

Springvale EPS Ltd
Dinting Vale Business Park
Dinting Vale
Glossop
Derbyshire SK13 6LG

Tel: 01457 863211
e-mail: technical@springvale.com
website: www.springvale.com



Agreement Certificate
91/2568

Product Sheet 1 Issue 9

SPRINGVALE FLOORING INSULATION FOR CONCRETE GROUND FLOORS

SPRINGVALE FLOORSHIELD AND SPRINGVALE PLATINUM FLOORSHIELD INSULATION

This Agreement Certificate Product Sheet⁽¹⁾ relates to Springvale Floorshield and Springvale Platinum Floorshield Insulation, rigid expanded polystyrene (EPS) boards of different grades for use as thermal insulation in ground-bearing or suspended concrete ground floors in new or existing domestic and non-domestic buildings.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review



KEY FACTORS ASSESSED

- Section 1. Mechanical resistance and stability
- Section 2. Safety in case of fire
- Section 3. Hygiene, health and the environment
- Section 4. Safety and accessibility in use
- Section 5. Protection against noise
- Section 6. Energy economy and heat retention
- Section 7. Sustainable use of natural resources
- Section 8. Durability

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

On behalf of the British Board of Agrément

Date of Ninth issue: 18 December 2024

Originally certified on 4 January 1991

Hardy Giesler
Chief Executive Officer

This BBA Agreement Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agreement Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

©2024

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

SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Springvale Floorshield and Springvale Platinum Floorshield 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	A1	Loading
Comment:		The products can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The products can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	25B	Nearly zero-energy requirements for new buildings
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)
Regulation:	26C	Target primary energy rates for new dwellings (applicable to England only)
Regulation:	26C	Energy efficiency rating (applicable to Wales only)
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	9	Building standards - construction
Standard:	1.1(b)	Structure
Comment:		The products can contribute to satisfying this Standard, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See section 1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See section 3 this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The products can contribute to satisfying this Standard, with reference to clause 6.1.1 ⁽¹⁾ and 6.1.2 ⁽²⁾ . See section 6 of this Certificate.

Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to satisfying this Standard, with reference to clauses, or parts of, 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽¹⁾⁽²⁾ , 6.2.5 ⁽¹⁾⁽²⁾ , 6.2.6 ⁽²⁾ , 6.2.7 ⁽¹⁾⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾⁽²⁾ , 6.2.11 ⁽¹⁾⁽²⁾ and 6.2.12 ⁽¹⁾ . See section 6 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⁾⁽²⁾ , 7.1.6 ⁽¹⁾⁽²⁾ and 7.1.7 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Regulation:	12	Building standards - conversion
Comment:		All comments given for the 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). (2) Technical Handbook (Non-Domestic)



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

Regulation:	23(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)(ii)	The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	29	Condensation
Comment:		The products can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	30	Stability
Comment:		The products can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Regulation:	43(1)(2)	Renovation of thermal elements
Regulation:	43B	Nearly-zero-energy requirements of new buildings
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Springvale Floorshield and Springvale Platinum Floorshield 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*.

Fulfilment of Requirements

The BBA has judged Springvale Floorshield and Springvale Platinum Floorshield Insulation to be satisfactory for use as described in this Certificate. The products have been assessed as insulation in ground-bearing or suspended concrete ground floors in new or existing domestic and non-domestic buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. Springvale Floorshield and Springvale Platinum Floorshield Insulation comprise white and grey EPS boards of different grades in accordance with BS EN 13163 : 2012.

The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Floorshield	Platinum Floorshield
Grades	EPS 70, EPS 70E, EPS 100, EPS 100E, EPS150, EPS 150E, EPS 200, EPS 200E, EPS 300 and EPS 300E	Platinum EPS 70, Platinum EPS 70E, Platinum EPS 100, Platinum EPS 100E, Platinum EPS 150 and Platinum EPS 150E
Edges	Square	Square
Thickness (mm)	20+ ⁽¹⁾⁽²⁾	20+ ⁽¹⁾⁽²⁾
Board sizes (mm)	1200 x 600 ⁽¹⁾ 2400 x 1200 ⁽¹⁾	1200 x 600 ⁽¹⁾ 2400 x 1200 ⁽¹⁾
Flatness	Class P(10)	Class P(10)
Colour	White	Grey

(1) Other sizes can be supplied to order

(2) In 5 mm increments.

The products are intended for use as floor insulation in new and existing domestic and non-domestic buildings:

- ground-bearing concrete floors
- suspended concrete ground floors
- suitably designed beam-and-block floors incorporating Type R2 semi-resisting or resisting blocks to BS EN 15037-2 : 2009 and self-bearing beams to BS EN 15037-1 : 2008.

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the products, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- damp proof membrane (DPM)
- air and vapour control layer (AVCL)

The overlay to the products must be:

- an AVCL where necessary (see section 3 of this Certificate) and:
- a cement-based floor screed of minimum 65 mm thickness, laid in accordance with the relevant clauses of BS 8204-1 : 2003 and/or BS 8204-2 : 2003, and BS 8000-9 : 2003 or
- wood-based floor (eg tongue-and-groove plywood to BS EN 636 : 2012, flooring grade particle board [Type P4 to P7] to BS EN 312 : 2010 or oriented strand board [type OSB/3 to OSB/4] to BS EN 300 : 2006), of a thickness to be determined by a suitably experienced and competent individual, and installed in accordance with PD CEN/TR 12872 : 2014 and BS EN 12871 : 2013 or
- a concrete slab to BS EN 1992-1-1 : 2004.

Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessment is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1 Floor loading

1.1.1 The products were tested for compressive strength and the results are given in Table 2.

EPS grade	Assessment method	Requirement	Result
	BS EN 826 : 2013	Declared minimum compressive strength of the product at 10% deformation	
EPS 70, EPS 70E, Platinum EPS 70, Platinum EPS 70E		≥ 70 kPa	Pass
EPS 100, EPS 100E, Platinum EPS 100, Platinum EPS 100E		≥ 100 kPa	Pass
EPS 150, EPS 150E, Platinum EPS 150 and Platinum EPS 150E		≥ 150 kPa	Pass
EPS 200, EPS 200E		≥ 200 kPa	Pass
EPS 300, EPS 300E		≥ 300 kPa	Pass

1.1.2 On the basis of data assessed, the products are suitable for the domestic occupancies defined in this Certificate when covered with a suitable floor overlay, 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 Tables NA.2 and NA.3, in UK National Annex to BS EN 1991-1-1 : 2002. Further assessment by a suitably competent and experienced individual is necessary in the case of duty walkways and floors subject to physical activities.

1.1.3 On the basis of data assessed, EPS 100, EPS 100E, Platinum EPS 100, Platinum EPS 100E, EPS 150, EPS 150E, Platinum EPS 150, Platinum EPS 150E, EPS 200, EPS 200E, EPS 300 and EPS 300E, are also suitable for the non-domestic occupancies defined in this Certificate when covered with a suitable floor overlay, and are capable of resisting a uniformly distributed load of $3 \text{ kN}\cdot\text{m}^{-2}$ for category B2 (offices) and $4 \text{ kN}\cdot\text{m}^{-2}$ for category C33 (non-domestic), or a concentrated load of 2.7 kN for category B2 (offices) and 4.5 kN for category C33 (non-domestic), as defined in Tables NA.2 and NA.3, in UK National Annex to BS EN 1991-1-1 : 2002. Further assessment by a suitably competent and experienced individual is necessary in the case of duty walkways and floors subject to physical activities.

1.1.4 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, although the latter is outside the scope of this Certificate.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The products were tested for reaction to fire and the classifications achieved are given in Table 3.

Table 3 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result
EPS 70E	BS EN 13501-1 : 2007	Classification achieved	E ⁽¹⁾
EPS 100E	BS EN 13501-1 : 2007	Classification achieved	E ⁽²⁾
EPS 150E	BS EN 13501-1 : 2007	Classification achieved	E ⁽³⁾
EPS 200E	BS EN 13501-1 : 2007	Classification achieved	E ⁽⁴⁾
EPS 300E	BS EN 13501-1 : 2007	Classification achieved	E ⁽⁵⁾
Platinum EPS 70E, Platinum EPS 100E	BS EN 13501-1 : 2007	Classification achieved	E ⁽⁶⁾
Platinum EPS 150E	BS EN 13501-1 : 2007	Classification achieved	E ⁽⁷⁾

- (1) Exova Warringtonfire. Report No: 420419 (Issue 2). 19 November 2019, copies available from the Certificate holder on request.
 (2) Exova Warringtonfire. Report No: 420420 (Issue 2). 19 November 2019, copies available from the Certificate holder on request.
 (3) Exova Warringtonfire. Report No: 420421 (Issue 2). 19 November 2019, copies available from the Certificate holder on request.
 (4) Exova Warringtonfire. Report No: 420422 (Issue 2). 19 November 2019, copies available from the Certificate holder on request.
 (5) Exova Warringtonfire. Report No: 420423 (Issue 2). 19 November 2019, copies available from the Certificate holder on request.
 (6) Exova Warringtonfire. Report No: 427169 (Issue 1). 31 March 2020, copies available from the Certificate holder on request.
 (7) Exova Warringtonfire. Report No: 366329 (Issue 2). 23 May 2016, copies available from the Certificate holder on request.

2.1.2 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1: 2018 for the EPS 70/EPS 100/EPS 150/ EPS 200/EPS 300/Platinum EPS 70/Platinum EPS 100/ Platinum EPS 150 products.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

3.1.1 For the purposes of assessing the risk of interstitial condensation, the water vapour resistivity of the products may be taken as stated in Table 4.

Table 4 Water vapour resistivity

Product assessed	Assessment method	Requirement	Result
Floorshield EPS 70, EPS 70E and Platinum Floorshield EPS 70, Platinum Floorshield EPS 70	Table F.2 of BS EN 13163 : 2012	Declared value	100 – 200 MN·s·g ⁻¹ ·m ⁻¹
Floorshield EPS 100, EPS 100E, EPS 150, EPS 150E, and Platinum Floorshield EPS 100 Platinum Floorshield EPS 100E, P{latinum Floorshield EPS 150 Platinum Floorshield EPS 150E	Table F.2 of BS EN 13163 : 2012	Declared value	150 – 350 MN·s·g ⁻¹ ·m ⁻¹
Floorshield EPS 200, EPS 200E, EPS 300, EPS 300E	Table F.2 of BS EN 13163 : 2012	Declared value	200 – 500 MN·s·g ⁻¹ ·m ⁻¹

3.2 Condensation

3.2.1 The BBA has assessed the products for risk of condensation, and the following factors must be implemented.

3.2.1.1 When the products are used on a ground-bearing floor or suspended concrete floor, an AVCL must be installed on the warm side of the insulation to limit the risk of interstitial condensation, unless a risk assessment shows this is not necessary.

