

## SECTION 070150.61 - SILICONE COATINGS FOR EXISTING ROOFS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

## A. Section Includes:

- 1. Fluid-applied, silicon-based, remedial coating system for application over metal roof systems.

## B. Related Requirements:

- 1. Section 076200 "Sheet Metal Flashing and Trim" for flashing required to patch and correct existing metal flashing deficiencies prior to application of roof coatings.

## 1.3 PREINSTALLATION MEETINGS

- A. Preliminary Roofing & Coating Conference: Before starting Work, conduct conference at Project site.

- 1. Meet with Owner, Architect, testing and inspecting agency representative, and coating Installers and others whose work interfaces with or affects roofing.
- 2. Review methods and procedures, substrate conditions, scheduling, and safety.

## 1.4 ACTION SUBMITTALS

- A. Product Data: Submit manufacturers' standard submittal package including specification, installation instructions, and general information for each waterproofing material.
- B. Applicator Qualifications: Submit current "Qualified Applicator" Certificate from the specified waterproofing manufacturer.
- C. Warranty must be supplied by product manufacturer.
- D. Samples: For each type of paint system and each color, and gloss; minimum 6 inches long in least dimension.
  - 1. Include a list of materials for each coat of each Sample.
  - 2. Label each Sample for location and application.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1. Installer shall have a minimum of 10 years' experience in the application of waterproofing materials of this type specified.
2. Applicator shall possess a current "Qualified Applicator" Certificate from the specified waterproofing manufacturer.

B. Field Test Reports:

1. Adhesion Test: Prior to estimating coating project, conduct an adhesion test in accordance to determine if a primer or other specific surface preparation is required.
2. Dry film thickness.

C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by coating operations.

1. Submit before Work begins.

1.6 QUALITY ASSURANCE

- A. Installer shall have a minimum of 10 years' experience in the application of waterproofing materials of this type specified. Applicator shall possess a current "Qualified Applicator" certificate from the specified waterproofing manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Store all coating materials in the original unopened containers at 50° - 80°F until ready for use.
- B. Follow the special handling or storage requirements of the manufacturer for cold weather, hot weather, etc.
- C. Safety: Refer to all applicable data, including, but not limited to MSDS, PDS, product labels, and specific instructions for specific personal protection requirements.

1.8 FIELD CONDITIONS

- A. Existing Roofing System: Standing seam metal roof panels believed to be greater than 20 years old.
1. General Contractor and/or Installer must visit project site prior to bidding to become familiar with all visible existing conditions.
- B. Owner will occupy portions of building immediately below coating area.
1. Conduct coating operations so Owner's operations are not disrupted.
  2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
- C. Protection of building and occupants:
1. All surfaces not to receive the system specified shall be protected from overspray hazard (windows, doors, exterior, vehicles, etc.). Protective coverings shall be secured against

- wind and shall be vented if used in conjunction with the application preventing collection and moisture.
2. The contractor shall post signs noting a potential overspray hazard within 400 feet of the application.
  3. The contractor shall post "No smoking" signs as mandated by local fire officials.
  4. All air intake ventilation equipment shall be turned off to prevent fumes from entering the building.
  5. All surfaces damaged during the application shall be restored at no expense to the owner.
  6. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Equipment: All equipment used during the operations shall be located so as not to adversely affect the daily operations or endanger occupants, structure or materials on-site. All spray equipment must be grounded during the operations.
- E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
- F. Weather Limitations: Proceed with coat preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

