SECTION 071613 - POLYMER MODIFIED CEMENT WATERPROOFING

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section includes polymer-modified cement waterproofing.
			2. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.
			1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.

Include construction details, material descriptions, and installation instructions.

* + - * 1. Sustainable Design Submittals:
				2. Samples: For each type of exposed product.

Cementitious Coating: One pound of dry powder mix.

Acrylic Additive: One quart.

* + - * 1. Quality Control Submittals:

Test Reports: If requested by the Director’s Representative, furnish certified test data issued by an independent testing laboratory, demonstrating that the products submitted comply with the required physical properties.

Installers Qualifications Data:

Submit the names and addresses of 5 previous cementitious waterproofing projects. Include the type and size of each project.

Submit a letter certifying that the supervisor or foreman and the workers applying the cementitious waterproofing materials have at least 2 years’ experience in the application of cementitious waterproofing materials.

If project is extensive, or unusual application of cementitious waterproofing is required, request the services of a company field advisor under quality assurance.

* + - * 1. Product Certificates: For each type of waterproofing, patching, and plugging material.
			1. QUALITY ASSURANCE
				1. Qualifications:

Manufacturer’s Qualifications: The manufacturer shall have qualified technical representatives with the technical expertise to advise the Contractor of application procedures required for coating materials under the particular job conditions.

Applicator’s Qualifications: The person supervising the Work of this Section and the workers applying the cementitious waterproofing shall have had 2 years of experience in the application of cementitious waterproofing coatings and in addition shall have worked on 5 cementitious waterproof coating projects of comparable scope and complexity to the work of this project.

* + - * 1. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Build mockup of typical [vertical] [and] [horizontal] surfaces in locations selected by Director’s Representative 100 sq. ft.in size.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. FIELD CONDITIONS

Delete below if no masonry or concrete restoration.

* + - * 1. Do not execute the Work of this Section until required restoration of substrate has been completed.
				2. Weather Limitations: Proceed with application only when existing and forecasted weather conditions permit polymer-modified cement waterproofing to be performed according to manufacturer's written instructions.
				3. Proceed with waterproofing work only after pipe sleeves, vents, curbs, inserts, drains, and other projections through the substrate to be waterproofed have been completed. Proceed only after substrate defects, including honeycombs, voids, and cracks, have been repaired to provide a sound substrate free of forming materials, including reveal inserts.
				4. Ambient Conditions: Proceed with waterproofing work only if temperature is maintained at 40 Deg F or above during work and cure period, and space is well ventilated and kept free of water.
1. PRODUCTS
	* + 1. PREPACKAGED, POLYMER-MODIFIED CEMENT WATERPROOFING
				1. Polymer-Modified Cement Waterproofing: Manufacturer's proprietary blend of dry cementitious and other ingredients for mixing with [water] [or] [polymer admixture] to produce a waterproof coating that is suitable for vertical and horizontal applications below or above grade, is breathable, resists negative-side hydrostatic pressure, and has properties complying with or exceeding the criteria specified below.

Products: Subject to compliance with requirements, provide the following or materials complying with Federal Specification TT-P-0035:

Master Builders Solutions; MasterSeal 581.

Approved equivalent.

Water Permeability, CRD C 48: Maximum zero for water at 30 feet.

Compressive Strength: Minimum 4000 psi at 28 days when tested according to ASTM C109.

Flexural Strength: Minimum 350 psi at 7 days and 1000 psi at 28 days when tested according to ASTM C348.

Bond Strength: Minimum 220 psi at 14 days when tested according to ASTM C321.

Resistance to Wind-Driven Rain (FS TT-P-0035): No moisture penetration after 8 hours at 98 MPH wind pressure.

Accelerated Weathering (FS TT-P-0035): No checking, cracking, or loss of adhesion after 5000 hours of weatherometer exposure.

Static Test (FS TT-P-0035): No failure after 30 minutes 30 lbs. per sq. ft.

Color: As selected by Director’s Representative from full range.

[<Double click to insert sustainable design text for low-emitting materials.>](http://www.arcomnet.com/sustainable_design.aspx?topic=188)

Plaster coating below similar in composition to coating in paragraph above, but specifically formulated for application by plasterer’s spray gun or trowel. If lightly grained or strong texture finish is design criteria, use plaster coating below.

* + - * 1. Cementitious Waterproof Plaster Coating: Factory blended and packaged dry powder mix.

