

SECTION 09980

COATINGS FOR CONCRETE AND MASONRY



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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Painting of tilt-up concrete surfaces, including surface preparation.
- B. Painting of cementitious stucco surfaces, including surface preparation.
- C. Painting of concrete masonry unit surfaces, including surface preparation.
- D. Painting of brick surfaces, including surface preparation.

1.2 RELATED SECTIONS

- A. Section 03300 – Concrete: Surface coordination and curing provisions.
- B. Section 03470 – Tilt-up Precast Concrete: Surface coordination and curing provisions.
- C. Section 04210 – Clay Masonry Units: Surface coordination and curing provisions.
- D. Section 04220 – Concrete Masonry Units: Surface coordination and curing provisions.
- E. Section 09220 – Portland Cement Plaster: Surface coordination and curing provisions.

1.3 REFERENCES

- A. American Society for Testing and Materials, ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
- B. American Society for Testing and Materials, ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- C. American Society for Testing and Materials, ASTM D822 - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- D. Fed. Spec. TT-C-555-B – Wind Driven Rain Performance Test.

1.4 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D16.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 - 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

- B. Environments: The following terms distinguish between different corrosive exposures:
 - 1. "Severe environments" are highly corrosive industrial atmospheres with sustained exposure to high humidity and condensation and with frequent cleaning using strong chemicals. Environments with heavy concentrations of strong chemical fumes and frequent splashing and spilling of harsh chemical products are severe environments.
 - 2. "Moderate environments" are corrosive industrial atmospheres with intermittent exposure to high humidity and condensation, occasional mold and mildew development, and regular cleaning with strong chemicals. Environments with exposure to heavy concentrations of chemical fumes and occasional splashing and spilling of chemical products are moderate environments.
 - 3. "Mild environments" are industrial atmospheres with normal exposure to moderate humidity and condensation, occasional mold and mildew development, and infrequent cleaning with strong chemicals. Environments with low levels of mild chemical fumes and occasional splashing and spilling of chemical products are mild environments. Normal outdoor weathering is also considered a mild environment.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Product Data: For each paint system indicated, including:
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Preparation instructions and recommendations.
 - 3. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

- B. Manufacturer Qualifications: A firm with minimum 10 years successful experience with coatings specified in this Section. Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Surfaces to be Painted: Paint exposed surfaces. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color or finish is not indicated, Architect will select from colors and finishes available. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label:
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition, free of foreign materials and residue.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Unless indicated otherwise apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F (10 and 32 deg C).
- C. Unless indicated otherwise apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F (7 and 35 deg C).
- D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.9 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
- B. Furnish Owner with an additional one percent, but not less than 1 gal (3.8 l) or 1 case, as appropriate, of each material and color applied.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: PPG Architectural Finishes Inc. - Pittsburgh Paints; One PPG Place, Pittsburgh, PA 15272. ASD. Toll Free Tel: (888) PPG-IDEA. Fax: (888) 434-3127. Email: ppgspec@ppg.com. Web: <http://www.ppgideascape.com>.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 PAINT MATERIALS - GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. VOC Classification: Provide masonry coating materials, including primers, undercoats, and finish-coat materials, that have a VOC classification meeting AIM standards.
- C. Performance: Paint system shall provide wind driven rain resistance meeting Wind Driven Rain test Fed. Spec. TT-C-555-B.
- D. Color: Refer to Finish Schedule and Paint Legend for paint colors.

