Atlas Molded Products, a Division of Atlas Roofing Corporation January 1, 2021

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Product Guide Specification

Use this specification as the basis for developing a project specification. Edit highlighted areas as necessary in compliance with project design requirements. Remove unnecessary highlighted items.

Section must be carefully reviewed and edited by Architect/Design Professional to meet requirements of project and local building code.

Coordinate this section with drawings and other specification sections; coordinate these numbers and titles with sections included for specific project.

**SECTION 31 23 23.43 – GEOFOAM LIGHTWEIGHT FILL**

# GENERAL

## SECTION INCLUDES

## EPS Geofoam lightweight fill and accessory materials.

## REFERENCE STANDARDS

### American Society for Testing and Materials – ASTM International; www.astm.org

#### ASTM D6817 – Standard Specification for Rigid Cellular Polystyrene Geofoam.

#### ASTM D7180 – Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects.

#### ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

#### [ASTM D7557/D7557M – Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens.]

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Note to Specifier:

#### 1. Remove item 4. if specifying items 1-3 of section 1.04.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### [International Code Council (ICC) Evaluation Service (ES); www.icc-es.org]

#### [ICC-ES AC239 – Acceptance Criteria for Termite-Resistant Foam Plastic.]

#### [ICC-ES AC452 – Rigid Cellular Polystyrene (RCPS) Geofoam in Interior Floor Applications.]

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Note to Specifier:

### 1. Include item 1, ICC-ES AC239, for project locations with exposure to termites. Coordinate with section 1.03, and 2.02. Remove if project is not located in location with exposure to termites.

### 2. Include item 2, ICC-ES AC452, for building interior applications. Remove if project is not an interior application.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### International Organization for Standardization (ISO); www.iso.org

#### ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.

### Underwriters Laboratories (UL) www.ul.com

#### UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials.

## SUBMITTALS

### Evaluation Reports:

#### ICC-ES or UL evaluation report including ASTM D6817 Type(s) specified.

#### [ICC-ES or UL evaluation report including AC239 recognition for termite resistance.]

#### [ICC-ES or UL evaluation report including AC452 recognition for interior application.]

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Note to Specifier:

### 1. Third party evaluation reports are recommended over manufacturer literature and technical data.

### 2. Include item 2, ICC-ES AC239, for project locations with exposure to termites. Coordinate with section 1.02, and 2.02. Remove if project is not located in location with exposure to termites.

### 3. Include item 3, ICC-ES AC452, for building interior applications. Remove if not an interior application.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Material Environmental Product Declaration (EPD) for EPS/Geofoam.

### Manufacturer’s Qualification Statement.

### Warranty Documentation: Submit manufacturer warranty document.

## QUALITY ASSURANCE

### Manufacturers Certification: Deliver geofoam only upon completion of following certification requirements:

#### Provide test report from an ISO/IEC17025 accredited laboratory prior to initial project delivery for compliance with minimum compressive resistance at 1 percent strain in accordance with ASTM D6817/D6817M.

#### Provide test report from an ISO/IEC17025 accredited laboratory for compliance with minimum compressive resistance at 1 percent strain in accordance with ASTM D6817/D6817M for each 650 cubic yards out of first 2,600 cubic yards delivered to project site.

#### Provide test report from an ISO/IEC17025 accredited laboratory for compliance with minimum compressive resistance at 1 percent strain in accordance with ASTM D6817/D6817M for each additional 2,000 cubic yards delivered to project site.

#### [Quality assurance to be in accordance with ASTMD7557/D7557M - Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimen.]

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### Note to Specifier:

### 1. Quality Assurance requirements items 1-3 are similar to ASTM D7557/D7557M – Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens.

### 2. Alternatively, remove items 1-3 and specify item 4, quality assurance to be in accordance with ASTM D7557/D7557M – Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimen.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## DELIVERY, STORAGE, AND HANDLING

### Store materials protected from exposure to harmful environmental conditions as recommended by manufacturer.

#### Geofoam blocks shall be delivered labeled with ASTM D6817 Type(s).

#### Geofoam blocks shall include manufacturer’s date of molding and individual block identifier.

#### Geofoam blocks shall be delivered labeled with UL third party listing marks confirming compliance with ASTM D6817.

#### Avoid prolonged exposure of geofoam to sunlight, cover geofoam with opaque tarp.

#### Geofoam should not be exposed to open flame or other ignition sources.

#### Avoid exposure of geofoam to temperatures exceeding 165 degrees F (74 degrees C).

#### Geofoam should not be exposed to organic solvents, petroleum products and their vapors. Examples include but not limited to are acetone, paint thinner, and gasoline.

#### Provide temporary ballast or other restraint of geofoam prior to and during installation.

#### Refer to manufacturers geofoam Safety Data Sheet (SDS).

## WARRANTY

#### Geofoam will meet at least 90% of the compressive resistance requirements of ASTM D6817 Table 1 for Type(s) indicated.

