

## SECTION 09 91 13 - EXTERIOR PAINTING

## 1.1 SUMMARY

## A. Section Includes:

1. Primers.
2. Finish coatings.

## B. Related Requirements:

1. Section 099726 "Sol Silicate Coatings" for painting of exterior masonry surfaces.
2. Section 099123 "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

## 1.2 ACTION SUBMITTALS

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

1. Include preparation requirements and application instructions.

## B. Samples: For each type of topcoat product.

## C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Label each coat of each Sample.
3. Label each Sample for location and application area.

## D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas.
2. Use same designations indicated on Drawings and in the Exterior Painting Schedule.
3. Include color designations.

## 1.3 CLOSEOUT SUBMITTALS

- A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule; area detail designating location where each product/color/finish was used; product data pages; material safety data sheets; care and cleaning instructions; touch-up procedures; and color samples of each color and finish used.

## 1.4 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 Products: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 2.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
  2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Handling: Deliver products to Project site in undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:
  1. Product name and type (description).
  2. Batch date.
  3. Color number.
  4. VOC content.
  5. Environmental handling requirements.
  6. Surface preparation requirements.
  7. Application instructions.
- B. 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 (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

## 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Lead Paint: It is not expected that lead paint will be encountered in the Work.
  - 1. If suspected lead paint is encountered, do not disturb; immediately notify Architect and Owner.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products specified below or comparable product by one of the following:
  - 1. Benjamin Moore & Co.
  - 2. Pratt & Lambert.
  - 3. Valspar Corporation (The).
- B. Source Limitations: Obtain each paint product from single source from single manufacturer.
  - 1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.
- C. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:
  - 1. Products are approved by manufacturer in writing for application specified.
  - 2. Products meet performance and physical characteristics of basis-of-design product including published ratio of solids by volume, plus or minus two percent.

### 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 topcoat manufacturer for use in paint system and on substrate indicated.
- B. VOC Content: For field applications, paints and coatings comply with VOC content limits of authorities having jurisdiction and the following VOC content limits exclusive of colorants

added to a tint base, when calculated in accordance with 40 CFR 59, Subpart D (EPA Method 24):

1. Nonflat Paints and Coatings: 50 g/L.
2. Primers, Sealers, and Undercoaters: 100 g/L.
3. Rust-Preventive Coatings: 100 g/L.

C. Colors: As selected by Architect from manufacturer's full range.

1. >50 percent of surface area will be painted with deep tones.

## 2.3 PRIMERS

A. Epoxy Metal Primer: Corrosion-resistant, solvent-based, two-component epoxy primer formulated for use on prepared, exterior ferrous- and galvanized-metal surfaces.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); Macropoxy 646 FC Epoxy B58 Series or comparable product.

B. Intermediate Coatings: High Solids Coating.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); Hi-Solids Polyurethane.

## 2.4 FINISH COATINGS

A. High-Solids Urethane Paint: High-solids, two-component fluoropolymer, formulated for use on exterior primed-metal surfaces.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); FluoroKem HS 100.
2. Gloss and Sheen Level: Manufacturer's standard low-gloss finish.

## 2.5 FLOOR PRIMER AND PAINT

A. Epoxy Deck Coating:

1. Primer: Basis of Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); Macropoxy 646.
2. Topcoat: Basis of Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); Resugrip 250.

## PART 3 - EXECUTION

## 3.1 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. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

## 3.2 PREPARATION

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, 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. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.
- D. 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 6.
- 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.

## 3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
  - 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. Paint entire exposed surface of window frames and sashes.
  5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  6. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- 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.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  3. Allow empty paint cans to dry before disposal.
  4. Collect waste paint by type and deliver to recycling or collection facility.
- 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.