3.2.1.2 Voids below suspended concrete ground floors must be ventilated. Ventilation may be achieved by installing vents not less than 1500 mm²·m⁻¹ run of external wall or 500 mm²·m⁻² of floor area, whichever is the greater. Ventilation openings must be arranged to prevent the ingress of rain, snow, birds and small mammals and the risk of subsequent blockage by other building operations.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The products were tested for thermal conductivity and the results are given in Table 5.

Table 5 Thermal conductivity of Springvale Floorshield and Springvale Platinum Floorshield Insulation boards

EPS grade	Assessment method	Requirement	Result
EPS 70	BS EN 13163 : 2012	Declared value (λ_D)	0.038 W·m ⁻¹ ·K ⁻¹
EPS 70E	BS EN 13163 : 2012	Declared value (λ_D)	0.037 W·m ⁻¹ ·K ⁻¹
EPS 100, EPS 100E	BS EN 13163 : 2012	Declared value (λ_D)	0.035 W·m ⁻¹ ·K ⁻¹
EPS 150, EPS 150E	BS EN 13163 : 2012	Declared value (λ_D)	0.034 W·m ⁻¹ ·K ⁻¹
EPS 200, EPS 200E	BS EN 13163 : 2012	Declared value (λ_D)	0.033 W·m ⁻¹ ·K ⁻¹
EPS 300, EPS 300E	BS EN 13163 : 2012	Declared value (λ_D)	0.033 W·m ⁻¹ ·K ⁻¹
Platinum EPS 70, Platinum EPS 70E	BS EN 13163 : 2012	Declared value (λ_D)	0.030 W·m ⁻¹ ·K ⁻¹
Platinum EPS 100, Platinum EPS 100E	BS EN 13163 : 2012	Declared value (λ_D)	0.030 W·m ⁻¹ ·K ⁻¹
Platinum EPS 150, Platinum EPS 150E	BS EN 13163 : 2012	Declared value (λ_D)	0.030 W·m ⁻¹ ·K ⁻¹

6.2 Thermal performance

6.2.1 The U value of a completed floor will depend on the grade and thickness of the product, the perimeter/area ratio and the floor type. Example U values are given in Table 6.

Table 6 Example U values — ground floor construction

Floor type	EPS Grade	Target U value (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)				
			P/A ratio				
			0.2	0.4	0.6	0.8	1.0
Ground-bearing concrete floor ⁽¹⁾	EPS 70	0.11	205	255	275	285	290
		0.12	180	230	250	260	265
		0.13	160	210	225	235	240
		0.15	125	170	190	200	205
		0.18	85	130	150	160	165
		0.22	50	95	115	125	130
		0.25	35	80	95	105	110
	EPS 70E	0.11	200	250	270	280	285
		0.12	175	225	245	250	260
		0.13	160	210	225	235	240
		0.15	125	170	190	200	205
		0.18	85	130	145	155	160
		0.22	50	95	115	125	130
		0.25	35	80	95	105	110
	EPS 100 and EPS 100E	0.11	185	235	255	265	270
		0.12	165	210	230	240	245
		0.13	145	190	210	220	225
		0.15	115	160	175	185	190
		0.18	80	120	140	150	155
		0.22	45	90	105	115	120
		0.25	30	70	85	95	100
	EPS 150 and EPS 150E	0.11	180	230	245	255	260
		0.12	160	205	225	230	235
		0.13	140	185	205	210	215
		0.15	110	155	170	180	185
		0.18	75	120	135	145	150
		0.22	45	85	100	110	115
		0.25	30	70	85	95	100
EPS 200, EPS 200E, EPS 300 and EPS 300E	0.11	175	225	240	250	255	
	0.12	155	200	215	225	230	
	0.13	135	180	195	205	210	
	0.15	105	150	165	175	180	
	0.18	75	115	130	140	145	
	0.22	45	85	100	110	115	
	0.25	30	70	80	90	95	
Platinum EPS 70, Platinum EPS 70E, Platinum EPS 100, Platinum EPS 100E, Platinum EPS 150 and Platinum EPS 150E	0.11	160	205	220	225	230	
	0.12	140	180	195	205	210	
	0.13	125	165	180	185	190	
	0.15	100	135	150	160	165	
	0.18	70	105	120	125	130	
	0.22	40	75	90	100	105	
	0.25	25	60	75	80	85	

Table 6 Example U values — ground floor construction (continued)

Floor type	EPS Grade	Target U value (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)				
			P/A ratio				
			0.2	0.4	0.6	0.8	1.0
Suspended concrete ground floor ⁽²⁾	EPS 70	0.11	240	270	280	290	290
		0.12	210	245	255	260	265
		0.13	190	220	235	240	240
		0.15	155	185	195	200	205
		0.18	115	145	155	165	165
		0.22	75	110	120	125	130
		0.25	55	90	100	105	110
		EPS 70E	0.11	230	265	275	280
	0.12		205	235	250	255	260
	0.13		185	215	225	235	235
	0.15		150	180	190	195	200
	0.18		110	140	155	160	160
	0.22		75	105	115	125	125
	0.25		55	85	100	105	105
	EPS 100 and EPS 100E		0.11	220	250	260	265
		0.12	195	225	235	240	245
		0.13	175	205	215	220	225
		0.15	140	170	180	185	190
		0.18	105	135	145	150	155
		0.22	70	100	110	115	120
		0.25	55	80	95	100	100
		EPS 150 and EPS 150E	0.11	215	240	250	260
	0.12		190	220	230	235	235
	0.13		170	200	210	215	215
	0.15		135	165	175	180	185
	0.18		100	130	140	145	150
	0.22		70	95	110	115	115
	0.25		50	80	90	95	100
EPS 200, EPS 200E, EPS 300 and EPS 300E	0.11		210	235	245	250	255
	0.12	185	210	220	225	230	
	0.13	165	190	200	210	210	
	0.15	135	160	170	175	180	
	0.18	100	125	135	140	145	
	0.22	65	95	105	110	115	
	0.25	50	75	85	95	95	
	Platinum EPS 70, Platinum EPS 70E, Platinum EPS 100, Platinum EPS 100E, Platinum EPS 150 and Platinum EPS 150E	0.11	190	215	225	230	230
0.12		170	195	200	205	210	
0.13		150	175	185	190	190	
0.15		120	145	160	160	165	
0.18		90	115	125	130	130	
0.22		60	85	95	100	105	
0.25		45	70	80	85	85	

