

SECTION 09 91 00

PAINTING AND PROTECTIVE COATINGS

PART 1 GENERAL

1.1 DESCRIPTION

A. Scope:

1. Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and apply paint systems.
 - a. Contractor is responsible for surface preparation and painting of all new and existing interior and exterior items and surfaces throughout the Project areas included in the general contract and other contracts described in this Section.
2. Extent of painting includes the Work specified below. Painting shown in schedules may not provide Contractor with complete indication of all painting Work. Refer to Article 2.2 of this Section where all surfaces of generic types specified are specified for preparation and painting according to their status, intended function, and location, using the painting system for that surface, function, and location as specified, unless specifically identified on the Drawings as a surface not to receive specified painting system.
 - a. All new and specifically identified existing surfaces and items except where natural finish of material is specified as a corrosion-resistant material not requiring paint; or is specifically shown as indicated by written note or specified as a surface not to be painted.
 - b. Surface preparation and painting of all new and specifically identified existing items, both interior and exterior, and other surfaces, including items furnished by OWNER, are included in the Work, except as otherwise shown or specified.

B. Coordination:

1. Review installation, removal, and demolition procedures under other Sections and coordinate them with the Work specified in this Section.
2. Coordinate painting of areas that will become inaccessible once equipment and similar fixed items have been installed.
3. Furnish information to Engineer on characteristics of finish materials proposed for use and ensure compatibility with prime coats used. Provide barrier coats over incompatible primers or remove and repaint as required. Notify Engineer in writing of anticipated problems using specified painting systems with surfaces primed by others. Reprime equipment primed in factory and other factory-primed items that are damaged or scratched.

C. Work Not Included: The following Work is not included as painting Work, or are included under other Sections:

1. Shop Priming: Shop priming of structural metal, miscellaneous metal fabrications, other metal items and fabricated components such as shop-fabricated or factory-painted.
2. Pre-finished Items:

- a. Items furnished with such finishes as baked-on enamel, porcelain, and polyvinylidene fluoride shall only be touched up at Site by Contractor using manufacturer's recommended compatible field-applied touchup paint.
 - b. Items furnished with finishes such as chrome plating or anodizing.
 - 3. Concrete floors, unless specifically shown as a surface to be painted.
 - 4. Face brick, glazed structural tile, and prefaced, ground-faced or split-faced concrete unit masonry.
 - 5. Exterior face of architectural precast concrete.
 - 6. Collector bearings, shafts and chains, wood flights, wood stop logs, and wood or fiberglass baffles.
 - 7. Operating Parts and Labels:
 - a. Do not paint moving parts of operating units, mechanical and electrical parts such as valve and damper operators, linkages, sensing devices, interior of motors, and fan shafts.
 - b. Do not paint over labels required by governing authorities having jurisdiction at Site, or equipment identification, performance rating, nameplates, and nomenclature plates.
 - c. Cover moving parts and labels during the painting with protective masking. Remove all protective masking upon completion of Work. Remove all paint, coatings, and splatter that comes in contact with such labels.
 - 8. Structural and miscellaneous metals covered with concrete need not receive primers, intermediate, or finish coats of paint.
 - 9. Existing structures, equipment, and other existing surfaces and items unless otherwise shown or specified.
- D. Description of Colors and Finishes:
- 1. Color Coding of Pipelines, Valves, Equipment, and Ducts:
 - a. Color-coding of pipelines, valves, equipment, and ducts shall comply with applicable standards of ANSI A13.1, ANSI Z535.1, CFR 1910.144, Recommended Standards for Water Works, and Recommended Standards for Wastewater Facilities. For piping and equipment not covered by the above standards, conform to Owner's color standards, if any.
 - b. For equipment located on roofs and equipment that is exposed-to-view, color will be selected by Engineer/Owner.