Products: Subject to compliance with requirements, provide the following or materials complying with Federal Specification TT-P-0035:

Master Builders Solutions; MasterSeal 584.

Merlex Stucco; Blockade Finisher.

Approved equivalent.

Compressive Strength (ASTM C 109): 4000 psi at 28 days.

Tensile Strength (ASTM C 190): 310 psi at 28 days.

Flexural Strength (ASTM C 348): 900 psi at 28 days.

Absorption (ASTM C 67): 3.38 percent.

Freeze/Thaw Resistance (ASTM C 666, Method B): No cracking or delamination after 300 cycles.

Accelerated Weathering (FS TT-P-0035): No checking, cracking, or loss of adhesion after 5000 hours of weatherometer exposure.

Salt Spray Resistance; 300 hour exposure: No deterioration or loss of adhesion.

* + - 1. ACCESSORY MATERIALS
				1. Acrylic Additive: “MasterEmaco A 660” by Master Builders Solution, or a comparable product recommended by the cementitious coating manufacturer.
				2. Cleaning Agents: Products recommended by the cementitious coating manufacturer for the particular conditions.
				3. Patching Compound: Factory-premixed cementitious repair mortar, crack filler, or sealant recommended by waterproofing manufacturer for filling and patching tie holes, honeycombs, reveals, and other imperfections and compatible with substrate and other materials indicated.

Insert patching-compound manufacturers and products and tested product properties here to suit Project if required; verify availability of tested performance with manufacturers.

* + - * 1. Plugging Compound: Factory-premixed cementitious compound with hydrophobic properties and recommended by waterproofing manufacturer; resistant to water and moisture but vapor permeable for all standard applications (vertical, overhead, and horizontal surfaces not exposed to vehicular traffic); and compatible with substrate and other materials indicated.

Insert plugging-compound manufacturers and products and tested product properties here to suit Project if required; verify availability of tested performance with manufacturers.

* + - * 1. Portland Cement: ASTM C150, Type I.
				2. Slurry-Coat Sand: ASTM C144.
				3. Trowel-Coat Sand: ASTM C33, fine aggregate.
			1. MIXES
				1. Prepackaged, Polymer-Modified Cement Waterproofing: Add prepackaged dry ingredients to mixing liquid according to manufacturer's written instructions. Mix together with mechanical mixer or by hand to required consistency.
1. EXECUTION
	* + 1. EXAMINATION

Revise this article to suit Project. Existing substrates may require specific repair to correct unsatisfactory conditions.

* + - * 1. Examine substrates, areas, and conditions, with Applicator present, for suitable conditions where waterproofing is to be applied.
				2. Proceed with application only after unsatisfactory conditions have been corrected.
				3. Notify Director’s Representative in writing of active leaks or defects that would affect system performance.
			1. PREPARATION
				1. Comply with manufacturer's written instructions.

Retain option in first paragraph below if spray application may be used.

* + - * 1. Protect other work from damage caused by cleaning, preparation, and application of waterproofing. Provide temporary enclosure[ to confine spraying operation and] to ensure adequate ambient temperatures and ventilation conditions for application.
				2. Do not allow waterproofing, patching, and plugging materials to enter reveals or annular spaces intended for resilient sealants or gaskets, such as joint spaces between pipes and pipe sleeves.
				3. Stop active water leaks with plugging compound.
				4. Repair damaged or unsatisfactory substrate with patching compound.

Retain subparagraph below for repair work. Do not permit conical or tapered joints in repairs.

At holes and cracks 1/16 inch wide or larger in substrate, remove loosened chips and cut reveal with sides perpendicular to surface, not tapered, and minimum 1 inch deep. Fill reveal with patching compound flush with surface.

Retain "Surface Preparation" paragraph below for surface preparation of substrate. Include special procedures required by manufacturers or to suit Project.

* + - * 1. Surface Preparation: Remove efflorescence, chalk, dust, dirt, mortar spatter, grease, oils, paint, curing compounds, and form-release agents to ensure that waterproofing bonds to surfaces.

Clean concrete surfaces according to ASTM D4258.

Retain one of or both "Scratch- and Float-Finished Concrete" and "Smooth-Formed and Trowel-Finished Concrete" subparagraphs below for type of surface preparation required. Revise to suit Project.

Scratch- and Float-Finished Concrete: Etch with 10 percent muriatic acid solution according to ASTM D4260.

Smooth-Formed and Trowel-Finished Concrete: Prepare by mechanical abrading or abrasive-blast cleaning according to ASTM D4259.

