

Thermal Economics Ltd

Thermal House
8 Cardiff Road
Luton
Bedfordshire LU1 1PP

Tel: 01582 450814

e-mail: info@thermal-economics.co.uk

website: www.thermal-economics.co.uk



Agrément Certificate

19/5687

Product Sheet 1

THERMAL ECONOMICS FLOORING INSULATION FOR CONCRETE GROUND FLOORS

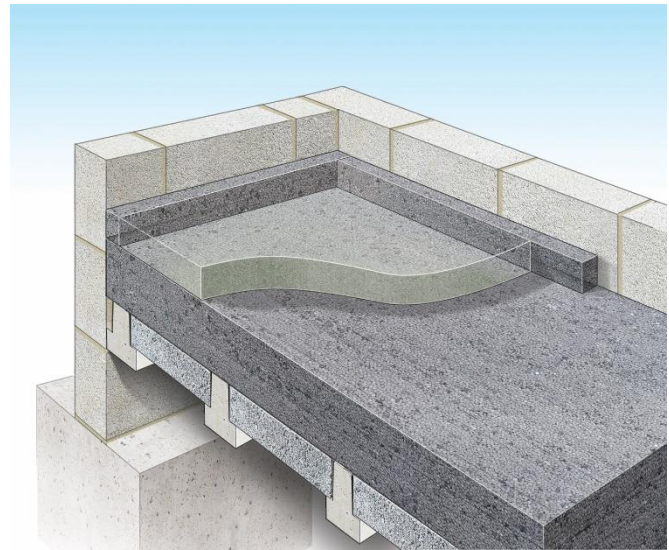
THERMAL ECONOMICS PLATINUM GROUND FLOOR INSULATION

This Agrément Certificate Product Sheet⁽¹⁾ relates to Thermal Economics Platinum Ground Floor Insulation, grey rigid expanded polystyrene (EPS) boards for use as thermal insulation in ground-bearing or suspended concrete ground floors in new and 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* (λ_D) of $0.030 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (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 they are incorporated (see section 12).



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: 13 September 2019

John Albon
Chief Scientific Officer

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
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.

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

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tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Thermal Economics Platinum Ground Floor Insulation, 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 7.4 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to satisfying this Requirement. See sections 6.1 and 6.3 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO₂ 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 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The product has adequate strength and stiffness, with reference to clause 1.1.1 ⁽¹⁾ of this Standard. 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 ⁽¹⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See sections 7.1 and 7.5 of this Certificate.
Standard:	6.1(a)(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses, or parts of, 6.1.2 ⁽¹⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.11 ⁽¹⁾ and 6.2.13 ⁽¹⁾ of these Standards. See sections 6.1 and 6.3 of this Certificate.
Standard:	7.1(a)	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 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾ [Aspect 1 ⁽¹⁾]. See section 6.1 of this Certificate.

Regulation: 12 **Building standards applicable to conversions**
Comment: Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1⁽¹⁾ and Schedule 6⁽¹⁾.

(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 12 and the *Installation* 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 has adequate strength and stability. 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 sections 6.1 and 6.3 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 2019

In the opinion of the BBA, Thermal Economics Platinum Ground Floor Insulation, 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 product in accordance with the 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

1.1 Thermal Economics Platinum Ground Floor Insulation comprise of grey EPS boards, manufactured in accordance with BS EN 13163 : 2012.

1.2 The nominal dimensions of the product are given in Table 1.

Table 1 Nominal characteristics – for both grades. EPS70E & EPS100E

Edge	Board sizes (mm)	Thickness* (mm)
Square-edged	1200 x 600 ⁽¹⁾	20+ ⁽¹⁾⁽²⁾
	2400 x 1200 ⁽¹⁾	

(1) Other sizes can be supplied to order, with higher thicknesses available to suit requirements.

(2) In 5 mm increments.

2 Manufacture

2.1 The boards are manufactured from EPS beads using conventional moulding techniques.

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 Thermal Economics Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by SAI Global (Certificate QEC23490) and BS EN ISO 14001 : 2015 by SAI Global (Certificate CEM20684).

