Stylite®

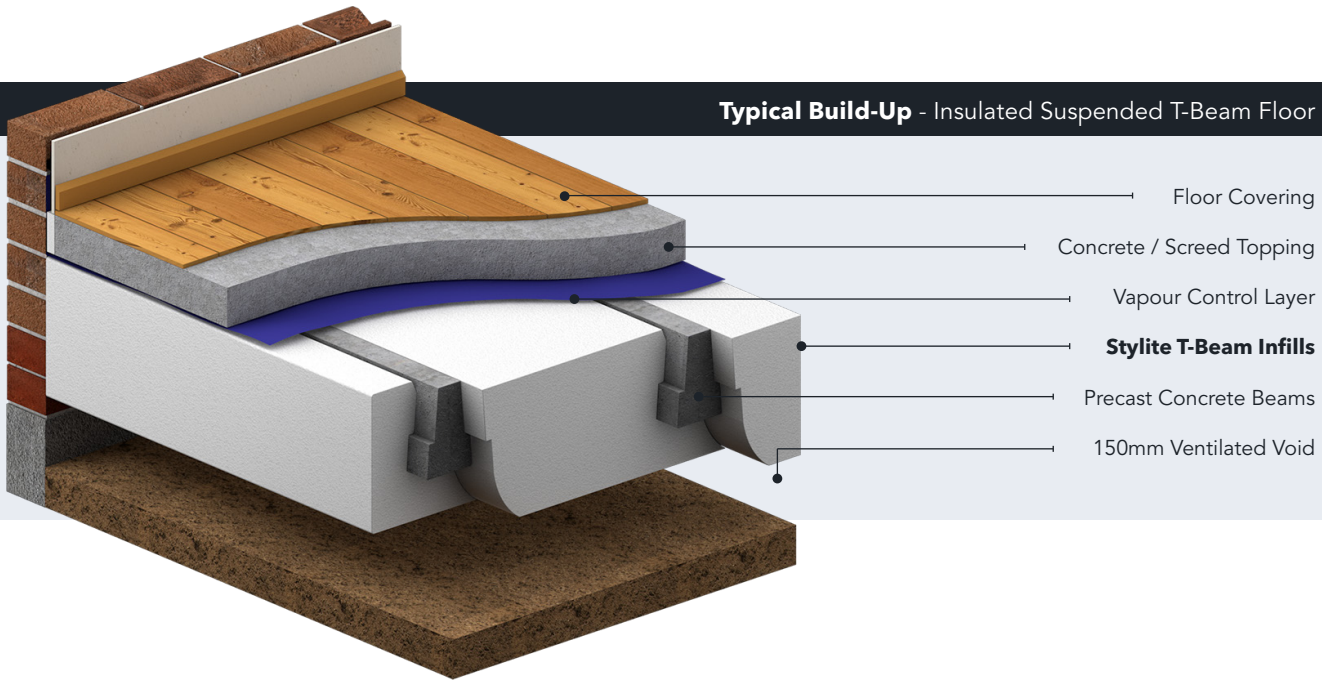
T-BEAM SUSPENDED FLOORING INSULATION DATASHEET

PR_20_93_51_28 - 1_050121

spi

Expanding Possibilities

Typical Build-Up - Insulated Suspended T-Beam Floor



Design Standards

All our Stylite T-Beam Suspended Floor Infills are manufactured in accordance with **BS-EN-13163-2012+A2-2016** and **BS EN 15037-4 : 2010 + A1 : 2013.** Under a Quality Management System accredited to **ISO 9001:2015** and an Environmental Management System accredited to **ISO 14001:2015.**

Accreditations

We hold a British **Board of Agrément Certificate** which covers the applications of suspended concrete ground floors in new or existing dwellings or buildings of similar occupancy. Our BBA certificate offers further technical guidance, Certificate Number **- 13/5021.**

We also hold a **Kiwa BDA Agrément®** which covers the content of this technical datasheet. Our BDA Agrément® offers further technical guidance, Certificate Number - **BAF-17-017-S-A-UK.**

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 13/5021

BDA Agrément
BAF-17-017-S-A-UK

Product Overview

Stylite T-Beam Infills are custom-fit Expanded Polystyrene (EPS) insulation void formers designed for use with precast concrete beams in suspended floors in residential and commercial buildings. The lightweight infill units are contour cut to suit the profile of the concrete beams with a "toe" that extends underneath which interlocks with the next panel. This design eliminates cold bridging and provides a high level of insulation to meet or exceed Building Regulations for thermal performance.

