITCHED ROOFS

#### ECOTHERM ECO-VERSAL BOARD FOR FLOORS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to EcoTherm Eco-Versal Board For Floors, comprising a rigid polyisocyanurate (PIR) foam board with composite foil-facings for use as thermal insulation in ground supported and suspended concrete ground floors or between the joists of suspended timber ground floors, in new or existing 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.

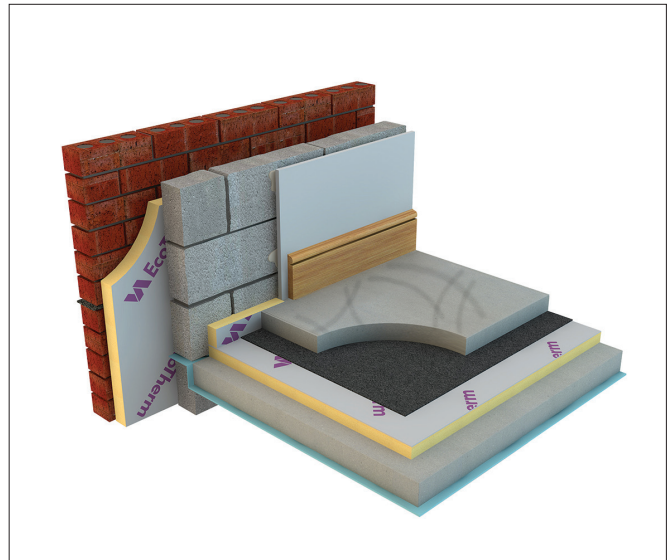
#### KEY FACTORS ASSESSED

**Thermal performance** — the product has a declared thermal conductivity ( $\lambda_D$  value) of  $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  and an aged emissivity of 0.05 for the foil-facer (see section 6).

**Condensation risk** — the product will 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 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

Date of First issue: 22 February 2017

John Albon — Head of Approvals  
Construction Products

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.*

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# Regulations

In the opinion of the BBA, EcoTherm Eco-Versal Board For Floors, 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)

Requirement:	A1	Loading
Comment:		The product can contribute to satisfying this Requirement. See section 9.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See sections 7.1 and 7.5 of this Certificate.
Requirement:	L1 a(i)	Conservation of fuel and power
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is an acceptable material. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO <sub>2</sub> emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.3 of this Certificate.



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

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(b)	Structure
Comment:		The product can sustain and transmit wind loads to the structural floor. See section 9.2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> and 3.15.5 <sup>(1)</sup> . See sections 7.1 and 7.6 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions.
Standard:	6.2	Building insulation envelope
Comment:		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)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(1)</sup> , 6.2.6 <sup>(1)</sup> , 6.2.7 <sup>(1)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.10 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> , and 6.2.13 <sup>(1)</sup> . See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		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)</sup> [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ], [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)</sup> [Aspect 1 <sup>(1)</sup> ]. See section 6.1 of this Certificate. (1) Technical Handbook (Domestic).



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

Regulation:	23	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation:	30	Stability
Comment:		The product can contribute to satisfying this Regulation. See section 9.2 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		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) 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* (3.3) of this Certificate.

# Additional Information

## NHBC Standards 2017

NHBC accepts the use of EcoTherm Eco-Versal Board For Floors 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 13165 : 2012. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

# Technical Specification

## 1 Description

EcoTherm Eco-Versal Board For Floors comprises a polyisocyanurate core, with a low emissivity composite foil-facing on both faces. The nominal characteristics are given in Table 1.

Table 1 Nominal characteristics

Size (mm)	2400 x 1200
Thickness <sup>(1)</sup> (mm)	20 to 150
Nominal density (kg·m <sup>-3</sup> )	32
Edge detail	Square
Minimum compressive stress at 2% deformation (kPa)*	50
Minimum compressive stress at 10% deformation (kPa)*	140

(1) Other thicknesses available on request.