1.2 REFERENCES

- A. Referenced Standards: Standards referenced in this Section are:
- 1. ANSI A13.1, Scheme for Identification of Piping Systems.
 - 2. ANSI Z535.1, Safety Color Code.
 - 3. ASTM D16, Terminology for Paint, Related Coatings, Materials and Applications.
 - 4. ASTM D2200, Pictorial Surface Preparation Standards for Painting Steel Surfaces.
 - 5. ASTM D4262, Testing Method for pH of Chemically Cleaned or Etched Concrete Surfaces.
 - 6. ASTM D4263, Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - 7. ASTM D4541, Test Methods for Pull-Off Strength of Coatings Using Portable Adhesion-Testers.
 - 8. ASTM E329, Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

9. Great Lakes Upper Mississippi River Board of Public Health and Environmental Managers (GLUMRB) Recommended Standards for Water Works.
10. GLUMRB, Recommended Standards for Wastewater Facilities.
11. Ozone Transport Commission, (OTC), OTC Model Rule for Architectural and Industrial Maintenance Coatings.
12. SSPC PA 2, Measurement of Dry Coating Thickness with Magnetic Gages.
13. SSPC VIS 1, Visual Standard for Abrasive Blast Cleaned Steel.
14. SSPC VIS 2, Method of Evaluating Degree of Rusting/Painted Steel Surfaces.
15. SSPC Volume 2, Systems and Specifications.

1.3 DEFINITIONS

- A. Coating terms defined in ASTM D16 apply to this Section.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications:
 1. Engage a single applicator regularly performing installation of painting systems, with documented skill and successful experience in installing types of products required and agrees to employ only tradesmen trained, skilled, and with successful experience in installing types of products specified.
- B. Source Quality Control:
 1. Obtain products from manufacturers that will provide services of a qualified manufacturer's representative at Site at commencement of painting Work to advise on products, mock-ups, installation, and finishing techniques, at completion of the Work to advise Engineer on acceptability of completed Work, and during course of Work as requested by Engineer.
 2. Submit "or equal" products, when proposed, with direct comparison to products specified, including information on durability, adhesion, color and gloss retention, percent solids, VOC's grams per liter, and recoatability after curing.
 3. "Or equal" manufacturers shall furnish same color selection as manufacturers specified, including intense chroma and custom pigmented colors in painting systems.
 4. Color Pigments: Provide pure, non-fading, applicable types to suit surfaces and services indicated. Comply with the following:
 - a. Lead and Chromate: Lead and chromate content shall not exceed amount allowed by authorities having jurisdiction.
 - b. Through Contractor, paint manufacturer shall notify Engineer of colors that are not suitable for long-term color retention in areas subject to hydrogen sulfide fume exposure.
 - c. Manufacturer shall identify colors that meet requirements of authorities having jurisdiction at Site for use in locations subject to contact with potable water or water that will be treated to become potable.
 - d. Comply with paint manufacturers' recommendations on preventing coating contact with levels of carbon dioxide and carbon monoxide that may cause yellowing during application and initial stages of curing of paint coatings.
- C. Regulatory Requirements:

1. Comply with VOC content limits of Ozone Transport Commission (OTC), Model Rule for Architectural and Industrial Maintenance Coatings.