Product Benefits

- Kiwa BDA & BBA Agrément Certified
- Thermal Conductivity from as low as **0.030W/mK**
- Suitable for both commercial and residential
- Reduces cold bridging of beams
- Can be cut to suit any beam profile
- No reduction in performance over time
- Lightweight, quick & easy to install
- Minimal water absorption & permeability
- 100% recyclable
- BRE Green Guide Rating A+

Need a unique quote, U-Value or help specifying Stylite Flooring Insulation, Give us a call now on **: 01274 691 777**

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Unit Dimensions

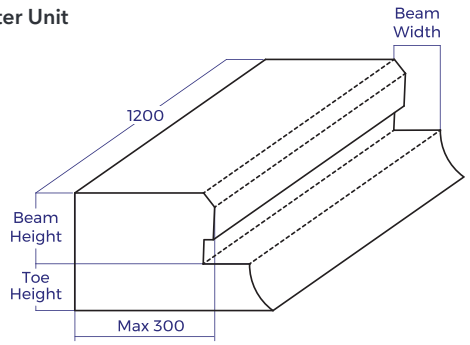
All Stylite T-Beam infill units are a standard 1200mm length, the top width of the standard and half units are always 540mm and 270mm respectively to provide set centres of 600mm and 300mm.

The toe width will change depending on the type and number of precast beams being used. The depth of the toe will also change according to the target U-value, a lower U-value will require a deeper toe. All Stylite T-Beam units are contour cut to suit a specific precast beam profile so the actual dimensions will vary depending on the chosen beam.

