

Stylite T-Beam Floor Insulation

- Lambda from 0.030 W/mK
- Reduces cold bridging
- Lightweight
- Cost effective
- Can be used on all suspended floors
- Quick & easy installation
- Use in commercial & residential property
- Minimal water absorption & permeability
- 100% recyclable
- No HFC's, CFC's or HCFC's



Stylite T-Beam is a tailor made expanded polystyrene insulation void former designed for use in conjunction with pre-stressed concrete beams. **Stylite T-beam** panels are lightweight and provide a highly efficient and cost effective method of insulation that exceeds the thermal requirements

of part L building regulations. The polystyrene panels are profile cut to suit any concrete beam design ensuring a tight fit that greatly reduces cold bridging. **Stylite T-Beam** Infill panels are classed as block type R1, for more information please visit our website at www.styrene.biz

Compatibility

Expanded Polystyrene is compatible with most chemicals and materials, for more information about how EPS interacts with different chemicals check www.styrene.biz/downloads/SPI_Chemical_Behaviour.pdf

EPS is rot proof and durable, and will remain effective as an insulant for the life of the construction .

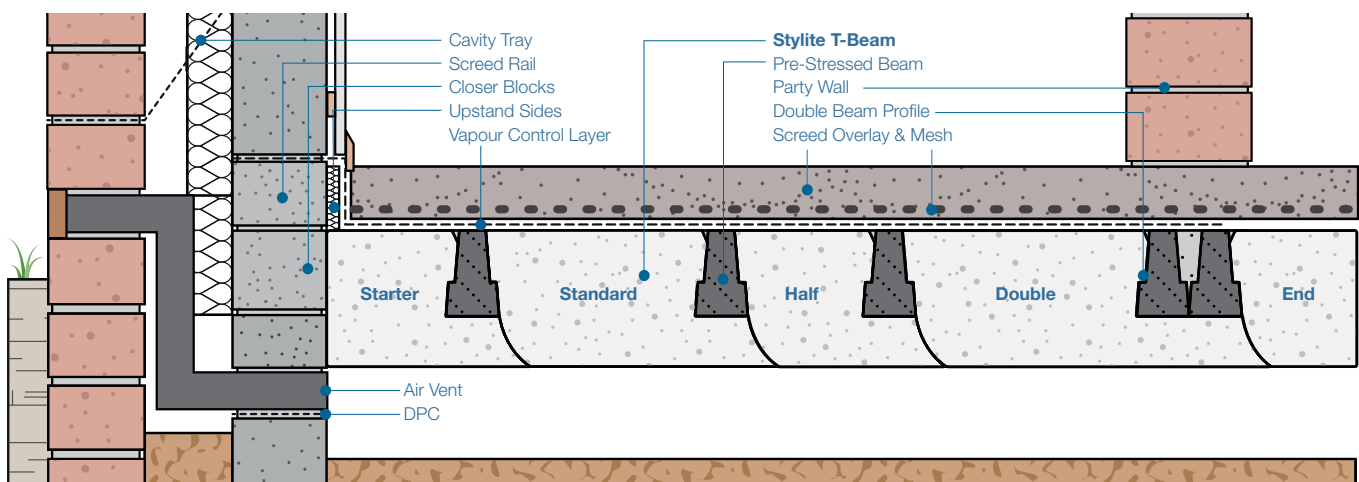
Environmental Safety

EPS is not affected by bacteria, moulds or fungi, and will not provide nutrient value for insects or vermin. It is non-toxic, non irritant and odourless. It does not contain CFC's or HCFC's. EPS has a Global Warming Potential (GWP) of zero and an Ozone Depletion Potential (ODP) or zero.

