



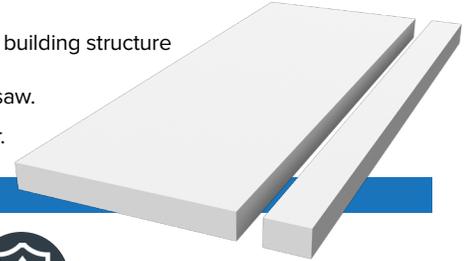
Low Density Beam Compressible EPS

Styrovoid® is a specially designed compressible material made of low density expanded polystyrene. It is used as a compressible medium reducing potential forces on structures in the event soil expansion occurs after construction is completed. The intended applications include grade beams, foundation walls and structurally designed slabs.

Styrovoid has an exceptional low density which significantly reduces the structural forces imposed on the building structure and allows ease of handling and transportation.

It can be easily tailored to fit specific project requirements and can even be adjusted on-site using a fine saw.

Furthermore, Styrovoid is moisture-resistant, ensuring reliable performance even in the presence of water.



Product Features



Environmentally responsible



Cost-effective insulation



Low density



Compressibility



Easy to handle



Weather/water/moisture resistant

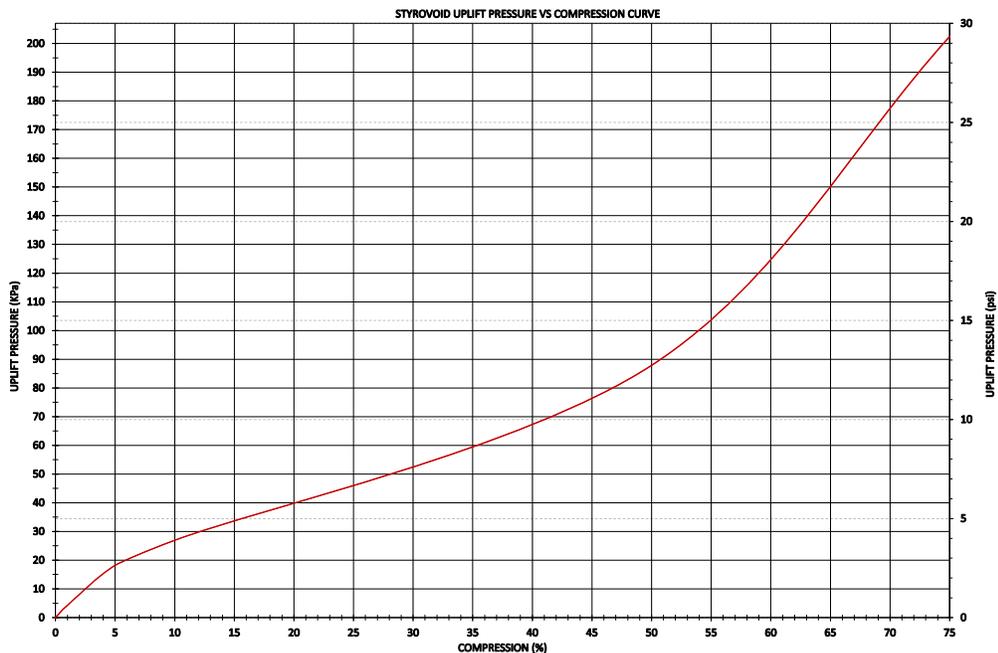
Environmental & Sustainability

- Styrovoid products are produced without the use of chlorofluorocarbon (CFCs), hydrochlorofluorocarbon (HCFCs) or formaldehyde. As a result, Styrovoid products will not produce harmful emissions to the environment.
- Styrovoid products are non-toxic, will not irritate skin on exposure and contains no nutrients for pests or mould.

Performance Criteria

	COMPLIANCE	STYROVOID
Density, min.	ASTM D1622	0.49 lb/ft ³ (7.8 kg/m ³)
Dimensional Stability max.	ASTM D2126	1.5%

	COMPRESSION														
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
UPLIFT RESISTANCE	2.6 psi (18 kPa)	3.9 psi (27 kPa)	4.8 psi (33 kPa)	5.8 psi (40 kPa)	6.7 psi (46 kPa)	7.7 psi (53 kPa)	8.4 psi (58 kPa)	9.7 psi (67 kPa)	11 psi (76 kPa)	12.7 psi (87.6 kPa)	15 psi (103 kPa)	18.1 psi (125 kPa)	21.7 psi (150 kPa)	25.6 psi (177 kPa)	29.3 psi (202 kPa)



Recommended Maximum Concrete Thickness:

3.7 ft (1.1 m)

Concrete thickness above Styrovoid should not exceed 3.7 ft (1.1 m) to maintain compression during placement within 10% deformation of the Styrovoid thickness.

