TECHNICAL SECTIONS TO SPECIFICATIONS FOR

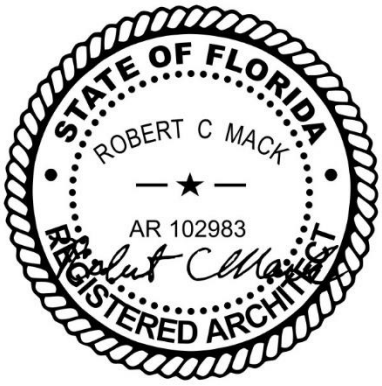
EXTERIOR REPAIRS

TO THE

OLD SAINT ANASTASIA CATHOLIC SCHOOL

FORT PIERCE, FLORIDA

April 19, 2024



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SECTION 011000 - SUMMARY

1.1 PROJECT INFORMATION

A. Project Identification: Exterior Restoration of Old St. Anastasia.

1. Project Location: 910 North Orange Avenue, Fort Pierce, Florida

B. Owner: City of Fort Pierce, Florida.

1. Owner's Representative: Marsha Commond, mcommond@cityoffortpierce.com.

C. Design-Builder: Innovative Masonry Restoration, 16264 Lakeside Ave SE • Prior Lake, MN 55372.

1. Design-Builder Representative: Jim Dolby, jim@imrestoration.com>

2. Design-builder has been engaged for this Project to provide architectural and engineering services and to serve as Project's constructor. The terms "design-builder" and "Contractor" are synonymous.

D. Architect: MacDonald & Mack Architects, Ltd. 3101 East Franklin Ave, Minneapolis, MN 55406,

1. Architect's Representative: Robert Mack, bobm@mm-architects.com

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project: Exterior repairs to the Old St. Anastasia Catholic School. Work includes masonry cleaning, brick and stone repairs, cast-concrete repairs, window repairs, and associated work.

B. Type of Contract: Single prime contract.

C. Use of Site: Limited to work in areas indicated.

1. Limits of Site Disturbance: 40 feet (12.2 m) beyond building; 10 feet (3 m) beyond surface paving and utilities; 15 feet (4.5 m) beyond roadway and main utility branch trenches; 25 feet (7.6 m) beyond constructed permeable surfaces (such as pervious paving, stormwater detention facilities, and playing fields).
2. Contractor full use of site.
3. Owner will not the site during Work of this Contract.

D. Work Restrictions: Operations that will generate dust or noise are limited to the hours of 7:00 am to 6:00 pm.

E. Miscellaneous Provisions: No utilities are available on the site.

END OF SECTION 011000

SECTION 030130 - MAINTENANCE OF CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Removal of deteriorated concrete and reinforcement and subsequent replacement and patching.
2. Floor joint repair.
3. Epoxy crack injection.

1.2 UNIT PRICES

A. Unit prices include the cost of preparing existing construction to receive the work indicated.

B. Concrete Removal and Replacement or Patching: Work will be paid for by the square foot at 2" to 3" deep computed on the basis of rectangular solid shapes approximating the actual shape of concrete removed and replaced with average depths, widths, and lengths, measured to the nearest half foot.

1. Reinforcing bar replacement will be paid for separately by the linear foot of replacement steel with welded and mechanical splices paid for by the unit.

C. Epoxy Crack Injection: Work will be paid for by the linear foot of crack injected.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Material Certificates: For each type of product indicated, signed by manufacturers.

1.4 QUALITY ASSURANCE

A. Mockups: Build mockups for concrete removal and patching to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 BONDING AGENTS

A. As recommended by manufacturer of patching mortar

2.2 PATCHING MORTAR

A. Patching Mortar, General:

1. Unless otherwise indicated, use any of the products specified in this Article.
2. Overhead Patching Mortar: For overhead repairs, use patching mortar recommended by manufacturer for overhead use and as specified in this Article.
3. Products: Subject to compliance with requirements, provide one of the following:
    a. Cathedral Stone Products: Jahn M90
    b. Edison Coatings: Custom System 45

2.3 MISCELLANEOUS MATERIALS

A. Epoxy Crack Injection Adhesive: ASTM C 881/C 881M

B. Capping Adhesive: Product manufactured for use with crack injection adhesive by same manufacturer.

C. Corrosion-Inhibiting Treatment Materials: Water-based solution of alkaline corrosion-inhibiting chemicals that penetrates concrete by diffusion and forms a protective film on steel reinforcement.
1. Products: Subject to compliance with requirements, provide one of the following:

    a. Cortec Corporation; MCI 2005 or MCI 2020.
    b. Degussa Corporation; Protectosil CIT.
    c. Fox industries, Inc.; FX-361 Migratory Corrosion Inhibitor.
    d. Sika Corporation; Sika Ferrogard 903.
    e. Sonneborn, Div. of ChemRex; Corrosion Inhibitor.