**“ We cut to suit ”
ANY beam size**

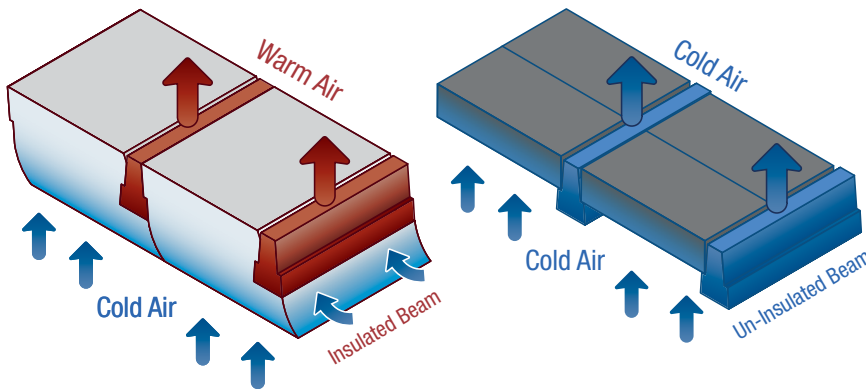


T-Beam Suspended Floor - Screed Overlay

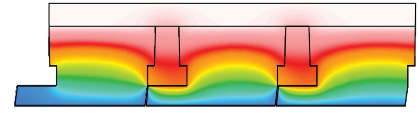


Thermal Bridging with Stylite

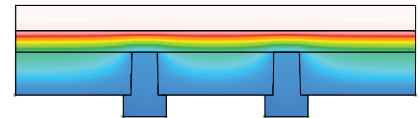
The **Stylite T-Beam** profile is designed to minimise cold bridging in your suspended floor, in comparison, the standard beam and block system has a completely open conductive base, giving no thermal protection under the floor. This creates a major difference in the achievable U-Values for each floor.



Stylite T-Beam



Beam & Block



PSI Diagram

you can see from the thermal imaging that the Stylite Precast concrete beam has been protected from the cold and therefore helps store warmth unlike the beam and block floor.

Stylite T-Beam Design & Dimensions

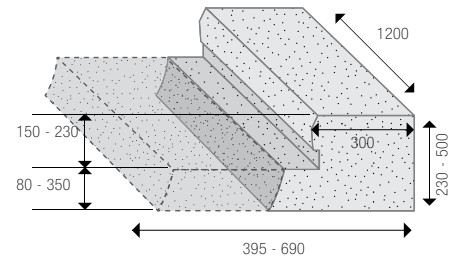
Panel depths range from 200 – 500mm.

Depth is usually determined by the U-value requirement of the floor (See U-Value comparison chart). The floor system comprises of a starter block, standard, half & end block. Extended toe blocks to suit a **double/triple beam** configuration & half blocks can also be manufactured as required. Please contact a member of our Sales Team if you require assistance in determining the correct panel depth for your floor design.

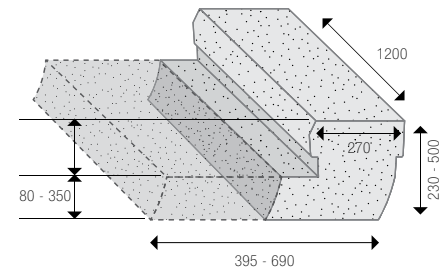
The interlocking panels are quick and easy to install resulting in reduced installation times when compared with the conventional beam and block floor.

Manufactured using the very latest in computerised cutting technology, the panels can be installed to the closest of tolerances resulting in even further reduced thermal bridging throughout the floor installation. The EPS beams can be manufactured to suit any pre-stressed concrete beam design.

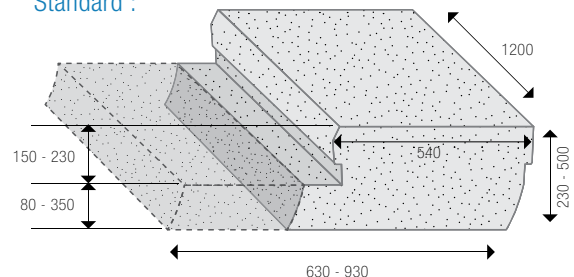
Starter:



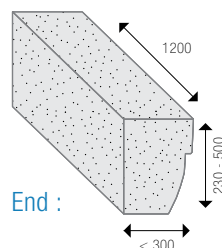
Half :



Standard :



**“ Beam design ”
Eliminating
cold bridging.**



Stylite T-Beam Installation Guide

Standard guidelines for installing your suspended floor system using Stylite T-Beam insulation infills, in accordance with our BBA certificate. All considerations must be checked by your building surveyor to ensure they meet with the regulations of your build type.



