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**Agrément
Certificate
No 07/4411**

Designated by Government
to issue
European Technical
Approvals

SPRINGVALE BEAMSHIELD PLUS AND PLATINUM BEAMSHIELD PLUS SYSTEM

Système de solives et dalles porteuses pour planchers
Bodenbalken

Product



• THIS CERTIFICATE RELATES TO THE SPRINGVALE BEAMSHIELD PLUS AND PLATINUM BEAMSHIELD PLUS SYSTEM, COMPRISING A RANGE OF EXPANDED POLYSTYRENE (EPS) UNITS, POLYSTYRENE INFILL SHEETS AND PUSH-FIX PINS.

• The system is used to construct insulated, suspended ground floors when used in conjunction with prestressed concrete T-beams, concrete perimeter blocks, concrete closure blocks and a structural screed. Each of these components must be to the Certificate holder's specification.

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of floors with the Building Regulations, and the requirements of the Building Regulations to which floor components can contribute in achieving compliance. In the opinion of the BBA, the Springvale Beamshield Plus and Platinum Beamshield Plus System, if installed and used in accordance with the conditions stated in this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: A1(1)

Loading

Comment:

Floors incorporating the system can be designed to sustain and transmit dead and imposed floor loads to the ground. See sections 8.1 to 8.6 of this Certificate.

Requirement: C2(c)

Resistance to moisture

Comment:

Floors incorporating the system can adequately limit the risk of surface and interstitial condensation. See sections 11.1 and 11.2 of this Certificate.

Requirement: L1(a)(i)

Conservation of fuel and power

Comment:

The system can contribute to meeting this Requirement. See sections 9.1 to 9.4 of this Certificate.

Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See sections 15.1 and 15.2 of this Certificate.

2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, the Springvale Beamshield Plus and Platinum Beamshield Plus System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction meeting this Regulation. See sections 15.1 and 15.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	1.1	Structure
Comment:		Floors incorporating the system can be designed to be capable of safely accommodating dead and imposed loads, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See sections 8.1 to 8.6 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system will have a minimal risk of interstitial and surface condensation, with reference to clause clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.3 ⁽¹⁾⁽²⁾ and 3.15.4 ⁽¹⁾⁽²⁾ . See sections 11.1 and 11.2 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying the requirements of this Standard, with reference to clauses 6.2.1 ⁽¹⁾⁽²⁾ to 6.2.3 ⁽¹⁾⁽²⁾ . See sections 9.1 to 9.4 and 10 of this Certificate. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

3 The Building Regulations (Northern Ireland) 2000 (as amended)



In the opinion of the BBA, the Springvale Beamshield Plus and Platinum Beamshield Plus System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See sections 15.1 and 15.2 of this Certificate.
Regulation:	C5	Condensation
Comment:		The system will have a minimal risk of interstitial condensation. See sections 11.1 and 11.2 of this Certificate.
Regulation:	D1	Stability
Comment:		Floors incorporating the system can be designed to sustain and transmit dead and imposed floor loads to the ground. See sections 8.1 to 8.6 of this Certificate.
Regulation:	F2(a)(i)	Conservation measures
Comment:		The system can satisfy the requirements of this Regulation. See sections 9.1 to 9.4 and 10 of this Certificate.

4 Construction (Design and Management) Regulations 2007 Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

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

See section: *6 Delivery and site handling (6.2).*

5 Description

5.1 The Springvale Beamshield Plus and Platinum Beamshield Plus System comprises EPS units, polystyrene sheets and push-fix pins. To construct a suspended ground floor, the system must be used in conjunction with prestressed concrete T-beams, concrete perimeter blocks (where specified) and a structural concrete screed. Each of these components to the Certificate holder's criteria.

