

## SECTION 09 91 00

### PAINTING

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Paint materials.
- B. Accessory materials.

##### 1.02 DESCRIPTION

- A. The work includes the painting and finishing of exterior and interior exposed surfaces throughout the Contract, except as otherwise indicated. Surface preparation, priming, and coats of paint specified are in addition to shop priming and surface treatment specified under other Sections of the Specifications.
- B. The work includes the field painting of bare and covered pipes (including color coding in accordance with ASME A13.1), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment except as otherwise indicated.
- C. The work includes restoration of existing painted surfaces as indicated. Extent of restoration work involving existing painted surfaces is indicated on the Contract Drawings.
- D. Paint exposed surfaces whether or not colors are designated in any schedule, except where the natural finish of the material is specifically indicated as a surface not to be painted. Where surfaces are not specifically identified, paint such surfaces the same as adjacent similar surfaces.
- E. The paint systems specified indicate the basic painting systems. Deviations within the system, such as the use of two finish coats in lieu of undercoat and finish, will be permitted only where such procedure is recommended by the paint manufacturer and approved by the Engineer.

##### 1.03 DEFINITIONS

- A. The term “paint” as used herein means all coating systems materials, and includes primers, emulsions, enamels, stain, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

##### 1.04 WORK NOT INCLUDED IN THIS SECTION

- A. Shop or Factory Primed Surfaces: Shop priming of ferrous and galvanized metal items is included under the various Sections for structural steel, metal decking, miscellaneous metal items, hollow metal work, and similar items, and shop-fabricated or factory-built mechanical and electrical equipment and accessories.

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- B. Pre-Finished Items: Field finish does not include painting when factory-finishing is specified for items such as acoustical materials, finished mechanical and electrical equipment, including light fixtures and distribution cabinets. Field touch-up is required, however, in all cases where the factory finish is damaged.
- C. Concealed Surfaces: Painting is not required on wall or ceiling surfaces in concealed areas and generally inaccessible areas, such as foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts, and elevator shafts. Paint piping, equipment, and other such items within these areas as indicated.
- D. Nonferrous Metal Surfaces: Anodized aluminum, stainless steel, copper, and similar nonferrous metal materials will not require finish painting unless otherwise indicated or specified.
- E. Operating Parts and Labels:
  - 1. Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts, and expansion joints, will not require finish painting unless otherwise indicated.
  - 2. Do not paint over code-required labels, such as UL, FM, and WH, or equipment identification, performance rating, name, or nomenclature plates.
  - 3. Do not paint automatic fire sprinkler heads.
- F. Graffiti-Resistant Coatings: Anti-graffiti coatings are specified in Section 09 96 33, Graffiti-Resistant Coatings.
- G. Miscellaneous Surfaces: Rubber and elastomeric sealants, cementitious fireproofing, and machined surfaces of metal hardware and related fittings will not require finish painting.

### **1.05 MEASUREMENT AND PAYMENT**

- A. General
  - 1. Paint and painting will not be measured separately for payment but will be paid for as part of the Contract lump sum price for Architectural Work.
  - 2. When painting is required for surfaces which are not a part of the Architectural Work, or when there is no Architectural Work, paint and painting will be measured separately for payment by the lump sum, as indicated in the Bid Schedule of the Bid Form, and will be paid for as part of the Contract lump-sum price for painting.

### **1.06 REFERENCES**

- A. American Society of Mechanical Engineers (ASME):
  - 1. ASME A13.1 Scheme for the Identification of Piping Systems

- B. Painting and Decorating Contractors of America (PDCA):
  - 1. "Painting and Decorating Craftsman's Manual and Textbook"
- C. The Society for Protective Coatings (SSPC):
  - 1. SSPC Painting Manual, Volume 2, "Systems and Specifications"
  - 2. SSPC-SP 1 Solvent Cleaning
  - 3. SSPC-SP 3 Power Tool Cleaning
  - 4. SSPC-SP 6/NACE No.3 Commercial Blast Cleaning
  - 5. SSPC-SP 10/NACE No. 2 Near-White Blast Cleaning
- D. American Society of Testing and Materials (ASTM):
  - 1. ASTM D360 Standard Specification for Shellac Varnishes