3 Delivery and site handling

3.1 The boards are delivered to site in packs wrapped in polythene. Each pack contains a label bearing the manufacturer’s trade name, product description, board dimensions and quantity of boards, CE mark and the BBA logo incorporating the number of this Certificate.

3.2 The boards must be stored fully supported and flat on a firm, level, dry base, and protected from prolonged exposure to sunlight, either under cover or with opaque, light-coloured polythene. Damaged boards must be discarded.

3.3 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.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Thermal Economics Platinum Ground Floor Insulation.

Design Considerations

4 Use

4.1 Thermal Economics Platinum Ground Floor Insulation 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 buildings which have a cement-sand screed, particle board or concrete slab overlay (see section 4.5).

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 in accordance with the relevant clauses of CP 102 : 1973, BS 8102 : 2009 and/or BS 8215 : 1991, or suitable ventilation of the sub floor as appropriate (see sections 14.6 and 14.7 of this Certificate).

4.4 Suspended concrete floors incorporating the product 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), where required, (see section 7.3) and one of the following:

- a cement-based floor screed, of minimum 65 mm thickness⁽¹⁾, laid in accordance with the relevant clauses of BS 8204-1 : 2003 and/or BS 8204-2 : 2003
- a wood-based floor, e.g. 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, and installed in accordance with PD CEN/TR 12872 : 2014 and BS EN 12871 : 2013
- a concrete slab to BS EN 1992-1-1 : 2004.

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

4.6 Where a concrete screed or slab finish is to be laid directly over the product, a polyethylene separating layer or VCL, where required, must be installed between the insulation and the concrete to prevent seepage between the boards (see section 14.8). 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.

5 Practicability of installation

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

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) of a floor construction should be carried out in accordance with BS EN ISO 6946 : 2017, BS EN ISO 13370 : 2017 and BRE Report BR 443 : 2006, using the insulation's declared thermal conductivities* (λ_D), as given in Table 2 of this Certificate.

Table 2 Declared thermal conductivity* (λ_D) values

EPS Grade	Thermal conductivity* ($W \cdot m^{-1} \cdot K^{-1}$)
Grey - Platinum EPS 70E	0.030
Grey - Platinum EPS 100E	0.030

6.2 The U value of a completed floor will depend on the thickness of the product, the perimeter/area (P/A) ratio and the floor type. When considering insulation requirements, designers should refer to the detailed guidance contained in the documents supporting the national Building Regulations. Calculated U values for example constructions in accordance with the national Building Regulations are given in Table 3.

Table 3 Example U values – Ground floor construction

Floor type	EPS Grade	Target U value (W·m ⁻² ·K ⁻¹)	P/A ratio ⁽³⁾				
			Insulation thickness (mm)				
			0.2	0.4	0.6	0.8	1.0
Ground-bearing concrete floor ⁽¹⁾	Platinum EPS 70E and EPS 100E	0.13	130	165	180	190	190
		0.15	100	135	150	160	165
		0.20	55	90	105	110	115
		0.22	40	75	90	100	105
		0.25	25	60	75	80	85
Suspended concrete ground floor ⁽²⁾	Platinum EPS 70E and EPS 100E	0.13	155	175	185	190	195
		0.15	120	145	155	160	165
		0.20	75	100	110	115	115
		0.22	60	85	95	100	100
		0.25	45	70	80	85	85

- (1) Ground-bearing concrete floor construction: 65 mm concrete screed $\lambda = 1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, polythene separating layer, Thermal Economics Platinum ground floor insulation, dpm, 100 mm concrete oversite, 150 mm sand blinding hardcore.
- (2) Suspended concrete ground-floor construction: 65mm concrete screed $\lambda = 1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, polythene separating layer, Thermal Economics Platinum ground floor insulation, beam-and-block floor (12%), beam $\lambda = 2.00 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, dense block infill $\lambda = 1.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, ventilated void.
- (3) Floor measurements should be taken in metres.