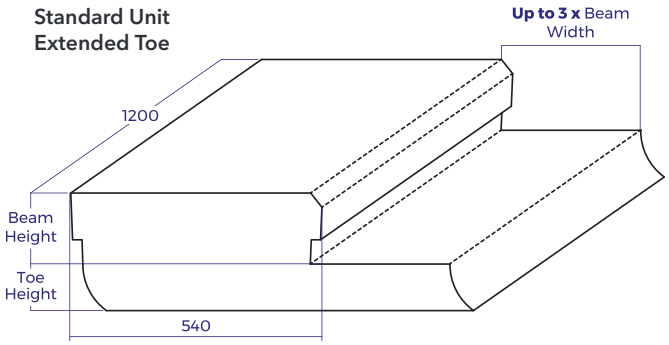
Top Width Dimensions

Starter	No more than 300mm
Half	270mm
Standard	540mm
End	No less than 300mm

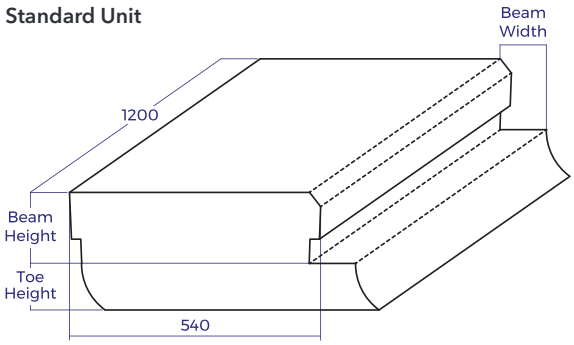
Starter Unit



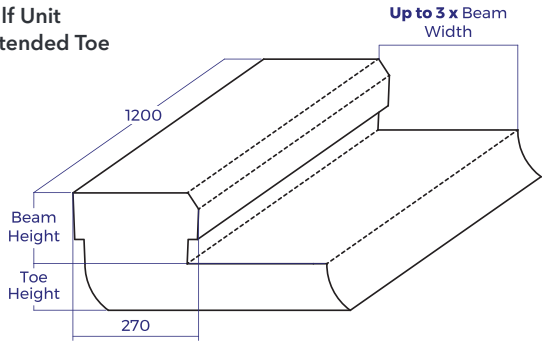
Standard Unit Extended Toe



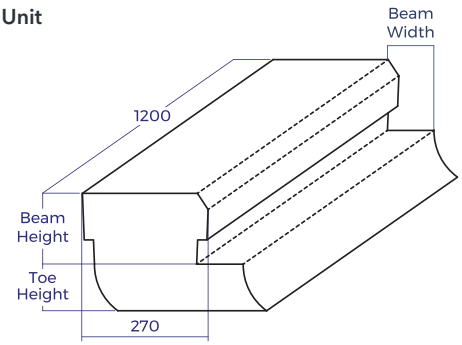
Standard Unit



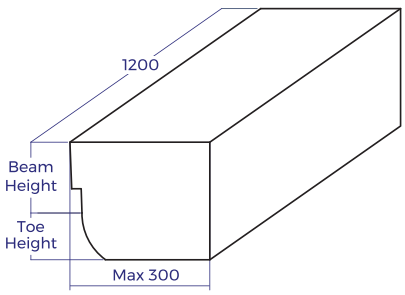
Half Unit Extended Toe



Half Unit



End Unit



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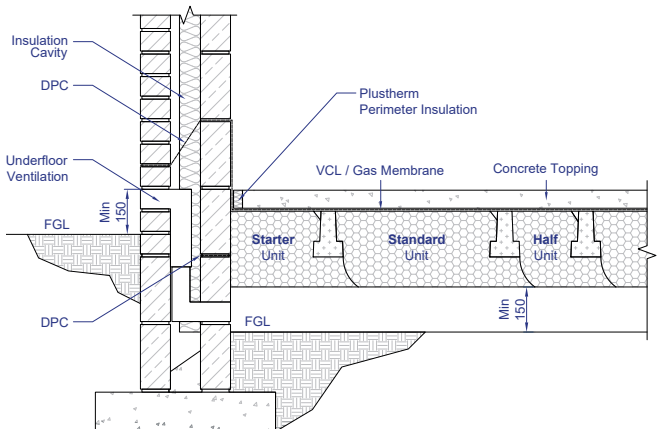
Typical U-Values

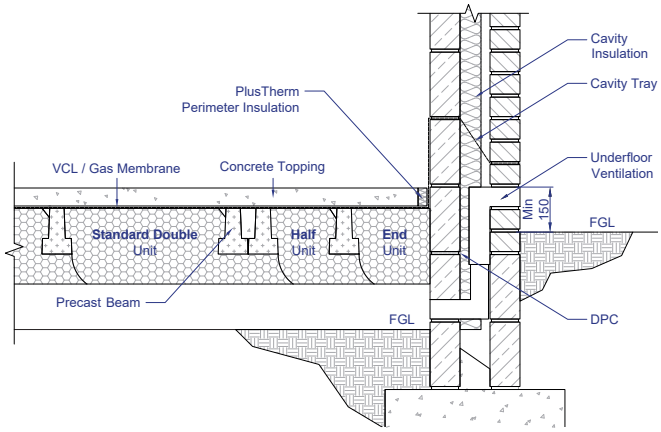
The overall floor u-value will depend significantly on the deck u-value, the ratio of the exposed (and semi-exposed) floor perimeter length to floor area (p/a), the amount of under-floor ventilation and the ground thermal conductivity. Each floor u-value should therefore be calculated to BS EN ISO 13370 : 2017 and BRE Report BR 443 : 2006.

A floor deck u-value (from inside to the underfloor void) will depend significantly on the size and number of precast concrete beams, blocks and block types. If you require a bespoke u-value calculation contact our office and we will be pleased to help.

Typical Application

Insulated Suspended Floor - Concrete / Screed Topping





- 150 mm concrete beam with a thermal conductivity of 2.00 W.m–1.K–1
- Minimum 60 mm concrete screed with conductivity 1.15 W.m–1.K–1.
- Configuration of 100% single beams at full centres.
- All other parameters are default values from BRE Report BR 443 : 2006.