## 2 Manufacture

2.1 Raw materials are injected onto the lower foil-facer on a conveyor belt. The exothermic reaction expands the foam, which then comes into contact with the upper foil-facer. An automated process cures and cuts the product to the required size.

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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by the Loss Prevention Certification Board (LPCB) (Certificate 388 7QMS).

## 3 Delivery and site handling

3.1 The boards are delivered to site shrink-wrapped in polythene packs containing a label with the product description and characteristics, the manufacturer's name, and the BBA logo incorporating the number of this Certificate.

3.2 Ideally, boards should be stored inside. If outside storage cannot be avoided, boards should be stacked clear of the ground and covered with an opaque polythene sheet or weatherproof tarpaulin. They must be protected from rain, snow and prolonged exposure to sunlight. Boards that have been allowed to get wet or that are damaged must not be used. Nothing should be stored on top of boards.

3.3 The boards must not be exposed to a naked 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 EcoTherm Eco-Versal Board For Floors.

## 4 General

4.1 EcoTherm Eco-Versal Board For Floors is effective in reducing the thermal transmittance (U value) of ground supported and suspended concrete ground floors or between the joists of suspended timber ground floors in new and existing domestic and non-domestic buildings.

4.2 Ground-supported 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 section 13.6 of this Certificate).

4.3 Suspended concrete or timber ground-floors incorporating the insulation boards must include suitable ventilation of the sub-floor void.

4.4 The overlay to the insulation boards should be:

- 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 competent and experienced individual, installed in accordance with DD CEN/TS 12872 : 2007 and BS EN 12871 : 2013, or
- a concrete slab to BS EN 1992-1-1 : 2004.

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

## 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 0.022 W·m<sup>-1</sup>·K<sup>-1</sup> and an aged emissivity of 0.05 for the foil-facer.

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 — ground floor construction

Floor type	U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Insulation thickness (mm)				
		P/A Ratio				
		0.2	0.4	0.6	0.8	1.0
Ground-bearing concrete floor <sup>(1)</sup>	0.13	100	120	130	140	140
	0.15	75	100	110	115	120
	0.20	40	65	75	85	85
	0.22	30	55	65	75	75
	0.25	20	45	55	60	65
Suspended concrete ground-floor <sup>(2)</sup>	0.13	110	130	135	140	140
	0.15	85	105	115	115	120
	0.20	55	70	80	85	85
	0.22	45	65	70	75	75
	0.25	30	50	60	60	65
Suspended timber ground-floor <sup>(3)</sup>	0.13	160	190	200	—	—
	0.15	130	155	165	170	175
	0.20	75	105	115	120	125
	0.22	60	90	100	105	110
	0.25	45	70	80	85	90

(1) Ground-bearing concrete floor construction (EcoTherm Eco-Versal Board For Floors on top of slab, under screed finish) — 65 mm concrete screed  $\lambda = 1.15$  W·m<sup>-1</sup>·K<sup>-1</sup>, polyethylene separating layer, Eco-Versal insulation, dpm, 100 mm concrete oversite, 150 mm sand blinded hardcore.

(2) Suspended concrete ground-floor construction (the product on top of beam-and-block, below screed finish) — 65 mm concrete screed  $\lambda = 1.15$  W·m<sup>-1</sup>·K<sup>-1</sup>, polyethylene separating layer, the product, beam-and-block floor (12%) Beam  $\lambda = 2.00$  W·m<sup>-1</sup>·K<sup>-1</sup>, dense block infill  $\lambda = 1.13$  W·m<sup>-1</sup>·K<sup>-1</sup>, ventilated void.

(3) Suspended timber ground-floor construction (the product between floor joists) — Floor deck thermal resistance 0.169 m<sup>2</sup>·K·W<sup>-1</sup>, based on 22 mm chipboard  $\lambda = 0.13$  W·m<sup>-1</sup>·K<sup>-1</sup>, the product (89%) between joists at 400 mm centres. BRE Report BR 443 : 2006 — default fraction for floor joists = 11% at  $\lambda = 0.13$  W·m<sup>-1</sup>·K<sup>-1</sup>.