Junctions



6.3 The product can contribute to maintaining continuity of thermal insulation at junctions with other elements and 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 BS EN ISO 10456 : 2007.

7.2 The product has a water vapour resistivity exceeding $250 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$.

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 unless a risk assessment shows this is not necessary.

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.



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 is not classified as non-combustible or of limited combustibility, and the Certificate holder has declared a Class E for their reaction to fire classification* 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.

8.3 Electrical cables within the insulation must be enclosed in a suitable conduit, e.g. rigid PVC.

9 Floor loading

9.1 The Certificate holder has declared the following designation codes in accordance with BS EN 13163 : 2012 (compressive stress at 10% deformation* to BS EN 826 : 2013):

- Thermal Economics Platinum Ground Floor Insulation - EPS 70E - CS(10) 70
- Thermal Economics Platinum Ground Floor Insulation - EPS 100E - CS(10) 100.



9.2 The product is suitable for the domestic occupancies defined in this Certificate when covered with a suitable floor overlay (see section 4.5) and are capable of resisting a uniformly distributed load of 1.5 kN·m⁻² or a concentrated load of 1.4 kN for category A1 and A2 (domestic) situations, as defined in BS EN 1991-1-1 : 2002 and Table Na.2 of its UK National Annex. 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 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 and water pipes or other services should be contained in 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 must be enclosed in a suitable conduit due to the risk of damage to the PVC covering through plasticiser migration when in direct contact with polystyrene. 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, e.g. extruded polyethylene foam.

10.4 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.

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, not exceeding 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.

11 Maintenance

As the product is confined within the floor and has suitable durability (see section 12), maintenance is not required.

12 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 they are incorporated.

13 Reuse and recyclability

The product comprises of EPS, which is potentially fully recyclable.

Installation

14 General

14.1 Installation of Thermal Economics Platinum Ground Floor Insulation must be in accordance with the Certificate holder's installation instructions and the requirements of this Certificate.

14.2 Typical methods of installation of Thermal Economics Platinum Ground Floor Insulation are shown in Figures 1 to 4. Reference should be made to BRE Report BR 262 : 2002.

Figure 1 Typical installation details – screed overlay (dpm under concrete slab)

