

# Product Information Bulletin 1004

## Geofoam Lightweight Fill Specification

## Product Information Bulletin

### MASTERFORMAT™ SPECIFICATION

#### Section 31 23 23.43 Expanded Polystyrene (EPS) Geofoam

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#### INTRODUCTION:

In the 2004 edition of MasterFormat, the Construction Specification Institute (CSI) revised the specification number system from 16 Divisions with 5 identifying numbers to 50 Divisions with 6 identifying numbers and a three part arrangement (General, Products, and Installation).

This MasterFormat Specification is a manufacturer-specific proprietary product specification with descriptive requirements, reference standards and performance requirements. Specifiers should verify that inter-related products correspond with this and other specification requirements and are both available and suitable for the applications indicated and being built.

The MasterFormat Specification section number and title may be varied by the Specifier to suit specific projects. Lightweight Expanded Polystyrene (EPS) Geofoam is generally specified under Division 31 - Earthwork, Section 31 23 23.43, Geofoam. It should be noted that EPS geofoam may be specified within Division 31 under other subsections of Section 31 20 00, Earthmoving.

This MasterFormat Specification is intended to be a part of the overall project manual and is not intended to be a stand-alone specification or contractual document. It has been prepared for Plasti-Fab GeoSpec lightweight fill material. It has not been prepared by ARCOM/MasterSpec® and no inference to ARCOM/ MasterSpec® is intended or implied.

An electronic copy of this specification is available upon request to assist designers and specifiers in preparing project specific specification sections. Contact Plasti-Fab at [mailbox@plastifab.com](mailto:mailbox@plastifab.com).

#### DISCLAIMER:

The information is organized and presented to assist designers and specification writers working on construction projects in selecting the appropriate product and to save time in writing the project specific specification section. Designers and specifiers are responsible for product selection as well as the use and application of this information.

**Section 31 23 23.43**

**LIGHTWEIGHT EXPANDED POLYSTYRENE (EPS) GEOFOAM**

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**1 General**

**1.1 SECTION INCLUDES**

- .1 This section includes all product design, labour, equipment and services necessary to complete the rigid expanded polystyrene (EPS) geofoam work in accordance with the Contract documents.

**1.2 RELATED SECTIONS**

- .1 Section 01330 – Submittal Procedures.

**1.3 REFERENCES**

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C165, Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
  - .2 ASTM C203, Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
  - .3 ASTM C303, Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
  - .4 ASTM C390, Practice for Sampling and Acceptance of Thermal Insulation Lots.
  - .5 ASTM D1621, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
  - .6 ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam.
  - .7 ASTM D7180, Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects.
  - .8 ASTM D7557, Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens.

**1.4 SYSTEM DESCRIPTION**

- .1 Performance Requirements: Provide EPS geofoam designed, manufactured and installed to maintain stated performance criteria without defections, damage or failure.

**1.5 SUBMITTALS**

- .1 Product data:
  - .1 Submit manufacturer's printed design specifications, product design data and product literature in accordance with Section 01330 indicating:
    - .1 Product performance criteria used to confirm capability to withstand specified design loads.
    - .2 Provide product transportation, storage, handling and installation requirements.

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- .2 Samples:
  - .1 Submit samples for verification of product performance criteria in accordance with Section 01330.
    - .1 Submit 300 x 300 x 300 mm (12" x 12" x 12") samples of proposed materials.
  - .3 Reports [Certificates]:
    - .1 Submit certificate of compliance for material properties for manufacturer representing sampling in accordance with ASTM D7557.
    - .2 Provide proof of third party inspection certification program in place covering each product specified in this Section confirming compliance.

#### 1.6 **QUALITY ASSURANCE**

- .1 Installer qualifications: Upon request of Engineer submit proof of minimum three (3) years experience of same Work as described in this Section.

#### 1.7 **DELIVERY, STORAGE, AND HANDLING**

- .1 Refer to ASTM D7180 for basic considerations for the use of expanded polystyrene (EPS) geofoam in geotechnical projects.
- .2 Protect geofoam material from prolonged exposure to sunlight (more than 2 weeks). Store geofoam blocks under light colored tarpaulins. Secure geofoam blocks against movement from wind at the storage location.
- .3 Provide adequate protection of materials and works from damage by weather, traffic, fire and other causes.