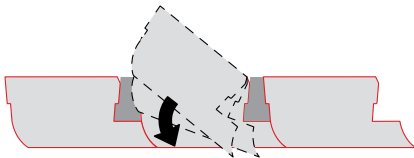
Preparation - The underfloor void must be a minimum of 150mm, and the under-beam toe should be accommodated for. The hardcore base to the void should be free of topsoil, vegetation and lay level. Any substrate used to even the surface must be hard and dry. Where substrate has high or medium clay heave potential, the void should be increased accordingly.

Step 1 - Lay damp proof course on top of the bearing wall. This wall must be constructed in advance of the floor being installed to allow the mortar to reach it's design strength.

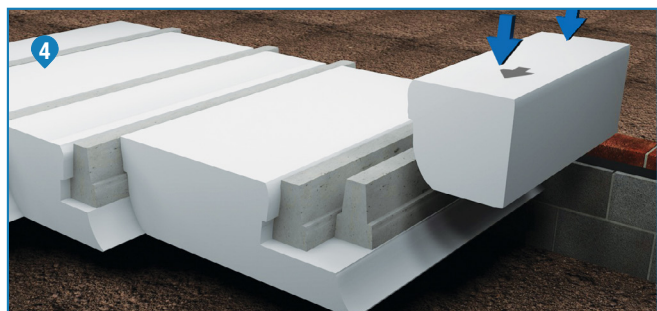
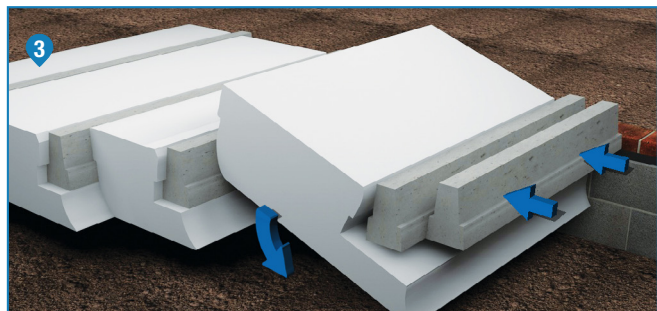
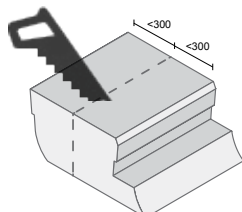
Step 2 - Starter blocks are attached to the first beam. The beam and block are then positioned tightly against the wall. Each pre-stressed beam will be laid in position, ready to receive the infill block.

Note - The pre-cast concrete beams must be designed in accordance with BS EN 1992 - 1 - 1 : 2004. A suitable qualified and experienced individual must ensure the applied loading of the floor design is adequate for purpose.

Step 3 - The T-Beams are laid in position. Ensure a tight fit is achieved between the Eps blocks and concrete beams throughout each row.



Step 4 - Once the last row has been reached, insert the end blocks. The end block must not be wider than 300mm at the top width. This is because when the concrete topping is added, it acts as a cantilever for the whole floor system.



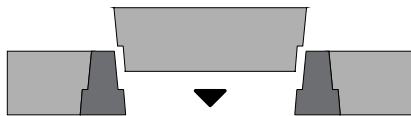
Note - Beams may be cut in length, Where possible, these cut units should be placed at the end or start of a run of beams. **No beam length off-cuts less than 300mm should be used.**

Stylite T-Beam Installation Guide

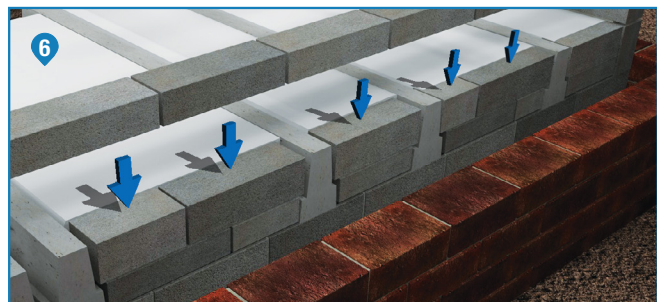
As building regulations push for ever increasing thermal values, Stylite T-Beams are becoming a very popular way for house-builders and ground-workers to construct insulated flooring frameworks. For more information on how Stylite can help you reach zero carbon FEE's, visit our website www.styrene.biz



Step 5 - Insert breeze blocks between the beams to complete the inner wall. This brings the bearing walls level with the suspended floor. Alternatively spacer edge blocks may be used these are blocks cut to fit inbetween the precast beam profiles.