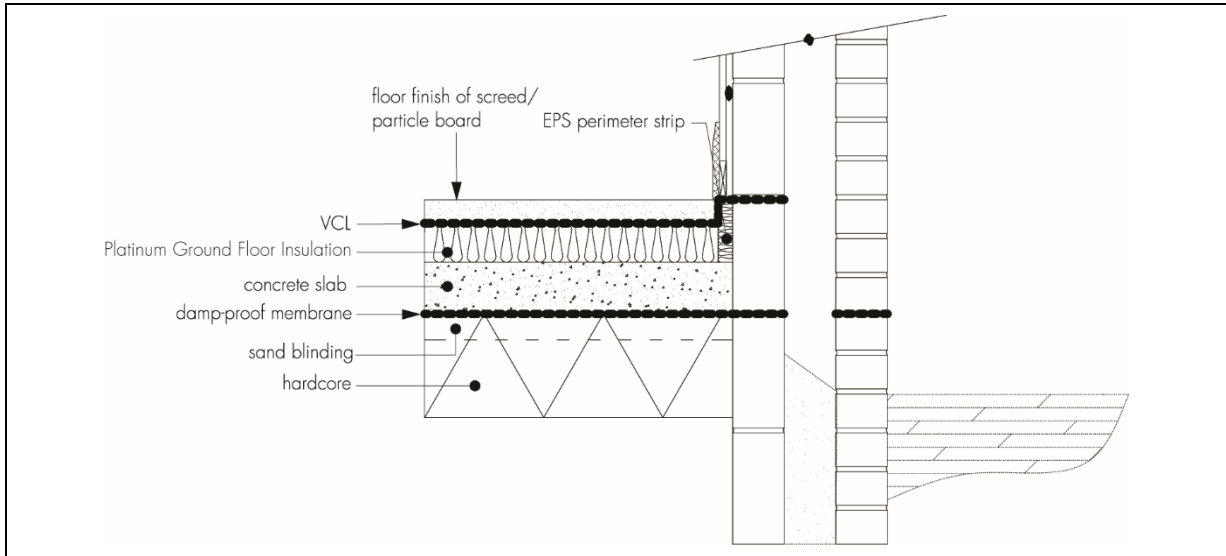
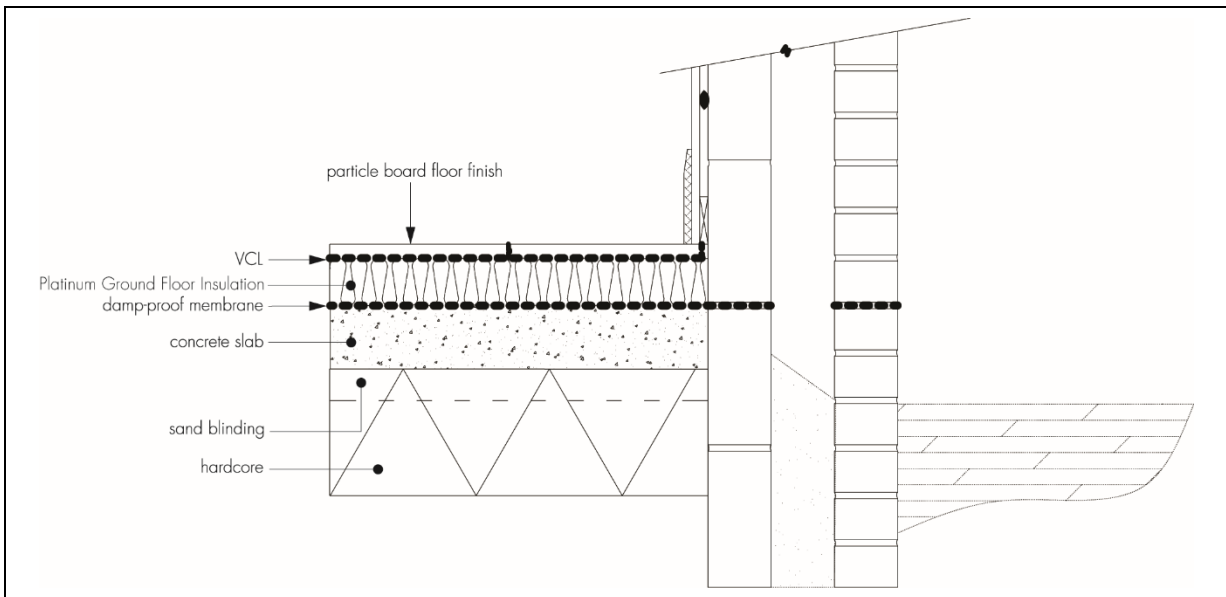


Figure 2 Typical installation details – particle board (dpm over concrete slab)



14.3 In ground-supported concrete floors (see Figures 1 to 3), the concrete floor slab over which the insulation is 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 All floor surfaces 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 The insulation can be used on suitable beam-and-block suspended concrete floors, designed and installed to the precast concrete and general loading codes.

14.6 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 EPS and be allowed to dry out fully before laying the insulation.

Figure 3 Typical installation details — particle board (dpm under concrete slab)