(1) Ground-bearing concrete floor construction (Springvale Floorshield on top of slab, below screed finish): 65 mm concrete screed $\lambda = 1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, AVCL, Springvale Floorshield insulation, DPM, 100 mm concrete oversite, 150 mm sand blinding hardcore.

(2) Suspended concrete ground-floor construction (Springvale Floorshield on top of beam and block, below screed finish): 65 mm concrete screed $\lambda = 1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, AVCL, Springvale Floorshield 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.

6.2.2 The products can contribute towards a floor construction satisfying the national Building Regulations in respect of energy economy and heat retention.

7 Sustainable use of natural resources

The products are made from EPS, which is recyclable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the products were assessed.

8.2 Service life

Under normal service conditions, the products will have a life equivalent to the building in which they are incorporated, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by BBA, and the following requirements apply in order to satisfy the performance specified in this Certificate.

9.1.2 The products can be used on suitably designed beam-and-block floors incorporating Type R2 semi-resisting or resisting blocks to BS EN 15037-2 : 2009 and self-bearing beams to BS EN 15037-1 : 2008.

9.1.3 Ground-bearing floors must 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 with a plasticity Index of 10% or greater (shrinkable fills are susceptible to clay heave).

9.1.4 Ground-bearing concrete floors incorporating the products must include a suitable DPM laid beneath the insulation, in accordance with the relevant clauses of CP 102 : 1973, BS 8102 : 2009 and BS 8215 : 1991 (see section A.4 of this Certificate).

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

9.1.6 Where a concrete screed or slab finish is to be laid directly over the products, a polyethylene separating layer/AVCL must be installed between the insulation and the concrete to prevent chemical attack and seepage between the boards (see section A.6). 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.

9.1.7 External and internal walls must not be built on the insulation.

9.1.8 If present, mould or fungal growth must be treated prior to the application of the products.

9.1.9 Calculations of the thermal transmittance (U value) of a floor must be carried out in accordance with BS EN ISO 13370 and BRE Report BR 443 : 2019.

9.1.10 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.

Interstitial condensation

9.1.11 Floors will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021.

9.1.12 When the products are used above the DPM on a ground-bearing floor or suspended concrete floor, an AVCL is installed on the warm side of the insulation to limit the risk of interstitial condensation, unless a risk assessment shows this is not necessary.

Surface condensation

9.1.13 In England and Wales, 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 9.1.10 of this Certificate.

9.1.14 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 and the floor is designed and constructed in the accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 9.1.10 of this Certificate.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A.

Incorporation of services

9.2.3 De-rating of electrical cables must 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. Where underfloor heating systems are to be used, the advice of the Certificate holder should be sought, but such advice is outside the scope of this Certificate.

9.2.4 Where possible, electrical conduits, gas and water pipes or other services must be contained within ducts or channels within the concrete slab of ground bearing floors. Where this is not possible, the services must be accommodated within the insulation, provided they are securely fixed to the concrete slab. Electrical cables that are likely to come into contact with the insulation must be protected by a suitable conduit or PVC-U trunking. With hot pipes, the insulation must be cut back to maintain an air space.

9.2.5 Where water pipes are installed below the insulation, they must be pre-lagged with close-fitting pipe insulation.

9.2.6 Where the products are installed on a floor of a suspended beam-and-block design, all services must be installed in accordance with a BBA Certificate for that floor and/or with the relevant Codes of Practice.

9.2.7 To provide support for a particle board cover on overlay board floors 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. The duct must be as narrow as possible and not exceed 400 mm in width or the maximum particle board spans given in PD CEN/TR 12872 : 2014 without intermediate support. Services must be suitably fixed to the floor base and not to the insulation boards.

9.3 Workmanship

Practicability of installation was assessed by the BBA. To achieve the performance described in this Certificate, installation of the products must be carried out by a competent general builder, or a contractor, experienced with these types of products.

9.4 Maintenance and repair

As the products are confined within the floor and has suitable durability, maintenance is not required.

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the products are delivered to site in packaging bearing the manufacturer's trade name product description, and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The products must be protected from prolonged exposure to sunlight and must be stored either under cover or protected with opaque polythene sheeting. Where possible, packs should be stored inside. If outside, the products must be stacked flat, and raised above ground level and not be in contact with ground moisture.

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

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

Supporting information in this Annex is relevant to the products but has not formed part of the material assessed for the 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.

CE marking

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

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM/13871) and BS EN ISO 14001 : 2015 by Citation ISO Certification Ltd (Certificate 173582010).

Additional information on installation

A.1 Typical methods of installation are shown in Figures 1 to 7. Reference should be made to BRE Report BR 262 : 2002.

A.2 In ground-bearing concrete floors , 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.

A.3 The concrete floor surface should be smooth, level and flat to within 5 mm when measured with a two-metre straight edge. Irregularities greater than this must be removed. Minor irregularities (up to 10 mm deep) may be levelled with mortar or thin screed.