**1.07 QUALITY ASSURANCE**

- A. Regulatory Requirements: Paint products and solvents shall comply with the latest regulations of the Bay Area Air Quality Management District regarding regulations governing permissible content of volatile organic compounds (VOC). Refer to Section 01 81 31, Sustainability Requirements.
- B. Quality Standards:
  - 1. Preparation and painting work shall conform with the recommended practices and quality standards of the "Painting and Decorating Craftsman's Manual and Textbook," latest edition, published by the Painting and Decorating Contractors of America.
  - 2. Preparation and painting of steel surfaces shall conform with the quality standards of the SSPC Painting Manual, Volume 2.
  - 3. Paints, enamels, stains, lacquers, and varnishes shall be applied in accordance with the manufacturers' latest specifications, instructions, and recommendations.
- C. Paint Coordination:
  - 1. Coordinate and interface the work of this Section with the various Sections specifying factory-applied finishes.
  - 2. Coordinate the work of this Section with the work specified under Mechanical and Electrical, for color-coding and painting of mechanical and electrical equipment, piping, conduit, ducts, and panels.
  - 3. Provide finish coats that are fully compatible with the prime paints used. Field-applied primers shall be supplied by the same manufacturer as the intermediate

(if any) and finish coats used. Review other Sections of these Specifications in which prime paints are specified to ensure compatibility of the coating system for each of the various substrates. Provide barrier coats over incompatible primers or remove and reprime as required.

- D. Paint Manufacturer's Review: Before purchasing paint materials, review the proposed paint systems, materials, and substrates with qualified representatives of the proposed paint products manufacturer. Obtain manufacturer's concurrence of the proposed paint systems, or any recommended changes thereto, before providing product data, samples, and mock-ups specified in Articles 1.06 and 1.07 herein.

## **1.08 SUBMITTALS**

- A. General: Refer to Section 01 33 00, Submittal Procedures, and Section 01 33 23, Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Manufacturers' Review: Submit record of paint manufacturer's review as specified above in Article 1.05.D.
- C. Product Data:
  - 1. Submit a complete list of all materials proposed for use, together with manufacturers' product specifications for such products.
  - 2. No claim by the Contractor concerning the unsuitability of any material specified, or the Contractor's inability to produce first class work with such materials, will be considered unless such claim is made in writing to the Engineer before the work is started.
  - 3. Provide product documentation of VOC content in g/L.
- D. Colors and Samples:
  - 1. Colors: The Engineer will prepare a Color Schedule with samples for guidance of the painter, and reserves the right to select, allocate, and vary colors on different surfaces throughout the station or building, subject to the limitation that not more than 20 percent of bright or deep colors will be selected.
  - 2. Samples:
    - a. Before beginning work, prepare for approval a sample of each color, texture, and finish required. Such samples, when approved, shall constitute standards for color, texture, and finish of completed work.
    - b. Make samples eight by 10 inches in size and upon materials corresponding with those to be finished in the station or building.
    - c. When samples are rejected, a maximum of two additional modified samples may be required, in each instance, to obtain approval.

- d. Approved samples shall be marked for identification and shall be distributed to the Engineer and field offices as required.
- e. Mock-up for approval of final colors shall match the approved colors and samples.

### **1.09 MOCK-UP FOR APPROVAL OF FINAL COLORS**

- A. Final coat of paint and finish for both exterior and interior shall not be applied until the colors and textures have been approved by the Engineer. To accomplish this, the Contractor shall paint a sample panel of approximately 24 square feet of the colors and textures selected on every surface of the station or building to be painted. The Engineer will approve the sample panels or direct changes as desired.
- B. The Contractor shall be on the job and be prepared to change sample panels to colors and textures desired. The Contractor shall notify the Engineer at least three Days in advance of when sample panels will be ready to receive approval.
- C. Notice shall not be given, however, until permanent fluorescent and incandescent lights are installed and in operation in the rooms or areas where the sample panels have been painted. Temporary lights at the same level and of the same type, intensity, and color as the permanent lights will be permitted for viewing of sample panels.