#### 2 **Products**

##### 2.1 **MATERIALS**

- .1 Manufacturers/Suppliers:
  - .1 Plasti-Fab Ltd., 679 Aldford Avenue, Annasis Industrial Estates, Delta, BC
  - .2 Plasti-Fab Ltd., 718 McCool Street, Crossfield, AB
  - .3 Plasti-Fab Ltd., 859 – 57 Street East, Saskatoon, SK
  - .4 Plasti-Fab Ltd., 2485 Day Street, Winnipeg, MB
  - .5 Plasti-Fab Ltd., 1214 Union Street, Kitchener, ON
  - .6 Plasti-Fab Ltd., 40 Mills Road, Ajax, ON
  - .7 PFB Manufacturing, LLC dba Plasti-Fab EPS Product Solutions, 2725 Henkle Drive, Lebanon, OH
  - .8 PFB Manufacturing, LLC dba Plasti-Fab EPS Product Solutions, 116 Pine Street South, Lester Prairie, MN

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- .2 Geofam lightweight fill material:
  - .1 Block or planar rigid geofam fill material as supplied by {Qualified Manufacturers} as providing minimum design compressive resistance to withstand design loads as specified on Contract Drawings.
  - .2 Minimum geofam flexural strength shall meet ASTM D6817 and be determined in accordance with ASTM C203.
  - .3 Minimum geofam block density shall meet ASTM D6817 and be determined in accordance with ASTM C303.
  - .4 Minimum geofam compressive resistance shall meet ASTM D6817 and be determined in accordance with ASTM C165 or D1621.
- .3 Timber Connectors: Double-faced spiked timber connector plates spaced as per project design requirements to secure each horizontal joint between courses of block where required. Obtain connector plates from supplier approved by EPS geofam manufacturer.

**2.2 SOURCE QUALITY CONTROL**

- .1 Perform plant inspections and obtain representative product for quality control tests. Testing to be conducted by a CAN-P-4E (ISO/IEC 17025:2005) laboratory accredited for testing of rigid foam plastic material and test reports submitted to Engineer.

**3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage, and installation instructions.

**3.2 WORKMANSHIP**

- .1 Install EPS geofam material after subgrade materials have been prepared.
- .2 Cut and trim EPS geofam block neatly to fit spaces. Butt joints tightly, offset vertical joints. Geofam blocks should be free from chips or broken edges. Use largest possible dimensions to reduce number of joints.
- .3 Offset both vertical and horizontal joints in multiple layer applications.
- .4 Do not backfill geofam block until it has been inspected and approved by Engineer.

**3.3 EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Engineer. Commencement of Work means acceptance of existing conditions.

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**3.4 PREPARATION**

- .1 Verify subgrade surface is free from surface water, frozen matter or projections and other foreign matter detrimental to performance. [Obtain Contractor's approval of subgrade in writing and submit copy to Engineer.]
- .2 Remove excess debris from exposed surfaces.
- .3 Prohibit traffic on prepared areas until Work of this Section has been completed.
- .4 Supply and install temporary protection to adjacent surfaces to prevent damage resulting from Work of this Section.

**3.5 INSTALLATION**

- .1 Lay EPS geofoam fill material in position with staggered joints, as shown on EPS geofoam block layout plans.
- .2 The bottom of the first layer of geofoam block shall be placed above the mean height of the water table, where possible. Any water at or near the ground surface must be pumped off until the geofoam block is covered by material whose weight is sufficient to prevent flotation.
- .3 The bottom layer of geofoam block must be supported over its entire lower face, so a plane surface, inclined as appropriate, must be prepared. Departures from planarity may not exceed  $\pm 10$  mm in 3 meters (3/8" in 10 feet). The leveling material used is generally sand; its thickness depends on the ground and the machines to be employed.
- .4 Once geofoam blocks are in place, they should be covered as soon as possible. Suitable drainage measures must be taken. On sloping sites this is particularly important. If there is any possibility of flooding, buoyancy effects must be considered.

**3.6 PROTECTION**

- .1 Provide adequate protection of Work from damage by weather, traffic, fire and other hazards during installation.

END OF SECTION