Exceeds minimum toe thickness

P/A - 0.2	Required Thickness (mm)		
U-value (W/m²K)	EPS 70	EPS 100	PlusTherm
0.16			
0.15	235	230	
0.14	250	245	
0.13	270	260	235
0.12	295	285	255
0.11	325	310	275
0.10	360	345	300

P/A - 0.4	Required Thickness (mm)		
U-value (W/m²K)	EPS 70	EPS 100	PlusTherm
0.19			
0.18	230		
0.17	240	235	
0.16	255	245	
0.15	270	260	235
0.14	285	275	245
0.13	305	295	265
0.12	330	320	280
0.11	360	345	305
0.10	395	375	330

P/A - 0.6	Required Thickness (mm)		
U-value (W/m²K)	EPS 70	EPS 100	PlusTherm
0.20			
0.19	230		
0.18	240	235	
0.17	255	245	
0.16	265	255	235
0.15	280	270	245
0.14	300	290	255
0.13	320	310	275
0.12	345	330	290
0.11	370	360	315
0.10	405	390	340

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P/A - 0.6	Required Thickness (mm)		
U-value (W/m²K)	EPS 70	EPS 100	PlusTherm
0.20	230		
0.19	240	230	
0.18	250	240	
0.17	260	250	230
0.16	270	265	240
0.15	290	280	250
0.14	305	295	260
0.13	325	315	280
0.12	350	340	295
0.11	380	365	320
0.10	415	395	345

Specification Clause

All our Stylite Expanded Polystyrene product specifications are available on our website. Alternatively you can use our generic specification clause below to include Stylite T-Beam Suspended Floor Infill Insulation in your design.

The floor insulation shall be Stylite T-Beam Suspended Floor Infill Insulation, EPS___, ___mm toe thickness, manufactured to BS EN 13163-2012+A2-2016 and BE EN 15037-4 : 2010 + A1 : 2013 by Styrene Packaging & Insulation Ltd (SPI). The insulation is to be installed in accordance with SPI's recommendations and installation guide.

Refer to clauses:

E60 Precast concrete floors/ roof decks -

297 Proprietary Infill Blocks

330 Expanded Polystyrene Void Formers

Concrete / Screed Toppings

The specifications are outlined within our BDA Certificate **BAF-17-017-S-A-UK** using Novomesh, Steel fibres, Macro polymer and micro polyolefin fibres and within our **BBA Certificate 13/5021** using Low & Bonnar, Steel macro fibres, Polymer macro fibres. You can be confident that you are specifying a solution which meets NHBC requirements for reinforcement of structural concrete toppings. For more information see our certificates or contact the sales team.

Residential & Domestic	
Macro Fibre (Class 2)	
Grade	C28/35
Minimum Thickness (mm)	75
Maximum Aggregate Size (mm)	10 - 20
Reinforcement Specification	
Durus Easy Finish - Ratio 3.0 kg/m³, 40 mm long, 0.7mm equivalent diameter, tensile strength 470 N/mm², modulus of elasticity 6,000 N/mm²	
Durus S400 - dosage rate 4.0kg/m³, 45mm long, 0.9mm diameter, tensile strength 465N/mm², Modulus of elasticity 3,350 N/mm²	
Novomesh B&BA - dosage rate 3.84 kg·m³, shape of macro fibre: continuously deformed, 60 mm long, 0.56 mm diameter, tensile strength 600 N·mm², modulus of elasticity 7000 N·mm²	

Steel Fibre	
Grade	C28/35
Minimum Thickness (mm)	75
Maximum Aggregate Size (mm)	10 - 20
Reinforcement Specification	
Adfil SF86 - dosage rate 13.33Kg/m³,60mm long, diameter 0.75mm, tensile strength 1,225 N/mm², modulus of elasticity 200,000 N/mm²	
Novomesh B&BA - dosage rate 17.5 kg·m³, steel flat end, fibre length 50 mm, diameter 1.0 mm, tensile strength 1150 N·mm²	

Steel Mesh	
Grade	C28/35
Minimum Thickness (mm)	60
Maximum Aggregate Size (mm)	20
Reinforcement Specification	
A142 Steel mesh - as specified by BS 4483, characteristic yield strength of (f_{yk}) 500 N/mm²	

Commercial	
Steel Mesh	
Grade	C28/35
Minimum Thickness (mm)	65
Maximum Aggregate Size (mm)	20
Reinforcement Specification	
Refer to BS EN 1990, BS 1991-1-1-1, BS EN 1992-1-1 and the UK National Annexes for the design criteria	

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Durability
Expanded Polystyrene is rot proof, Expanded Polystyrene is not affected by bacteria, moulds or fungi, and will not provide nutrient value for insects or vermin.