A.4 Additionally, 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 allowed to dry out fully before laying the insulation.

A.5 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.

A.6 An AVCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation if necessary (see section 9.1.12). Where a concrete screed or slab finish is to be laid directly over the products, a polyethylene separating layer/AVCL must be installed between the insulation and the concrete to prevent seepage between the boards.

A.7 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.

A.8 To limit the risk of damage from 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.

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

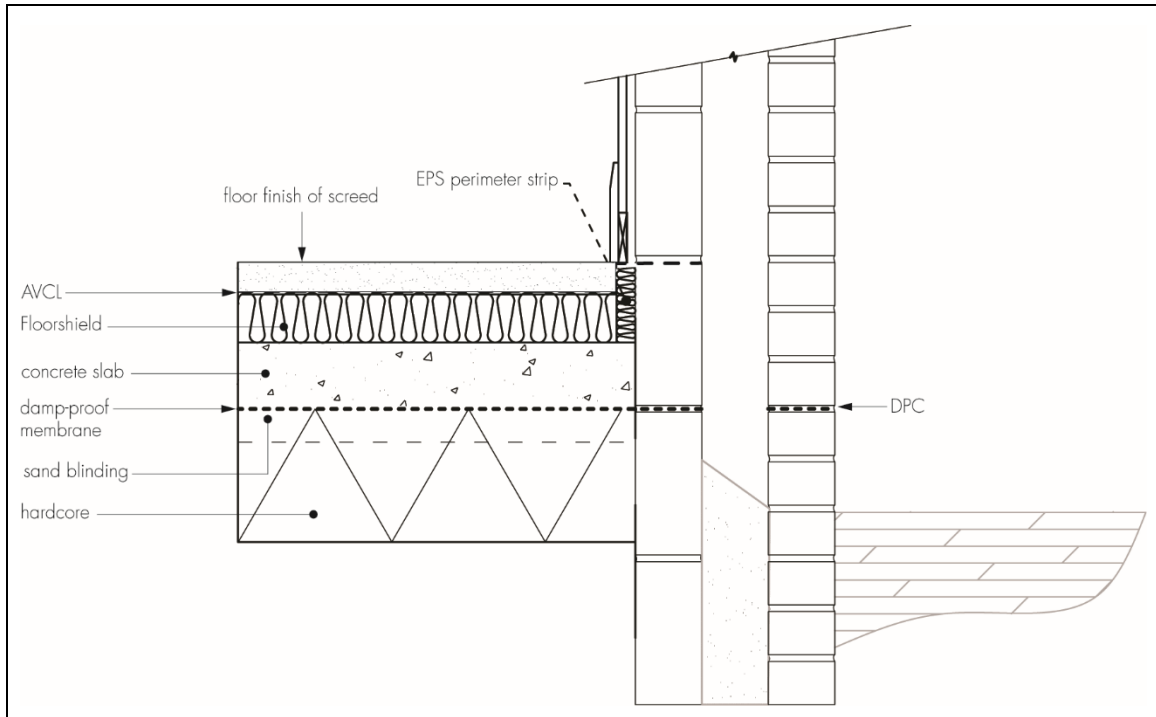


Figure 2 Typical installation details – particle board (DPM over concrete slab)

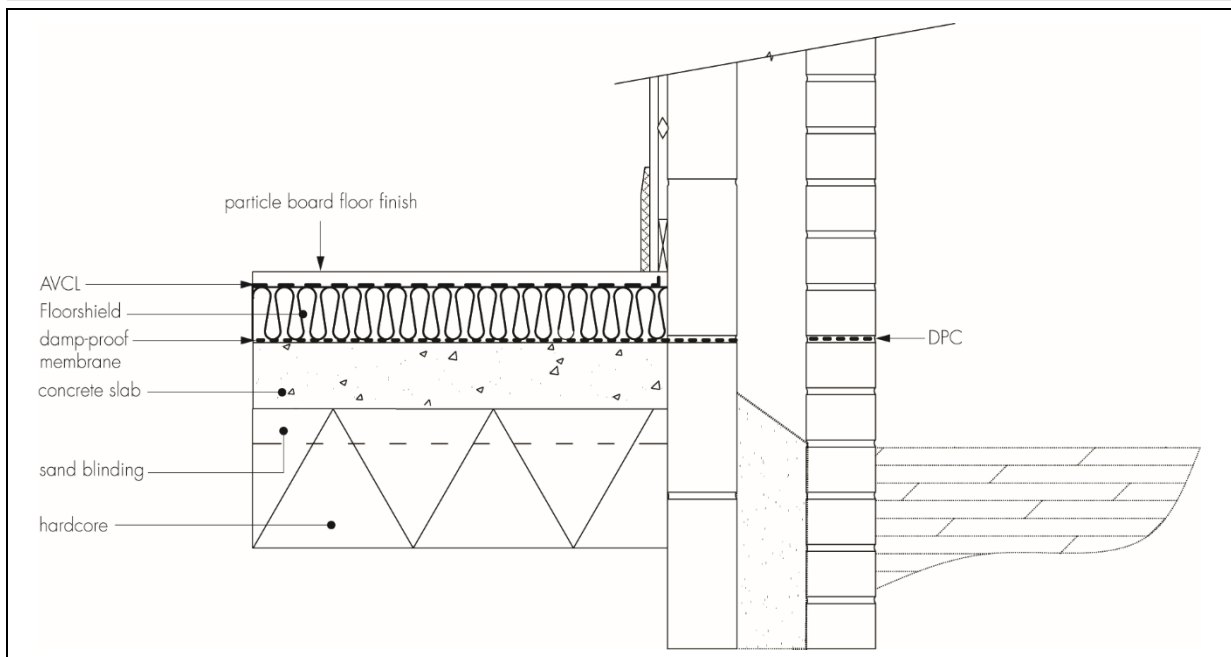


Figure 3 Typical installation details — particle board (DPM under concrete slab)