1.5 SUBMITTALS

A. Action Submittals: Submit the following:

1. Product Data:

- a. Copies of manufacturer's technical data sheets, including surface preparation, number of coats, dry film thickness, test performance data including paint analysis, VOC, and chemical component content in comparison to maximum allowed by the Contract Documents, and application instructions for each product proposed for use.
- b. Submit proof of acceptability of proposed application techniques by paint manufacturer selected.
- c. Copies of Contractor's proposed protection procedures in each area of the Work explaining methods of protecting adjacent surfaces from splatter, for confining application procedures in a manner that allows other work adjacent to surface preparation and painting Work to proceed safely and without interruption, and for maintaining acceptable application, curing, and environmental conditions during and after painting systems application.
- d. List each material and cross-reference to the specific painting system and application, including a list of site-specific surfaces to which painting system will be applied. Identify by manufacturer's catalog number and general classification. State number of gallons of each product being purchased for delivery to Site and square foot area calculated to be covered by each painting system specified based on theoretical loss of 20 percent. Where actual area to be covered by paint system exceeds area submitted to Engineer for that system, proof of additional material purchase shall be provided to Engineer. Calculated coverage shall be as specified for each component of each painting system specified. This requirement does not take precedence over Contractor's responsibility to provide dry film thickness required for each component of each painting system.
- e. Identify maximum exposure times allowable for each paint system component before next coat of paint can be applied. Submit proposed methods for preparing surfaces for subsequent coats if maximum exposure times are exceeded.
- f. Information on curing times and environmental conditions that affect curing time of each paint system component and proposed methods for accommodating variations in curing time. Identify this information for each painting system in the Work.
- g. Specification for spray equipment with cross-reference to paint manufacturer's recommended equipment requirements.

2. Samples:

- a. Copies of manufacturer's complete color charts for each coating system.

B. Informational Submittals: Submit the following:

1. Certificates:

- a. Certificate from paint manufacturer stating that materials meet or exceed Contract Documents requirements.

2. Test Reports:

- a. Certified laboratory test reports for required performance and analysis testing in compliance with ASTM E329.
 - b. Adhesion testing plan and procedures.
 - c. Results of adhesion testing on existing surfaces containing paints or other coatings to be top coated with paint systems specified. Prior to adhesion testing, submit a testing plan establishing methods, procedures, and number of tests in each area where existing coatings are to remain and become substrate for painting Work. Based on results of adhesion testing, recommend methods, procedures, and painting system modifications, if necessary, for proceeding with Work.
 - d. Proposed methods for testing, handling, and disposal of waste generated during Work.
 - e. Results of alkalinity and moisture content tests performed per ASTM D4262 and ASTM D4263.
 - f. Results of film thickness, holidays, and imperfections tests.
 - 3. Manufacturer's Instructions: Provide paint manufacturer's storage, handling, and application instructions prior to commencing painting Work at Site.
 - 4. Manufacturer's Site Reports: Provide report of paint manufacturer's representative for each visit to Site by paint manufacturer's representative.
 - 5. Special Procedure Submittals:
 - a. Proposed protection procedures for each area of Work, explaining methods of protecting adjacent surfaces from splatter, for confining application procedures in a manner that allows other work adjacent to surface preparation and painting Work to proceed safely and without interruption.
 - b. Site-specific health and safety plan.
 - c. Procedures for maintaining acceptable application, curing and environmental conditions during and after painting systems application.
 - d. Procedures for providing adequate lighting, ventilation, and personal protection equipment relative to painting Work.
- C. Closeout Submittals: Submit the following:
- 1. Maintenance Manual: Upon completion of the painting Work, furnish Engineer two (2) hard copies and one (1) electronic copy of detailed maintenance manual including the following information:
 - a. Complete and updated product catalog of paint manufacturer's currently available products including complete technical information on each product. Identify product names and numbers of each product used in the painting Work.
 - b. Name, address, e-mail address and telephone number of manufacturer, local distributor, applicator, and technical representative.
 - c. Detailed procedures for routine maintenance and cleaning.
 - d. Detailed procedures for light repairs such as dents, scratches, and staining.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Product Delivery Requirements: Deliver products to Site in original, new, and unopened packages and containers, accurately and legibly and accurately labeled with the following:
 - 1. Container contents, including name and generic description of product.
 - 2. Manufacturer's stock number and date of manufacture.