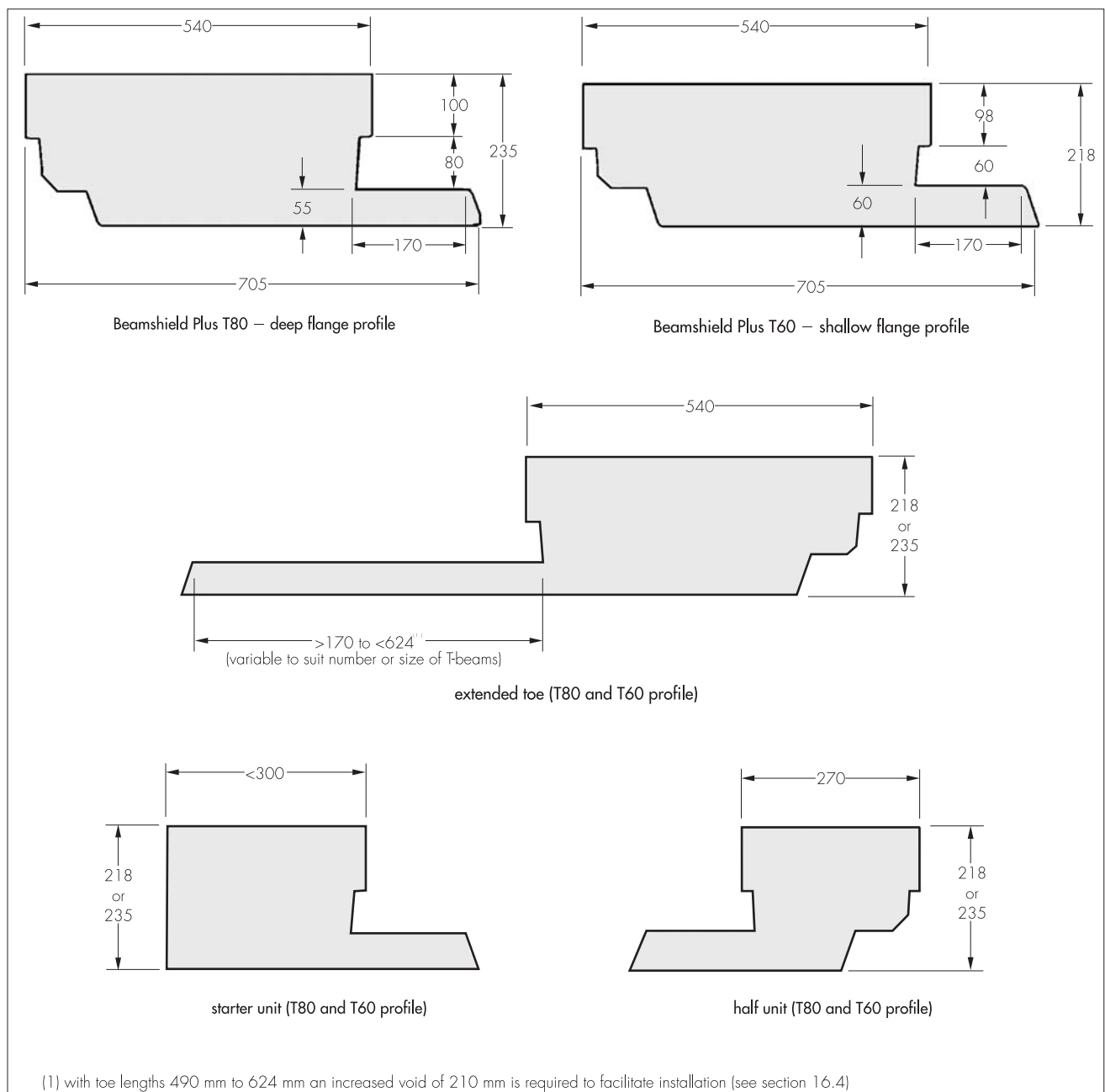
5.2 Component items incorporated in the system (where required depending on intended layout) and covered by this Certificate are:

- expanded polystyrene units — available in two profiles and grades (see Figure 1) with a thermal conductivity ($\lambda_{90/90}$ value) of $0.038 \text{ Wm}^{-1}\text{K}^{-1}$ for Beamshield Plus and $0.030 \text{ Wm}^{-1}\text{K}^{-1}$ for