Expanded Polystyrene does not lose any performance over time and will remain an effective insulation for the life of the building.

Compatibility
Expanded Polystyrene should be kept away from hydrocarbons, solvents and volatile substances, however, Expanded Polystyrene is compatible with most chemicals and materials found in common construction environments. For more information, a full list of chemical behaviours is available on our website.

Stylite Expanded Polystyrene should not come into contact with any PVC cables. This is to avoid plasticizer migration which causes PVC cables to become brittle and fragile. Any PVC cables should be protected within a suitable conduit or with a suitable air gap.

Moisture Resistance & Breathability
Stylite Expanded Polystyrene is hydrophobic and highly resistant to the absorption of water but will allow a very minimal amount of water vapour transfer. Expanded Polystyrene is often utilised with a suitable damp proof membrane or vapour control layer to avoid any unwanted water ingress.

Reaction To Fire Classification
Stylite Expanded Polystyrene will achieve a reaction to fire Euroclass F. We also supply FRA grades which contain a Fire Retardant Additive and achieve a reaction to fire Euroclass E.

Environmental
Our Stylite Expanded Polystyrene does not contain HFC, CFC or HCFC. Expanded Polystyrene has a Global Warming Potential (GWP) of zero and a low O-Zone Depletion Potential (ODP).

Our Expanded Polystyrene is 100% recyclable. For more information on our recycling policy, you can contact our office to find out more visit our website.

BRE Green Guide Rating
Expanded Polystyrene achieves a green guide rating from **A+**.

For a full overview of grades and ratings please see technical specifications overleaf.

Safety
Expanded Polystyrene is non-toxic, non-irritant and odourless, making it completely safe to handle. It can be cut on-site using a fine tooth saw or a hot wire cutter.

Delivery & Storage
The boards are delivered to site in packs, wrapped in Polythene. They must be protected from prolonged exposure to sunlight and UV rays. Packs should be stored either undercover or protected with opaque light-coloured Polythene sheeting.

The products must be stored fully supported and flat on a firm, level base, to prevent bowing. The products must not be exposed to open flame, care should still be taken to ensure EPS doesn't come into contact with any source of ignition.

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Expanding Possibilities

Physical Properties	EPS 70	EPS 100	EPS 150	PlusTherm
Thermal Conductivity (W/mK)	**0.038**	**0.036**	**0.034**	**0.030**
Compressive Strength @ 10% (kPa)	70	100	150	100
Bending Strength (kPa)	115	150	200	150
Water Vapour Permeability (mg Pa.h.m)	0.015 - 0.030	0.009 - 0.020	0.009 - 0.020	0.009 - 0.020
Water Vapour Diffusion Resistance (μ)	20-40	30-70	30-70	30-70
Reaction to Fire - Standard EPS	F	F	F	E
Reaction to Fire - FRA EPS	E	E	E	E
Length Tolerance	L2	L2	L2	L2
Width Tolerance	W2	W2	W2	W2
Thickness Tolerance	T2	T2	T2	T2
Flatness Tolerance	P5	P5	P3	P5
Squareness	S2	S2	S2	S2
Dimensional Stability	DS (N) 5	DS (N) 5	DS (N) 5	DS (N) 5
BRE Green Guide Rating	A+	A+	A+	A+

Please Note: The information contained within this datasheet is true and accurate at the date of issuance and is subject to change without prior notice. It is for guidance only the proper use and application of this product is the responsibility of the user.

All Stylite Expanded Polystyrene is manufactured to the following standards - **BS EN 13163:2012+A2:2016 - BS EN 13501-1 - BS EN 15037-4:2010+A1:2013.**

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 13/5021

BDA Agrément BAF-17-017-S-A-UK

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CE

A+ BRE

MADE IN BRITAIN

ISO 14001 CERTIFIED UKAS MANAGEMENT SYSTEMS British Assessment Bureau

ISO 9001 CERTIFIED UKAS MANAGEMENT SYSTEMS British Assessment Bureau

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