3. Manufacturer's name.
 4. Contents by volume, for major pigment and vehicle constituents.
 5. Grams per liter of volatile organic compounds.
 6. Application instructions.
 7. Color name and number.
- B. Product Storage Requirements:
1. Store acceptable materials at Site.
 2. Store in an environmentally controlled location as recommended in paint manufacturer's written product information. Keep area clean and accessible. Prevent freezing of products.
 3. Store products that are not in actual use in tightly covered containers.
 4. Comply with health and fire regulations of authorities having jurisdiction at Site.
- C. Product Handling Requirements:
1. Do not open containers or mix components until necessary preparatory work has been completed and approved by Engineer and painting Work will start immediately.
 2. Maintain containers used in storing, mixing, and applying paint in a clean condition, free of foreign materials and residue.

1.7 SITE CONDITIONS

- A. Site Facilities:
1. Supplemental heat sources, as required to maintain both ambient and surface temperatures within range recommended by paint manufacturer for paint system applications, are not available at the Site.
 2. Provision of supplemental heat energy sources, power, equipment, and operating, maintenance, and temperature-monitoring personnel is Contractor's responsibility.
 3. Do not use heat sources that emit carbon dioxide or carbon monoxide into areas being painted. Properly locate and vent heat sources to exterior so that paint systems and personnel are unaffected by exhaust products.
- B. Existing Conditions:
1. Existing surfaces to receive painting Work shall have their surfaces prepared to meet requirements of painting systems specified. Prior to initiating painting Work, perform adhesion tests on existing surfaces to be painted. Perform testing per ASTM D4541 or other method acceptable to Engineer. Number and location of tests shall be sufficient to determine the condition of existing coatings and suitability of existing coatings to remain to provide an acceptable substrate for new coatings. Submit testing plan prior to testing and provide Engineer the adhesion test results.
 2. Provide abrasive blasting, scraping, or other abrading or surface film removal, or preparatory techniques accepted by Engineer.
 3. Before commencing painting in an area, surfaces to be painted and floors shall be cleaned of dust.
 4. After painting operations have started in a given area, cleaning only with commercial vacuum cleaning equipment with high-efficiency particulate air (HEPA) filters and dust containment systems.

- C. Environmental Requirements:
1. Comply with manufacturer's published requirements.
- D. Protection:
1. Cover or otherwise protect finished Work of other trades and those surfaces not being painted concurrently and not to be painted.
 2. During surface preparation and painting, facility shall remain in operation. Use procedures that prevent contamination of process or cause or require facility shutdown.
 3. Coordinate and schedule surface preparation and painting to avoid exposing personnel to hazards associated with painting Work. Provide required personnel safety equipment per requirements of authorities having jurisdiction at Site.
 4. Submit protection procedures to be employed. Do not begin surface preparation and painting Work until Engineer accepts protection techniques proposed by Contractor.
 5. When working with flammable materials, provide fire extinguishers and post temporary signs warning against smoking and open flame.

PART 2 PRODUCTS

2.1 PAINTING SYSTEM MANUFACTURERS

- A. Products and Manufacturers: Where referenced under painting systems, provide painting systems manufactured by the following:
1. Tnemec Company, Incorporated (TCI).
 2. The Carboline Company, part of StonCor Group, an RMP Company (TCC).
 3. Sherwin-Williams Company (SWC).
 4. Or equal.

2.2 PAINTING SYSTEMS

- A. The following schedule lists coatings systems and coating system designations.

No.	Finish Coating System	Coating System Designation						
		A	C	E	F	G	H	P
1.	Epoxy Enamel – One Coat	X			X	X		
2.	Epoxy Enamel – Two Coats	X	X	X	X	X		X
3.	Epoxy Enamel / NSF – Two Coats		X	X				
4.	Epoxy Enamel – Three Coats	X	X	X				
5.	Epoxy Enamel / NSF – Three Coats		X	X				
6.	Epoxy Enamel – First Coat Aliphatic Polyurethane – Finish Coat	X	X	X	X	X		X
7.	Epoxy Enamel – First and Second Coat Aliphatic Polyurethane – Finish Coat			X	X	X		
8.	Universal Primer – First Coat Aliphatic Polyurethane – Finish Coat	X		X				

