

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(Elastic Inclusion)

203.01 Description - The following sentence is added:

This work shall consist of furnishing all submittals, material and equipment, disposal of material, providing independent laboratory testing, and placing elastic inclusion, complete, as specified herein, or as directed by the Resident. Provide all labor, materials and equipment necessary to complete the work of this Section.

The following subsection is added:

203.02 Materials

a. Elasticized Expanded Polystyrene (EPS): EPS shall have a size tolerance of 1/8 inch for each dimension and conform to the following:

Physical Property	Test Method	Requirements
Compressive strength	D-1621	720 psf +/-60 psf @ 10% strain
Water absorption	C-272	Max. 3% by volume
Insect Resistance	D-3345-74	Resistance to ants, termites, etc.

The EPS shall be elasticized, with a linear-elastic stress-strain behavior up to 10 percent strain and linear proportional stress-strain behavior up to 30 percent strain.

The material shall be produced by a manufacturer with an in-place quality control program which is monitored and certified by an accredited, independent third-party testing organization.

The EPS shall contain no chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) or formaldehyde. It shall be chemically and biologically inert when in contact with acidic and alkaline soils. It shall be treated to prevent insect attack. The EPS shall contain a flame-retardant additive.

Materials shall withstand temperature variations from 0°F to 140°F without deforming and shall maintain their original dimensions and placement without chipping, spalling, or cracking. Material shall not deteriorate because of contact with sodium chloride, calcium chloride, mild alkalis and acids, or other ice control materials.

An available product that meets the specifications above is TerraFlex™ manufactured by Universal Construction Foam in Hunt Valley, Maryland (410-498-0000).

b. Drainage Geocomposite: Drainage Geocomposite shall be installed as shown in the Plans and meet the specification of Special Provision 620 Drainage Geocomposite.

c. Adhesive: Adhesive shall be used to bond the EPS to concrete surfaces and the Drainage Geocomposite to the EPS. It shall be applied according to the EPS manufacturer's recommendations.

d. Backfill Material: Backfill material adjacent to the Drainage Geocomposite shall be as specified in the Contract.

203.021 EPS Submittals

At least ten working days prior to the first delivery of EPS to the site, the Contractor shall provide certification, in the form of a letter prepared by the EPS Supplier, that the EPS will be, or has been, manufactured in accordance with these Specifications and that the specified minimum physical property requirements will be, or have been, met. The Contractor shall also provide laboratory test results specified in Section 203.043. No EPS shall be shipped to the site until such time as all qualification related submittals have been reviewed and approved by the Department.

At least twenty working days prior to first delivery of material to the site, the Contractor shall submit a step by step procedure for and description of the anticipated installation and construction of the EPS in this Contract. The procedure and description shall include concrete surface preparation, type and application of adhesive, the use of temporary shoring and temporary ballasting/stabilizing required to prevent movement during construction prior to placement of backfill, and placement of Drainage Geocomposite and Separation Geotextile.

203.04 General - The following Subsections are added: _

203.043 Protection

Exercise care to prevent damage to the material during delivery, storage and construction. Protect the material from (1) Organic solvents such as acetone, benzene, and paint thinner; (2) Petroleum based solvents such as gasoline and diesel fuel; (3) Open flames and (4) Prolonged exposure to sunlight (more than 30 days).

Do not drive or operate heavy machinery or place concentrated loads directly on the elastic inclusion material. Material damaged due to the Contractor's operations will be removed and replaced at no additional cost to the Department.

203.44 Testing

Elasticized EPS shall be tested by an independent commercial laboratory, to verify the material requirements specified herein. The Contractor shall provide written documentation of all tests specified. Documentation shall include style, lot, roll numbers, and actual results of each test. In addition, the name, address, phone number of the testing laboratory, and date of testing shall be

provided. Each EPS block shall be labeled with the manufacturer's name, product type, lot number, date of manufacture and compressive resistance at the relevant elastic strain. Unlabeled blocks will be rejected.

The required testing shall be performed on one sample of EPS pre-production and on two additional specimens selected by the Resident during construction.

The Department reserves the right to take random samples from the project site for additional quality assurance testing. If testing yields unsatisfactory results, the Contractor may be directed to remove and replace potentially defective material at no additional cost to the Department.

203.45 Placement

Preparation of Concrete Surface: Before placement of EPS, concrete surfaces shall be abrasive blast cleaned with a positive contact sandblaster or adhesives manufacturer's recommendation and approved by the Engineer to remove all non-adherent laitance, oil, grease or other foreign or deleterious matter.

Installation of Material: The EPS shall be attached to the back of the concrete surfaces with an adhesive compatible with the material. The concrete surface must be thoroughly dry and clean for adhesive for the application of the EPS. Adhesive shall be applied according to the adhesive manufacturer's recommendation or approval.

The Drainage Geocomposite shall be installed against the backfill side of the EPS after the EPS has been installed. The separation fabric shall cover all exposed surfaces of the EPS. Separation Geotextile (Item 620.60) shall be placed over the top of the EPS, wrapping down a minimum of 12 inches below the top of the Drainage Geocomposite. EPS, Drainage Geocomposite and Separation Geotextile shall be installed according to the manufacturer's recommendations.

After the EPS has been installed and before the work has been accepted, the Contractor and Resident shall perform a visual inspection of EPS coverage and adhesion to the concrete surface. Any area deemed unacceptable and questionable as to remaining in position during the placement of the backfill material shall be replaced or repaired, as required.

203.18 Method of Measurement - The following sentence is added:

Elastic Inclusion furnished and placed in accordance with the Plans and Specifications shall be measured in square yards along the back of backwall surface area, complete-in-place.

203.19 Basis of Payment - The following paragraph is added:

EPS will be paid for at the Contract unit price per square yard which shall be full compensation for cleaning surface, furnishing and installing the EPS material according to these

Specifications and the manufacturer's recommendations, Separation Geotextile, testing, and for all material, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
203.4340	Elastic Inclusion	Square Yard