D. Mix products, in clean containers, according to manufacturer's written instructions.

E. Dry-Pack Mortar: Mix with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Notify Architect seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.

3.2 PREPARATION

A. Protect people, motor vehicles, equipment, surrounding construction, Project site, plants, and surrounding buildings from injury resulting from concrete rehabilitation work.

B. Shoring: Install temporary supports before beginning concrete removal.

C. Concrete Removal:

1. Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.
2. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.
3. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.
4. Provide fractured aggregate surfaces with a profile of at least 1/8 inch (3 mm) that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level, unless otherwise directed.
5. Thoroughly clean removal areas of loose concrete, dust, and debris.

D. Reinforcing Bar Preparation: Remove loose and flaking rust from reinforcing bars by needle scaling or wire brushing until only tightly bonded light rust remains.

1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, cut bars and remove and replace. Remove additional concrete as necessary to provide at least 3/4-inch (19-mm) clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318 (ACI 318M), by lapping, welding, or using mechanical couplings.

3.3 APPLICATION

A. General: Comply with manufacturer's written instructions and recommendations for application of products, including surface preparation.

B. Patching Mortar: Install in accordance with manufacturer's written instructions.

END OF SECTION 030130

SECTION 040310 - HISTORIC MASONRY CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment work consisting of cleaning historic clay brick and stone masonry surfaces.

1.2 DEFINITIONS

A. Low-Pressure Spray:

1. Pressure: 100 to 400 (690 to 2750) psi (kPa).
2. Flow Rate: 4 to 6 (0.25 to 0.4) gpm (L/s).

B. Medium-Pressure Spray:

1. Pressure: 400 to 800 (2750 to 5510) psi (kPa).
2. Flow Rate: 4 to 6 (0.25 to 0.4) gpm (L/s).

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site
1. Review methods and procedures related to cleaning historic masonry.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic masonry cleaning specialist. Experience cleaning new masonry work is insufficient experience for historic treatment work.

PART 2 - PRODUCTS

2.1 PAINT REMOVERS

A. Covered or Skin-Forming Alkaline Paint Remover: Manufacturer's standard covered or skin-forming, alkaline paste or gel formulation for removing paint from masonry; containing no methylene chloride.

2.2 CLEANING MATERIALS

A. Water: Potable.

B. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

C. Mold, Mildew, and Algae Remover, Job Mixed: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 5 quarts (5 L) of 5 percent sodium hypochlorite (bleach), and 15 quarts (15 L) of hot water for every 5 gal. (20 L) of solution required.

D. Nonacidic Gel Cleaner: Manufacturer's standard gel formulation, with pH between 6 and 9, that contains detergents with chelating agents and is specifically formulated for cleaning masonry surfaces.

PART 3 - EXECUTION

3.1 CLEANING MASONRY, GENERAL

A. Proceed with cleaning in an orderly manner; work from bottom to top of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water do not wash over dry, cleaned surfaces.

B. Use only those cleaning methods indicated for each masonry material and location.
    a. deg F (60 and 71 deg C) at flow rates indicated.

C. Perform each cleaning method in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.

    1. Keep wall wet below area being cleaned to prevent streaking from runoff.

D. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from masonry surface, and apply water in horizontal back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.

E. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces according to chemical-cleaner manufacturer's written instructions. Do not spray apply at pressures exceeding 50 psi (345 kPa). Do not allow chemicals to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.

F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.

    1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

3.2 PRELIMINARY CLEANING

A. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to planned cleaning methods. Extraneous substances include paint, caulking, asphalt, and tar.
   1. Remove paint and caulking with alkaline paint remover.

3.3 PAINT REMOVAL

A. Paint-Remover Application, General: Apply paint removers according to paint-remover manufacturer's written instructions. Do not allow paint removers to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.

B. Paint Removal with Covered or Skin-Forming Alkaline Paint Remover:

   1. Remove loose and peeling paint using low-pressure water spray, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
   2. Apply paint remover to dry, painted surface with trowel, spatula, or as recommended in writing by manufacturer.
   3. Apply cover according to manufacturer's written instructions.
   4. Allow paint remover to remain on surface for period recommended in writing by manufacturer.
   5. Scrape off paint and remover.
   6. Rinse with cold water applied by medium-pressure spray to remove chemicals and paint residue.
   7. Apply manufacturer's recommended afterwash to surface, while surface is still wet, using low-pressure spray equipment or soft-fiber brush.
   8. Rinse with cold water applied by medium-pressure spray to remove chemicals and soil.
   9. and soil.