### 3.5 EXTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
1. Epoxy Coating System (Gen'l.):

- a. Prime Coat: Macropoxy 646, 1 coat, 5.0-10.0 mil dft.
  - b. Intermediate Coat: Hi-Solids Polyurethane 250, 1 coat 3.0-5.0 mil dft.
  - c. Topcoat: FluoroKem HS 100, 2 coats, 2.0-3.0 mil dft.
2. Steel Deck Coatings:
    - a. Prime Coat: Macropoxy 646, 1 coat, 5.0-10.0 mil dft.
    - b. Topcoat: Resugrip 260 2 coats @ 40-60 sf/gal.
- B. Dressed-Lumber Substrates: Trim and Gutters:
1. Latex over Latex Primer System
    - a. Prime Coat: Exterior, latex wood primer.
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: Exterior latex paint, semigloss.
      - 1) S-W Solo Acrylic Semi-Gloss, A76 Series.
- C. Wood Shingle Substrates:
1. Wood Stripper:
    - a. Cabot Wood Stripper
  2. Oil-Based Primer:
    - a. Cabot Oil Primer
  3. Topcoat: Oil Stain
    - a. Cabot O.V.T. Solid Color Oil Stain.
- D. Fiberglass Substrates:
1. Latex System :
    - a. Prime Coat: Water-based bonding primer.
      - 1) S-W Extreme Bond Primer B51W1150.
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: Exterior latex paint, semigloss.
      - 1) S-W Solo Acrylic Semi-Gloss, A76 Series.

END OF SECTION 09 91 13

**SECTION 09 91 23 - INTERIOR PAINTING****1.1 SUMMARY****A. Section Includes:**

1. Primers.
2. Water-based finish coatings.

**B. Related Requirements:**

1. Section 099113 "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.
2. Section 099726 "Sol Silicate Coatings".

**1.2 ACTION SUBMITTALS****A. Product Data:** For each type of product. Include preparation requirements and application instructions.

1. Include preparation requirements and application instructions.
2. Indicate VOC content.

**B. Samples:** For each type of topcoat product.**C. Samples for Verification:** For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Label each coat of each Sample.
3. Label each Sample for location and application area.

**D. Product Schedule.** For each product indicated, include the following:

1. Use same designations indicated on Drawings and in the Interior Painting Schedule to cross-reference paint systems specified in this Section.
2. Indicate VOC content.

**1.3 CLOSEOUT SUBMITTALS****A. Coating Maintenance Manual:** Provide coating maintenance manual including area summary with finish schedule; area detail designating location where each product/color/finish was used; product data pages; material safety data sheets; care and cleaning instructions; touch-up procedures; and color samples of each color and finish used.**1.4 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 Products: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Handling: Deliver products to Project site in undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:
  1. Product name and type (description).
  2. Batch date.
  3. Color number.
  4. VOC content.
  5. Environmental handling requirements.
  6. Surface preparation requirements.
  7. Application instructions.
- B. 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 (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.6 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures of less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Lead Paint: Lead paint does not appear to be present in buildings and structures to be painted. A report on the presence of lead paint is on file for review and use. Examine report to become aware of locations where lead paint is present.
  1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
  2. Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); products indicated below or comparable product by one of the following:
1. Benjamin Moore & Co.
  2. Pratt & Lambert.
  3. Valspar Corporation (The).
- B. Source Limitations: Obtain each paint product from single source from single manufacturer.
1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.
- C. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:
1. Products are approved by manufacturer in writing for application specified.
  2. Products meet performance and physical characteristics of basis-of-design product including published ratio of solids by volume, plus or minus two percent.

## 2.2 PAINT, GENERAL

- A. Material Compatibility:
1. Materials for use within each paint system to be 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, products to be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- B. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits exclusive of colorants added to a tint base, when calculated in accordance with 40 CFR 59, Subpart D (EPA Method 24):
1. Nonflat Paints and Coatings: 150 g/L.
  2. Primers and Undercoaters: 200 g/L.
  3. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
- C. Colors: As selected by Architect from manufacturer's full range.
1. Ten percent of surface area will be painted with deep tones.

## 2.3 PRIMERS

- A. Interior, Institutional Low-Odor/VOC Primer Sealer: Water-based primer sealer with low-odor characteristics and a VOC of less than 10 grams per liter for use on new interior plaster, concrete, and gypsum wallboard surfaces that are subsequently to be painted with latex finish coats.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); ProMar 200 Zero VOC Latex Primer, B28W2600 Series or comparable product.
- B. Interior Latex Primer for Wood: Waterborne-emulsion primer formulated for resistance to extractive bleeding, mold, and microbials; for hiding stains; and for use on interior wood subject to extractive bleeding.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); PrepRite ProBlock Primer Sealer, B51-620 Series or comparable product.

## 2.4 WATER-BASED FINISH COATS

- A. Interior, Latex, High-Performance Architectural Coating, Eggshell: High-performance architectural latex coating providing a significantly higher level of performance than conventional latex paints in the areas of scrub resistance, burnish resistance, and ease of stain removal.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); ProMar 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series or comparable product.
  - 2. Gloss and Sheen Level: Manufacturer's standard eggshell finish.