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.

## 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 For a timber suspended ground floor, it is not necessary to introduce a vapour control layer (VCL) as long as adequate sub-floor cross ventilation is provided.

7.3 The product foil-facer has a water vapour resistance value of  $111 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$  and the core product has a water vapour resistivity exceeding  $52 \text{ MN}\cdot\text{s}\cdot\text{m}^{-1}$ . The product as a whole, therefore, will provide a significant resistance to water vapour transmission.

7.4 When the product is used above the dpm on a ground-supported 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 construction-specific risk assessment shows this is not necessary.

### 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

8.1 The product has a reaction to fire classification\* of Class E in accordance with BS EN 13501-1 : 2007.

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.

## 9 Floor loading

9.1 The compressive strength\* of the product (compressive stress at 10% deformation to BS EN 826 : 2013) is  $\geq 140 \text{ kPa}$ . The product has also a compressive strength\* of  $50 \text{ kPa}$  at a compressive strength of 2% deformation to BS EN 826 : 2013.



9.2 The product is suitable for domestic occupancies defined in this Certificate when covered with a suitable floor overlay (see section 4.3), and is capable of resisting a uniformly distributed load of  $1.5 \text{ kN}\cdot\text{m}^{-2}$  or a concentrated load of  $2 \text{ kN}$  for category A1 and A2 (domestic) situations as defined in BS EN 1991-1-1 : 2002, National Annex Table NA.2. Further assessment by a suitably competent and experienced individual 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 by the overlay and has suitable durability (see section 11), maintenance is not required.

## 11 Durability



The product is durable, rot-proof, water resistant and sufficiently stable to remain effective as an insulation for the life of the building in which it is incorporated.

## 12 General

12.1 Installation of EcoTherm Eco-Versal Board For Floors must be in accordance with the Certificate holder's installation instructions and the requirements of this Certificate.

12.2 Typical methods of installation are shown in Figures 1 to 5. Reference should also be made to BRE Report BR 262 : 2002.

