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Agrément Certificate
04/4102
Product Sheet 1

SPI EXPANDED POLYSTYRENE INSULATION

STYLITE FLOORING INSULATION

This Agrément Certificate Product Sheet⁽¹⁾ relates to Stylite Flooring Insulation, comprising a range of expanded polystyrene (EPS) boards for insulating ground-supported or suspended concrete ground floors in new or existing dwellings or buildings of similar occupancy.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

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



KEY FACTORS ASSESSED

Thermal performance — the products have a declared thermal conductivity (λ_D value)* between $0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and $0.030 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and floors incorporating the products can achieve typical design U values (see section 6).

Floor loading — the products, when installed in accordance with this Certificate, can support a design loading for domestic applications (see section 7).

Condensation — the products can contribute to limiting the risk of condensation (see section 8).

Behaviour in relation to fire — the products will be contained within the floor by the overlay until the overlay itself is destroyed (see section 9).

Durability — the products are dimensionally stable and, when installed with the overlays specified in section 4.3, will remain effective as an insulating material for the life of the building in which they are incorporated (see section 11).

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

On behalf of the British Board of Agrément

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

Date of Third issue: 11 September 2013

John Albon — Head of Approvals
Energy and Ventilation

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

Claire Curtis-Thomas
Chief Executive

Originally certificated on 30 April 2004

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.

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Regulations

In the opinion of the BBA, Stylite Flooring Insulation, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting 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 products have adequate strength and stiffness. See section 7.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The products can contribute to satisfying this Requirement. See sections 8.1 and 8.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products can contribute to satisfying this Requirement. See sections 6.1 to 6.3 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO ₂ emission rates for new buildings
Comment:		The products can contribute to satisfying this Regulation. See sections 6.1 to 6.3 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The products have adequate strength and stiffness, with reference to clause 1.1.1 ⁽¹⁾ . See section 7.2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products 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 8.1 and 8.4 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products 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 to 6.3 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and, therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽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 these products 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

Regulation:	23	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The products can contribute to meeting this Regulation. See section 8.1 of this Certificate.
Regulation:	30(a)	Stability
Comment:		The products have adequate strength and stability. See section 7.2 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The products can contribute to satisfying these Regulations. See sections 6.1 to 6.3 of this Certificate.

Construction (Design and Management) Regulations 2007

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

Information in this Certificate may assist the client, 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 2013

NHBC accepts the use of Stylite Flooring Insulation, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 5.1 *Substructure and groundbearing floors* and 5.2 *Suspended ground floors*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13163 : 2012. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Stylite Flooring Insulation consists of rigid, white or grey expanded polystyrene boards in different grades, and meets the requirements of BS EN 13163 : 2012.

1.2 The boards are supplied with the nominal characteristics given in Table 1.

Characteristic (units)	Stylite (white EPS)			Stylite Plustherm (grey EPS)
	EPS 70	EPS 100	EPS 150	EPS 100
Length ⁽¹⁾ (mm)	2400	2400	2400	2400
Width ⁽¹⁾ (mm)	1200	1200	1200	1200
Thickness ⁽²⁾ (mm)	12 to 300	12 to 300	12 to 300	12 to 300
Minimum compressive stress at 10% deformation (kPa)*	70	100	150	100
Edge profile	square	square	square	square

(1) Other sizes supplied to order.

(2) In 5 mm increments.

2 Manufacture

2.1 Stylite insulation products are manufactured from expanded polystyrene (Stylite white EPS) and carbon-enriched expanded polystyrene (Stylite Plustherm grey EPS). The material comprises expandable beads of pre-foamed polystyrene which are fused together to produce a block material. The block is cut to size and shape on a computerised hot wire cutting bed.

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.

3 Delivery and site handling

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

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

3.3 The products must be stored fully supported and flat on a firm, level, dry base, protected from the weather and raised above damp surfaces. The products must be discarded if damaged or wet.

3.4 The products 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 Stylite Flooring Insulation.

Design Considerations

4 General

4.1 Stylite Flooring Insulation is effective in reducing the U value (thermal transmittance) of new or existing concrete ground floors of dwellings or buildings of similar occupancy.

4.2 Ground-supported concrete and suspended concrete ground-floors incorporating the products must include a suitable damp-proof membrane (dpm), laid beneath the insulation, in accordance with the relevant clauses of CP 102 : 1973, BS 8102 : 2009 and/or BS 8215 : 1991 (see sections 13.5 and 13.6 of this Certificate) or suitable ventilation of the sub floor as appropriate.