## 1.9 WARRANTY

- A. Manufacturer warrants that the material supplied will meet or exceed physical properties as published. The applicator guarantees that workmanship will be free of defects in coating application. Since performance of previously applied coatings is beyond the control of manufacturer and applicator, requests for additional warranty coverage shall be subject to prior approval by manufacturer.
- B. A ten (10) year material and labor warranty must be supplied by the product manufacturer.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Products: Subject to compliance with requirements, provide a product by one of the following manufacturers:
1. GacoFlex S-20, Gaco Western, LLC
  2. Enduris 3500, General Electric Co.
- B. Basis of Design Materials (Enduris 3500):
1. Silicone Coating: Enduris 3500 or 3500SC high solids, solvent-free, alkoxy-based, moisture-cured, silicone roof coating.
  2. Asphalt Bleed Blocker: GE Asphalt Bleed Blocker.
  3. Seam Treatment Materials
    - a. GE Enduris Silicone Seam Sealant

- b. GE UltraSpan\* UST / USM pre-cured silicone transition sheets and molded corners
  - c. GE RF100 series is a 100% polyester spun-laced textile reinforcing fabric that is available in 4", 6" or 12" widths.
- C. Physical Properties - tested in accordance with ASTM D6694 as indicated:
- 1. Tensile Strength, per ASTM D2370: 200 psi
  - 2. Elongation at Break, per ASTM D2370: 500%
  - 3. Volume Solids, per ASTM D2697: 90% min
  - 4. Weight Solids, per ASTM D1644: 90% min
- D. Colors: Enduris Medium Gray, to match that being installed at other buildings on campus.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Protection of In-Place Conditions:
- 1. Protect all surfaces not to receive the system specified from overspray hazard. Use wind screens as appropriate.
  - 2. Maintain temporary protection and leave in place until coating has been completed.
  - 3. Remove temporary protection on completion of coating.
  - 4. Seal or isolate windows that may be exposed to airborne substances.
- B. Shut off rooftop utilities and service piping before beginning the Work.
- C. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
- 1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- D. Environmental Requirements: Proceed with work of this section only when existing and forecasted weather conditions will permit the application to be performed in accordance with the manufacturer's recommendations.
- E. Temperature at the time of application of silicone roof coating application should be above 0°F to allow coating to cure properly. Contact manufacturer if applying to substrates over 120°F

#### 3.2 EXAMINATION AND PREPARATION

- A. Applicator to provide complete inspection report verifying substrate condition and any noted defects not specifically addressed regarding the installation of the coating. The surface must be clean, sound, dry and free of any materials, laitance, flaking rust, and loose coating that may inhibit the proper adhesion of the coating or sealant.
- B. Underside of deck must be inspected for rot, rust, or deterioration. Corrective measures must be taken, if needed, before coating preparations begin.

- C. Verify that all other work involved with this area, done under other sections, has been completed and accepted by the Architect and general contractor prior to starting the waterproofing application.
- D. Pressure wash entire roof surface at 2500-4000 psi, utilizing roof prep wash or approved biodegradable detergent as needed to remove oils or other materials that interfere with adhesion. Rinse with clean water. Let dry thoroughly.
- E. All loose or flaking rust must be mechanically removed.
- F. All endlaps, curbs, gaps, flashing details, angle changes, fasteners, and penetrations must be sealed with a minimum 60 mils of seam sealant. Sidelaps can be brought tight with fasteners if needed.
- G. When treating panel seams that exceed 1/16 of an inch, a fabric or reinforcement must be utilized with seam sealant.

### 3.3 INSTALLATION

- A. General: Follow all manufacturer's written instructions.
- B. Exposed Fasteners: All exposed fasteners must be retightened or replaced as needed.
- C. The cured silicone roof coating shall be monolithic and seamless, encapsulating the entire roof surface.
- D. Coating is to be applied at a rate of 2.5 gallons per 100 square feet.
- E. Silicone roof coating may be applied by brush, roller, or airless sprayer. Back-rolling should be kept to a minimum.
- F. Seam sealant may be applied by brush, trowel, or gloved hand.
- G. Minimum cured coating thickness is 36 mils.
- H. No traffic shall be permitted on the coated surface for a minimum of 3 days. Damage to the surface by other trades shall not be the responsibility of the roofing contractor.