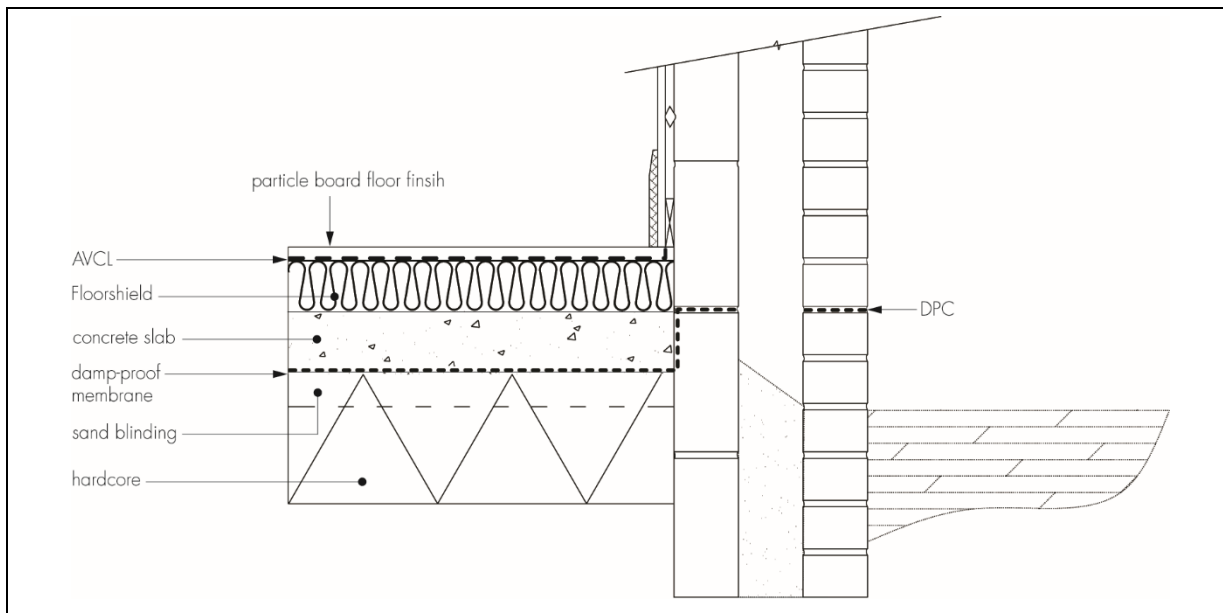


Figure 4 Typical installation details — under concrete slab (DPM under insulation)

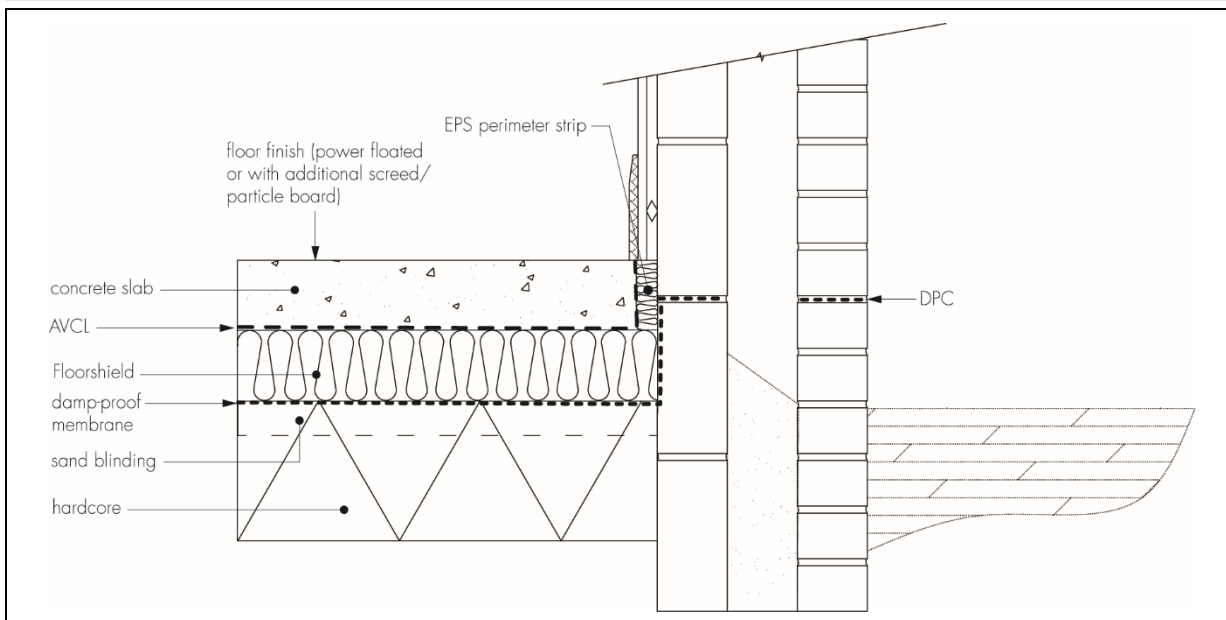


Figure 5 Typical installation details — suspended concrete ground floor with DPM and AVCL