### **1.10 DELIVERY AND STORAGE**

- A. Refer to Section 01 60 00, Product Requirements, for general requirements.
- B. Deliver paint materials to the site in original, unopened packages and containers with labels intact and seals unbroken.
- C. Store materials, tools, and equipment in a locked, properly ventilated, designated storage space on the site, assigned for this purpose. Receiving, opening, and mixing of paint materials shall be performed in this storage space. Keep storage space neat, clean, and accessible at all times. Protect areas from paint spillage.
- D. Place paint-soaked or solvent-soaked rags, waste, and other materials that might constitute a fire hazard in closable metal containers and remove from the premises at the close of each day's work. Take all necessary precautions to avoid fire danger.

### **1.11 WEATHER AND TEMPERATURE**

- A. Surfaces shall be painted only when they are free from moisture. No painting on exterior surfaces shall be performed less than 72 hours of actual drying weather after a rain, or during periods of dew or fog. Receiving surfaces shall be properly dried out before proceeding with the work.
- B. No painting shall be performed when temperature is below 40 degrees F and above 90 degrees F or when the relative humidity is above 90 percent, unless recommended otherwise in writing by the paint manufacturer.

**1.12 SCAFFOLDING AND PROTECTION**

- A. Furnish, maintain, and remove all scaffolding, ladders, and planks required for this work, and all drop cloths for the protection of concrete walks, floors, adjacent surfaces, prefinished materials, building fixtures, and similar surfaces.
- B. Painted and finished surfaces subject to damage or defacement due to other work in the station or building shall be properly protected and covered. The Contractor shall be responsible for damage to painted work and to that of other work caused by painting operations under this Section until final acceptance by the District.

**PART 2 – PRODUCTS**

**2.01 PAINT QUALITY STANDARDS**

- A. Paint and painter’s finish shall be the highest quality products of nationally recognized manufacturers specializing in the manufacture of paint products. Minimum percent solids (MPS) required for the paint products herein specified shall be as indicated in the following example: MPS: 35.
- B. Provide primer and undercoater paints produced by the same manufacturer as the intermediate and finish coats. Use thinners approved by the paint manufacturer which meet previously referenced regulatory requirements, and provide only to recommended limits.
- C. Provide primers and undercoaters which are suitable for each surface to be painted and which are compatible with specified intermediate and finish paint coats.
- D. Materials necessary to complete the painting work are herein generically specified. Except as otherwise specified, materials for any one paint system shall be by the same manufacturer.
- E. Minimum dry film thicknesses (MDFT), in mils, and the number of coats required to obtain such thicknesses shall be in accordance with the paint manufacturer’s application instructions and recommendations.
- F. Refer to VOC limits under Section 01 81 13, Sustainability Requirements.

**2.02 PAINT MATERIALS**

- A. Type and Manufacture: The following products constitute the standards for the primers, intermediate, and finish coats of the paint systems herein specified in articles 3.04 and 3.05.
  - 1. Ferrous Metal Primer: Refer to Section 05 12 00, Structural Steel Framing, and Section 05 50 00 - Metal Fabrications, for requirements.
  - 2. Galvanized Metal Primer: Refer to Section 05 50 00, Metal Fabrications, for requirements.