No.	Finish Coating System	Coating System Designation						
		A	C	E	F	G	H	P
9.	Medium Consistency Coal Tar – Two Coats	X	X	X				
10.	Coal Tar Epoxy – Two Coats	X	X	X				
11.	Vinyl Ester – Two Coats			X				
12.	Heat Resistant – Two Coats						X	
13.	High Heat Resistant – Two Coats						X	
14.	Universal Primer – First Coat Silicone Alkyd Copolymer – Second Coat							X

2.3 SURFACES NOT TO BE COATED

- A. Unless otherwise specified, the following surfaces shall be left uncoated:
1. Exposed Aluminum
 2. Polished or finished stainless steel.
 - a. Unfinished stainless steel, except flashing and counter flashings, shall be coated.
 3. Galvanized surfaces, except piping, conduit, ductwork, and other items specifically noted.
 4. Rubber and plastics, except as specified.
 5. Exterior concrete.
 6. Surfaces specified to be factory finished.

2.4 FIELD COATING

- A. Items to be field coated include the following. Field coating shall be in accordance with the field priming schedule, the coating schedule, and the manufacturer's recommendations. Field coating shall be completed after installation.
1. Surfaces not indicated to be shop finished and surfaces where blast cleaning can be performed in the field.
 2. All interior ferrous metal surfaces except stainless steel.
 3. Other items as otherwise specified.

2.5 METAL SURFACES COATING SCHEDULE

Surface to be Coated	Finish Coating System
Non-galvanized and galvanized structural and miscellaneous steel exposed to view or to the elements in exterior locations.	A6
Non-galvanized and galvanized structural and miscellaneous steel exposed to view inside buildings.	A2
Unless otherwise specified, pumps, motors, speed reducers, and other machines and equipment exposed to view.	E8
Actuator surfaces for slide gates, control weirs, unless factory finished.	Outdoor – E7 Indoor – E6
Surfaces of cranes and hoists exposed to view indoors.	E2
Ductile Iron and steel piping inside buildings, including valves, fittings, flanges, bolts, supports, and accessories, and galvanized surfaces after proper priming.	A2
Ductile Iron and steel piping above grade exposed to the elements and to view outdoors, including valves, fittings, flanges, bolts, supports, and accessories, and galvanized surfaces after proper priming.	A6
Copper pipe and tubing, including fittings and valves exposed to view in exterior locations.	F6
All metal surfaces, unless otherwise specified, which will be submerged, all or in part, including valves, and scum baffles, and sluice gates, but excluding piping laid in the ground.	E5
Ductile iron and steel piping in manholes, wetwells, vacuum chamber, and similar locations, including valves fittings, flanges, bolts, supports, and accessories.	E5
All metal harness anchorage for buried piping	A10
Exterior surfaces of carbon steel chemical tanks.	Indoor – A1
Supports and miscellaneous metal for equipment handling corrosive chemicals.	Outdoor – A7 Indoor – A2
Aluminum in contact with concrete.	F1
Engine exhaust piping.	H12
Fire Hydrants (non-factory coated or repair only)	P14

2.6 CONCRETE AND MASONRY SURFACES COATING SCHEDULE

Surface to be Coated	Finish Coating System
All concrete and concrete block in corrosive area (except floors and surfaces scheduled to receive other coatings) which are exposed to view.	Indoor – C2 Outdoor – C7