END OF SECTION 040310

SECTION 040340 - HISTORIC MASONRY REPOINTING AND REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment work consisting of repointing and repairing historic masonry assemblies.

1.2 DEFINITIONS

A. Low-Pressure Spray:

1. Pressure: 100 to 400 (690 to 2750) psi (kPa).
2. Flow Rate: 4 to 6 (0.25 to 0.4) gpm (L/s).

B. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference on historic masonry repair and repointing at Project site.
1. Review methods and procedures related to repairing historic stone masonry.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

A. Preconstruction Test Reports: For replacement stone types.

1.6 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic stone repointing and repair specialist. Experience installing standard unit masonry or new stone masonry is insufficient experience for stone historic treatment work.

1. Historic Treatment Worker Qualifications: When stone units are being patched, assign at least one worker per crew who is trained and certified by manufacturer of patching compound to apply its products.

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

A. Stone Matching Existing: Natural building stone of variety, color, texture, grain, veining, finish, size, and shape that match existing stone.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II; white or gray, or both, where required for color matching of mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Sand: ASTM C144 unless otherwise indicated.

1. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

D. Mortar Pigments: ASTM C979/C979M, compounded for use in mortar mixes, and having a record of satisfactory performance in masonry mortars.

E. Water: ASTM C270, potable.

2.3 MANUFACTURED REPAIR MATERIALS

A. Stone-Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching stone.
1. Use formulation that is vapor and water permeable (equal to or more than the masonry), exhibits low shrinkage, has lower modulus of elasticity than the stone units being repaired, and develops high bond strength to all stone types.
2. Formulate patching compound in colors, textures, and grain to match stone being patched. Provide no fewer than three colors to enable matching each piece of stone.

B. Stone-to-Stone Adhesive: Two-part polyester or epoxy-resin stone adhesive with a 15- to 45-minute cure at 70 deg F (21 deg C), recommended in writing by adhesive manufacturer for type of stone repair indicated, and matching stone color.

2.4 ACCESSORY MATERIALS

A. Stone Anchor and Pins: Type and size indicated or, if not indicated, to match existing anchors in size and type. Fabricate from Type 316 stainless steel.

B. Setting Buttons and Shims: Resilient plastic, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units, less the required depth of pointing materials unless removed before pointing.

2.5 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not add pigment exceeding 10 percent by weight of the cementitious or binder materials, except for carbon black, which is limited to 2 percent, unless otherwise demonstrated by a satisfactory history of performance.

C. Do not use admixtures in mortar unless otherwise indicated.

D. Mixes: Mix mortar materials in the following proportions:
1. Pointing Mortar by Property: ASTM C270, Property Specification, Type N unless otherwise indicated; with cementitious material limited to portland cement and lime. Add mortar pigments to produce mortar colors required.
2. Rebuilding (Setting) Mortar by ASTM C1713 Composition: ASTM C1713, with binder material limited to portland cement and lime, and a maximum 28-day compressive strength of 750 psiRetain "Colored Mortar" Subparagraph below if adding mortar pigment to setting-mortar mix in order to set and point masonry with rebuilding (setting) mortar.
3. Colored Mortar: Add mortar pigments to produce exposed, setting (rebuilding) mortar of colors required.

PART 3 - EXECUTION

3.1 PROTECTION

A. Prevent mortar from staining face of surrounding stone and other surfaces.

1. Provide temporary rain drainage during work to direct water away from building.

3.2 MASONRY REPAIR, GENERAL

A. Have repair work performed only by qualified historic treatment specialist.

3.3 REPOINTING

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of 2 times joint width but not less than 3/4 inch (20 mm) and not less than that required to expose sound, unweathered mortar Do not remove unsound mortar more than 2 (50) inches (mm) deep; consult Architect for direction.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of bricks or widen joints. Replace or patch damaged bricks as directed by Architect.

D. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 (9) inch(es) (mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than 3/8 (9) inch(es) (mm). Fully compact each layer and allow it to become thumbprint hard before applying next layer. Where existing brick have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Remove mortar and repoint.

3.4 STONE AND BRICK REMOVAL AND REPLACEMENT

A. At locations indicated, remove stone or brick that has deteriorated or is damaged beyond repair or is to be reused. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

B. Support and protect remaining masonry that was supported by removed stone.

C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

D. Notify Architect of unforeseen detrimental conditions, including voids, cracks, bulges, loose masonry units in existing stone or unit masonry backup, rotted wood, rusted metal, and other deteriorated items.