## PART 3 - EXECUTION

### 3.1 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. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
  - 1. Report, in writing, conditions that may affect application, appearance, or performance of paint.
- B. Substrate Conditions:
  - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

- a. Masonry: 12 percent.
  - b. Wood: 15 percent.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates indicated.
- B. Remove hardware, covers, plates, 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 if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- E. 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, "Power Tool Cleaning."
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- G. Wood Substrates:
1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  2. Sand surfaces that will be exposed to view, and dust off.
  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.

### 3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- 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.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
  - 1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  - 2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  - 3. Allow empty paint cans to dry before disposal.
  - 4. Collect waste paint by type and deliver to recycling or collection facility.
- 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.

### 3.5 INTERIOR PAINTING SCHEDULE

#### A. Gypsum Board Substrates:

##### 1. Latex System:

- a. Prime Coat: Alkali-resistant, water-based primer.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: Interior, latex, eggshell.

#### B. Steel Substrates:

##### 1. High-Performance Architectural Latex System:

- a. Prime Coat: Alkyd quick-dry primer for metal.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: Topcoat: Interior, latex, high-performance architectural coating: semigloss.

#### C. Galvanized-Metal Substrates:

##### 1. High-Performance Architectural Latex System:

- a. Prime Coat: Water-based galvanized primer.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: Interior, latex, high-performance architectural coating: semigloss.

#### D. Finish Carpentry: Wood trim.

##### 1. Institutional Low-Odor/VOC Latex System:

- a. Prime Coat: Interior latex primer for wood.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: Interior, latex, institutional low odor/VOC, semigloss.

#### E. Fiberglass Substrates:

##### 1. Latex System:

- a. Prime Coat: Water-based bonding primer.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: Interior, latex, semigloss.

END OF SECTION 09 91 23

**SECTION 09 97 26 - SOL SILICATE COATINGS****PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions, Division 01 - GENERAL REQUIREMENTS, and other applicable specification sections in the Project Manual apply to the work specified in this Section.

**1.2 SUMMARY**

- A. Section Includes: The work specified in this Section includes an application of a long-lasting decorative coating system for mineral-based surfaces providing strong weathering protection on prepared exterior masonry surfaces. The application comprises a sol silicate base coat followed with a sol silicate top coat. Coating may be sprayed, rolled, or brushed in good weather before surfaces are heated up by direct sunlight. Specification does not include surface preparation.
- B. Related Sections: Related sections include the following:
1. Section 040322 Historic Brick Unit Masonry Repair
  2. Section 040323 Historic Brick Unit Masonry Repointing

**1.3 REFERENCES**

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. ASTM (ASTM):
1. ASTM E 96, "Standard Test Methods for Water Vapor Transmission of Materials."
  2. ASTM E 514, "Standard Test Method for Water Penetration and Leakage Through Masonry."
  3. ASTM G 154, "Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials."
  4. ASTM E84-05, "Standard Test Method for Surface Burning Characteristics of Building Materials."
- C. Deutsches Institut für Normung (DIN), European Standard (EN), and International Organization for Standardization (ISO):
1. DIN 18 363 2.4.1, manufacturing standard for silicate dispersion paint.
  2. DIN EN 13 300, manufacturing standard for interior silicate dispersion paint.
  3. DIN EN 1062, manufacturing standard for sol silicate dispersion paint.
  4. ISO 11998, "Paints and varnishes - Determination of wet-scrub resistance and cleanability of coatings."
  5. ISO 6504-3, "Paints and varnishes - Determination of hiding power - Part 3: Determination of contrast ratio of light-coloured paints at a fixed spreading rate."
  6. ISO 2813, "Paints and varnishes - Determination of specular gloss of non-metallic paint films at 20 degrees, 60 degrees and 85 degrees."
  7. EN 1062-3, "Paints and varnishes - Coating materials and coating systems for exterior masonry and concrete - Part 3: Determination of liquid water permeability."

8. DIN EN 1504-2, “Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete.”
9. DIN EN ISO 7783-2, “Coating materials and coating systems for exterior masonry and concrete - Part 2: Determination and classification of water-vapour transmission rate (permeability).”
10. DIN 4102-A2, “Fire Behaviour of Building Materials and Building Components - Part 2: Building Components; Definitions, Requirements and Tests.”
11. DIN 18363, “Construction Contract Procedures (VOB) Part C: General Technical Specifications in Construction Contracts (ATV) Painting and Varnishing.”