Platinum Beamshield Plus. Half, starter and extended-toe units are also available. The units are available in 1200 mm lengths and can be cut to suit various T-beam lengths. The unit dimensions are designed to be compatible with prestressed concrete T-beams designed to support 100 mm deep concrete flooring blocks

- polystyrene infill sheets — 60 mm thick and polystyrene edge strips (30 mm thick), are used and, where specified in conjunction with concrete perimeter blocks to provide continuous insulation cover of the floor
- the expanded polystyrene units and polystyrene infill sheets are manufactured using conventional moulding techniques from expanded polystyrene beads and have a nominal density of 15 kgm^{-3}
- push-fix pins — 1.8 mm in diameter, manufactured from stainless steel to BS EN 10088-1 : 2005, grade 302, and are used to support the polystyrene sheet (see Figure 2).

Figure 1 Polystyrene (EPS) unit dimensions — all dimensions in mm



5.3 Items used in conjunction with the Certificated products (see section 5.2) to form the floor construction, should be to the Certificate holder's criteria as defined:

- structural concrete screed — should be in accordance with BS 8500-2 : 2006, with a maximum aggregate size of 10 mm (and other criteria as Table 1) or screeds with equivalent structural performance
- prestressed concrete T-beams — used with the system must be designed to BS 8110-1 : 1997 or have BBA (or other third party) certification. Dimensions of typical widely-available T-beams are shown in Figure 3
- concrete closure blocks (see Figure 4) — should have BBA (or other third party) certification and must have a compressive strength equal to, or greater than, that of the blocks used to form the inner leaf of the wall.

Figure 2 Push-fix pins

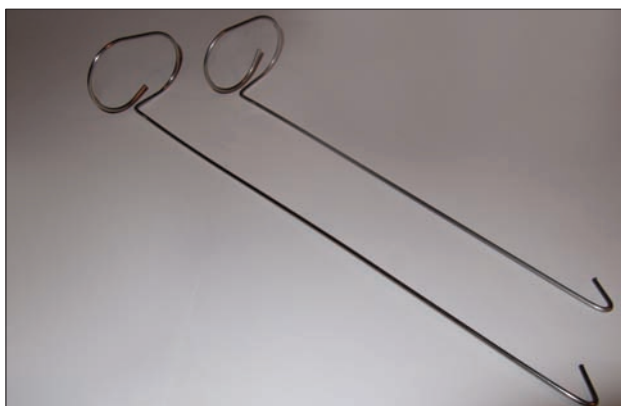


Table 1 Structural concrete screed specification — Beamshield Plus

Use ⁽¹⁾	Specification
Domestic and residential	60 mm thick, C25/30 concrete reinforced with A142 mesh or 60 mm thick, C28/35 selflevelling/self-compacting concrete reinforced with A142 mesh or
Domestic, residential	60 mm thick, C25/30 concrete incorporating 0.91 kgm ⁻³ of Fibrin 23 polypropylene fibres, or
Communal areas in flats and offices	60 mm thick, C28/35 selflevelling/self-compacting concrete with 0.75 kgm ⁻³ of Fibrin PC12 polypropylene 75 mm thick, C25/30 or C28/35 selflevelling/self-compacting concrete with a steel mesh sized in accordance with BS 8110-1 : 1997

(1) See section 8.2.