2.3 PRIMERS/SEALERS

- A. Alkali Resistant Primer: Pittsburgh Paints Perma-Crete High Build Acrylic Primer 4-2.
 - 1. 100 percent acrylic latex.
 - 2. Low temperature application.
 - 3. Mildew resistant on the dry paint film.
 - 4. Sheen: Flat.
 - 5. Volume Solids: 40 percent.
 - 6. VOC: 0.82 lb/gal.
 - 7. Recommended Dry Film Thickness: 2.6 mils to 3.2 mils (0.07 mm to 0.08 mm).
- B. Alkali Resistant Primer: Pittsburgh Paints Perma-Crete Alkali Resistant Primer 4-603.
 - 1. 100 percent acrylic latex.
 - 2. Low temperature application.
 - 3. Sheen: Non-Flat (>5).
 - 4. Volume Solids: 37 percent.
 - 5. VOC: 0.82 lb/gal.
 - 6. Recommended Dry Film Thickness: 1.2 mils to 1.5 mils (0.03 mm to 0.038 mm).
- C. Surface Binder Primer:
 - 1. Pittsburgh Paints Perma-Crete Clear Acrylic Masonry Surface Sealer 4-808.
 - 2. Pittsburgh Paints Perma-Crete Pigmented Acrylic Masonry Surface Sealer 4-809.
 - 3. Waterborne 100 percent penetrating acrylic sealer.
 - 4. Sheen: Satin.
 - 5. Volume Solids: 17 percent.
 - 6. VOC: 1.9 lb/gal.

7. Recommended Dry Film Thickness: 0.7 mils to 1.3 mils (0.02 mm to 0.03 mm).
- D. Block Surfacers/Filler: Pittsburgh Paints Perma-Crete LTC (low temperature cure) Block Surfacers 4-100:
1. Product Type: 100 percent acrylic.
 2. Low temperature application.
 3. Sheen: Flat.
 4. Volume Solids: 58 percent.
 5. VOC: 0.50 lb/gal.
 6. Recommended Dry Film Thickness: 9.3 mils to 11.6 mils (0.23 mm to 0.3 mm).

2.4 ACRYLIC COATINGS

- A. Topcoat: Pittsburgh Paints Perma-Crete High Build 100% Acrylic Topcoat Coating 4-22/30.
1. Product Type: 100 percent acrylic.
 2. Low temperature application.
 3. Sheen: Flat.
 4. Volume Solids: 45 percent.
 5. VOC: 0.82 lb/gal.
 6. Recommended Dry Film Thickness: 3.2 mils to 4.8 mils (19 mm to 23 mm).
- B. Topcoat: Pittsburgh Paints Perma-Crete Exterior Solvent Masonry Coating 4-9110.
1. Product Type: Solvent acrylic.
 2. Low temperature application (> 20 degrees F).
 3. Sheen: Flat.
 4. Volume Solids: 53 percent.
 5. VOC: 3.3 lb/gal.
 6. Recommended Dry Film Thickness: 8.5 mils per coat (0.2 mm).
- C. Stain: Pittsburgh Paints Perma-Crete Vertical Concrete Stain VCS 4-5100 Series.
1. Product Type: 100 percent acrylic.
 2. Low temperature application.
 3. Sheen: Flat.
 4. Volume Solids: 39 percent.
 5. VOC: .71 lb/gal.
 6. Salt Spray: No yellowing at 500 hours per ASTM B-117.
 7. Weathering: Passes at 3000 hours per ASTM D-822.
 8. Recommended Dry Film Thickness: 2 coats to achieve uniform appearance.

2.5 ELASTOMERIC COATINGS

- A. Topcoat: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating
1. Product: Waterborne 100 percent penetrating acrylic sealer.
 2. Sheen: Flat.
 3. Smooth: 4-110.
 - a. Volume Solids: 45 percent.
 - b. VOC: 0.82 lb/gal.
 - c. Recommended Dry Film Thickness: 5.4 mils to 7.2 mils.
 4. Textured: 4-210.
 - a. Volume Solids: 56 percent.
 - b. VOC: 0.73 lb/gal.
 - c. Recommended Dry Film Thickness: 6.2 mils to 9.0 mils.
 5. Smooth Flat Sheen: Matte-Flex 4-310.
 - a. Volume Solids: 36 percent.

- b. VOC: 0.79 lb/gal.
- c. Recommended Dry Film Thickness: 4.3 mils to 5.8 mils.

2.6 ACRYLIC TEXTURE COATINGS

- A. Topcoat: Pittsburgh Paints Perma-Crete Texture Coating 4-50/60/70.
 - 1. Product Type: 100 percent acrylic.
 - 2. Sheen: Flat.
 - 3. Volume Solids: 58 percent.
 - 4. VOC: 0.47 lb/gal.
 - 5. Recommended Dry Film Thickness: 6.8 mils to 9.3 mils.
 - 6. Fine Texture: 4-50.
 - 7. Medium Texture: 4-60.
 - 8. Course Texture: Matte-Flex 4-70.