E. Remove in an undamaged condition as many whole stone units as possible. Remove mortar and sealant from surfaces of removed stones.

F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for stone replacement.

G. Replace removed damaged masonry with other removed masonry units in good condition, where possible, matching existing stone. Do not use broken units unless they can be cut to usable size.

H. Install replacement masonry units into bonding and coursing pattern of existing masonnry. If cutting is required, use a motor-driven saw designed to cut masonry units with clean, sharp, unchipped edges. Finish edges to blend with appearance of edges of existing masonry.

1. Maintain joint width for replacement stone to match existing joints.
2. Use setting buttons or shims to set masonry units accurately spaced with uniform joints.

I. Set replacement units with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting, and set units in full bed of mortar unless otherwise indicated.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
2. Rake out mortar used for laying stone before mortar sets
3. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

J. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.5 BACKUP MASONRY REMOVAL AND REPLACEMENT

A. Where backup masonry is fractured or unstable and at locations indicated, remove mortar and masonry units that are broken or deteriorated and rebuild with whole, new backup masonry units. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

3.6 PARTIAL STONE REPLACEMENT

A. Remove defective portion of existing stone unit (backing stone). Carefully remove defective portion of stone by making vertical and horizontal saw cuts at face of backing stone and removing defective material to depth required for fitting partial replacement (dutchman).

1. Make edges of backing stone at cuts smooth and square to each other and to finished surface; essentially rectangular. Make back of removal area flat and parallel to stone face.
2. Do not overcut at corners and intersections. Hand trim to produce clean sharp corners with no rounding and no damage to existing work to remain.
3. If backing stone becomes further damaged, remove damaged area and enlarge partial replacement as required.

B. Cut and trim partial replacement to accurately fit area where material was removed from backing stone. Fabricate to size required to produce joints between partial replacement and backing stone of no more than 1/16 (1.6) inch (mm)in width, and to produce joints between partial replacement and other stones that match existing joints between stones.

C. Pinning: Before applying adhesive, prepare for mechanical anchorage consisting of 1/4-inch- (6-mm-) diameter, threaded stainless-steel pins set into 1/4-inch- (6-mm-) diameter holes drilled at a 45-degree downward angle through face of partial replacement and into backing stone.

D. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of backing stone and partial replacement, completely filling all crevices and voids.

E. Apply partial replacement while adhesive is still tacky, and hold securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of backing stone.

F. Clean adhesive residue from exposed surfaces and patch chipped areas.

3.7 BRICK AND STONE MASONRY PATCHING

A. Patch the following units unless another type of repair or replacement is indicated:

1. Units indicated to be patched.
2. Units with holes.
3. Units with chipped edges or corners. Patch chipped edges or corners measuring more than 3/4 inch (19 mm) in least dimension.
4. Units with small areas of deep deterioration. Patch deep deteriorations measuring more than 3/4 inch (19 mm) in least dimension and more than 1/4 inch (6 mm) deep.

B. Patching Bricks and Stones:

1. Remove loose material from masonry surface. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least [1/4 (6) inch(es) (mm) thick, but not less than recommended in writing by patching compound manufacturer.
2. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of brick.
3. Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
4. Rinse surface to be patched and leave damp, but without standing water.
5. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.

6. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.
7. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the brick. Shape and finish surface before or after curing, as determined by testing, to best match existing brick.
8. Keep each layer damp for 72 hours or until patching compound has set.

3.8 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

END OF SECTION 040340

SECTION 075552.13 - ATACTIC-POLYPROPYLENE (APP) MODIFIED BITUMINOUS PROTECTED MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Atactic-polypropylene (APP)-modified bituminous protected membrane roof system.
2. Base sheet materials.
3. Interply sheets.
4. Atactic-polypropylene (APP)-modified bituminous cap sheet.
5. Base flashing sheet materials.
6. Asphalt materials.
7. Accessory roofing materials.
8. Roof insulation.
9. Insulation accessories.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Shop Drawings: Include plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness of insulation.
2. Base flashings and membrane terminations.
3. Flashing details at penetrations.

B. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.4 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

a. Submit evidence of compliance with performance requirements.

2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

B. Sample warranties.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturers: A qualified manufacturer that is UL listed for roofing system identical to that used for this Project.
2. Installers: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

a. Installer to employ on Project installers and supervisors certified through the NRCA/MRCA Certified Roofing Torch Applicator (CERTA) program.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accelerated Weathering: Roof membrane to withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.