Figure 3 Typical prestressed concrete joist section — all dimensions in mm

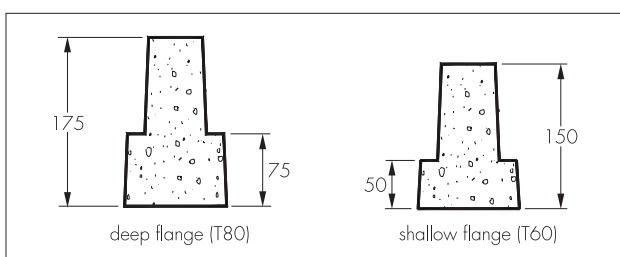
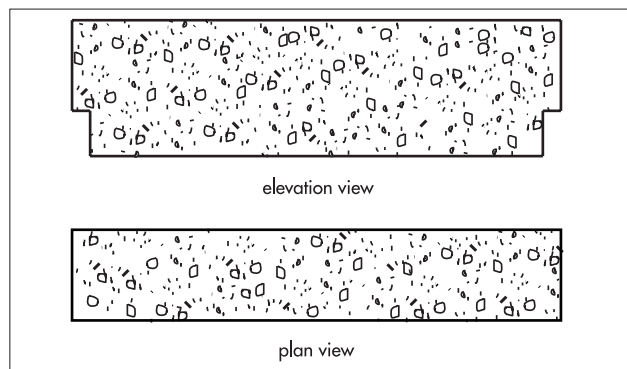
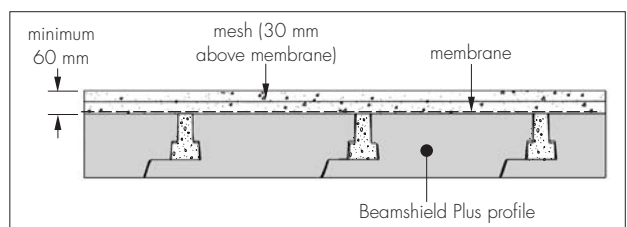


Figure 4 Typical proprietary closure block



5.4 Where radon barriers or other membranes are required, BBA certificated products should be used and installed in accordance with that Certificate (see Figure 5).

Figure 5 Typical membrane installation — Beamshield Plus



6 Delivery and site handling

6.1 Polystyrene components are polyethylene wrapped but are unprotected. Reasonable care must be taken during transit and storage to avoid damage.

6.2 The polystyrene components should be stacked on a flat base, clear of the ground and protected against direct sunlight and secured to avoid wind damage. Care must be taken to avoid contact with solvents and with materials containing volatile organic components, such as coal tar, pitch and timber newly treated with creosote.

Design Data

7 General

The Springvale Beamshield Plus and Platinum Beamshield Plus System EPS units are assessed as suitable for use as part of a ground-floor installation.

8 Structural performance

8.1 The structural floor screed spans between the prestressed concrete T-beams at nominal 600 mm centres. When used with starter units (Beamshield Plus and Platinum Beamshield Plus) the screed may project beyond the last T-beam by a maximum of 300 mm.

8.2 Calculations in accordance with BS EN 1992-1-1 : 2004 (Eurocode 2) in conjunction with structural tests were used to verify the ability of the concrete toppings to be used in

situations where the following design loads are applicable:

Domestic and residential⁽¹⁾

- point load of 1.4 kN
- uniformly distributed load of 1.5 kNm⁻², together with an allowance of 1 kNm⁻² for partitions
- line load of 5 kNm⁻¹ from blockwork, both perpendicular and parallel to the span.

Communal areas in flats and offices⁽¹⁾⁽²⁾

- point load of 4.5 kN
- uniformly distributed load of 5 kNm⁻², together with an allowance of 1 kNm⁻² for partitions.
- line load of 5 kNm⁻¹ from blockwork, both perpendicular and parallel to the span.

(1) The system can be designed to accommodate higher loads, however, these values are outside the scope of this Certificate. For advice contact the Certificate holder's Technical Department.

(2) Or locations where similar loads are applicable.

8.3 The structural properties of the concrete T-beams calculated in accordance with BS 8110-1 : 1997 should be obtained from the manufacturer or third-party certification documents. The following considerations apply:

- the bearing length of the prestressed concrete T-beams must be determined in accordance with BS 8110-1 : 1997. Support walls must be designed to carry the full dead and imposed floor loadings
- where multiple concrete T-beams are used to support blockwork walls, the spaces between the top flanges of the T-beams should be infilled with concrete of minimum strength class of C25/30, to ensure unity of action
- maximum allowable spans of concrete T-beams/floor system are not covered by this Certificate.

8.4 Due to manufacturing and construction tolerances, the bearings of the polystyrene units may be reduced. It is important to ensure that the minimum bearing that the polystyrene has on the supporting T-beam, is 15 mm. The system is designed to have a normal bearing of 20 mm with 5 mm allowance made for misalignment and manufacturing tolerances in the straightness of the T-beam.