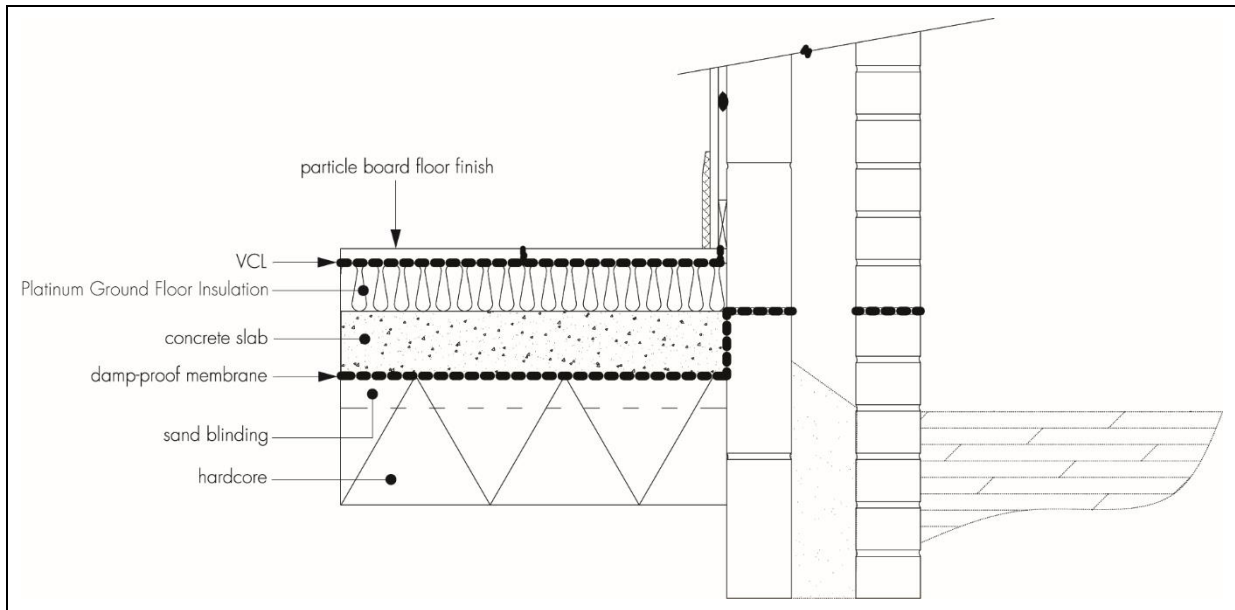
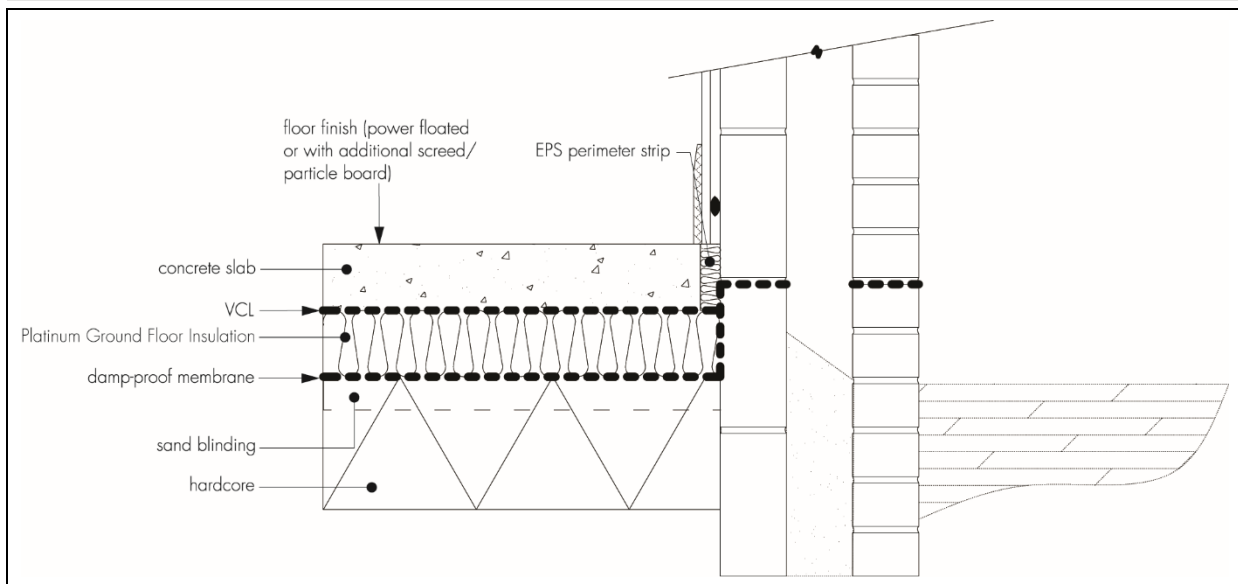


Figure 4 Typical installation details — under concrete slab (dpm under insulation)



14.7 Where the insulation is used on hardcore bases beneath ground-supported 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.