4.3 The overlay to the insulation boards should be:

- a vapour control layer (VCL) (see section 8.2), and either
- 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 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 products are designed to be installed by a competent general builder, or a contractor, experienced with these types of products.

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) of a floor should be carried out in accordance with BS EN ISO 6946 : 2007, BS EN ISO 13370 : 2007 and BRE Report BR 443 : 2006, using the declared thermal conductivity (λ_D value)* of the insulation as declared by the manufacturer given in Table 2.

Table 2 Declared thermal conductivity*

EPS Grade	Thermal conductivity (λ_D value)* (W·m ⁻¹ ·K ⁻¹)
Stylite EPS 70 (White)	0.038
Stylite EPS 100 (White)	0.036
Stylite EPS 150 (White)	0.034
Stylite Plustherm EPS 100 (Grey)	0.030

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

Table 3 Floor U values

Floor Type	Perimeter/area ratio	EPS	Insulation Thickness (mm)				
			Target U Value ($W \cdot m^{-2} \cdot K^{-1}$)				
			0.15	0.18	0.20	0.22	0.25
Ground supported concrete floor (with EPS above and a screed overlay)	0.2	Stylite EPS 70 (White)	120	85	65	55	35
			170	130	110	95	80
			190	150	130	115	95
			200	160	140	125	105
			205	165	145	130	110
	0.4	Stylite EPS 100 (White)	115	80	60	45	30
			160	125	105	90	70
			180	140	120	105	90
			190	150	130	115	95
			195	155	135	120	100
	0.6	Stylite EPS 150 (White)	110	75	60	45	30
			150	115	100	85	70
			170	135	115	100	85
			180	140	125	110	90
			185	145	130	115	95
	0.8	Stylite Plustherm EPS 100 (Grey)	95	65	50	40	25
			135	105	85	75	60
			150	120	100	90	75
			155	125	110	95	80
			160	130	115	100	85
Suspended concrete floor (with EPS above and a screed overlay)	0.2	Stylite EPS 70 (White)	150	110	90	75	55
			185	145	125	110	90
			200	160	140	120	100
			205	165	145	130	110
			210	170	150	135	115
	0.4	Stylite EPS 100 (White)	140	105	85	70	50
			175	140	120	105	85
			190	150	130	115	95
			195	155	135	120	105
			200	160	140	125	105
	0.6	Stylite EPS 150 (White)	135	100	80	65	50
			165	130	110	100	80
			175	140	125	110	90
			185	150	130	115	95
			185	150	135	120	100
	0.8	Stylite Plustherm EPS 100 (Grey)	120	85	70	60	45
			145	115	100	85	70
			155	125	110	95	80
			160	130	115	100	85
			165	135	120	105	90

U Values were derived assuming:

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

6.3 The products can contribute to maintaining continuity of thermal insulation at junctions between elements. For accredited construction details the corresponding ψ -values (ψ) in BRE Information Paper IP 1/06, Table 3, may be used in carbon emission calculations in Scotland and Northern Ireland. Detailed guidance for other junctions and on limiting heat loss by air infiltration can be found in:

England and Wales — Approved Documents to Part L and for the new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 *The Government's Standard Assessment Procedure for Energy Rating of Dwellings*, Appendix K

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

7 Floor loading

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

- Stylite white EPS 70 — CS(10)70
- Stylite white EPS 100 — CS(10)100
- Stylite white EPS 150 — CS(10)150
- Stylite Plustherm grey EPS 100 — CS(10)100.



7.2 The products are suitable for occupancies defined in this Certificate when covered with a suitable floor overlay (see section 4.3), and are capable of resisting a uniformly distributed load of $1.5 \text{ kN}\cdot\text{m}^{-2}$ or a concentrated load of 2 kN for category A1 and A2 (domestic) situations as defined in BS EN 1991-1-1 : 2002 and Table Na.2 of its National Annex. Further assessment is necessary in the case of duty walkways and floors subject to physical activities.

7.3 The performance of the floor construction will depend on the insulation properties and type of floor overlay used (including thickness and strength). Where the products are used under a concrete slab, resistance to concentrated and distributed loads is a function of the slab specification. Further guidance on the suitability of floor 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.

8 Condensation

Interstitial condensation



8.1 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. The products have a water vapour resistivity exceeding $250 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$.

8.2 When the products are 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. See Figures 1 to 4.

Surface condensation



8.3 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 the relevant requirements of TSO publication *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings*, 2002 or BRE Information Paper IP 1/06.



8.4 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, and BRE Report BR 262 : 2002.