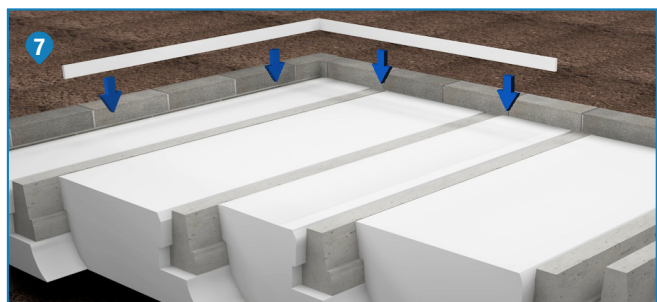
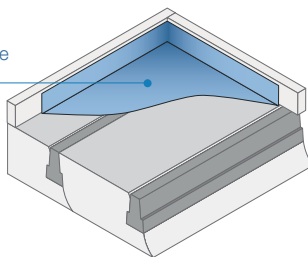


Step 6 - Bed the coursing blocks around the perimeter. This will provide a screed rail to facilitate the depth of concrete to be poured and achieve the correct floor construction depth.



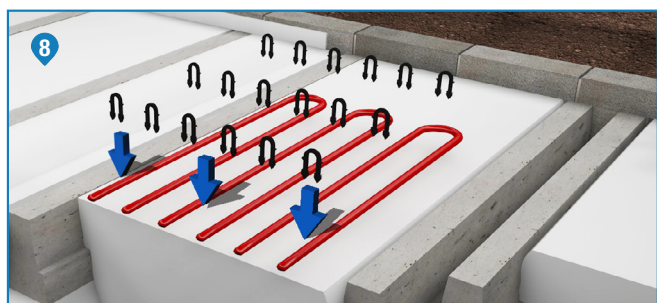
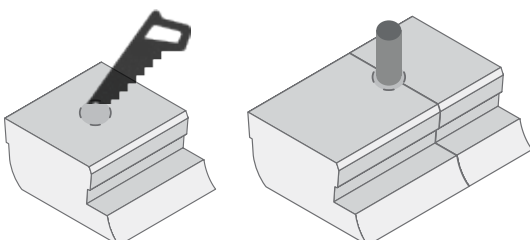
Step 7 - If applicable, lay your gas / damp proof membrane into your inner leaf. Place your perimeter up-stand sides to reduce cold bridging against the screed topping.

Gas / Damp Proof Membrane
Vapour Control Layer



Step 8 - As per your floor design, insert service pipes using a saw, and fill with insulant foam. If you are using underfloor heating pipes, you will install them into the infill beams now.

Note - Care must be taken to ensure that the minimum design thickness of structural concrete topping is maintained eg. above heating pipes.



Note - Electrical cables running within the polystyrene should be enclosed in a suitable conduit such as a rigid PVC. Any gaps created should be sealed again using insulating foam to minimise local cold bridging and air infiltration.