#### 1.4 DEFINITIONS

- A. Silicate coating base coat: The first applied coat of the sol silicate coating.
- B. Silicate coating, topcoat: The second applied coat of the sol silicate coating.
- C. Dilution: A sol silicate-based diluent used to thin the silicate base coat.

#### 1.5 SYSTEM DESCRIPTION

- A. A materials-compatible highly vapor permeable decorative coating system offering severe weathering protection for exterior exposure. Install over mineral surfaces.
  1. Sol Silicate Coating: An incombustible two coat system with UV and alkaline resistant inorganic pigments in the specified color. Coatings penetrate the surface to chemically react with the substrate, resulting in both covalent and mechanical bonds with a hard amorphous microporous structure with extremely high vapor permeability that is unaffected by acids, UV exposure, or air-borne pollutants. Provides weathering protection without reducing substrate vapor permeability.

#### 1.6 SUBMITTALS

- A. General: Submit under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES.
- B. Product Data: Submit product data showing material proposed. Submit sufficient information to determine compliance with the Drawings and Specifications. Provide published documentation describing materials, characteristics, and limitations.
- C. Samples:
  1. Submit samples for initial color selection. Submit samples of each specified finish. Submit samples in form of manufacturer’s color charts showing full range of colors and finishes available. Where finishes involve normal color variations, include samples showing the full range of variations expected.
  2. Submit samples for verification purposes. Additional samples may be required to show fabrication techniques and workmanship.
- D. Manufacturer’s Instructions: Submit manufacturer’s instructions including technical data sheets, material safety data sheets, mixing instructions, application requirements, special procedures, and conditions requiring special attention.

#### 1.7 QUALITY ASSURANCE

- A. Qualifications:
  1. Manufacturer Qualifications: Provide evidence that Manufacturer is a firm engaged in the manufacture of silicate coatings of types required, and whose products have been in satisfactory use in similar service for a minimum of thirty years.



2. **Applicator Qualifications:** Provide evidence Applicator is a firm having a minimum of three years of successful application experience with projects similar in type and scope to that required for this Project and approved by the manufacturer.
  - B. **Regulatory Requirements:** Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.
  - C. **Mock-Ups:** Prior to application of the work, fabricate and erect mock-ups for each type of finish and application required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for final unit of work. Locate mock-ups on site in location and of size indicated or, if not indicated, as directed by the Architect. Demonstrate the proposed range of aesthetic effects and workmanship to be expected in the completed work. Obtain the Architect's acceptance of mock-ups before start of final unit of work.
    1. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of work.
      - a. Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of completed unit of work.
  - D. **Pre-Application Conference:** Conduct pre-application conference in accordance with Section 013100. Prior to commencing the application, meet at the Project site to review the material selections, application procedures, and coordination with other trades. Review mock-ups during the pre-application conference. Coordinate with the Owner and the Architect to establish the date and time of the pre-application conference with the Contractor, the Applicator, manufacturer's representatives, and any trade that requires coordination with the work.
  - E. **Coordination:** Conform to Section 013100 for coordination with work of other Sections.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Conform to provisions of Section 01 65 00 - PRODUCT DELIVERY REQUIREMENTS and manufacturer's instructions.
  - B. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.
  - C. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
- 1.9 PROJECT CONDITIONS
- A. **Environmental Requirements:** Do not apply silicate coating until surfaces are cleaned, substrate repairs are complete and cured, and wet work is completed and nominally dry.
    1. Substrate and ambient air temperature must be between 41 °F (5 °C) and 86 °F (30 °C). Maintain temperature during and after application.
    2. Do not apply silicate coating over damp substrate, when rain is expected, in high winds, or on sun-heated substrate during application.
- 1.10 WARRANTY
- A. **General:** See Section 01 77 00 - CLOSEOUT PROCEDURES.
  - B. **Special Warranty:** Contractor warrants the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for the period

indicated below. Provide a special warranty extending the one-year period of limitations contained in the General Conditions countersigned by the Applicator and the manufacturer.

1. Warranty Period: Warranty period from date of Substantial Completion is 10 years.

C. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Basis of Design: Items specified are to establish a standard of quality for design, function, materials, compatibility, warranty, and appearance. Equivalent products by listed manufacturers are acceptable. The Architect is the sole judge of the basis of what is equivalent.

B. KEIM Mineral Coatings of America, Inc., 10616 Texland Blvd. #600, Charlotte, North Carolina 28273. Telephone 704-588-2811. Email Keith.Faxon@keim.com.