2.7 SURFACE PREPARATION MATERIALS

- A. Patching Compounds:
 - 1. Knife Grade Compounds:
 - a. Pittsburgh Paints Perma-Crete 4-1000 Textured.
 - b. Pittsburgh Paints Perma-Crete 4-1002 Smooth.
 - 2. Brush Grade Compounds:
 - a. Pittsburgh Paints Perma-Crete 4-1001 Smooth
 - b. Pittsburgh Paints Perma-Crete 4-1003 Textured.
- B. Caulking Compounds/Sealants:
 - 1. Pittsburgh Paints Top Gun 300—White Elastomeric.
 - 2. Pittsburgh Paints Top Gun 200—White Siliconized Acrylic.
- C. Mildew Remover: Pittsburgh Paints Mildew Check Multi Purpose Wash 18-1.

2.8 HIGH BUILD PAINT SYSTEMS

- A. Precast, Stucco, Concrete Block, and Brick Masonry: Provide the following finish systems over exterior concrete, stucco, concrete block and brick masonry substrates:
 - 1. Block Surfacer/Filler: Pittsburgh Paints 4-100.
 - 2. Acrylic Finish: Pittsburgh Paints Perma-Crete High Build Acrylic Topcoat 4-22.
 - a. 2 coats to achieve Wind Driven Rain test performance.
 - 3. Alkali Resistant Primer: Pittsburgh Paints 4-2.
 - 4. Acrylic Finish: Pittsburgh Paints Perma-Crete High Build Acrylic Topcoat 4-22.
 - a. 2 coats to achieve Wind Driven Rain test performance.
 - 5. Surface Binder/Primer(Chalky Surfaces): Pittsburgh Paints: 4-808/809.
 - 6. Acrylic Finish: Pittsburgh Paints Perma-Crete High Build Acrylic Topcoat 4-22.
 - a. 2 coats to achieve Wind Driven Rain test performance.
- B. Precast, Stucco, Concrete Block, and Brick Masonry: Provide the following finish systems over exterior concrete, stucco, concrete block and brick masonry substrates:
 - 1. Primer: Pittsburgh Paints Perma-Crete Exterior Solvent Masonry Coating 4-9110.
 - 2. Topcoat: Pittsburgh Paints Perma-Crete Exterior Solvent Masonry Coating 4-9110.

2.9 ELASTOMERIC PAINT SYSTEMS

- A. Precast, Stucco, Concrete Block, and Brick Masonry: Provide the following finish systems over exterior concrete, stucco, concrete block and brick masonry substrates:
1. Block Surfacer/Filler (Porous Surfaces): Pittsburgh Paints 4-100.
 2. Smooth Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-110 (2 coats to achieve Wind Driven Rain test performance)
 - Or Textured Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-210 (2 coats to achieve Wind Driven Rain test performance)
 - Or Smooth Flat Finish: Pittsburgh Paints Perma-Crete Matte-Flex Elastomeric Coating 310 (2 coats to achieve Wind Driven Rain test performance).
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3. High Build, Alkali Resistant Primer: Pittsburgh Paints Perma-Crete High Build 100% Acrylic Primer 4-2.
 4. Smooth Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-110 (2 coats to achieve Wind Driven Rain test performance)
 - Or Textured Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-210 (2 coats to achieve Wind Driven Rain test performance)
 - Or Smooth Flat Finish: Pittsburgh Paints Perma-Crete Matte-Flex Elastomeric Coating 310 (2 coats to achieve Wind Driven Rain test performance)
- 4-
5. Surface Binder/Primer (chalky surfaces): Pittsburgh Paints Perma-Crete Acrylic Masonry Surface Sealer 4-808/4-809.
 6. Smooth Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-110 (2 coats to achieve Wind Driven Rain test performance)
 - Or Textured Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-210 (2 coats to achieve Wind Driven Rain test performance)
 - Or Smooth Flat Finish: Pittsburgh Paints Perma-Crete Matte-Flex Elastomeric Coating 310 (2 coats to achieve Wind Driven Rain test performance)
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7. Alkali Resistant Primer: Pittsburgh Paints Perma-Crete Alkali Resistant Primer 4-603.
 8. Smooth Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-110 (2 coats to achieve Wind Driven Rain test performance)
 - Or Textured Elastomeric Finish: Pittsburgh Paints Perma-Crete Pitt-Flex Elastomeric Coating 4-210 (2 coats to achieve Wind Driven Rain test performance)
 - Or Smooth Flat Finish: Pittsburgh Paints Perma-Crete Matte-Flex Elastomeric Coating 310 (2 coats to achieve Wind Driven Rain test performance)
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2.10 ACRYLIC TEXTURE PAINT SYSTEMS