Determining Required Styrovoid Thickness

The required thickness of Styrovoid is determined by comparing the expected soil swell with the amount of compression that occurs in Styrovoid from:

1. The weight of the concrete during placement
2. The uplift resistance of the structure

The following information is required:

- Concrete thickness placed over Styrovoid, t_{conc}
- Total uplift resistance of the foundation and structure, UR
- Anticipated soil swell, S

Example Calculation

Given:

- Concrete thickness: $t_{conc} = 3 \text{ ft (914 mm)}$
- Total uplift resistance: $UR = 10.4 \text{ psi (71.8 kPa)}$
- Anticipated soil swell: $S = 3 \text{ in (76 mm)}$

Step 1 - Verify Concrete Thickness Limit

Ensure the concrete thickness does not exceed the maximum allowable thickness over Styrovoid during placement.

Imperial Units

$$t_{conc} = 3 \text{ ft} < 3.6 \text{ ft} \Rightarrow \text{OK}$$

Metric Units

$$t_{conc} = 914 \text{ mm} < 1,100 \text{ mm} \Rightarrow \text{OK}$$

Step 2 - Determine Concrete Placement Pressure

Concrete pressure is calculated from the weight of the fresh concrete:

Imperial Units

$$p_{conc} = 150 \text{ lb/ft}^3 \times t_{conc} = 150 \text{ lb/ft}^3 \times 3 \text{ ft} = 450 \text{ psf}$$

Metric Units

$$p_{conc} = 24 \text{ kN/m}^3 \times t_{conc} = 24 \text{ kN/m}^3 \times 0.914 \text{ m} = 21.9 \text{ kPa}$$

Step 3 - Determine Compression from Concrete Placement Pressure

Using the Styrovoid Uplift vs Compression chart, the strain corresponding to:

$$p_{conc} = 450 \text{ psf (21.9 kPa)} \text{ from Step 2}$$

$$\text{is: } s_{conc} = 6\%$$

Step 4 - Determine Compression from Uplift Resistance

Using the Styrovoid Uplift vs Compression chart, the strain corresponding to:

$$UR = 10.4 \text{ psi (71.8 kPa)}$$

$$\text{is: } s_{UR} = 44\%$$

Step 5 - Calculate Required Styrovoid Thickness

The required thickness is calculated as:

$$t_{styrovoid} = S / (s_{UR} - s_{conc})$$

Imperial Units

$$t_{styrovoid} = 3 \text{ in} / (0.44 - 0.06) = 7.9 \text{ in}$$

Metric Units

$$t_{styrovoid} = 76 \text{ mm} / (0.44 - 0.06) = 200 \text{ mm}$$

Result

The calculated Styrovoid thickness required to accommodate the anticipated soil swell of 3 in (76 mm) is:

$$7.9 \text{ in (200 mm)}$$

In practice, the next available product thickness greater than or equal to this value should be selected.

Technical Information

- EPS should not be exposed to volatile hydrocarbons such as fuel oils, gasoline, and some alcohols. Anhydrous acids such as sulfuric and formic acid may also attack EPS.
- Styrovoid products contain flame retardants. This, however, will not prevent burning when the material is exposed to a large fire source or intense heat.
- Observe normal fire precautions and good housekeeping methods during application, and provide a protective barrier, such as a thermal barrier, to protect from high heat sources, as required by local building codes.

Sizes

Styrovoid standard thicknesses are 4, 6 and 8 inch, and available in 8, 9, 10, 12 and 48 inch widths. Styrovoid products are manufactured with a standard butt edge.

Please contact AMC Foam for all custom size inquiries.