8.5 Where the T-beams run parallel to the external cavity walls, starter units may be used between the T-beam and the inner leaf of the external wall (see Figure 6).

8.6 Where the T-beams run adjacent to the external wall and rest against the inner skin, polystyrene infill is used as a thermal break (see Figure 6e).

9 Thermal performance

9.1 The thermal performance of each building, incorporating the units must be evaluated in accordance with the relevant national Building Regulations, and is the responsibility of the overall designer of the building. The Certificate holder can provide calculations under *The Government's Standard Assessment Procedure for Energy Rating of Dwellings* (SAP 2005) if required to meet the Regulations.

9.2 Calculations of the thermal transmittance (U value) of specific floors should be based on an EPS nominal thermal conductivity value of 0.038 Wm⁻¹K⁻¹ (for Beamshield Plus) and 0.030 Wm⁻¹K⁻¹ (for Platinum Beamshield Plus) and the relevant unit dimensions.

9.3 Typical ground-floor U values, calculated in accordance with BS EN ISO 6946 : 1997 and BS EN ISO 13370 : 1998, indicate the values shown in Table 2.

Table 2 Floor U values

Perimeter/ area ratio	U value (Wm ⁻² K ⁻¹) ⁽¹⁾⁽²⁾					
	Platinum Beamshield Plus			Beamshield Plus		
	Deep flange	Shallow flange	Improvement in elemental value (%) ⁽³⁾	Deep flange	Shallow flange	Improvement in elemental value (%) ⁽³⁾
0.4	0.17	0.17	32	0.20	0.20	20
0.5	0.18	0.18	28	0.21	0.21	16
0.6	0.18	0.18	28	0.21	0.21	16
0.7	0.19	0.19	24	0.22	0.22	12
0.8	0.19	0.19	24	0.22	0.22	12
0.9	0.19	0.19	24	0.22	0.22	12

(1) The average slab U value is slightly dependent on the number and type of concrete perimeter blocks within the floor area, use of multiple concrete T-beams and floor finishes, and must be taken into account in any calculation.

(2) The calculated U values are based on the following parameters:

- structural concrete topping : thickness 60 mm above the top of the joist — conductivity 2.0 Wm⁻¹K⁻¹
- precast concrete joist — conductivity 2.3 Wm⁻¹K⁻¹
- polystyrene — conductivity 0.038 Wm⁻¹K⁻¹ and 0.030 Wm⁻¹K⁻¹ (for Platinum) ($\lambda_{90/90}$ value) declared by manufacturer
- soil (taken as typical clay) — conductivity 1.5 Wm⁻¹K⁻¹
- wall (300 mm thick) U value — 0.35 Wm⁻²K⁻¹
- slab U value (mean) — 0.27 Wm⁻²K⁻¹ for Beamshield Plus and 0.22 Wm⁻²K⁻¹ for Platinum Beamshield Plus
- design wind speed — 5 ms⁻¹
- underfloor ventilation — 0.0015 m²m⁻¹
- wind shielding factor — 0.05
- void depth under slab — 150 mm (nominal).

(3) Compared to the value of 0.25 Wm⁻²K⁻¹ required for the 'notional building'.

9.4 Constructions incorporating the floor can meet the requirements of the national Building Regulations thus:

England and Wales

- ground floors incorporating Beamshield Plus panels can improve on the U value ($0.25 \text{ Wm}^{-2}\text{K}^{-1}$) required for the notional building. The panels therefore, can, contribute to a building achieving the required overall carbon dioxide emission rate reduction of on average 20% for dwellings and 23% or 28% (for air-conditioned locations) for buildings other than dwellings (see Table 2)
- junctions shown in Figure 6 adequately limit heat loss by conduction and, when installed to limit air infiltration (see section 10) comply with the requirements of *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings* TSO 2002. Junctions shown in Figure 6 also comply with the requirements of the Accredited Construction Details, (version 1.0). The default psi values quoted in BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3, may be taken for these junctions and be used in calculations to *The Government's Standard Assessment Procedure for Energy Rating of Dwellings* (SAP 2005) or the Simplified Building Energy Model (SBEM).