### 3.4 FIELD QUALITY CONTROL

- A. Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for composition and dry film thickness.
  - 1. Dry Film Thickness:
    - a. Contractor shall touch up and restore painted surfaces damaged by testing.
    - b. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.
- B. Coating Thickness: The finished dry film thickness shall measure a minimum of 30dry mils

- C. Defects: There shall be no blisters, pinholes, voids or membrane defects of any kind.
- D. Variations: Any variations from specified procedures or limits found by the contractor or manufacturer's representatives or the Owner shall be immediately corrected by the Contractor.

END OF SECTION 070150.61

## SECTION 076200 - SHEET METAL FLASHING AND TRIM

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Roof sheet metal fabrications required to patch and correct existing metal flashing deficiencies prior to application of roof coatings.

## 1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

## 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim like that required for this Project and whose products have a record of successful in-service performance.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

- C. SPRI Wind Design Standard: Manufacture and install roof edge flashings tested according to SPRI ES-1 and capable of resisting the following:
  - 1. Wind Velocity (V): 148 MPH.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces Insert temperature change.

## 2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209 alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
  - 1. Exposed Coil-Coated Finish:
    - a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - 2. Color: Manufacturer's standard white.
    - 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil
- C. Stainless-Steel Sheet: ASTM A 240/A 240M, dead soft, fully annealed; with smooth, flat surface.
  - 1. Finish: 2D (dull, cold rolled).

## 2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.
- B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F and complying with physical requirements of ASTM D 226/D 226M for Type I and
- C. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.



## 2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
  - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
    - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
  - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
  - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- G. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

## 2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
  - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

2. Obtain field measurements for accurate fit before shop fabrication.
  3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
  4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
  2. Use lapped expansion joints only where indicated on Drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.
- G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
- H. Do not use graphite pencils to mark metal surfaces.

## 2.6 ROOF SHEET METAL FABRICATIONS

- A. Fabricate from the following materials:
1. Aluminum: 0.050 inch thick.
  2. Stainless Steel: 0.016 inch thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
1. Verify compliance with requirements for installation tolerances of substrates.
  2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.
- B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.

### 3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  - 3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
  - 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
  - 5. Torch cutting of sheet metal flashing and trim is not permitted.
  - 6. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
  - 1. Coat concealed side of uncoated-aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
  - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
  - 2. Use lapped expansion joints only where indicated on Drawings.

- D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
  - 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.

### 3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering. Clean off excess sealants.
- B. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- C. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

## SECTION 079200 - JOINT SEALANTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Silicone joint sealants.
  - 2. Urethane joint sealants.

## 1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Joint-Sealant Schedule: Include the following information:
  - 1. Joint-sealant application, joint location, and designation.
  - 2. Joint-sealant manufacturer and product name.
  - 3. Joint-sealant formulation.
  - 4. Joint-sealant color.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.
- B. Sample Warranties: For special warranties.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

## 1.6 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  - 2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.7 WARRANTY

- A. **Special Installer's Warranty:** Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  1. **Warranty Period:** Two years from date of Substantial Completion.
- B. **Special Manufacturer's Warranty:** Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  1. **Warranty Period:** Five years from date of Substantial Completion.
- C. **Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:**
  1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  2. Disintegration of joint substrates from causes exceeding design specifications.
  3. Mechanical damage caused by individuals, tools, or other outside agents.
  4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## 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 SILICONE JOINT SEALANTS

- A. **Silicone, Nonstaining, S, NS, 50, NT:** Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
- B. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  1. GE Construction Sealants; Momentive Performance Materials Inc.
  2. Pecora Corporation.

3. Sika Corporation; Joint Sealants.
4. The Dow Chemical Company.
5. Tremco Incorporated.

### 2.3 IMMERSIBLE JOINT SEALANTS

- A. Immersible Joint Sealants. Suitable for immersion in liquids; ASTM C1247, Class 1; tested in deionized water unless otherwise indicated
- B. Urethane, Immersible, S, P, 25, T, NT, I: Immersible, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 25, Uses T, NT, and I.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Master Builders Solutions.
    - b. Pecora Corporation.
    - c. Tremco Incorporated.