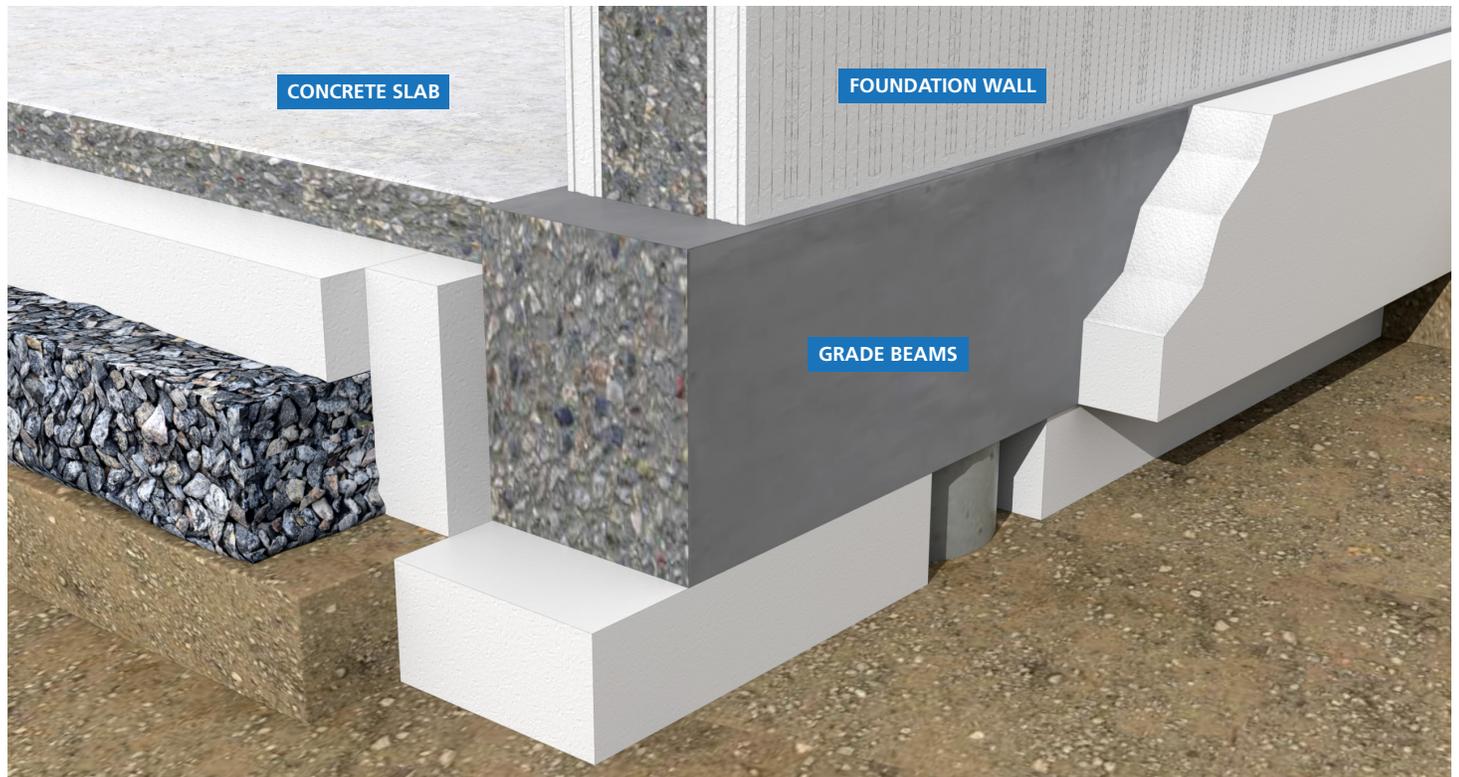
Packaging

Styrovoid are packaged in bundles measuring 8 ft x 4 ft x 24 in.

Manufacturer

AMC Foam Technologies Inc.
35 Headingley St.
Headingley Manitoba, R4H 0A8
877-789-7622

Applications



Applicable Standards

ASTM D1621	Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
ASTM D1622	Standard Test Method for Apparent Density of Rigid Cellular Plastics.

Disclaimer of Liability

The manufacturer and distributors of this building product shall not be liable for any loss, costs, or damage resulting from uses of this product in systems which are not constructed in the strict compliance with the most exacting design and construction standards (Including appropriate venting, drainage, flashing, etc.) contemplated by the National building Code of Canada or by the more rigorous practices or standards enforced at the place of use.

Technical Support

For North American technical inquires please contact AMC Foam at 1-877-789-7622 or by email at info@amcfoam.com

Code Evaluation Approvals



QAI Certification Listing No. B1088-1