9 Behaviour in relation to fire

9.1 The products are classified as Class F reaction to fire classification in accordance with BS EN 13501-1 : 2007.

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

9.3 Electrical cables running within the polystyrene should be separated from it by enclosing them within a suitable conduit eg rigid PVC.

10 Maintenance

The products are confined within the floor and have suitable durability (see section 11), therefore maintenance is not required.

11 Durability



The products are 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.

12 Reuse and recyclability

Expanded polystyrene (EPS) is fully recyclable.

Installation

13 General

13.1 Installation of Stylite Flooring Insulation 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 1 to 4. Reference should also be made to BRE Report BR 262 : 2002.

13.3 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.

Figure 1 Ground-supported concrete floor — timber board overlay

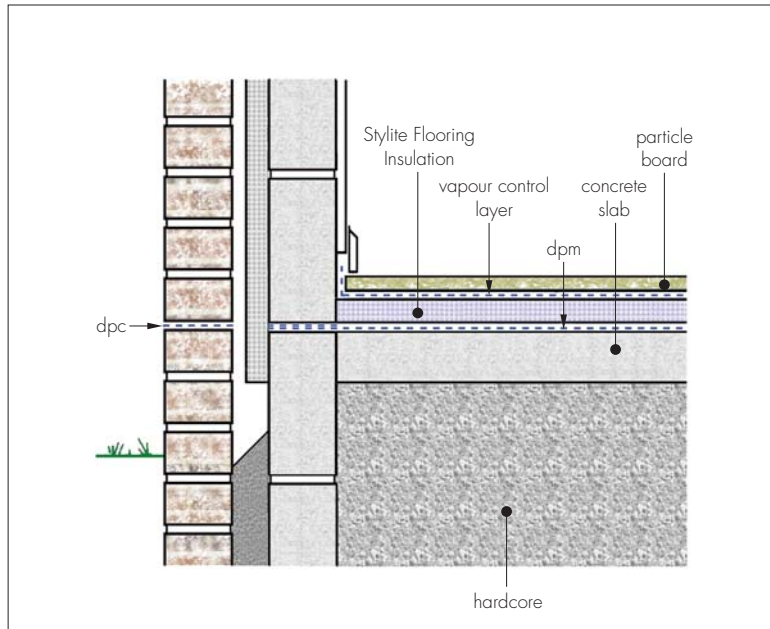


Figure 2 Suspended concrete floor — timber board overlay

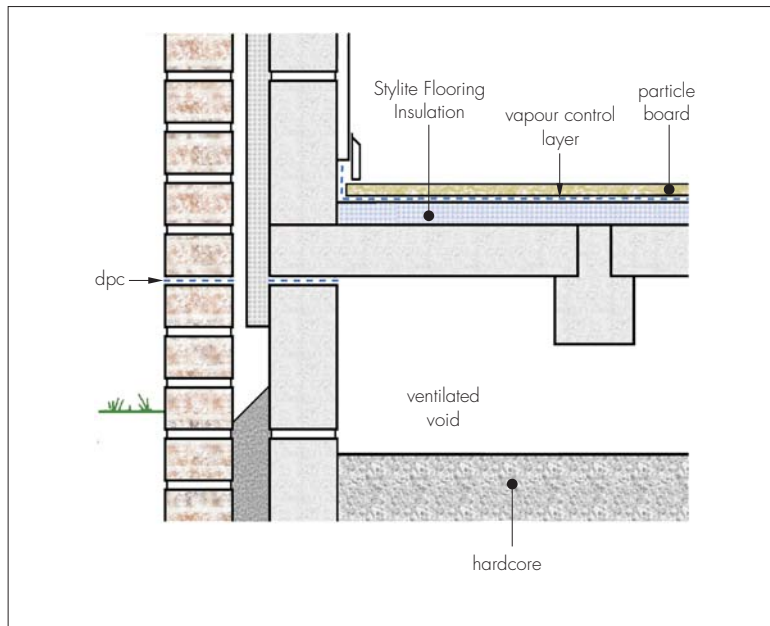


Figure 3 Ground-supported concrete floor — screed overlay

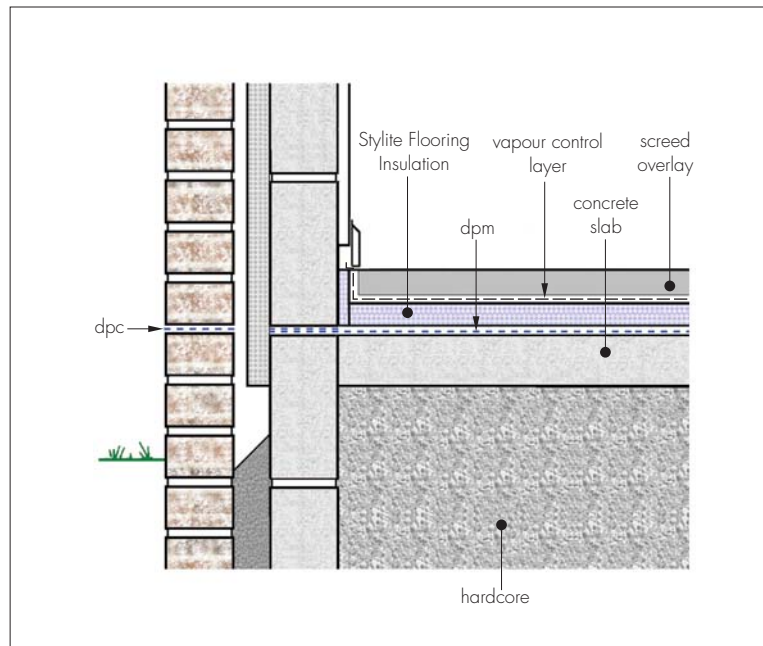
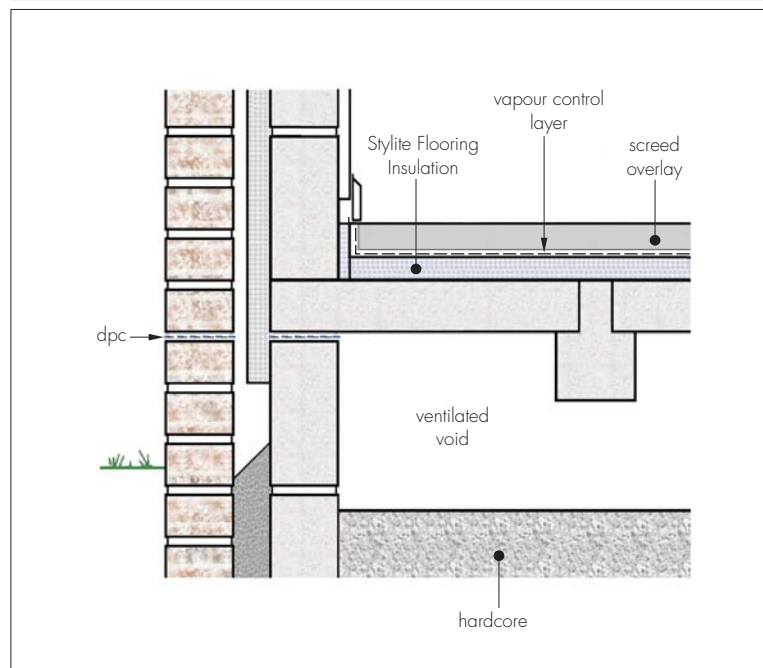


Figure 4 Suspended concrete floor — screed overlay



13.4 In ground-supported concrete floors (see Figures 1 and 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 : 2001, Section 3.1.2.

13.5 Where the insulation is used over ground-supported concrete floor slabs, a suitable dpm in accordance with BS 8102 : 2009 and 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-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.

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 Figures 2 and 4), designed and installed to the precast concrete and general loading codes.

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 or external wall insulation material should be extended below the dpc level to provide edge insulation to the floor.

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

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

Timber-based overlay (Figures 1 and 2)

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

14.5 Timber-based overlay boards 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 or abutments 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 pieces of polystyrene, 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 rooms such as kitchens, bathrooms, shower and utility rooms, additional overlay board protection should be considered, eg by a continuous flexible vinyl sheet flooring, with welded joints, and cove skirting.

Cement-based screed overlay (Figures 3 and 4)

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

Concrete slab overlay (ground bearing only)

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

15 Incorporation of services

15.1 De-rating of electrical cables should be considered where the insulation restricts air cooling of cables. The products 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 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 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 products are installed on a floor of a suspended beam-and-block design, all services must be installed so as not to impair the floor performance.

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

Tests were carried out on Stylite Flooring Insulation to determine:

compressive stress at 10% deformation

- long-term water absorption by immersion (total and partial)
- long-term water absorption by diffusion
- thermal conductivity (λ value)
- dimensional stability under constant normal laboratory conditions
- dimensional stability at specified temperature and humidity.

17 Investigations

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

17.2 An examination was made of data to BS EN 13163 : 2012 relating to:

- dimensional tolerances
- squareness
- flatness
- density
- λ_D value
- compressive stress at 10% deformation
- bending strength.

Bibliography

BS 5250 : 2011 *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 : 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 ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

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

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

BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*

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

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.