Section 32 12 __

ADVANCED, PROFESSIONAL GRADE AND PERMEABLE BONDING MATERIAL for PAVER and NATURAL STONE JOINT INFILL

PART 1: GENERAL

1.01 Description

A. Work shall consist of furnishing all material, labor, services and related items to complete the installation of EcoSystems Permeable Bonding Material® a structural, flexible and open matrix paver and natural stone joint infill in accordance with these specifications.

1.02 Related Sections

A. Section 31 10 00 - Site Clearing
B. Section 31 20 00 - Earth moving
C. Section 32 14 00 - Unit Pavers
D. Section 32 80 00 - Irrigation
E. Section 32 91 13 - Soil Preparation
F. Section 32 92 00 - Turf and Grass
G. Section 03 30 00 - Cast in place concrete

1.03 Reference Documents

A. ASTM D-422 - Particle Size Analysis
B. ASTM D-698 - Laboratory Compaction Characteristics of Soil - Standard Proctor
C. ASTM D-1557 - Laboratory Compaction Characteristics of Soil – Modified Proctor
D. ASTM C-39/39M – Std. Test Method for Compressive Strength of Cylindrical Concrete Specimens
E. ASTM C-33 Std. Spec. for Concrete Aggregates
F. ASTM C31/ C31M Standard Practice for Making and Curing Concrete Test Specimens in the Field
G. ASTM C 150 Std. Spec for Portland Cement
H. ASTM C94 / C94M Std. Spec. for Ready – Mixed Concrete
I. ASTM C 1157 Std. Performance Specification for Hydraulic Cement
J. ASTM C595 Std. Spec. for Blended Hydraulic Cement
K. ASTM C618 Std. Spec. for Coal Fly Ash and Raw or Calcined Natural Pozzolan for use in Concrete
L. ASTM C1611 / C1611M Std. Test Method for Slump Flow of Self-Consolidating Concrete
M. ASTM C989 Std. Spec. for Ground Granulated Blast-Furnace Slag for use in Concrete and Mortars
N. ASTM C979 Std. Spec. for Pigment for Integrally Colored Concrete
O. ACI 201 American Concrete Institute- Report on Durability
P. ACI 211 American Concrete Institute- Std. Practice for Selecting Proportions for Normal, Heavy Weight, and Mass Concrete
Q. Permeability Studies by the University of Central Florida
R. Coefficient of Friction and ADA Compliance report by Ardaman & Associates, Geotechnical, Environmental and Materials Consultants.

1.04 Submittals/Certification

A. Procedures: Comply with Section 01 33 00 – Submittal Procedures.
B. Product Data: Submit manufacturer's product data, including installation instructions.
C. Samples:
   1) Submit 6" x 6" x 1" grout sample that has used EcoSystems Permeable Bonding Material® and dry, graded sand to verify color, texture and permeability rate.
   2) Submit sieve analysis for sand component as required.

1.05 Quality Assurance

A. Installer Qualifications: An experienced installer who has successfully completed installations of pavers or other pavement systems on projects of similar or larger scope and magnitude.
B. Prior to commencing the work of this section, verify the accuracy of layout and grading. Verify that all sub-grades and base course aggregate conditions are as specified. Notify the owner and / or engineer of any discrepancies and coordinate the correction of those discrepancies with other trades as necessary.

1.06 Delivery, Storage and Handling

A. Deliver materials to site in manufacturer's original palletized configuration with labels clearly identifying product style number, color, name and manufacturer.
B. Check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.
C. Store materials in clean, dry area in accordance with manufacturer's instructions.
D. Store materials in an area to prevent freezing or temperatures above 95° for a prolonged amount of time.
E. Protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

1.07 Project Conditions

A. Review installation procedures and coordinate EcoSystems Permeable Bonding Material® installation with other work around installation area.
B. All adjacent hardscape, paving, and mow curbs/strips required by construction documents shall be completed prior to the installation of the EcoSystems Permeable Bonding Material® paving mats.
C. Gradients for EcoSystems Permeable Bonding Material® grout can vary from flat to 12% (7° above the horizontal). Grout placed on a sloped gradient may have a tendency to flow to a low point, particularly during episodes of hot weather. Temporary damming may be necessary. For steeper conditions, consult with manufacturer.
D. Cold weather applications:
    i. Do not use frozen materials or materials mixed or coated with ice or frost.
    ii. Do not build on frozen, wet, or muddy subgrade
    iii. Protect EcoSystems Permeable Bonding Material® kits from freezing
    iv. Protect grout from freezing
E. Hot weather conditions:
    i. Protect EcoSystems Permeable Bonding Material® kits from exposure to direct sunlight.
    ii. The workability time, pot-life, is shorter when exposed to temperatures over 80° F
F. Protect partially completed paving against damage from other construction traffic when work is in progress. Projects using aggregate loose infill are drivable upon completing infill. Projects using polymeric sands or EcoSystems Permeable Bonding Material® I are drivable based on the manufacturer's information.
G. Areas adjacent to EcoSystems Permeable Bonding Material® installation should be protected during construction.

PART 2: PRODUCTS

2.01 Acceptable Manufacturer

A. Riccobene Masonry Company, Inc. Office: 6141 Edith, NE Albuquerque, NM 87107

Phone: 505-345-2601 and 800-274-3477, fax: 505-345-2603, website: www.riccobene.com, e-mail: info@riccobene.com.

B. No substitutions shall be approved unless equal field test data is submitted.

2.02 Permeable, Flexible, Structural Joint Infill Material:

A. Permeable, Flexible, Structural Joint Infill Material: EcoSystems Permeable Bonding Material®

1) Joint width	3/16” minimum, 12” maximum
2) Joint depth	based on paver/stone thickness
3) Kits per case (each)	9
4) Coverage per kit	varies per paver product

B. Color: clear (Part B has a slight amber tint)

1) Compressive Strength	varies depending mix design*
2) Pot Life in minutes after mixing Parts A & B	45 (temperature dependent)

C. Grout Aggregate:

1) Baseline material is a 50# bag of dry, 20-40 grit pool filter sand.
2) Larger and smaller aggregates will modify the permeability of the installation and the coverage per kit. Contact Riccobene Masonry Company for additional information on various aggregate components.
3) EcoSystems Permeable Bonding Material® kits are available in volumes for sand or coarse aggregate.

*aggregate gradation and volume of bonding material used to coat the particles.

PART 3: EXECUTION

3.01 Installation Preparation

A. Read and follow the manufacturer’s instructions.
B. If there are questions contact Riccobene Masonry Company, Inc. before proceeding.
C. Not following the manufacturer’s instructions will void all warranties and claims.
D. Have necessary tools and safety equipment on hand and ready for use.
E. Mix one kit of grout at a time and sequence additional kits so not to extend beyond the pot life per kit for installation into the joints with the squeegee.

3.02 Protection

A. Avoid significant run on of stormwater during curing phase.
B. Avoid extremely hot weather installations.

3.03 Field Quality Control

A. EcoSystems Permeable Bonding Material® is a professional grade product and should be installed by qualified and experienced technicians who have been trained and acknowledge an understanding of the materials and installation instructions.
B. Any additional testing of the grout made with the EcoSystems Permeable Bonding Material® is at the buyer’s expense.