

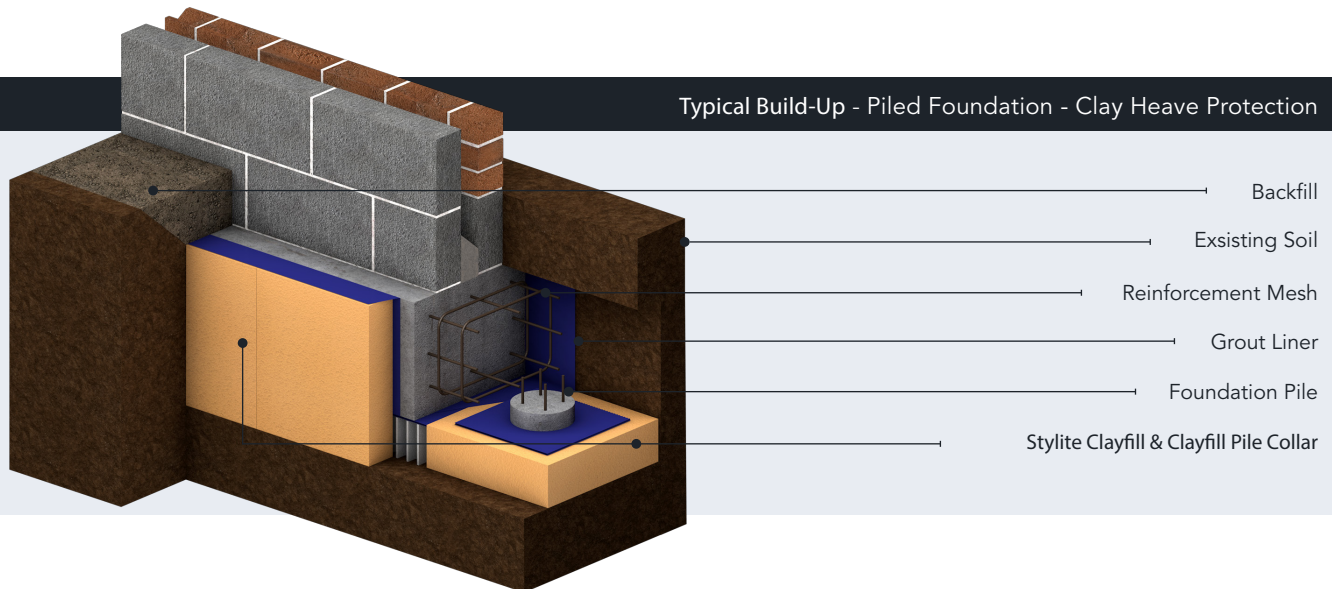


CLAYFILL GROUND HEAVE PROTECTION DATASHEET

Pr_25_71_29_16 - 1_190824



Expanding Possibilities



Standard Dimensions

Unit	Length (mm)	Width (mm)	Thickness (mm)
Clayfill Board	2400	1200	50, 100, 150 & 200
Clayfill Pile Collar	≤ 1200	≤ 200	≤ 600

All our Stylite Clayfill Boards are typically manufactured to standard thicknesses, however bespoke sizes are available on request to fit specific trench foundation dimensions. Stylite Clayfill Pile Collars are pre-cut to suit the dimensions of the pile foundation and trench. The required thickness of the board will vary depending on the potential ground movement and the allowable pressure limit of the foundation substrate.

Design Standards

Stylite Clayfill Low Density Expanded Polystyrene Compressible Fill is manufactured in accordance with BS-EN-13163-2012+A2-2016. Under a Quality Management System accredited to ISO 9001:2015 and an Environmental Management System accredited to ISO 14001:2015.

We hold a British Board of Agrément Certificate which covers the content of this technical datasheet. Our BBA Certificate offers further technical guidance, Certificate Number - 02/3975.



Product Overview

Stylite Clayfill is a low density Expanded Polystyrene (EPS) compressible fill that helps reduce any forces exerted onto deep fill foundations, concrete ground beams and piled foundations. These pressures can be caused by many things, the expansion of clay soils, excess water or overgrowth of tree roots. Whatever the reason for the development of these forces Stylite Clayfill can help absorb the pressure exerted onto the foundations.

Our Stylite Clayfill is easy to install and is available in standard thicknesses of 50, 100, 150 and 200mm to accommodate the different levels of ground movement. The compressible fill is also available in pre-cut pile collars to suit the diameter of the pile. EPS is the perfect clay heave protection solution as it is water and rot resistant and will never lose its compressibility.