### 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), 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 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 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.
    - c. Exterior insulation and finish systems.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
- 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.

## 3.3 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 kind 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 bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
  - E. 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.
  - F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to 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 per Figure 8A in ASTM C1193 unless otherwise indicated.
- 3.4 CLEANING
- A. 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.
- 3.5 PROTECTION
- A. 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.
- 3.6 JOINT-SEALANT SCHEDULE
- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion.

1. Joint Locations:
    - a. Joints in pedestrian concrete walkways and plazas.
  2. Joint Sealant: Urethane, immersible, S, P, 25, T, NT, I.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
    - a. Construction joints in cast-in-place concrete.
    - b. Joints between plant-precast architectural concrete units.
    - c. Control and expansion joints in unit masonry.
    - d. Joints in exterior insulation and finish systems.
    - e. Joints between metal panels.
    - f. Joints between different materials listed above.
    - g. Perimeter joints between materials listed above and frames of doors, windows and louvers.
  2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

## SECTION 099113 - EXTERIOR PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on existing exterior substrates.

## 1.3 DEFINITIONS

- A. Gloss Levels:

1. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
2. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
3. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
4. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
5. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
6. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

## 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
  1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
  2. Indicate VOC content.
- B. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.
- C. Samples: For each type of paint system and each color, and gloss; minimum 6 inches long in least dimension.
  1. Include a list of materials for each coat of each Sample.
  2. Label each Sample for location and application.

## 1.5 SEQUENCING AND SCHEDULING

- A. Perform repainting in the following sequence, which includes work specified in this and other Sections:

1. Dismantle existing surface-mounted objects and hardware, including all building mounted signage, except items indicated to remain in place. Tag items with location identification and protect.
2. Verify that temporary protections have been installed.
3. Examine condition of surfaces to be painted.
4. Remove existing paint to the degree required for each substrate and surface condition of existing paint.
5. Patch and repair surface conditions as required for proper adhesion of new coatings.
6. Apply paint system.
7. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.
  - a. All building mounted signage will be reinstalled by Owner.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

### PART 2 - PRODUCTS

#### 2.1 PREPARATORY CLEANING MATERIALS

- A. Water: Potable.
- B. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for every 5 gal. of solution required.
- C. Mildewcide: Commercial proprietary mildewcide or a job-mixed solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

- D. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.
- E. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," for removing corrosion from iron and steel.

## 2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

## 2.3 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. Behr Process Corporation.
  - 2. Benjamin Moore & Co.
  - 3. Dulux (formerly ICI Paints); a brand of AkzoNobel.
  - 4. Duron, Inc.
  - 5. Glidden Professional.
  - 6. Kelly-Moore Paint Company Inc.
  - 7. M.A.B. Paints.
  - 8. PPG Paints.
  - 9. Pratt & Lambert.
  - 10. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
  - 11. Sherwin-Williams Company (The).
  - 12. Zinsser; Rust-Oleum Corporation.

## 2.4 PATCHING MATERIALS

- A. Metal-Patching Compound: Two-part, polyester-resin, metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be produced for filling metal that has deteriorated from corrosion. Filler shall be capable of filling deep holes and spreading to feather edge.
- B. Cementitious Patching Compounds: Cementitious patching compounds and repair materials specifically manufactured for filling cementitious substrates and for sanding or tooling prior to repainting; formulation as recommended in writing by manufacturer for type of cementitious substrate indicated, exposure to weather and traffic, the detail of work, and site conditions.