B. Impact Resistance: Roof membrane to resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

C. Wind Uplift Resistance: Design roofing system to resist Code minimum resistance when tested according to FM Approvals 4474, UL 580, or UL 1897:

D. Fire/Windstorm Classification: Class 1A-105.

E. Hail-Resistance Rating: FM Global Property Loss Prevention Data Sheet 1-34 SH.

2.2 MANUFACTURERS

A. Atactic-Polypropylene (APP)-Modified Bituminous Protected Membrane Roof System:
   1. Polyglass or approved equal

2.3 SOURCE LIMITATIONS

A. /Obtain components, including roof insulation for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

B. General: Accessory materials recommended by roofing manufacturer for intended use and compatible with other roofing components.

2.4 ROOF INSULATION

A. Extruded-Polystyrene Board Insulation, Type VII: ASTM C578, 2.2 lb/cu. ft. (35 kg/cu. m) minimum density, 60 psi (414 kPa) minimum compressive strength, with drainage channels on bottom side, and with two or four edges rabbeted.
   1. Thermal Resistance: R-value of 5.0 per 1 inch (25 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:

   1. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
   2. Verify that concrete substrate is visibly dry and free of moisture, and that minimum concrete internal relative humidity is not more than 75 percent, or as recommended by roofing system manufacturer, when tested according to ASTM F2170.

3.2 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing,"

B. Complete terminations and base flashings, and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast.

   1. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION OF BASE SHEET

A. Before installing, unroll base sheet, cut into workable lengths, and allow to lie flat for a time period recommended by manufacturer for the ambient temperature.

1. Install base sheet without wrinkles, tears, or air pockets.
2. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps.

    a. Lap side laps as recommended by roof membrane manufacturer but not less than 3 inches (76 mm).
    b. Lap end laps as recommended by roof membrane manufacturer but not less than 12 inches (300 mm).
    c. Stagger end laps not less than 18 inches (457 mm).

3. Repair tears and voids in laps and lapped seams not completely sealed.
4. Apply pressure to the body of the base sheet according to manufacturer's instructions, to remove air pockets and to result in complete adhesion of base sheet to substrate.

3.4 INSTALLATION OF INTERPLY SHEETS

A. Install three ply sheets, starting at low point of roofing.

1. Align ply sheets without stretching.
2. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane.

    a. Shingle in direction to shed water.

3. Extend ply sheets over and terminate above cants.
4. Embed each ply sheet in a solid mopping of hot roofing asphalt applied at rate required by roofing manufacturer, to form a uniform membrane without ply sheets touching.

3.5 INSTALLATION OF APP-MODIFIED BITUMINOUS CAP SHEET

A. Before installing, unroll cap sheet, cut into workable lengths, and allow to lie flat for a time period recommended by manufacturer for the ambient temperature at which cap sheet will be installed.

B. Install modified bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system.

1. Extend cap sheet over and terminate above cants.
2. Install cap sheet in a shingle fashion.
3. Install cap sheet as follows:
4. Install cap sheet without wrinkles tears, or air pockets.
5. Install cap sheet, so side and end laps shed water.

C. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps.

1. Lap side laps as recommended by roof membrane manufacturer but not less than 3 inches (76 mm).
2. Lap end laps as recommended by roof membrane manufacturer but not less than 12 inches (300 mm).
3. Stagger end laps not less than 18 inches (457 mm).
4. Roll laps with a 20-pound (9-kg) roller.
5. Repair tears and voids in laps and lapped seams not completely sealed.

D. Apply pressure to the body of the cap sheet according to manufacturer's instructions, to remove air pockets and to result in complete adhesion of base sheet to substrate.

3.6 INSTALLATION OF FLASHING AND STRIPPING

A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions and as follows:

1. Prime substrates with asphalt primer if required by roofing system manufacturer.

2. Flashing Sheet Application, Cold: Adhere flashing sheet to substrate in cold-applied adhesive.
3. Flashing Sheet Application, Hot: Torch-apply flashing sheet to substrate.

    a. Perform torch application according to NFPA 241, including two-hour fire watch after torches have been extinguished.

B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

D. Install liquid flashing system according to manufacturer's recommendations.

1. Extend liquid flashing not less than 3 inches (76 mm) in all directions from edges of item being flashed.
2. Embed granules, matching color of roof membrane, into wet compound.

E. Install roofing cap sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.

3.7 INSTALLATION OF INSULATION

Retain first paragraph below when required by roof membrane manufacturer.

A. Loosely lay separator sheet over cooled roofing membrane, with minimum 2-inch (51-mm) side laps and 4-inch (100-mm) end laps.

B. Loosely lay insulation over roof membrane, with long joints of insulation in continuous straight lines and with end joints staggered not less than 12 inches (300 mm) between rows.

1. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
2. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
3. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

Retain first paragraph below when two layers of insulation are required to achieve total roof/ceiling R-value.

C. Install upper layer of insulation with joints of each layer offset not less than 12 inches (300 mm) from previous layer of insulation.

1. Install with long joints continuous and with end joints staggered not less than 12 inches (300 mm) in adjacent rows.
2. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
3. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
4. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
5. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

D. Install protection layer over insulation, overlapping edges and ends at least 12 inches (300 mm).

1. Do not lap ends of fabric sheets within 72 inches (1800 mm) of roof perimeter.
2. Extend fabric 2 to 3 inches (51 to 76 mm) above ballast at perimeter and penetrations.
3. Apply additional layer of fabric around penetrations to prevent aggregate from getting between penetration and insulation.
4. Do not cover drains or restrict water flow to drains.

3.8 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

1. When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 075552.13

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Urethane joint sealants.
   2. Latex joint sealants.

1.2 ACTION SUBMITTALS

A. Product data.

B. Samples: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.3 CLOSEOUT SUBMITTALS

A. Warranty Documentation:

   1. Manufacturers' special warranties.
   2. Installer's special warranties.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25.

2.3 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

2.4 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material). Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.

3. Remove laitance and form-release agents from concrete.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants in accordance with requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.

F. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

G. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 092400 –PORTLAND CEMENT PLASTER (STUCCO) ON CONCRETE WALLS

PART 1- GENERAL

1.01 SUMMARY

A. Section Includes: Work includes all labor, materials, and equipment necessary to repair and install all aspects of a portland cement plaster assembly in accordance with the recommendations of the Stucco Manufacturers Association.

1.02 ASSEMBLY DESCRIPTION

A. General: Exterior portland cement plaster over concrete.

1.03 QUALITY ASSURANCE

A. Manufacturer: All component materials shall be SMA approved and shall be distributed by authorized dealers.

B. Plastering Contractor: A firm that specializes in plaster application and repair.

1.04 PROJECT CONDITIONS

A. Environmental Requirements: Follow product manufacturer's recommendations for environmental conditions and surface preparation.

B. Temperatures: Before, during and following the application of the portland cement plaster, the ambient and surface temperatures must remain above 40 degrees F (4 C) for a minimum period of 24 hours. Protect stucco from uneven and excessive evaporation, especially during hot, dry and/or windy weather. Protect the portland cement plaster from freezing for a period of not less than 24-hours after set has occurred.

C. Substrates: Prior to installation, inspect the wall for surface contamination, bond breakers, or other defects that may adversely affect the performance of the materials, and shall be free of foreign matter. Do not apply the portland cement plaster to substrates with temperatures less than 40 degrees F (4 C) or that contain frost or ice.

D. Inclement Weather: Protect applied material from deleterious effects until cured or dry.

E. Existing Conditions:

Contractor shall walk the project prior to starting work and notify the architect or owner’s representative of any deficiencies that will negatively impact the plaster or parge coating. Do NOT proceed until remedied and contractor can provide warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. SMA Manufacturers: Must be from the current list on SMA website under appropriate category.

B. Lath and Trim Accessories: As recommended by SMA

2.02 BROWN COAT (BASECOAT)

A. Cement: A portland cement complying with ASTM C150.

B. Sand:

1. Field mixes shall comply with ASTM C-926 and must have sand that is clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing shall comply with ASTM C144 or C897.

2. An "engineered performance mix" by an SMA manufacturer is acceptable with appropriate approvals (ICC ES, IAPMO or Interek report) .

C. Water: Clean and potable without foreign matter.

2.03 FINISHES

A. Match finish on adjacent stucco surfaces

B. Color and Texture: Manufacturer, color and finish texture shall be as approved by the Architect.

2.04 MIXES

A. Portland Cement Plaster Basecoats:

1. Prescriptive Method: Ratios and Mix Design shall be per ASTM C926.

PART 3 - EXECUTION

PREPARATION

A. Substrate: Inspect all work prior to starting lath and plastering. Notify architect of any issues impacting performance, proceed as directed.

B. Remove all areas of loose or damaged plaster.

C. Undercut the edges of remaining stucco.

D. Surrounding Areas: Protect surfaces near the work of this section from damage, disfiguration, and overspray. Mask off all dissimilar materials.

INSTALLATION, GENERAL

A. General Installation: Refer to ASTM C926, ASTM C1063, and/or the appropriate manufacturer's product data sheet for additional installation requirements and recommendations of the SMA.

