

BEAVER
THERMAL SOLUTIONS

GEOFOAM[®]

Expanded Polystyrene Lightweight Fill

PRODUCT DESCRIPTION

Geofoam from Beaver Thermal Solutions is expanded polystyrene normally used as a lightweight fill material in large earth structures, reducing loads imposed on adjacent and underlying soils. Since it is only about 1% of the weight of soil, Geofoam provides ready and inexpensive solutions to many geotechnical and engineering challenges.

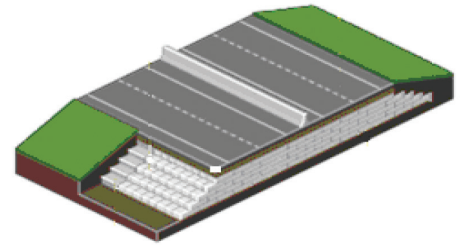
Geofoam blocks are simple to handle during construction and are unaffected by normally occurring weather conditions. They are easily cut and shaped on a project jobsite. Beaver Thermal Solutions produces Geofoam in a large range of material types to meet a wide variety of geotechnical situations.

APPLICATIONS

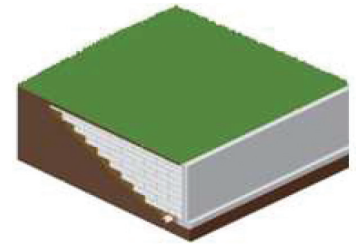
Geofoam can be the most economical and timely solution to a number of engineering problems, by reducing the total mass of highways, railroads, embankments and other structures over underlying soils that are incapable of supporting these loads.

Geofoam Application Examples

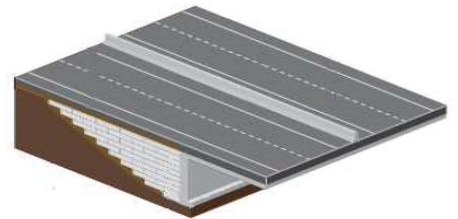
Road
Construction
and Widening



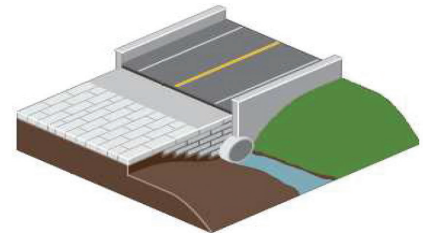
Retaining Walls



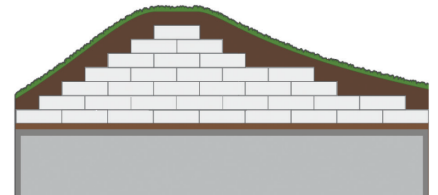
Bridge
Abutments



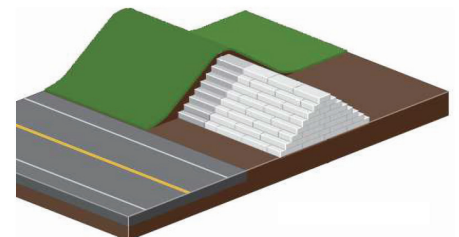
Protecting
Buried Structures



Landscaping and
Green Roofs



Levees and Noise
Control



GEOFOAM DESIGN CONSIDERATIONS

Lightweight – Beaver Thermal Solutions Geofoam can be produced in a range of densities in order to economically meet specific project requirements. The ASTM Standard Specification for Rigid Cellular Polystyrene Geofoam D6817 provides performance data on different densities of EPS Geofoam.

Strength – Compressive resistance data has been developed for Geofoam at different densities. It is important to select the Geofoam type based on the performance at 1% compressive resistance, in order to prevent thermoplastic creep that could result in displacement or subsidence of the structure.

Construction Time – The rapid placement rate for Geofoam can shorten a project construction period, reducing traffic disruption and utility relocation. Choosing Geofoam can also help avoid weather delays, as it is not affected by precipitation.

Cost – Geofoam can reduce overall project costs through the elimination of backfilling and compaction, reducing loads on other supporting or nearby structures, and speed of assembly. “Life cycle costs” should also be considered, as a properly designed structure using Geofoam will never degrade, slump or be displaced laterally. Geofoam requires NO maintenance.

Insulating Effectiveness – Expanded polystyrene is one of the most effective and economical insulation materials used in modern building construction. Thermal efficiency may be a consideration in some projects where soil movement due to cyclic freeze/thaw activity must be controlled.

Protection – Geofoam is not resistant to some hydrocarbon products, like gasoline and diesel fuel. When necessary, protection can be readily provided with the use of protective membranes. These can be (but not limited to) products made of polyethylene and polypropylene. Geofoam can be exposed to UV light for some weeks, with only slight yellowing and surface dusting as a result. This will impair adhesion if the Geofoam is to be surface coated. Rasping and/or power washing will remove the surface degradation. Strong winds may displace Geofoam blocks both before and after placement. Beaver Thermal Solutions Geofoam Shear Plates can be used to hold the blocks in final position.

AVAILABLE SIZES AND DENSITIES

Beaver Thermal Solutions Geofoam blocks are available in any custom size. Our standard block measures 1.27m X 1.27m X 2.49m (50" X 50" x 98"), available up to 5.59 m (220") in length.

Beaver Thermal Solutions can produce EPS Geofoam in virtually any density. The ASTM chart below provides complete performance data for seven different densities.

ASTM D6817 Physical Property Requirements of EPS Geofoam

TYPE	EPS12	EPS15	EPS19	EPS22	EPS29	EPS39	EPS46
Density, min., kg/m ³ (lb/ft ³)	11.2 (0.70)	14.4 (0.90)	18.4 (1.15)	21.6 (1.35)	28.8 (1.80)	38.4 (2.40)	45.7 (2.85)
Compressive Resistance, min., kPa (psi) at 1%	15 (2.2)	25 (3.6)	40 (5.8)	50 (7.3)	75 (10.9)	103 (15.0)	128 (18.6)
Compressive Resistance, min., kPa (psi) at 5%	35 (5.1)	55 (8.0)	90 (13.1)	115 (16.7)	170 (24.7)	241 (35.0)	300 (43.5)
Compressive Resistance, min., kPa (psi) at 10%	40 (5.8)	70 (10.2)	110 (16.1)	135 (19.6)	200 (29.0)	276 (40.0)	345 (50.0)
Flexural Strength, min., kPa (psi)	69 (10.0)	172 (25.0)	207 (30.0)	240 (35.0)	345 (50.0)	414 (60.0)	517 (75.0)
Oxygen Index, min., Volume %	24.0	24.0	24.0	24.0	24.0	24.0	24.0



BEAVER
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11581-272 Street, Acheson, Alberta, Canada T7X 6E9
6333 Unsworth Rd, Chilliwack, British Columbia, Canada V2R 5M3

Phone: 780 962-4433
Fax: 780 962 4640
Toll Free: 1 888 453 5961

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