Product Benefits

- ☑ Reduces the effects of clay heave for the life of the foundation
- ☑ BBA Agrément Certified 02/3975
- ☑ Resistant to moisture and rot
- ☑ Maximum lateral pressures of up to 40kN.m⁻²
- ☑ Pre-cut pile collars to suit application
- ☑ No reduction in performance over time
- ☑ Lightweight, quick & easy to install
- ☑ Minimal water absorption & permeability
- ☑ 100% recyclable
- ☑ BRE Green Guide Rating of A+

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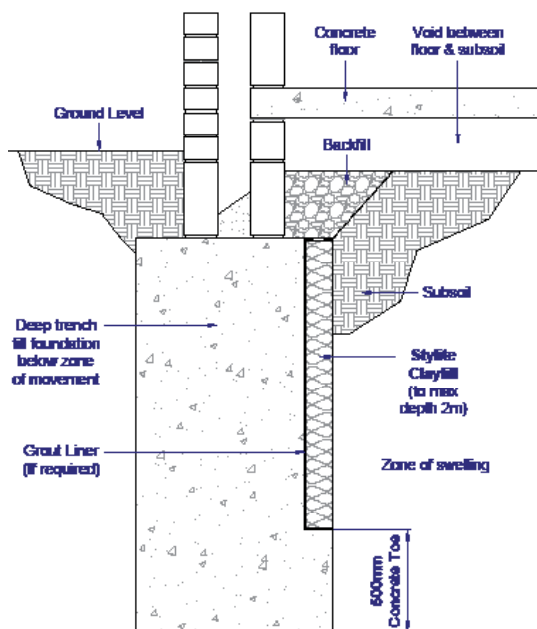
Stylite®

Typical Applications

Stylite Clayfill is used to protect foundations, encasing the reinforced concrete with the compressible fill material to negate pressures from ground movement against the concrete foundation up to 2m on the vertical face and piled foundations with pile collars up to 600mm deep. There are three common ways to utilise Stylite Clayfill within foundations, as per the typical details below.

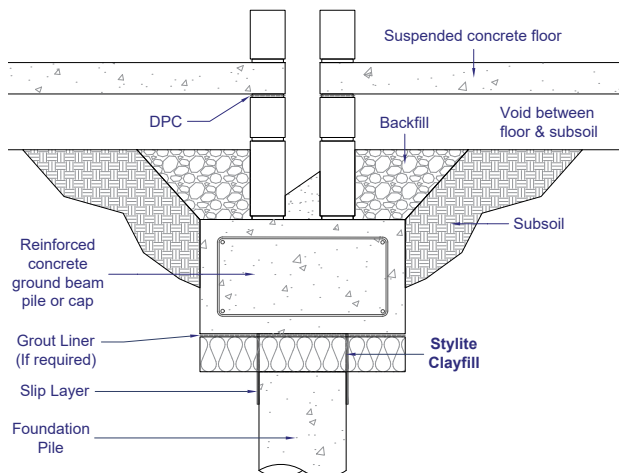
Typical Application

Vertical Faces of Deep Trench Fill Foundations



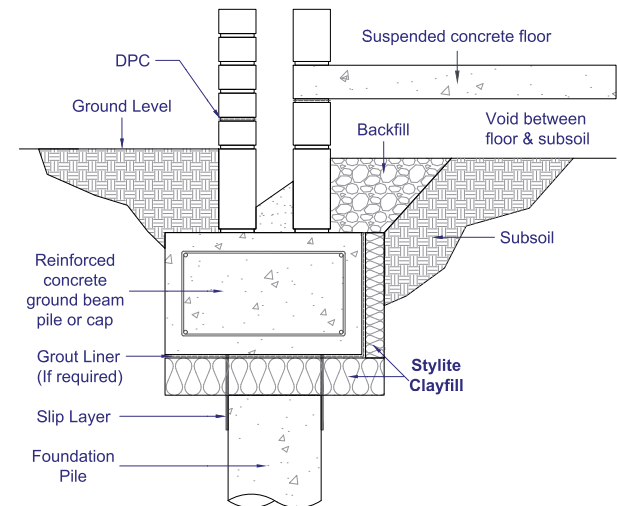
Typical Application

Under Internal (Party Wall) Ground Beam & Pile Cap



Typical Application

Under External Ground Under Beam & Pile Cap



Void Equivalent Thickness of Stylite Clayfill

The NHBC accepts low density compressible expanded polystyrene as a suitable material to protect against clay heave and ground movement in foundations. They detail guidelines of minimum void depths to allow for different levels of volume change in shrinkable soils. The void dimensions detailed in the NHBC guidance have an equivalent compressible fill thickness which will typically be twice the minimum void dimensions given by the NHBC.