INSTALLING PORTLAND CEMENT PLASTER

A. Per ASTM C926, apply portland cement plaster by hand-troweling. Total basecoat shall be a nominal ½ inch for direct application to masonry substrates. Concrete should be skim only, unless lath is used.

B. Apply brown coat to fill and complete basecoat. Rod to a flat plane. Do not apply to frozen or soft scratch coat. When excess moisture leaves brown coat, hard float to provide densification per ATSM.

C. Moist Curing: Provide sufficient moisture by fog or moist curing to permit proper hydration of the cementitious materials. The length of time and most effective procedure for curing will depend on climatic and job conditions. Refer to SMA curing guidelines.

INSTALLING FINISH COAT

A. General: Mix and apply per manufacturer's product data sheet.

B. Do not apply to soft, contaminated or frozen basecoat.

C. Avoid applying to excessively hot walls.

D. Verification: Verify the desired color, material and texture to match the approved sample and/or mock-up prior to installation.

E. Avoid scaffold lines.

CLEANING/PATCHING/TOLERANCE

A. Cleaning: Remove any and all materials used, overspray from adjacent surfaces, and all protective masking.

B. Patch and repair as needed, including but not limited to fog coating, imperfections and blisters.

C. Cracks shall be repaired per the most current SMA Crack Policy (Technical Bulletin 4)

D. The basecoat of plaster shall be in tolerance:

1. Commercial: Not to exceed ¼ inch in ten (10) feet

E. Eye catching variations in color or texture pattern will not be accepted.

PROTECTION

Protection: Protect applied material from inclement weather until dry and prevent it from freezing for a minimum of 24-hours after set and/or until dry. Refer to manufacturer's product data sheet for additional requirements.

END OF SECTION 092400

SECTION 099133 - MINERAL SILICATE EXTERIOR PAINTS/COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Application of two coats of exterior mineral silicate paint/coating. Specification includes limited surface preparation.

B. Related Sections: Related sections include the following:

1. Section 030100 – Maintenance of Cast Concrete
2. Section 040310, Historic Masonry Cleaning
3. Section 040340, Historic Masonry Repair
4. Section 092400, Stucco

1.2 DEFINITIONS

A. Mineral Silicate paint/coating, base coat: The first applied coat of the mineral silicate paint/coating.

B. Mineral Silicate paint/coating, top coat: The second applied coat of the mineral silicate paint/coating.

1.3 SYSTEM DESCRIPTION

A. A materials-compatible highly vapor permeable decorative coating system offering strong weathering protection for exterior exposure.

1. Mineral Silicate Paint/Coating: An incombustible two coat system comprising of a “Fine” smooth base coat and a “Fine” smooth top coat.

a. Mineral Silicate paint/coating penetrates the surface and chemically reacts to combine with the substrate through chemical bonds forming a hard amorphous microporous layer with extremely high vapor permeability.

b. Unaffected by acids, UV exposure, or air-borne pollutants.

c. Unique alkaline mineral layer structure protects against liquid water penetration into the coated substrate and maintains moisture balance through vapor diffusion to keep wall assemblies breathable and dry, thus resisting mold and biological growth.

d. Will not reduce substrate vapor permeability.

e. Fine first coat also acts as the primer coat.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Provide evidence that Manufacturer is a firm engaged in the manufacture of mineral silicate paint/coatings of types required, and whose products have been in use for a minimum of fifteen years.

2. Applicator Qualifications:

a. Provide evidence Applicator is a firm having successful application of products within this specification with at least one project in the last 24 months similar in type and scope to that required for this project, and having passed a product certification training course provided by the manufacturer prior to the execution of this unit of work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with manufacturer's name, material and product brand name, and lot number, if any.

B. Store materials in their original undamaged packages and containers inside a well ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Check Manufacturers Product data for additional storage information.

1.6 PROJECT CONDITIONS

A. Environmental Requirements:

1. Do not apply in freezing conditions, when rain is expected, or in high winds.

1.7 WARRANTY

A. Provide manufacturer's written product warranty.

1. Warranty period from date of Substantial Completion is 15 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design:

1. Items specified are to establish a standard of quality for design, function, materials, compatibility, performance, warranty, and appearance.

2. Equivalent products by listed manufacturers are acceptable if approved by Architect

3. The Architect is the sole judge of the basis of what is equivalent.

B. Listed Manufacturers

1. BEECK Mineral Paints, Fort Mill, South Carolina

2. KEIM Mineral Coatings, Charlotte, NC

2.2 MATERIALS

A. Mineral Silicate Paint/Coating, Base Coat and Top Coat: Provide mineral silicate based opaque paint/coating meeting or conforming to:

1. Basis of Design: "BEECK Renosil Fine"

2. Tinted to the desired finish color

2.3 EQUIPMENT

A. Tools:

1. Mineral Silicate Paint/Coating, Base and Top Coats: Apply by natural bristle façade brush, professional roller, or professional airless spray equipment and back-roll as required for even distribution.