Clean concrete unit masonry surfaces according to ASTM D4261.

Retain one of or both "Lightweight Concrete Unit Masonry" and "Medium- and Normal-Weight Concrete Unit Masonry" subparagraphs below for type of surface preparation required. Revise to suit Project.

Lightweight Concrete Unit Masonry: Etch with 10 percent muriatic acid solution or abrade surface by wire brushing. Remove acid residue until pH readings of water after rinse are not more than 1.0 pH lower or 2.0 pH higher than pH of water before rinse.

Medium- and Normal-Weight Concrete Unit Masonry: Sandblast or bushhammer to a depth of 1/16 inch.

Clean clay masonry surfaces according to ASTM D5703.

Concrete Joints: Clean reveals.

* + - 1. APPLICATION
				1. Plan the Work with enough workers and scaffolding so breaks in the cementitious coating application are at natural stopping points recommended by the coating manufacturer and approved by the Director’s Representative.
				2. Mixing: Follow the cementitious coating manufacturer’s recommendations.

Use clean containers for mixing.

Power mix materials with mechanical mixing equipment.

Mix only the amount of material that can be applied within “open time”. Do not re-work set or hardened material; remove such material from the site.

Liquid solution shall consist of 3 parts of clean water and 1 part acrylic additive, unless otherwise recommended by the cementitious coating manufacturer for the particular conditions.

Proportion and mix liquid solution and powder in accordance with the cementitious coating manufacturer’s recommendations for the application indicated.

* + - * 1. Immediately before application, dampen dry surfaces with clean water.
				2. Apply cementitious coating in compliance with the coating manufacturer’s recommendations unless otherwise specified.
				3. Cementitious Waterproof Coating:

Brush on and evenly distribute a base coat of the mix at the minimum rate of 2 lbs. per sq. yd. Cure base coat for 24 hours or longer if required by environmental conditions. Apply a finish coat of the mix at the minimum rate of 1 lb. per sq. yd.

Use above for maximum waterproofing application. Use below for ordinary waterproofing application.

Brush on one even coat of the mix at the minimum rate of 2 lbs. per sq. yd. Cure for 24 hours, or longer if required by environmental conditions.

Use below for severe water conditions and a smooth plaster coat finish, or for extreme surface conditi0ns (spalled, rough, uneven), or where a monolithic finish is required.

Brush apply a base coat of the mix at the minimum rate of 2 lbs. per sq. yd. Trowel apply a second coat at the minimum rate of 12 lbs. per sq. yd or enough material to bring the surface true and level. After material stiffens, sponge float to an even uniform surface to obtain desired texture.

Application below for plaster coating. If substrate is block or brick, and to prevent “shadowing” of struck or deep masonry joints, trowel apply both coats. Edit accordingly.

* + - * 1. Cementitious Waterproof Plaster Coating:

Trowel, brush, or spray apply a base coat of the mix at the rate of 2 lbs. per sq. yd. Float or brush out first coat of spray application to fill holes, pores and imperfections before applying a finish coat. Cure for 5 to 7 days before applying finish coat.

Trowel and Float Finish: Trowel apply second coat firmly, pressing the material into all voids. Sponge float the surface uniformly to a soft sand finish, free of lap marks. Apply mix at approximate rate of 4 to 6 lbs. per sq. yd on concrete, and 6 to 9 lbs. per sq. yd on masonry and coarse concrete surfaces.

Edit above and below to suit substrate surface.

Sprayed-on Finish: Spray on an evenly distributed coat of the plaster mix moving the spray nozzle with steady, even strokes. After material has set, double back over the surface with one or more light spray applications to achieve a uniform texture free of air and water bubbles. Apply mix at approximate rate of 5 to 7 lbs. per sq. yd on concrete and 6 to 9 lbs. per sq. yd on masonry and coarse concrete surfaces.

Check drawings for coating thickness(es). For other applications or coverage methods, consult manufacturer’s literature.

* + - * 1. Apply minimum total coating thickness of 1/8 inch, or coating thickness(es) indicated on the Drawings.
				2. Curing: If rapid drying occurs, spray the finished surface with a water mist as required to keep the surface damp. Water mist for the time recommended by the cementitious coating manufacturer.
			1. CLEANING
				1. Clean adjacent surfaces that have been soiled or defaced by the execution of this Work.
				2. Remove protective covers.

END OF SECTION 071613