## PART 3 - EXECUTION

## 3.1 PROTECTION

- A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
  - 1. Cover adjacent surfaces with materials that are proven to resist chemical solutions being used unless the solutions will not damage adjacent surfaces. Use protective materials that are UV resistant and waterproof. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
  - 2. Do not apply chemical solutions during winds of sufficient force to spread them to unprotected surfaces.
  - 3. Neutralize and collect alkaline and acid wastes before disposal.
  - 4. Dispose of runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

## 3.2 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Fiber-Cement Board: 12 percent.
  - 3. Gypsum Board: 12 percent.
  - 4. Masonry (Clay and CMUs): 12 percent.
  - 5. Portland Cement Plaster: 12 percent.
  - 6. Wood: 15 percent.
- C. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

## 3.3 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

- B. Remove hardware, covers, plates, signage and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
  - 1. SSPC-SP 3.
- D. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

#### 3.4 PREPARATORY CLEANING

- A. General: Use the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.
  - 1. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 2. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- B. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.
- C. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.
- D. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.
- E. Chemical Rust Removal:
  - 1. Remove loose rust scale with specified abrasives for ferrous-metal cleaning.
  - 2. Apply rust remover with brushes or as recommended in writing by manufacturer.

3. Allow rust remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing. Do not allow extended dwell time.
4. Wipe off residue with mineral spirits and either steel wool or soft rags, or clean with method recommended in writing by manufacturer to remove residue.
5. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
6. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

F. Mechanical Rust Removal:

1. Remove rust with specified abrasives for ferrous-metal cleaning. Clean to bright metal.
2. Wipe off residue with mineral spirits and either steel wool or soft rags.
3. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
4. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

### 3.5 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Cementitious Material Substrate:

1. General: Repair defects including dents and chips more than 1/2 inch in size and all holes and cracks by filling with cementitious patching compound and sanding smooth. Remove protruding fasteners.
2. Concrete, Cement Plaster, and Other Cementitious Products: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. If surfaces are too alkaline to paint, correct this condition before painting.

C. Metal Substrate:

1. Preparation: Treat repair locations by wire-brushing and solvent cleaning. Use chemical or mechanical rust removal method to clean off rust.
2. Defects in Metal Surfaces: Repair non-load-bearing defects in existing metal surfaces, including dents and gouges more than 1/8 inch deep or 1 inch across and all holes and cracks by filling with metal-patching compound and sanding smooth. Remove burrs and protruding fasteners.
3. Priming: Prime iron and steel surfaces immediately after repair to prevent flash rusting. Stripe paint corners, crevices, bolts, welds, and sharp edges. Apply two coats to surfaces that are inaccessible after completion of the Work.

D. Wood Substrate:

1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Sand surfaces that will be exposed to view and remove sanding dust.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.



### 3.6 SEALANTS

- A. General: Where exterior joint sealants are displaced in the cleaning or preparation process, or require replacement, provide the following:
1. 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.
  2. Colors of Exposed Joint Sealants: Match existing, adjacent surface color.
- B. Silicone Joint Sealants
1. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Dow Corning Corporation; 790.
      - 2) GE Advanced Materials - Silicones; SilPruf LM SCS2700.
      - 3) Pecora Corporation; 890.
      - 4) Sika Corporation, Construction Products Division; SikaSil-C995.
      - 5) Tremco Incorporated; Spectrem 1.
- C. Urethane Joint Sealants
1. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) BASF Building Systems; Sonolastic NP1.
      - 2) Bostik, Inc.; Chem-Calk 900.
      - 3) Pecora Corporation; Dynatrol I-XL.
      - 4) Sika Corporation, Construction Products Division; Sikaflex - 1a.
      - 5) Tremco Incorporated; Dymonic.

### 3.7 APPLICATION

- A. See Appendix A for project photographs and locations of surfaces to be coated.
- B. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
1. Use applicators and techniques suited for paint and substrate indicated.
  2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.

4. Apply a transition coat over incompatible existing coatings.
  5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished or currently coated and if acceptable to topcoat manufacturers.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.8 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 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.