2.7 MISCELLANEOUS SURFACES COATING SCHEUDLE – NOT USED

2.8 PIPING IDENTIFICATION SCHEDULE

- A. Exposed piping and piping in accessible chases shall be identified with lettering or tags designating the service of each piping system, marked with flow directional arrows, and color coded.
- B. Piping scheduled to be color coded shall be completely coated with the indicated colors, except surfaces specified to remain uncoated shall include sufficiently long segments of the specified color to accommodate the lettering and arrows. All other piping shall be coated to match adjacent surfaces, unless otherwise directed by Engineer.
- C. Location. Lettering and flow direction arrows shall be provided on pipe near the equipment served, adjacent to valves, on both sides of wall and floor penetrations, at each branch or tee, and at least every 50 feet in straight runs of pipe. If, in the opinion of Engineer, this requirement will result in an excessive number of labels or arrows, the number required shall be reduced as directed.
- D. Metal Tags. Where the outside diameter of pipe or pipe covering is $\frac{5}{8}$ -inch or smaller, aluminum or stainless-steel tags shall be provided instead of lettering. Tags shall be stamped as specified and shall be fastened to the pipe with suitable chains. Pipe identified with tags shall be color coded as specified.
- E. Lettering. Lettering shall be painted or stenciled on piping or shall be applied as snap-on markers. Snap-on markers shall be plastic sleeves, Brady "Bradysnap-On B-915", Seton "Setmark" or equal. Letter size shall be as follows:

Outside Diameter of Pipe or Covering	Minimum Height of Letters
$\frac{5}{8}$ -inch and smaller	Metal tags – $\frac{1}{4}$ -inch
$\frac{3}{4}$ to 4-inches	$\frac{3}{4}$ -inch
5-inches and larger	2-inches

- F. Color Coding and Lettering. All piping for the following services shall be color coded. Bands shall be 6 inches wide spaced along the pipe at 5-foot intervals. For services not listed, the color coding and lettering shall be as directed by the Engineer. Coding shall comply with applicable standards: ANSI A13.1, ANSI Z535.1 and CFR 1910.144.

PIPE IDENTIFICATION		
Service	Color of Pipe	Color of Letters
Alum (solution)	Yellow with green bands	Black
Bollards	Yellow	-
Chlorine (solution)	Yellow	Black
Compressed Air	Light green	Black
Condensate	Light gray with brown bands	Black
Condenser Water (supply or return)	Dark blue with white bands	White
Drain	Dark gray	White
Fire Protection Water	Red	White
Fuel Oil	Black	White
Hoist/Trolleys/Cranes	Yellow	-
Hydrofluosilicic Acid	Yellow with blue bands	Black

PIPE IDENTIFICATION		
Service	Color of Pipe	Color of Letters
Instrument Air	Light green with dark green bands	Black
Natural Gas or Propane	Yellow with red bands	Black
Nonpotable	Dark blue with white bands	Black
Raw Water	Light blue with red bands	Black
Odor Scrubber Chemical - Bioxide	Orange	Black
Oil – Hydraulic	Black with white bands	White
Sodium Hypochlorite	Orange	White
Plumbing Vents	Dark gray	White
Polymer	Light brown with red bands	White
Polyphosphate	Light brown with gray bands	White
Potable Water (hot or cold)	Light blue	Black
Reclaimed Water	Purple	White
Refrigerant	Yellow with white bands	Black
Residuals	Light brown	White
Sample	Light gray with green bands	Black
Sodium Hydroxide	Orange	Black
Tempered Water	Dark blue with orange bands	White
Wastewater	Gray	White

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which painting Work is to be performed and notify ENGINEER in writing of conditions detrimental to proper and timely completion of Work. Do not proceed with Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.
- B. Do not paint over existing paint where there is no assurance that existing paint will provide an acceptable surface for long-term adherence and durability of painting systems specified, or where paint manufacturer requires removal of all existing paint to recommend use of specified painting system.

3.2 SURFACE PREPARATION

- A. General:
 1. Remediate lead-based paint, if existing, before applying new paint.
 2. Comply with paint manufacturer's published recommendations for products, surface condition, and surface preparation.