Figure 1 Ground supported concrete floor — screed overlay

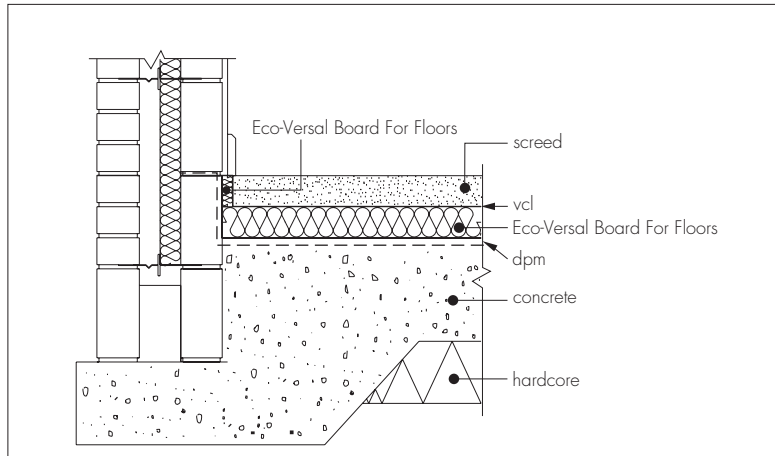


Figure 2 Suspended concrete floor — screed overlay

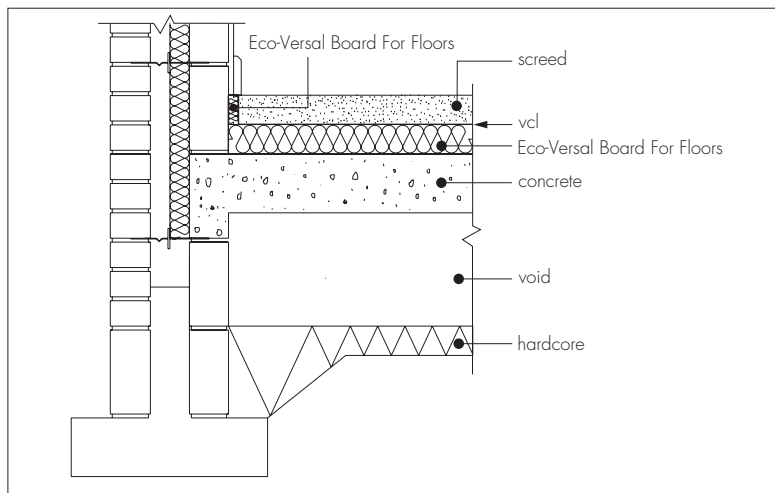


Figure 3 Suspended concrete floor timber overlay

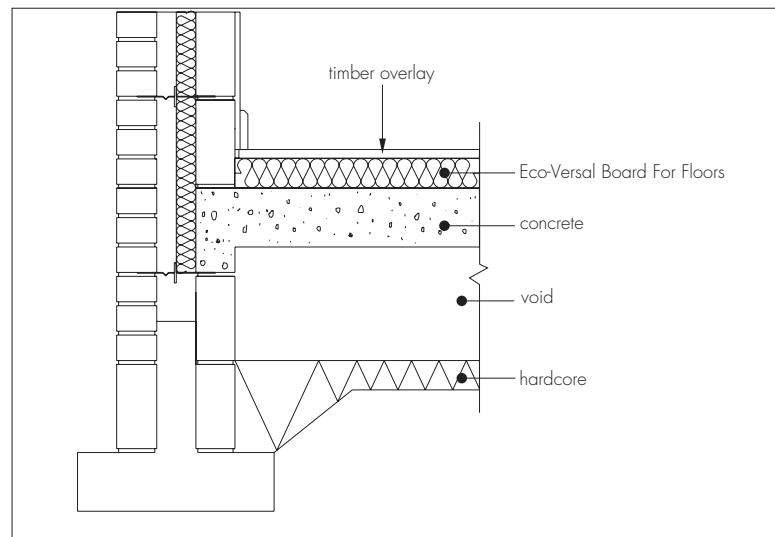


Figure 4 Concrete slab overlay

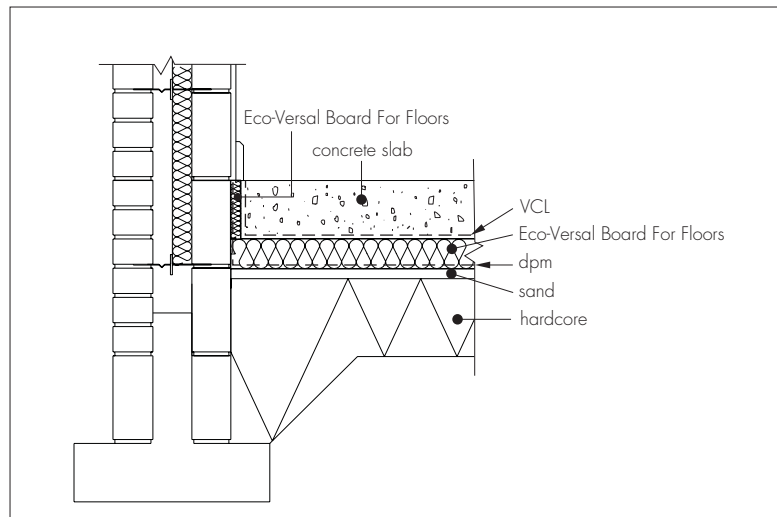
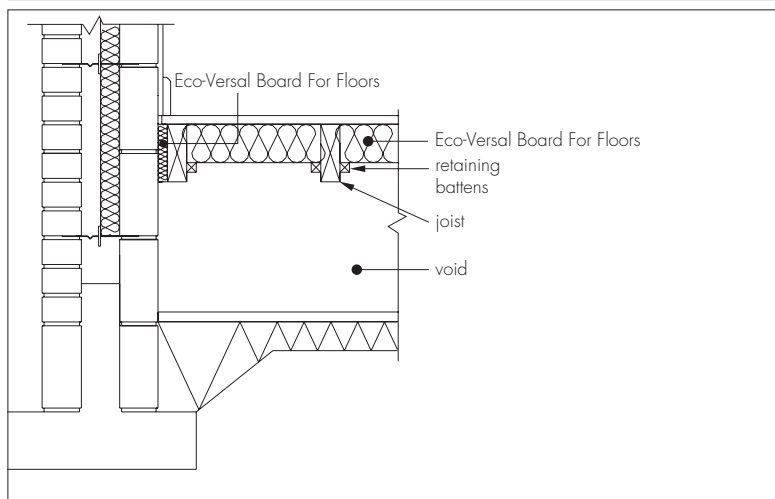