Under Ground Beam & Pile Caps			
Ground Heave Potential	Modified Plasticity Index (%)	NHBC Minimum Void (mm)	Stylite Clayfill Equivalent Thickness (mm)
Low	10-20	50	100
Medium	20-40	100	200
High	40 +	150	300

Side of Deep Fill Foundation & Ground Beams			
Ground Heave Potential	Modified Plasticity Index (%)	NHBC Minimum Void (mm)	Stylite Clayfill Equivalent Thickness (mm)
Low	10-20	0	0
Medium	20-40	25	50
High	40 +	35	75

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Stylite®

Determination of Thickness

It is important that the specified thickness of Stylite Clayfill required to resist the pressures exerted from the ground movement is correctly calculated. See the below diagram which breaks down how to determine the thickness of Stylite clay heave protection needed.

The specified Stylite Clayfill thickness should be

$$T = 100 \times (H/C) + 10$$

Where ;

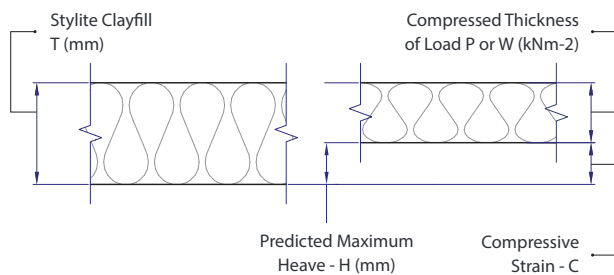
T= Stylite Clayfill Thickness Required

H= Predicted maximum ground movement

P= Maximum upward pressure on the underside of the beam

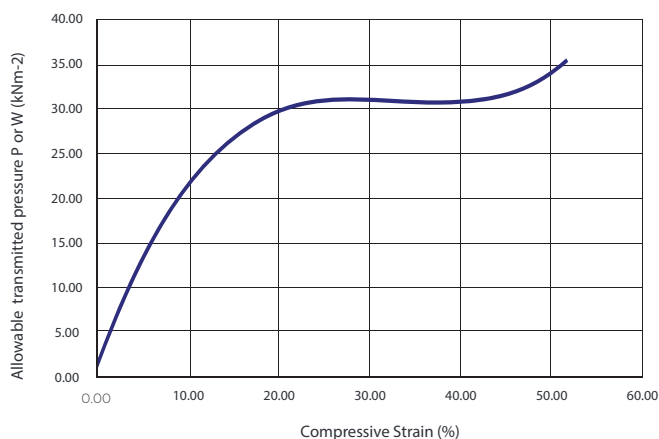
W= Maximum lateral pressure on foundation (must not exceed 40 kNm-2)

C= Compressive strain (%) under maximum pressure exerted on foundation



Stylite Clayfill - Resistance to Pressure

The graph below shows the relationship between the transmitted pressure on Stylite Clayfill compressible fill and the resulting compressive strain exerted on the material. This helps to gauge the values required to calculate the required thickness of Stylite Clayfill.



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 reaction to fire Euroclass F. However, the classification achieved when installing in a building will be considerably better. We also supply FRA grades which contain a Fire Retardant Additive and achieve reaction to fire Euroclass E.

Sustainability

Our Stylite Expanded Polystyrene does not contain HFC's, CFC's or HCFC's. 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, or alternatively visit our website.



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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 under cover 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.

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. For more information refer to our Safety Data Sheet available on our website.

Physical Properties	Clayfill
Compressive Strength @ 10% (kPa)	45
Bending Strength (kPa)	60
Compressive Creep	CC(2/1.5/50)0.3
Water Vapour Permeability (mg Pa.h.m)	0.015 - 0.030
Water Vapour Diffusion Resistance (μ)	20-40
Reaction to Fire - Standard EPS	F
Length Tolerance	L2
Width Tolerance	W2
Thickness Tolerance	T2
Flatness Tolerance	P5
Squareness	S2

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. Stylite Clayfill Ground Heave Protection is covered by our BBA Certificate No.02/3975



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