Stylite T-Beam Installation Guide

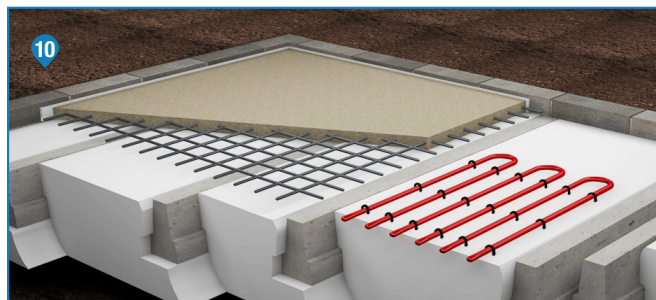
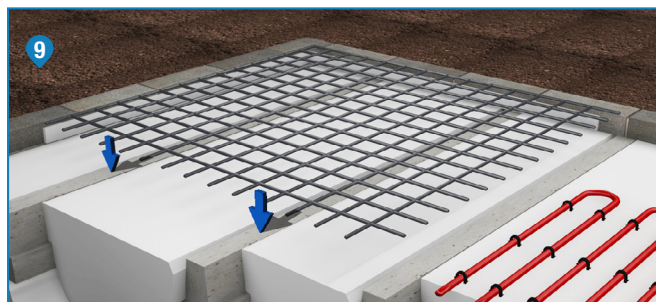
Mesh may be required when the expected loadings, whether it is vehicle traffic, foot traffic or storage exceeds a certain limit to reinforce the concrete. For more information on the current building regulations concerning concrete toppings and reinforcement within suspended floors please visit our website www.styrene.biz



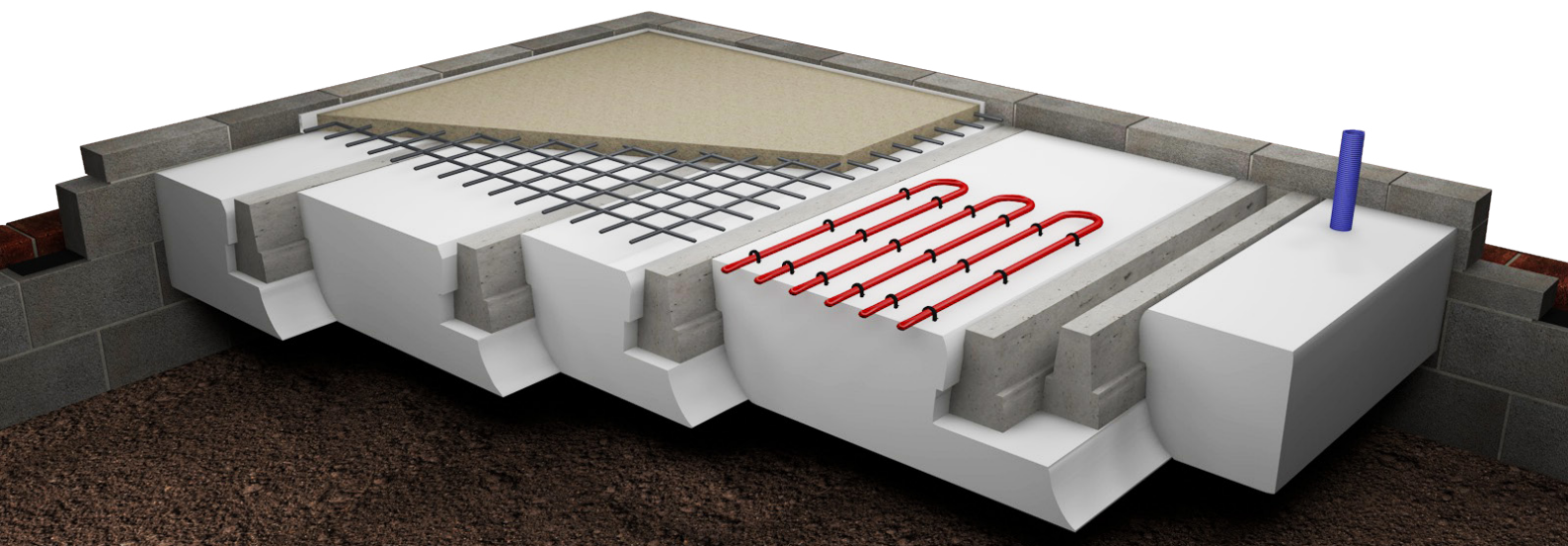
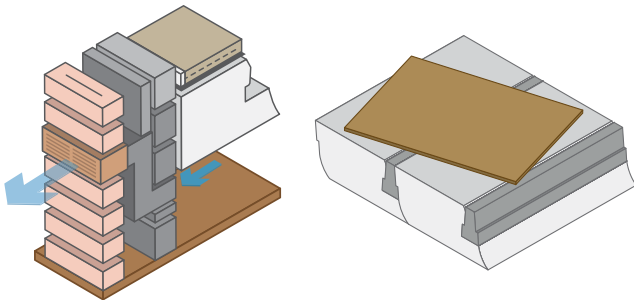
Step 9 - Steel mesh may be added at this point to help the structural integrity of the build. Supporting spacers for the reinforcement mesh should be placed along the precast beams, or on spreader plates to minimise penetration of the units during construction which may result in the misalignment of topping.