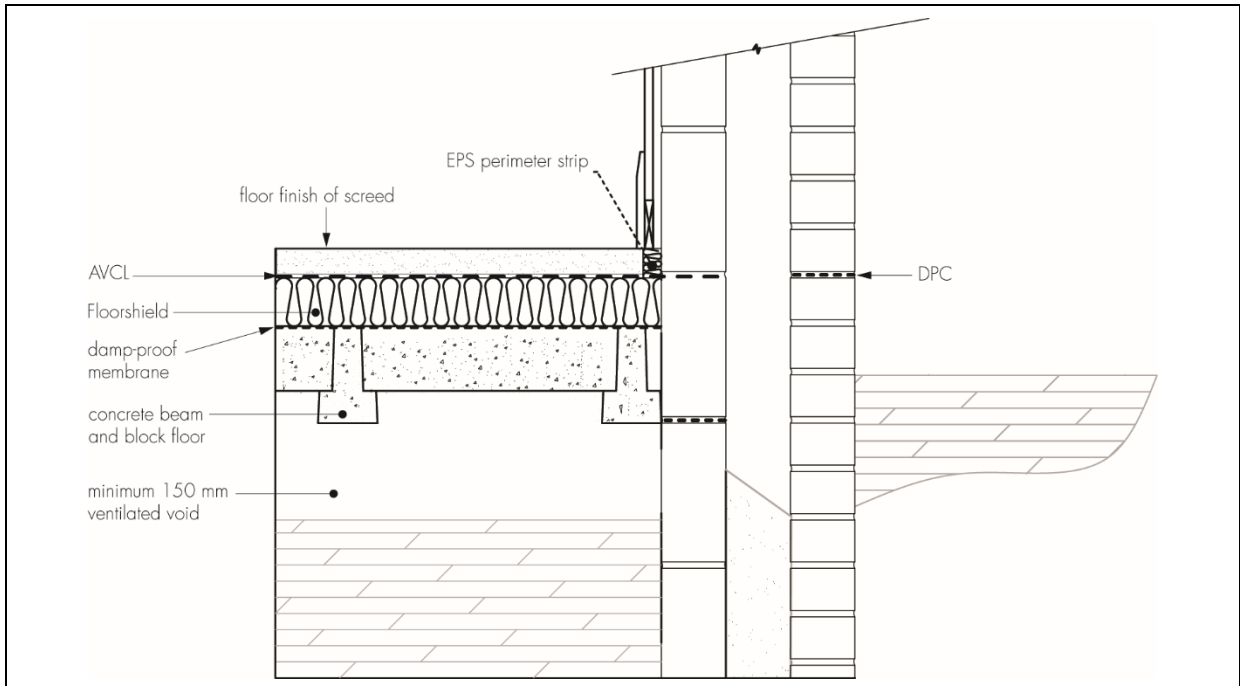


Figure 6 Typical installation details — suspended concrete ground floor with AVCL only (screed finish)

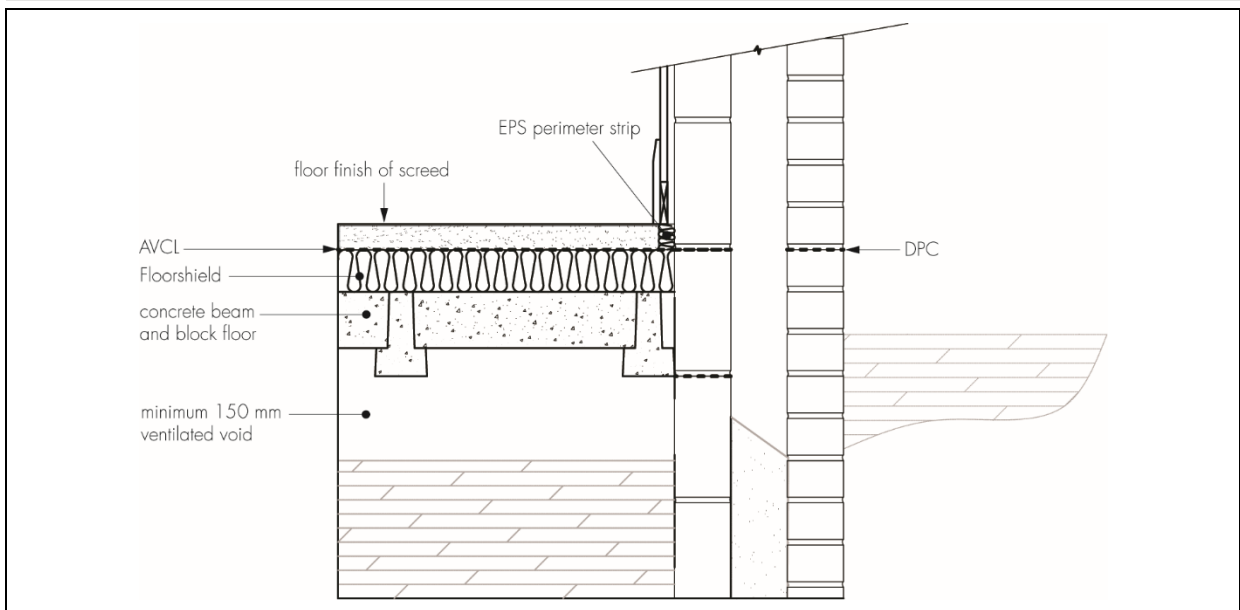
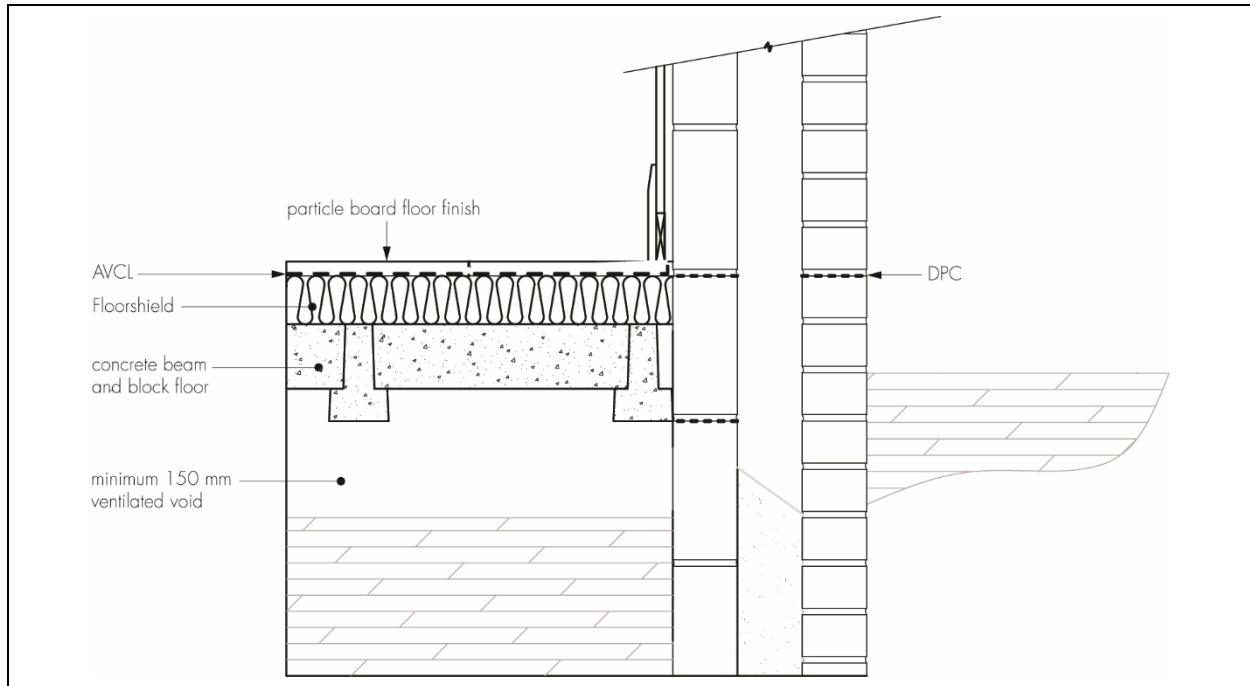