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3. Masonry Surface Conditioner: Acrylic latex masonry filler. MPS: 35.
  4. Exterior Masonry Paint: Exterior 100 percent acrylic latex masonry paint. MPS: 35.
  5. Exterior Wood Primer: Exterior wood primer as recommended by the manufacturer for the location and conditions. MPS: 40.
  6. Exterior House and Trim Paint: Exterior enamelized house and trim paint for wood and metal. MPS: 40.
  7. P.V.A. Primer-Sealer: Polyvinyl-acetate primer-sealer for interior gypsum board (drywall). MPS: 30.
  8. Alkyd Primer-Sealer: Alkyd or acrylic latex primer sealer for interior plaster, concrete, masonry, and gypsum board (drywall). MPS: 30.
  9. Enamel Undercoat: Alkyd or acrylic latex enamel undercoater. MPS: 35.
  10. Semi-Gloss Enamel: Alkyd or acrylic latex enamel, semi-gloss sheen, washable. MPS: 35.
  11. Eggshell Enamel: Alkyd or acrylic latex enamel, eggshell sheen, washable. MPS: 35.
  12. Heavy-Duty Gloss Enamel: Heavy-duty, industrial grade, polyurethane, gloss sheen. MPS: 45.
  13. Interior Flat Latex Paint: Interior flat latex paint for drywall; not washable. MPS: 30.
  14. Floor Enamel: Acrylic latex floor enamel for concrete floors, semi-gloss sheen, washable. MPS: 45.
  15. Floor Epoxy: Waterborne epoxy polyamide. MPS: 40.
  16. Steel Bridge Epoxy Paint: High solids epoxy paint. MPS: 65.
  17. Steel Bridge Polyurethane Paint: Acrylic polyurethane paint. MPS: 50.
- B. Accessory Materials:
1. Shellac: ASTM D360, Type I, bleached, No. 4, cut with pure grain alcohol.
  2. Thinner: As recommended by the manufacturer for the respective product.
  3. Spackle or Putty: Standard commercial product manufactured for the purpose, thoroughly mixed to prevent the possibility of shrinkage. Use exterior grade for exterior Work. Spackle or putty shall be tinted toward finish color. Spackle or putty containing white lead will not be permitted for use on this Project.

**PART 3 – EXECUTION****3.01 PREPARATION OF SURFACES****A. New Surfaces to be Painted:**

1. Painting or finishing shall not be started until the surfaces to be painted or finished are in proper condition to accept, and assure the proper adhesion and functioning of, the specified painting system in accordance with the paint manufacturer's installation instructions and recommendations. Surfaces that cannot be properly prepared by the painter for finishing shall not be painted or finished until they are corrected. All surfaces to be painted shall be clean and dry.
2. Wood surfaces shall be sandpapered and dusted clean. Knots, pitch pockets, or sappy portions shall be sealed with clean shellac or knot sealer. Spackle or putty all nail holes, cracks, and other imperfections after first or prime coat with spackle or putty of color to match finish coat. Do not seal wood surfaces to receive stain or natural finish.
3. Concrete, masonry, stucco, and plaster shall be cleaned of form oils, efflorescence, chalk, dust, and dirt, and shall be thoroughly dry or dried before painting.
4. Holes, cracks, and other imperfections in surfaces to be painted shall be suitably primed and patched with a compound recommended by the manufacturer of the paint to be applied to these surfaces, and all areas to be painted shall be brought to true, even surfaces.
  - a. Where cracks exist at transitions between existing and new materials, or in patched surfaces, such cracks shall be patched, and the patching material shall be feathered out and textured to match adjacent surfaces, so as to make the patched surface "invisible" after painting.

**B. Existing Painted Surfaces to be Painted:**

1. Concrete, Masonry, and Stucco Surfaces:
  - a. Exterior concrete, masonry, and stucco surfaces shall be sandblasted by the "wet" sandblast method to remove all existing paint film from these surfaces.
    - 1) When "wet" sandblasting is not permitted by jurisdictional authority, surfaces shall be selectively power wire-brushed to remove loose and defective existing paint film. Edges of removed paint film shall be feathered out to conceal such edges in the finished work.