Step 10 - Pouring of the concrete topping may now commence. When using a concrete pump, truck or skip, concrete should not be discharged onto the polystyrene units from heights greater than 300mm. Concrete heaps over 150mm must not be formed.

Note - The concrete / screed topping must comply with BS 8500-1, 2:2006 and BS EN 206-1: 2000 (+ QSRMC), and should be laid by a suitable qualified and experienced individual.



Extra considerations - You must use underfloor ventilation above ground and in conjunction with your DPC. Also make use of wall ties to ensure structural integrity. Please use rigid boards to support light foot traffic - do not step on the EPS units.



Stylite T - Beam Floor Typical U-Values

Here you will find an outline of Stylite T-Beam floor U-Values. When calculating the U-Value for a suspended floor, the floor deck (under floor structure) plays a big part in the final outcome. The floor deck U-Value depends heavily on things such as ventilation, ground thermal conductivity, the number and size of precast beams as well as the dimensions of the Stylite Infill Block. To ensure the

validity of your calculations, each U-Value should be generated according to BS EN ISO 13370 : 2007 , BS EN ISO 6946 & BR443 : 2006. The individual EPS and precast components should be calculated in accordance with BS EN 15037 - 4 : 2010 & BS EN ISO 10211 : 2007.

For a specific U-Value calculation contact our technical and sales teams on 01274 691 777.

Insulated Stylite T-Beam floor P/A - 0.4

Grade	U-value W/m ² K / Thickness mm						
	0.16	0.18	0.20	0.22	0.25	0.28	0.30
EPS 70	260	240	220	205	190	180	170
EPS 100	250	230	115	200	185	175	170
Plustherm	240	220	205	195	180	170	170

P/A - 0.6

Grade	U-value W/m ² K / Thickness mm						
	0.16	0.18	0.20	0.22	0.25	0.28	0.30
EPS 70	270	245	230	215	200	185	180
EPS 100	265	245	230	210	195	185	175
Plustherm	245	225	215	200	190	180	175

P/A - 0.8

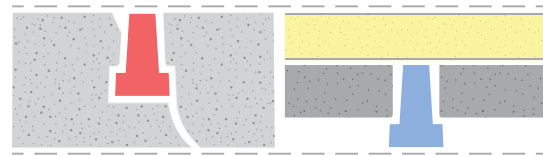
Grade	U-value W/m ² K / Thickness mm						
	0.16	0.18	0.20	*0.22	*0.25	0.28	0.30
EPS 70	275	260	240	225	205	190	185
EPS 100	270	250	230	220	200	190	180
Plustherm	250	230	220	205	195	185	180

Calculations breakdown : 150mm precast beam, fraction 0.25 - 65mm Screed overlay 1.15wkm - Clay / silt ground - 300mm wall - BS EN 13370.

Comparative Floor U-Values

There are many misconceptions about the use of some alternative materials, especially the performance over the time of the build and the impacts to the environment. The following table proves that better U-Values may be achieved at cheaper prices, with all the added benefits of EPS; quick install, A+ BRE rating, lightweight composition not to mention the price to performance ratio and the lifetime build guarantee plus many more. The following table shows comparative U-Values achieved from the same finished floor depth using a variety of materials. For example, the use of a traditional beam and block floor comprising of bricks, beams and an overlay insulation

layer. The comparisons are made combining the overlay sheet with the beam & block depth to give a true product comparison. From the table you can see the difference underbeam insulation can make to your build. (If you would like more information, please contact our sales team on **01274 691 777**).