- A. Precast, Stucco, Concrete Block, and Brick Masonry: Provide the following finish systems over exterior concrete, stucco, concrete block and brick masonry substrates:
1. Block Surfacer/Filler (porous surfaces): Pittsburgh Paints Perma-Crete LC Concrete Block and Masonry Surface/Filler 4-100.
 2. Textured Finish: Perma-Crete 100% Acrylic Texture Coatings, 4-50 – Fine Texture, 4-60 – Medium Texture, 4-70 Coarse Texture
 3. High Build, Alkali Resistant Primer: Pittsburgh Paints High Build 100% Acrylic Primer 4-2.
 4. Textured Finish: Perma-Crete 100% Acrylic Texture Coatings, 4-50 – Fine Texture, 4-60 – Medium Texture, 4-70 Coarse Texture
 5. Surface Binder/Primer (chalky surfaces): Pittsburgh Paints Perma-Crete Acrylic Masonry Surface Sealer 4-808/4-809.

6. Textured Finish: Perma-Crete 100% Acrylic Texture Coatings, 4-50 – Fine Texture, 4-60 – Medium Texture, 4-70 Coarse Texture
7. Alkali Resistant Primer: Pittsburgh Paints Perma-Crete Alkali Resistant Primer 4-603.
8. Textured Finish: Perma-Crete 100% Acrylic Texture Coatings, 4-50 – Fine Texture, 4-60 – Medium Texture, 4-70 Coarse Texture.

2.11 ACRYLIC CONCRETE STAIN SYSTEMS

- A. Precast, Stucco, Concrete Block, and Brick Masonry: Provide the following finish systems over exterior concrete, stucco, concrete block and brick masonry substrates:
 1. Primer; None required.
 2. Stain: Pittsburgh Paints Perma-Crete Vertical Concrete Stain VCS 4-5100 Series.
 3. Coats: Provide 2 coat application at DFT recommended by manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify Architect of anticipated problems when using the materials specified over substrates primed by others.
 2. If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:
 - a. Confirmation of primer's suitability for expected service conditions.
 - b. Confirmation of primer's ability to be top coated with materials specified.

3.2 PREPARATION

- A. General: Remove lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not foul surrounding area and surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 1. Clean all surfaces of dirt, grease, form oil and wax. Remove loose or chalky deposits, parting membranes and efflorescence. Point cracks, voids and surface fissures.
 2. Point cracks, fissures and cold joints and non-working joints with patching compound specified. Install per manufacturer instructions.

3. Provide barrier coats over incompatible primers or remove and reprime.
 4. Provide barrier coats over incompatible primers or remove primers and reprime substrate.
- D. Cementitious Substrates: Prepare concrete, brick, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
1. Use abrasive blast-cleaning methods if recommended by coating manufacturer.
 2. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application.
 3. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
- E. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
 2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
 3. Use only the type of thinners approved by manufacturer and only within recommended limits.
 4. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply masonry coatings according to manufacturer's written instructions.
1. Use applicators and techniques best suited for the material being applied.
 2. Do not apply masonry coating coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 3. Coating surface treatments, and finishes are indicated in the coating system descriptions.
 4. Provide finish coats compatible with primers used.
 5. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
- B. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Apply one coat per manufacturer's recommended DFT of each product in the system scheduled unless otherwise noted.
 2. The number of coats and film thickness required is the same regardless of application method.
 3. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:

1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove non-complying paint from Project site, pay for testing, and repaint surfaces previously coated with the non-complying paint. If necessary, Contractor may be required to remove non-complying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
- C. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

END OF SECTION