### 3.9 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.10 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.11 EXTERIOR PAINTING SCHEDULE

- A. Colors: Match Architect's selections.

1. Exterior building and patio walls (stucco, EIFS, cement, masonry): Sherwin Williams SW 7056 Reserved White.
2. Exterior stairs, railings, metal panels, gutters, roof trim other than standing seam roofing panels: Sherwin Williams SW 7074 Software.
3. Exterior hollow metal doors and frames, lintels and miscellaneous steel: Sherwin Williams SW 7056 Reserved White.
4. Exterior pedestrian concrete surfaces: Sherwin Williams SW 7568 Neutral Ground.

- B. Concrete Substrates, Nontraffic Surfaces:

1. Latex System MPI EXT 3.1A:
  - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.

- C. Concrete Substrates, Traffic Surfaces (anti-slip):

1. Latex System MPI EXT 3.2:
  - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #127 with quartz aggregate imbedded for slip resistance.

- D. Cement Board Substrates:

1. Latex System MPI EXT 3.3A:
  - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

- E. Clay Masonry Substrates:

1. Latex System MPI EXT 4.1A:
  - a. Prime Coat: Latex, exterior, matching topcoat.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

- F. CMU Substrates:

1. Latex System MPI EXT 4.2A:

- a. Prime Coat: Block filler, latex, interior/exterior, MPI #4.
- b. Intermediate Coat: Latex, exterior, matching topcoat.
- c. Low-Sheen Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

G. Steel and Iron Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 5.1C:
  - a. Prime Coat: Primer, alkyd, anti-corrosive for metal, MPI #79.
  - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
  - c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

H. Galvanized-Metal Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 5.3G:
  - a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
  - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
  - c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.

I. Aluminum Substrates:

1. Latex System MPI EXT 5.4H:
  - a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Low-Sheen Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

J. Dressed-Lumber Substrates:

1. Latex System MPI EXT 6.3A:
  - a. Prime Coat: Primer, alkyd for exterior wood, MPI #5.
  - b. Intermediate Coat: Latex, exterior, matching topcoat.
  - c. Semigloss Topcoat: Latex, exterior, semigloss (MPI Gloss Level 5), MPI #11.

END OF SECTION 099113

## APPENDIX A – SCOPE OF WORK DIAGRAMS

## SYMBOL LEGEND



KEYNOTE



SPECIFIC AREA PHOTO REFERENCE

## GENERAL NOTES

1. Final locations of gutters and downspouts to be replaced to be confirmed with Owner; refer to specification for quantities.
2. Areas not indicated to receive paint by the specifications, or this appendix are to remain unpainted.

## KEY NOTES

01. Paint existing exterior walls, typical
02. Paint existing soffit, typical
03. Paint existing metal roof and fascia, typical
04. Paint existing gutters and downspouts, typical
05. Remove and salvage signage; return to Owner. Patch holes where removed, typical
06. Paint existing hollow metal door and frame to match wall, typical; do not paint hinges or door hardware
07. Paint all sides of existing screen wall
08. Paint existing louver, typical unless otherwise noted; existing unpainted anodized aluminum louvers to remain unpainted
09. Paint existing staircase and handrails
10. Paint existing conduit to match wall
11. Paint existing conduit to match stairs
12. Paint existing concrete patio
13. Remove existing flashing and replace
14. Paint existing chimney
15. Paint existing light fixtures to match soffit
16. Paint panel boxes/mounting hardware to match wall
17. Reseal vertical joints, typical
18. Paint existing cooler enclosure and plywood to match walls
19. Paint existing canopy to match roof
20. Seal gas pipe penetrations
21. Paint misc. existing piping to match wall
22. Paint vertical surfaces of chimney cap