EPS Depth (mm)	Material 1 Depth (mm)	Perimeter / Area Ratio											
		0.2		0.3		0.4		0.5		0.6		0.7	
220	150 + 70	0.15	0.18	0.17	0.19	0.18	0.20	0.19	0.21	0.19	0.22	0.20	0.23
230	150 + 80	0.14	0.16	0.16	0.19	0.17	0.19	0.17	0.20	0.18	0.20	0.18	0.21
240	150 + 90	0.14	0.15	0.15	0.17	0.16	0.18	0.16	0.19	0.17	0.19	0.17	0.20
260	150 + 110	0.12	0.14	0.14	0.15	0.14	0.16	0.15	0.17	0.15	0.17	0.15	0.17
290	150 + 140	0.11	0.12	0.12	0.13	0.12	0.14	0.13	0.14	0.13	0.14	0.13	0.14
350	150 + 200	0.09	0.09	0.10	0.10	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.11

EPS Depth (mm)	Material 2 Depth (mm)	Perimeter / Area Ratio											
		0.2		0.3		0.4		0.5		0.6		0.7	
220	150 + 70	0.15	0.19	0.17	0.22	0.18	0.23	0.19	0.24	0.19	0.25	0.20	0.25
230	150 + 80	0.14	0.18	0.16	0.20	0.17	0.22	0.17	0.23	0.18	0.23	0.18	0.23
240	150 + 90	0.14	0.17	0.15	0.19	0.16	0.20	0.16	0.21	0.17	0.22	0.17	0.22
260	150 + 110	0.12	0.15	0.14	0.17	0.14	0.18	0.15	0.19	0.15	0.19	0.15	0.19
290	150 + 140	0.11	0.14	0.12	0.15	0.12	0.16	0.13	0.16	0.13	0.16	0.13	0.16
350	150 + 200	0.09	0.11	0.10	0.12	0.10	0.12	0.10	0.12	0.10	0.13	0.10	0.13

These calculations have been made using a full build of standard centres with 152mm precast beams with a standard build up to BS EN 13370. The T-Beam values are based on Plustherm (0.030WkM). Material values and equivalent products from top leading insulation providers. The only difference in products, is the compression of material but this is very often over specified.

Technical Specification

Features	EPS 70	EPS 100	Plustherm	Standard
Thermal Conductivity ($\lambda_{90/90}$)(Wm ⁻¹ K ⁻¹)	0.038	0.036	0.030	EN 13163
Length Tolerance	L1	L1	L1	EN 822
Width Tolerance	W1	W1	W1	EN 822
Thickness Tolerance	T1	T1	T1	EN 823
Planarity Tolerance	P2	P2	P2	EN 825
Squareness	S1	S1	S1	EN 824
Bending Strength (kPa)	115	150	150	EN 12089
Reaction to Fire	F	F	E	EN 13501-1
Water Absorption (mg Pa ⁻¹ h ⁻¹ m ⁻¹)	0.015 - 0.030	0.009 - 0.020	0.009 - 0.020	EN 13163
Dimensional Stability	DS (N) 5	DS (N) 5	DS (N) 5	EN 1603
Compressive Strength @ 10% (kPa)	70	100	100	EN 826
Compressive Strength @ 1 % (kPa)	21	30	30	EN 13163
BREEAM Rating	A+	A+	A+	BRE
Element No.	815320022	815320023	1315320016	BRE

Typical Dimensions	Length mm	Width mm
Stylite T-Beam Standard	1200	Top - 540 / Bottom - 630 < 1290
Stylite T-Beam Half	1200	Top - 270 / Bottom - 395 < 690
Stylite T-Beam Starter	1200	Top - < 300 / Bottom - 395 < 690
Stylite T-Beam End	1200	Top - < 300 / Bottom - < 300

EN 13163 : 2012 | BS EN 15037 : 2013 | BS EN 13501 : 1 : 2007 | BS EN 1603 : 2013 | BS EN 12089 : 2013

Classification code
Pr_20_93_51

Recycling

Here at Styrene Packaging & Insulation Ltd provide a scrap EPS pick-up to help us recycle as much polystyrene as possible back into suitable products. Please download a copy of our recycling policy to find out how to get involved.

Certification

We have real pride in the products we supply that is why we go above and beyond to ensure that we surpass all current regulations and offer all the relevant certifications to stand by our expanded polystyrene products. For full details of our certifications please visit our website at www.styrene.biz



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