Figure 7 Typical installation details — suspended concrete ground floor with AVCL only (particle board finish)



Procedure

A.9 The boards 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. The boards can be cut to fit around service penetrations, and care must be taken to minimise gaps in the insulation layer (eg by filling with expanded foam insulation).

A.10 The laying pattern should ensure that all cut edges are at the perimeter of the floor or some other feature, eg matwells, thresholds or access ducts. Spreader boards should be used to protect the insulation.

Timber-based board overlay

A.11 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.

A.12 Where the insulation is laid above a DPM, a polyethylene AVCL of at least 0.125 mm (500 gauge) thickness is laid between the insulation and the timber board overlay. The AVCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls.

A.13 Timber based overlay boards as specified in Ancillary Items are laid with staggered cross-joints, in accordance with PD CEN/TR 12872 : 2014 and BS EN 12871 : 2013.

A.14 An expansion gap between the overlay board and the perimeter walls should be provided at a rate of 2 mm per metre run or a minimum of 10 mm, whichever is the greater.

A.15 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.

A.16 Before the overlay boards are interlocked, a waterproof PVA adhesive is applied to the joints.

A.17 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.

A.18 When the wedges are removed and before the skirting boards are fixed, a suitable compressible filler (eg foamed polyethylene) should be fitted around the perimeter of the floor between the overlay board and the walls.

A.19 Where there is a likelihood of regular water spillage in rooms (eg in kitchens, bathrooms, and shower and utility rooms), additional overlay board protection should be considered, eg a continuous flexible vinyl sheet flooring with welded joints, which is turned up at abutments and cove skirting.

Cement-based screed overlay

A.20 Perimeter edge insulation is placed around the edges and an AVCL, at least 0.125 mm thick (500 gauge), is laid over the insulation. The AVCL must have minimum 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. 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)

A.21 Perimeter edge insulation is placed around the edges and an AVCL, at least 0.125 mm thick (500 gauge), is laid over the insulation. The AVCL must have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. The concrete slab is laid to the required thickness in accordance with BS 8000-9 : 2003 and BS 8204-1 : 2003.

Suspended concrete floor

A.22 When the products are being laid on a suspended floor of concrete beams with block infill, they should be laid as detailed for cement-based screed or timber board overlay.

Bibliography

- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
BRE Report BR 443 : 2019 *Conventions for U-value calculations — Code of practice*
- BS 5250 : 2021 *Management of moisture 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 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 + 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 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 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*
- BS EN 13163 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made expanded polystyrene (EPS) 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 15037-1 : 2008 *Precast concrete products — Beam-and-block floor systems — Beams*
BS EN 15037-2 : 2009 + A1 : 2011 *Precast concrete products — Beam-and-block floor systems — Concrete blocks*
- BS EN ISO 9001 : 2015 *Quality management systems – Requirements*
- 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 : 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/TR 12872 : 2014 *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*

Conditions

1 This Certificate:

- relates only to the product 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
- 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.