AERIAL PHOTOS



SOUTH ELEVATION



EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION

SPECIFIC AREA PHOTO REFERENCES



SPECIFIC AREA PHOTO 01



SPECIFIC AREA PHOTO 02





SPECIFIC AREA PHOTO 03



SPECIFIC AREA PHOTO 04



SPECIFIC AREA PHOTO 05



SPECIFIC AREA PHOTO 06



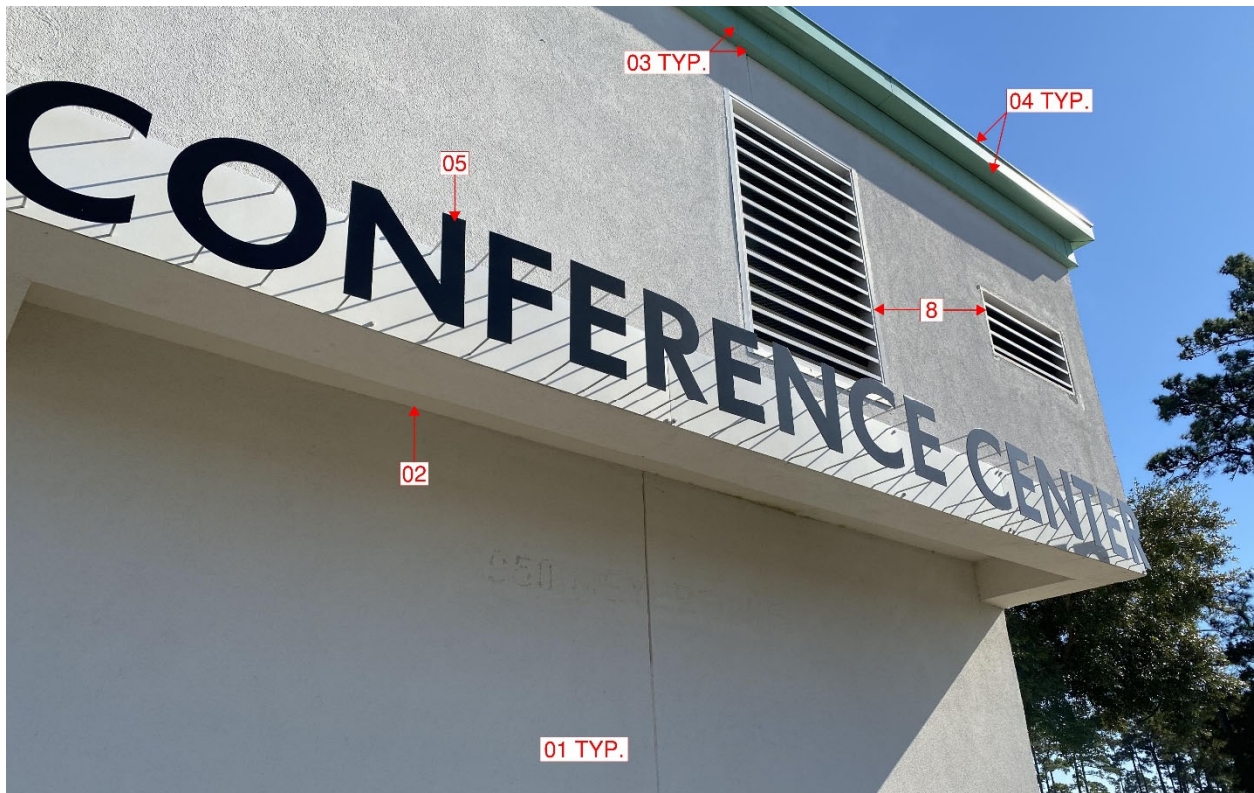
SPECIFIC AREA PHOTO 07



SPECIFIC AREA PHOTO 08



SPECIFIC AREA PHOTO 09



SPECIFIC AREA PHOTO 10



SPECIFIC AREA PHOTO 11



SPECIFIC AREA PHOTO 12



SPECIFIC AREA PHOTO 13



SPECIFIC AREA PHOTO 14



SPECIFIC AREA PHOTO 15

END OF APPENDIX A