Scotland

- ground floors incorporating Beamshield Plus panels achieve U values better than the $0.25 \text{ Wm}^{-2}\text{K}^{-1}$ value required by the Elemental Method of compliance (see Table 2)
- junctions shown in Figure 6 adequately limit heat loss by conduction and comply with the requirements of BRE report (BR 262 : 2002) *Thermal insulation: avoiding risks*.

Northern Ireland

- ground floors incorporating Beamshield Plus panels can improve on the U value ($0.25 \text{ Wm}^{-2}\text{K}^{-1}$) required for the notional building. The panels therefore, can, contribute to a building achieving the required overall carbon dioxide emission rate reduction of on average 20% for dwellings and 23% or 28% (for air-conditioned locations) for buildings other than dwellings (see Table 2)
- junctions shown in Figure 6 adequately limit heat loss by conduction and, when installed to limit air infiltration (see section 10) comply with the requirements of the Accredited Construction Details, (version 1.0). The default psi values

quoted in BRE Information Paper IP 1/06, Table 2, may be taken for these junctions and be used in SAP 2005 or SBEM calculations.

10 Air infiltration



To minimise heat loss by unwanted air infiltration, care must be taken to effectively seal service penetrations and junctions with abutting walls. Design guidance is given in the documents referred to in section 9.4.

11 Condensation risk



11.1 To minimise the risk of interstitial condensation at junctions with external walls, specifiers should ensure that wall insulation extends to at least 150 mm below the bottom of the structural concrete screed. The structural screed should be isolated from the wall using 30 mm thick EPS strip (see Figure 6).

11.2 The risk of surface condensation will be minimal in normal circumstances.

12 Underfloor heating

Underfloor heating maybe used in conjunction with the Beamshield Plus System. However, the concrete topping thickness as defined in Table 1 is required above the top of the underfloor heating pipe. The system and components used in such systems are outside the scope of this Certificate. (For further information contact the Certificate holder).

13 Ventilation

Ventilators should provide the void beneath the floor with an equivalent open area of:

England and Wales/Northern Ireland

Either 1500 mm^2 per metre of external perimeter wall or a 500 mm^2 per m^2 of floor area, whichever gives the greater opening area.

Scotland

A 500 mm per m^2 of floor area.

14 Behaviour in relation to fire

An assessment was made of the contribution of the system to the development stages of a fire. The assessment concluded, in relation to floors constructed in accordance with the Certificate holder's specifications, that the polystyrene infill blocks will be contained within the floor by the structural concrete topping, until the topping itself is destroyed. Therefore, they will not contribute to the development stages of a fire or present a smoke or toxic hazard. Electrical cables running within the polystyrene should be enclosed in a suitable conduit, such as rigid PVC.

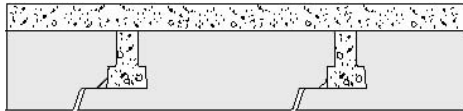
15 Durability

15.1 The exposure condition beneath a suspended ground floor over a ventilated void and soil with no oversite concrete or other surface seal is considered to be 'moderate' for the prestressed concrete T-beams and 'mild' for structural screed as defined in BS 8110-1 : 1997

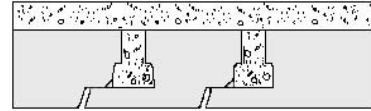
(Table 3.2). The prestressed concrete T-beams and structural screed will have adequate durability for these exposure conditions.

15.2 The polystyrene components are protected in service from agencies liable to cause deterioration and will be as durable as the prestressed concrete T-beams.