2.4 FINISHES

A. Mineral Silicate Paint/Coating, Base and Top Coats:

1. Apply in full coverage evenly distributed coats to a smooth mineral matte finish without lap lines, voids, "holidays", or drips. Compare manufacturer-verified mock up consumption data with application consumption data to ensure enough product is applied.

2. Maintain a wet edge and even coat to prevent sight lines and textural differences.

3. Apply enough product to prevent shading and textural differences in the base coat that contribute to striping. Apply product without stops on continuous surfaces from corner to corner.
4. When rolling product, roll off finishing in same direction across the entire façade to prevent shading differences that can affect appearance and color.
5. When spraying product:
    a. Do not strain mineral silicate base coat.
    b. Remove paint filters from spray gun and spray pump.
    c. Use only new hoses. Used hoses may contain paint thinners or solvents.
    d. Paint thinners and cleaning solvents are not compatible with mineral silicate paints/coatings.
    e. Clear gun and spray equipment with warm soapy water and rinse well with clean water to remove residual paint thinners and solvents.
    f. Never use tips with smaller orifices than recommended. Smaller tips clog and prevent proper coating application. Improper application voids warranty and shortens longevity of the coatings.
    g. Prevent overspray drift or misting onto glass or other surfaces which you do not intend to coat.
6. When working from scaffolding, work as a team moving across façade maximum eight (8) vertical feet per applicator to ensure complete coverage and maintaining a wet edge. Working left to right and top to bottom of each section.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Confirm by examination the areas and conditions under which the work is to be applied for compliance with manufacturer's instructions. Do not proceed with the work until unsatisfactory conditions have been corrected.
    1. Verify stucco and/or concrete are cured in accordance with coating manufacturer's recommendations.
    2. Verify substrate is secure, sound, dry, and absorbent, and free of dirt, grease, salts, oil-based paints, release agents, curing agents, and other bond breakers.
    3. Verify substrate has no pretreatments or priming materials applied unless such conditions are approved by manufacturer.
    4. Verify surfaces or materials to be coated are fully cured to manufacturer recommendations.
    5. Confirm coating surfaces are less than 40 percent relative humidity as measured by a masonry moisture meter prior to application of mineral silicate paints/coatings.
    6. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Applicator.

3.2 PREPARATION

A. Protection:
    1. Lay ground cloths and take measures as necessary to protect surfaces subject to contact by products specified by this Section.
    2. Mineral Silicate Paint/Coatings may etch or bond to glass, metal, and concrete.

3.3 APPLICATION

A. Conform to reviewed product data, manufacturer's written instructions, and provisions of the Contract Documents.

B. Plan the work properly.

1. Maintain temperature during and after application. Substrate and ambient air temperature must be between 41 °F (5 °C) and 86 °F (30 °C).
2. Work ahead of the sun on shaded façades to avoid working on hot substrates.
3. Work to logical stopping points (corners, seams, architectural features, etc.).
4. Apply mineral silicate paints/coatings as directed by 2.4 FINISHES.
5. Protect from wind and rain prior to, during, and for a minimum 24 hours after application.
6. Obtain manufacturer’s written instructions for application outside of the above parameters.

C. Mineral Silicate Paint/Coating:

1. Base Coat:
   a. Thin mineral silicate fine paint/coating with maximum 10 percent clean water (1 gallon with 12 oz.). Stir well by hand or 600-800 RPM mixing equipment. Care should be taken not to introduce air into the product.
   b. Apply base coat of thinned mineral silicate fine paint/coating.
   c. Allow minimum 12 hours drying time.
2. Top Coat:
   a. Do not thin. Stir well by hand or 600-800 RPM mixing equipment. Care should be taken not to introduce air into the product.
   b. Apply top coat of mineral silicate paint/coating.
3. Touch Up:
   a. Some colors touch up well, some do not. Always perform a test and allow the touch up to cure minimum 12 hours before evaluation. Colors become lighter upon drying.
   b. For colors that do not touch up well, expect corner to corner recoating for acceptable results.
   c. When touching up or recoating, use the same tools and techniques for best results.
   d. Articulate the application confining the recoating to the borders of the repair.

3.4 CLEANING

A. Clean tools, spills, and accidental drips immediately with plenty of water.

B. Leave applications clean and premises free from residue and debris from work of this Section.

END OF SECTION 099133