Figure 5 Suspended timber floors



12.3 Where the boards are used on hardcore bases under ground-supported concrete slabs, the hardcore must be compacted and blinded with a thin layer of sand before application of the dpm and boards.

12.4 The boards can be used on beam-and-block suspended concrete floors that are the subject of a current Agrément Certificate and installed in accordance with, and within the limitations imposed by, that Certificate, or those designed and installed to the precast concrete and general loading codes, that have been assessed as appropriate, by a suitably experienced and competent individual.

12.5 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.

12.6 In suspended timber floors, the insulation boards are installed between the floor joists.

12.7 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.

12.8 The boards can be cut using a sharp knife or fine-toothed saw to fit around service penetrations.

### 13 Procedure

13.1 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.

13.2 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 (Figures 1 and 2)**

13.3 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 4)**

13.4 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.

### **Timber based board overlay (Figure 3)**

13.5 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.

13.6 The insulation boards are laid on a dpm, a VCL of polyethylene sheet with a minimum thickness of 0.25 mm (1000 gauge), is laid between the insulation boards and the overlay boards. The polyethylene sheet has 150 mm overlaps taped at the joints and is turned up 100 mm at the walls.

13.7 Timber-based overlay boards, as specified in section 4.3, are laid with staggered cross-joints, in accordance with conventional good practice and DD CEN/TS 12872 : 2007 and BS EN 12871 : 2013.

13.8 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.

13.9 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.

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

13.11 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.

13.12 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.

13.13 Where there is a likelihood of regular water spillage, eg in rooms such as 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.

### **Suspended timber floor (Figure 5)**

13.14 Boards are cut to fit tightly between joists. Small gaps should be insulated with cut strips of insulation.

13.15 The boards may be retained by preservative-treated timber battens. These should be wide enough to retain the boards in place and secured with corrosion protected nails.

## **14 Incorporation of services**

14.1 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. Where underfloor heating systems are to be used, the advice of the Certificate holder should be sought.

14.2 Where possible, electrical conduits, gas and water pipes or other services should be contained within ducts or channels within the concrete slab of ground supported 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.

14.3 Where water pipes are installed below the insulation they must be pre-lagged with close-fitting pipe insulation. Pipes installed above the insulation will not require lagging, although some provision needs to be made for expansion and contraction.

14.4 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.

## **Technical Investigations**

### **15 Investigations**

15.1 An examination was made of test data relating to:

- dimensions
- load/deflection characteristics
- thermal conductivity



- compressive creep characteristics
- compressive strength
- reaction to fire.

15.2 A condensation risk analysis was carried out.

15.3 A series of U value calculations were carried out.

15.4 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and compositions 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 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 + A1 : 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 *Code of practice for Preservation of wood*
- 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*
- 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 — Determination of performance characteristics for load bearing panels for use in floors, roofs and walls*
- BS EN 13165 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*
- BS EN 13501-1 : 2007 + A1 : 2009 *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 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*
- BRE Report BR 443 : 2006 *Conventions for U-value calculations*
- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- 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*

## 16 Conditions

16.1 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.