#### Warranty Period:10 years from date of substantial completion.

#  - PRODUCTS

## MANUFACTURERS

### Atlas Molded Products, a Division of Atlas Roofing Corporation.

#### Address: 8700 Turnpike Drive, Suite 400, Westminster, CO 80031

#### Phone: (855) 597-4427; Fax: (303) 428-2595

#### Website: [www.Atlasmoldedproducts.com](http://www.Atlasmoldedproducts.com)

#### Email: Geofoamquote@atlasroofing.com

#### Locations [www.Atlasmoldedproducts.com/contact](http://www.Atlasmoldedproducts.com/contact)

#### 5250 North Sherman Street, Denver, Colorado 80216, (800) 525-8697

#### 111 West Fireclay Ave, Murray, Utah 84107, (877) 775-8847

#### 13695 Mt. Anderson Street, Reno, Nevada 89506, (800) 444-9290

#### 4555 Olympic Way, Kingman, Arizona 86401, (928) 681-2800

#### Privada Misiones No. 1108, Tijuana, Baja California 22425, (866) 811-9517

#### 1004 Omar Road, Anthony, Texas 79821, (915) 886-4636

#### 3220 E. Avenue F, Arlington, Texas 76011, (817) 654-4688

#### 8240 Byron Center Ave SW, Michigan 49315, (800) 917-9138

#### 90 Trowbridge Drive, Fond du lac, Wisconsin 54937, (800) 236-5377

#### 701Sargent Drive, Fredericktown, Missouri 63645, (573) 783-4200

#### 1400 North 3rd Street, Kansas City, Kansas 66101, (866) 688-5758

#### 911 Industrial Drive, Perryville Missouri 63775, (800) 888-2332

#### 809 East 15th Street, Washington, Iowa 52353, (888) 633-6033

#### 2731 White Sulphur Road, Gainesville, Georgia 30501, (800) 533-2613

#### 445 Industrial Park Drive, Ridgeway, Virginia 24148, (800) 277-0967

## MATERIALS

### Geofoam Blocks: Provide geofoam of Type(s) indicated in compliance with ASTM D6817.

## Manufacture geofoam using 100 percent virgin feedstock (no recycle content).

## \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Note to Specifier: Select one or more of the following EPS Type(s) items and delete Type(s) not required.

## \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### EPS 12:

#### Density: 0.70 lb/ft³ (11.2 kg/cu m) minimum.

#### Compressive Resistance: 2.2 psi (15 kPa) minimum at 1 percent strain.

#### EPS 15:

#### Density: 0.90 lb/ft³ (14.4 kg/cu m) minimum.

#### Compressive Resistance: 3.6 psi (25 kPa) minimum at 1 percent strain.

#### EPS 19:

#### Density: 1.15 lb/ft³ (18.4 kg/cu m) minimum.

#### Compressive Resistance: 5.8 psi (40 kPa) minimum at 1 percent strain.

#### EPS 22:

#### Density: 1.35 lb/ft³ (21.6 kg/cu m) minimum.

#### Compressive Resistance: 7.3 psi (50 kPa) minimum at 1 percent strain.

#### EPS 29:

#### Density: 1.80 lb/ft³ (28.8 kg/cu m) minimum.

#### Compressive Resistance: 10.9 psi (75 kPa) minimum at 1 percent strain.

#### EPS 39:

#### Density: 2.40 lb/ft³ (38.4 kg/cu m), minimum.

#### Compressive Resistance: 15.0 psi (103 kPa) minimum at 1 percent strain.

#### EPS 46:

#### Density: 2.85 lb/ft³ (45.7 kg/cu m) minimum.

#### Compressive Resistance: 18.6 psi (128 kPa) minimum at 1 percent strain.

### Surface Burning: Class A, with Flame Spread Index (FSI) of <25, and Smoke Developed Index (SDI) of <450, in compliance with ASTM E84 or UL723.

* + - * 1. [Geofoam in compliance with ICC-ES AC239.]

### [Geofoam in compliance with ICC-ES AC452.]

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###  Note to Specifier:

### 1. Include item D, ICC-ES AC239, for project locations with exposure to termites. Coordinate with section 1.02, and 1.03. Remove if project is not located in termite infested location.

### 2. Include item E, ICC-ES AC452, for use in interior applications. Remove if not an interior application.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## DESIGN CRITERIA

## Project engineer to analyze loads live and dead anticipated throughout the life of the structure, the distribution of loads to the geofoam, and select geofoam Type(s) required.

## Geofoam is a thermal insulation that isolates the adjoining material from normal ground temperatures; consider freezing conditions and providing sufficient earth mass over geofoam to avoid differential icing.

## Consider hydrostatic forces and provide sufficient ballast over geofoam blocks to prevent uplift during life of installation.

## ACCESSORIES

## \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Note to Specifier: It is the responsibility of the Project engineer to determining the suitability and quantity of GeoGripper Plates. Two plates for each 4-foot x 8-foot section of geofoam block is a minimum recommendation to minimize block to block movement during installation. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## GeoGripper Plates

#### GeoGripper plates shall be used to restrain geofoam from moving laterally in layer over layer applications during construction.

#### Provide 20 gage, galvanized steel, double barbed connectors designed for geofoam restraint; install connector plates in accordance with manufacturer’s instructions.

#### Install minimum of [specify quantity] GeoGripper plates for each 4-foot x 8-foot section of geofoam.

# – EXECUTION

## Installation

## [Note to Specifier: Specify instructions to suit project requirements or applications.]

### ASTM D7180 – Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects.

**END OF SECTION**