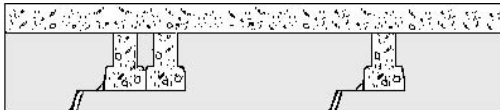
Figure 6 Typical details



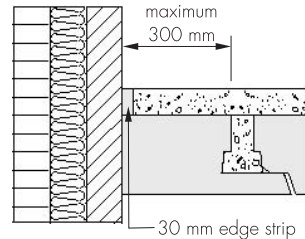
(a) standard construction



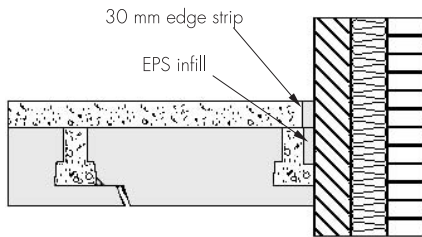
(b) construction with half unit



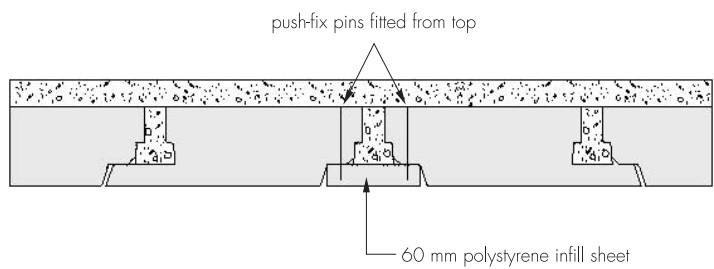
(c) construction with extended toe standard unit



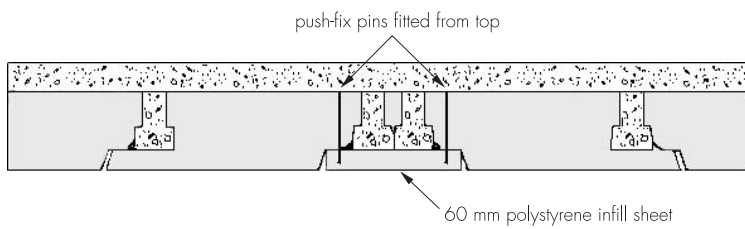
(d) construction with starter unit



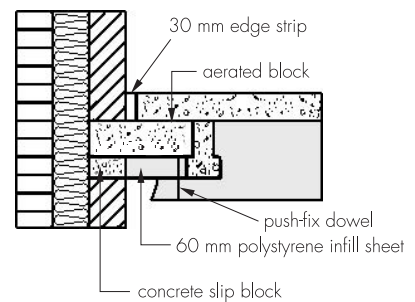
(e) beam adjacent to wall



(f) change of direction of unit – single beam



(g) change of direction of unit – multiple beam



(h) beam parallel to wall

16 Site preparation

16.1 The ground beneath the floor should be free of topsoil and vegetation. Oversite concrete or other surface seal is not required, but material added to bring the solum to an even surface must be hard and dry.

16.2 Damp-proofing and ventilation arrangements must be in accordance with normal good practice, for example, provision of damp-proof sleeves to ventilators and adequate drainage of the sub-floor.

16.3 A continuous damp-proof course should be laid along the support wall below the floor in accordance with BS 8102 : 1990.

16.4 A void at least 150 mm deep must be provided between the underside of the floor construction and the ground surface (210 mm below the T-beam). Extended toe units, where the toe exceeds 490 mm in length, require a void at least 210 mm below the floor construction (ie 270 mm) below the T-beam). With clay soil of medium or high-volume change potential, the void depth should be increased appropriately to prevent problems associated with heave. With good natural drainage or where site drains are provided to prevent water collecting and standing, the ground level beneath the floor does not need to be raised to the external ground level but, where the levels differ, the ability of the perimeter walls to act as retaining walls must be checked.

17 General

17.1 Typical details of the system incorporated within a floor system are shown in Figure 6 and the Certificate holder's literature.

17.2 Concrete T-beams and if applicable, closure blocks should be installed in accordance with the relevant layout drawings.

17.3 The Beamshield units are installed between adjacent concrete T-beams ensuring that they have adequate bearing on the T-beam (see section 8.4).

17.4 The toe of the standard units may be cut to suit on site (eg Figure 6e). Units may also be cut to fit as shown in figure 6d however the projection of the screed beyond the T-beam must not exceed 300mm (see section 8.1).

17.5 Extended toe units are for use below multiple T-beams (see Figure 6c) and they can be cut to suit on site. In such cases the cut, should be at the same angle to ensure it is parallel to the uncut unit. However, polystyrene infill sheets may be necessary (see Figures 6f and 6g). Where polystyrene infill sheets are used a minimum of two push-fit pins per unit is required.