### 2.2 MATERIALS

A. Silicate Coating, Base Coat: Provide sol silicate based opaque coating conforming to DIN EN 1504-2/2.2 and DIN 18.363/2.4.1, without biocides, and less than 1g/l VOC. Meets Non-flammable standard DIN 4102-A2. ASTM E 96 Vapor Permeability – 77 perms, ASTM G 154 Accelerated Weathering – no fading, cracking, peeling, ASTM E 514 62-MPH Wind-Driven Rain Test – no water penetration.

1. Basis of Design: “KEIM Soldalit”, KEIM Mineral Coatings of America, Inc.

B. Silicate Coating, Topcoat: Provide sol silicate based opaque coating conforming to DIN EN 1504-2/2.2 and DIN 18.363/2.4.1, without biocides, and less than 1g/l VOC. Meets Non-flammable standard DIN 4102-A2. ASTM E 96 Vapor Permeability – 77 perms, ASTM G 154 Accelerated Weathering – no fading, cracking, peeling, ASTM E 514 62-MPH Wind-Driven Rain Test – no water penetration.

1. Basis of Design: “KEIM Soldalit”, KEIM Mineral Coatings of America, Inc.

C. Dilution for Silicate Coating: Provide sol silicate dilution that is designed for the sol silicate coating system. Meets Non-flammable standard DIN 4102-A2. Less than 1g/l VOC.

1. Basis of Design: “KEIM Soldalit Dilution”, KEIM Mineral Coatings of America, Inc.

### 2.3 EQUIPMENT

A. Tools:

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

2. Silicate Coating, Topcoat: 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. Silicate Coating; Base and Topcoats: Apply evenly to a smooth mineral matte finish without voids, “holidays”, or drips.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Verification of Conditions: Examine areas and conditions under which the work is to be applied, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
1. 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.
  2. Verify substrate has no pretreatments or priming materials applied.
  3. Verify materials to be coated are fully cured to manufacturer recommendations.
  4. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Applicator.

**3.2 PREPARATION**

- A. Protection: Lay ground cloths and take measures as necessary to protect surfaces subject to contact by products specified by this Section.
- B. Substrate: Prepare using products or materials described in the MATERIALS Article.

**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. Work ahead of the sun on shaded façades.
  2. Work to logical stopping points (corners, seams, architectural features, etc.).
  3. Apply coatings maintaining a wet edge to desired finish as indicated in FINISHES Article.
  4. Protect from wind and rain prior to, during, and for a minimum 24 hours after application.
- C. Silicate Coating:
1. Base Coat: Dilute sol silicate coating with 5 percent dilution (25kg with 1.25 liters dilution). Stir well by hand or 600-800 RPM mixing equipment.
    - a. Apply base coat of diluted silicate coating.
    - b. Allow minimum 12 hours drying time.
  2. Topcoat: Apply sol silicate coating undiluted. Stir well by hand or 600-800 RPM mixing equipment.
    - a. Apply topcoat of undiluted silicate coating.

**3.4 FIELD QUALITY CONTROL**

- A. General: See Section 01 45 23 - INSPECTING AND TESTING SERVICES.
- B. Testing: The Owner reserves the right to invoke test procedures at any time and as often as the Owner deems necessary during the period when coatings are being applied. Tests include, but are not limited to, material analysis and coating thickness.
1. The Owner may engage the services of an independent inspecting and testing agency to sample the material being used. Samples of material delivered to the Project may be taken, identified, sealed, and certified in the presence of the Contractor.

2. The inspection and testing agency will perform appropriate tests for listed characteristics as required by the Owner.
  3. The Owner may direct the Contractor to stop the work if test results show material being used does not comply with specified requirements. The Contractor is responsible to remove non-complying product from the site, pay for testing, and recoat surfaces previously coated with the rejected material. If necessary, the Contractor may be required to remove rejected material from previously coated surfaces if, on recoating with specified material, the two coatings are incompatible.
- C. Repairs: Correct deficiencies in or remove work that does not comply with requirements, repair substrates, and reapply coating.
- D. Additional Testing: Additional testing performed to determine compliance of corrected work with requirements shall be at the Contractor's expense.
- 3.5 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.
- 3.6 PROTECTION
- A. Provide final protection and maintain conditions in a manner acceptable to the Applicator to ensure silicate coatings are without damage at time of Substantial Completion.

END OF SECTION 09 97 26