14.8 If necessary, a VCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation (see section 7.3) 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 concrete to prevent seepage between the boards.

14.9 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 applicable, a suitable cavity or external wall insulation material should be extended below the dpc level to provide edge insulation to the floor.

14.10 To limit the risk of condensation and other sources of dampness, the insulation and overlay should only be laid after the construction is made substantially weathertight, e.g. 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.

15 Procedure

15.1 The product is cut to size (using a sharp knife or fine-toothed saw) 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, e.g. mat wells, thresholds or access ducts. Spreader boards should be used to protect the product.

15.3 Where a polyethylene sheet or VCL is used above the insulation boards it must have 150 mm overlaps, taped at the joints and turned up a minimum of 100 mm at the walls.

Plywood, particle board or OSB overlay

15.4 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.

15.5 Tongue-and-groove particle board Grade P5 or P7, minimum thickness 18 mm, to BS EN 312 : 2010, is laid with staggered cross-joints.

15.6 An expansion gap between the particle 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 greater.

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

15.8 Before the particle boards are interlocked, a waterproof PVA adhesive is applied to the joints.

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

15.10 When the wedges are removed and before the skirting boards are fixed, suitable compressible filler, e.g. pieces of polystyrene, should be fitted around the perimeter of the floor between the overlay board and the walls.

15.11 Where there is a likelihood of regular water spillage in rooms such as kitchens, bathrooms, shower and utility rooms, additional particle board protection should be considered, e.g. by a continuous, flexible vinyl sheet flooring with welded joints and cove skirting.

Cement-sand screed overlay

15.12 Vertical edge pieces of insulation are cut and placed around the perimeter edges. A properly compacted screed of at least 65 mm is laid. The relevant clauses of BS 8204-1 : 2003 should be followed.

Concrete slab overlay (ground-bearing only)

15.13 Vertical edge pieces of insulation are cut and placed around the floor perimeter and all product joints taped to prevent the ingress of concrete. The concrete slab is laid to the required thickness in accordance with BS 8000-9 : 2003 and BS 8204-1 : 2003.

Suspended concrete floor

15.14 When the product is being laid on a suspended floor of concrete beams with block infill, they should be laid as detailed for cement-sand screed or particle board overlay.

Technical Investigations

16 Tests

Tests were carried out to determine:

- compressive strength at 10% compression
- density
- dimensional accuracy
- moisture vapour transmission
- dimensional stability at 80°C
- thermal conductivity at 10°C
- cross-breaking strength failure
- maximum water vapour permeability at 38°C
- extent of burn.

17 Investigations

17.1 Existing data relating to the risk of interstitial condensation were examined.

17.2 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

BRE Report BR 262 : 2002 *Thermal insulation : avoiding risk*

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

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 8102 : 2009 *Code of practice for protection of below ground structures against water from the ground*

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 cementitious 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 *Plywood — Specifications*

BS EN 826 : 2013 *Thermal insulating product for building applications — Determination of compression behaviour*

BS EN 1991-1-1 : 2002 Eurocode 1 — Actions on structures — General actions
NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 — Actions on structures — General actions*

BS EN 1992-1-1 : 2004 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 13163 : 2012 +A2 : 2016 Thermal insulation product for buildings — Factory made expanded polystyrene (EPS) product — Specification

BS EN 13501-1 : 2007 + A1 : 2009 Fire classification of construction product 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 : 2017 Building components and building elements — Thermal resistance and thermal transmittance — Calculation methods

BS EN ISO 9001 : 2015 Quality management systems — Requirements

BS EN ISO 10456 : 2007 Building materials and product — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values

BS EN ISO 13370 : 2017 Thermal performance of buildings — Heat transfer via the ground. Calculation methods

BS EN ISO 14001 : 2015 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 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

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.