3.3 PROTECTION OF PROPERTY AND STRUCTURES

- A. Protect property and structures adjacent to the Work from waste residues resulting from cleaning, surface preparation, and painting Work.
- B. During blast cleaning and surface preparation of interior and exterior surfaces, control exhausting of dust and grit using shrouding, negative-pressure containment/dust collection systems, or other means to protect adjacent property and structures and prevent dust and grit from escaping. Similarly, control removal and temporarily store residues to protect adjacent property and structures.
- C. For painting of exterior surfaces, use rollers or other acceptable methods as required to protect adjacent property and structures from wind-blown paint residues.
- D. Submit proposed procedures for cleaning, surface preparation, and paint application that describe in detail methods to be used to protect adjacent property and structures from residues. Do not proceed with cleaning, surface preparation, or painting until proposed procedures are accepted by Engineer.

3.4 MATERIALS PREPARATION

- A. General: Mix and prepare painting products in strict accordance with paint manufacturer's product data sheets.

3.5 APPLICATION

- A. General:
 - 1. Apply paint systems by brush, roller, or spray per paint manufacturer's recommendations and in strict accordance with paint manufacturer's product data sheets.
 - 2. Surfaces of items not normally exposed-to-view do not require same color as other components of system of which they are a part but require same painting system specified for exposed surfaces of system.
 - 3. Omit field-applied primer on metal surfaces that have been primed in the shop. Touch-up paint to shop-primed coats and pre-finished items only when approved by ENGINEER using compatible primers and paint manufacturer's recommended compatible field-applied finishes.
 - 4. Welds shall be stripe-coated with intermediate or finish coat of paint after application of prime coat.
- B. Minimum/Maximum Paint Film Thickness: Comply with manufacturer's published recommendations for coating type and surface.
- C. Scheduling Surface Preparation and Painting: Comply with manufacturer's published recommendations for coating type and surface.
- D. Brush Application:
 - 1. Brush-out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections are unacceptable. Neatly draw all glass and color break lines.

2. Brush-apply all primer or first coats, unless otherwise allowed to use mechanical applicators.
- E. Mechanical Applicators:
1. Use mechanical methods for applying paint when allowed by applicable ordinances, paint manufacturer, and approved by Engineer.
 2. Limit roller applications, if approved by Engineer, to interior wall finishes for second and third coats. Apply each roller coat to provide equivalent hiding as brush-applied coats.
 3. Where spray application is used, apply each coat to provide equivalent hiding of brush-applied coats. Do not double back with spray equipment for purpose of building up film thickness of two coats in one pass.
- F. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint Work not in compliance with specified requirements as required by Engineer.

3.6 FIELD QUALITY CONTROL

- A. Notify ENGINEER after completing each coat of paint. After inspection and checking of film thickness, holidays, and imperfections by Owner, and after acceptance by Engineer, proceed with succeeding coat.
1. Engineer will witness all testing and shall be notified of scheduled testing at least twenty-four hours in advance.
 2. Apply additional coats, if required, to produce specified film thickness and to correct holidays and to completely fill all surface air holes.
- B. For magnetic substrates, measure thickness of dry film nonmagnetic coatings following recommendations of SSPC PA-2. These procedures supplement manufacturers' approved instructions for manual operation of measurement gauges and do not replace such instructions.
- C. Record time, location, number of coats, dry film thickness, holidays, and other imperfections and submit testing results to Engineer.

3.7 PROTECTION

- A. Provide "Wet Paint" signs as required to protect newly painted finishes. After completing painting Work, remove temporary protective wrappings provided for protection of the Work and work of other Contractors.

3.8 ADJUSTMENT AND CLEAN-UP

- A. Correct damage to work of other trades by cleaning, repairing, or replacing, and repainting, as acceptable to Engineer.
- B. During progress of the Work, remove from Site all discarded paint products, rubbish, cans, and rags at end of each workday.

- C. Upon completion of painting, clean paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- D. At completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces as determined by Engineer.

3.9 SCHEDULES

- A. The schedules listed below, following the "End of Section" designation, are a part of this Specification section.
 - 1. Table A - Painting Schedule.

END OF SECTION