17.6 Care should be taken to avoid overloading the prestressed concrete T-beams during construction. Planks should be laid across the concrete T-beams before materials are stacked; such materials should be as close as possible to the joist bearings.

17.7 Once the units are installed, care must be taken not to walk on them. If a temporary working platform is required the units should be covered with a suitably rigid board. To avoid damage to the units, the structural floor screed should be laid as soon as possible after the units have been installed.

17.8 Before pouring the structural floor screed it must be ensured that the polystyrene units are centrally located between the concrete T-beams with a maximum gap of 5 mm between the polystyrene and the joist face. These gaps may be due to normal construction or manufacturing tolerances.

17.9 Where gaps occur, concrete is placed along the edges of the polystyrene units to prevent displacement during the main concreting operation.

17.10 When steel mesh reinforcement is used, spacers should be installed to ensure 30 mm cover to the top of the beam.

17.11 When using a concrete pump, truck or skip, concrete should not be discharged onto the polystyrene units from heights greater than 300 mm and concrete heaps must not be formed over 150 mm high.

17.12 When wheelbarrows are used, planks must be placed to spread the wheel load to the concrete T-beams.

17.13 Spot boards must be used when tipping and shovelling.

17.14 The concrete screed should be placed and compacted. Provision should be made for a suitable concrete finish to be achieved without standing on the polystyrene units, for example, when using levelling screed.

Technical Investigations

The following is a summary of the technical investigations carried out on the Springvale Beamshield Plus and Platinum Beamshield Plus System units incorporated within a typical floor system.

18 Tests

Tests were carried out to determine:

- the ability of the finished floor to withstand short- and long-term static loads and to distribute point loads to adjacent parallel concrete T-beams (mesh and fibre-reinforced screeds)
- that the structural screed (fibre or mesh reinforced) can span between concrete T-beams to resist loading without excessive deflection
- the adequacy of the polystyrene units for use as permanent formwork (resistance to construction loads)
- creep under sustained loading
- the ability of the finished floor to withstand impact loads
- the ability of the finished floor to withstand line loads from blockwork partition walls parallel and perpendicular to the prestressed concrete T-beams.

19 Investigations

19.1 An examination was made of existing data to:

- structural performance
- durability of the system
- condensation risk
- thermal properties
- fire risk assessment.

19.2 U values and floor/wall junction psi values were derived for the floor system using modelling to BS EN ISO 13370 : 1998. The risk of condensation was examined.

19.3 Site visits were carried out to assess the practicability of installation including setting out and placement of the prestressed concrete

19.4 The manufacturing processes for the polystyrene infill blocks and sheets were examined including the methods adopted for quality control, and details obtained of the quality and composition of the materials used.

Bibliography

BS 8102 : 1990 *Code of practice for protection of structures against water from the ground*

BS 8110-1 : 1997 *Structural use of concrete — Code of practice for design and construction*

BS 8500-2 : 2006 *Concrete — Complementary British Standard to BS EN 206-1 — Specification for constituent materials and concrete*

BS EN 934-3 : 2003 *Admixtures for concrete, mortar and grout — Admixtures for masonry mortar — Definitions, requirements, conformity, marking and labelling*

BS EN 1992-1-1 : 2004 *Eurocode 2 : Design of concrete structures. General rules and rules for buildings*

BS EN 10088-1 : 2005 *Stainless steels — List of stainless steels*

BS EN 12620 : 2002 *Aggregates for concrete*

BS EN ISO 6946 : 1997 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 13370 : 1998 *Thermal performance of buildings — Heat transfer via the ground — Calculation methods*

Conditions of Certification

20 Conditions

20.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

20.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

20.4 In granting this Certificate, the BBA is not responsible for:

- 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
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

20.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, the Springvale Beamshield Plus and Platinum Beamshield Plus System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 07/4411 is accordingly awarded to Springvale EPS Ltd.

On behalf of the British Board of Agrément

Date of issue: 13th April 2007


Chief Executive