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- a) Surfaces not to be sandblasted shall be properly masked and otherwise protected to preclude damage to these surfaces.
  - b) Protection of the public and adjacent buildings from the residue of sandblasting operations shall be provided in accordance with the requirements of the jurisdictional authority.
2. Wood Surfaces: All wood surfaces shall be power sanded as required to remove all peeling, flaking, blistering, loose, or otherwise defective existing paint surfaces.
  3. Metal Surfaces: Immediately preceding power-tool cleaning, pressure wash and rinse existing painted metal surfaces. Where access problems or the likelihood of damaging adjacent surfaces exist, wash and rinse. Existing painted metal surfaces shall be power-tool cleaned in accordance with SSPC-SP 3 to remove loose and defective paint surfaces, and then feathered smooth. Rust shall be completely removed. For steel bridges, clean in accordance with SSPC-SP 6/NACE No. 3 or SSPC-SP 10/NACE No. 2. Then solvent clean surfaces in accordance with SSPC-SP 1 to remove dust, and apply prime coat of Ferrous Metal Primer or Galvanized Metal Primer, as applicable, to existing surfaces as herein specified in Articles 3.04 and 3.05.
- C. Hardware and Fixtures:
1. Hardware, hardware accessories, plates, lighting fixtures, and similar items in place shall be removed prior to painting and replaced upon completion of each space.
  2. Heating and other equipment adjacent to walls shall be disconnected, using workers skilled in appropriate trades, and moved to permit wall surfaces to be painted. Following completion of painting, they shall be expertly replaced and reconnected.
- D. Exposed Plumbing, Mechanical, and Electrical Items:
1. Items without factory finish such as conduits, pipes, ducts, grilles, registers, vents, access panels, and items of similar nature shall be finished to match adjacent wall and ceiling surfaces, unless otherwise directed. Paint visible surfaces behind vents, registers, and grilles flat black.
  2. Wash exposed metal with solvent, prime, and paint as scheduled or specified. Spray paint wherever practicable. Do not paint concealed conduits, piping, and ducts.

**3.02 PAINT PERFORMANCE AND FIELD QUALITY ASSURANCE**

- A. Painting shall be performed by skilled and experienced painters, working under the supervision of a capable supervisor. Materials shall be thinned only for proper workability and in compliance with the manufacturer's specifications.
- B. Paint material shall be evenly brushed or smoothly flowed on without runs or sagging, and free from drops, ridges, laps, and brush marks. Assure that all coats

are thoroughly dry before applying succeeding coats. Sand surfaces between coats as necessary to produce a smooth finish and as may be required for adhesion of succeeding coats.

- C. Priming or painting of wood will not be permitted on or in the station or building where concrete, masonry, or plaster is in the process of installation or application, or in the process of drying.
- D. Putty, caulking, or spackle shall be applied after surface is primed and primer is dry.
- E. Interior surfaces shall not be painted until concrete, masonry, and plaster surfaces in the station or building have completely cured and have stabilized moisture content in accordance with the paint manufacturer's recommendations.
- F. Finish coats of paint shall not be applied on the interior of the station or building until the interior spaces are completely closed-in with windows and doors in place and glazed, until all interior wet and dust-producing work is complete and dry, and until the heating and ventilating system (or air-conditioning system) is in operation.

**3.03 PAINT SYSTEMS**

- A. Provide three-coat work (unless otherwise specified), consisting of prime coat, intermediate coat, and finish coat, in texture and color as selected and approved by the Engineer.
- B. Exterior paint systems are specified and identified herein by letter and interior paint systems by number, and the systems specified correspond to the finishes indicated on the Contract Drawings.
- C. The herein specified paint systems indicate the minimum dry mil film thickness (MDFT) required for the particular paint system. Paint shall be applied at the manufacturer's recommended rate to achieve the proper MDFT specified. If a manufacturer normally does not utilize an intermediate coat in its paint system to achieve the specified MDFT, then the intermediate coat may be omitted.

**3.04 EXTERIOR PAINTING**

- A. Paint System "A" - Paint Finish on Concrete, Masonry, and Stucco:
  - Prime Coat: Masonry Surface Conditioner, tinted toward finish color.
  - Intermediate Coat: Exterior Masonry Paint.
  - Finish Coat: Exterior Masonry Paint.
  - MDFT: 6.
- B. Paint System "B" - Paint Finish on Ferrous and Galvanized Metal:
  - Prime Coat: For new ferrous metal: Field-apply Ferrous Metal Primer. For shop primed ferrous metal: Apply touchup primer. For

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galvanized metal: Galvanized Metal Primer touchup. For existing ferrous and galvanized metal: Rust-inhibitive primer as recommended by manufacturer of finish coats.

Intermediate Coat: Heavy-Duty Gloss Enamel.

Finish Coat: Heavy-Duty Gloss Enamel.

MDFT: 6.

### C. Paint System "C" – Paint Finish on Wood:

Prime Coat: Factory-primed (new surfaces). Exterior Wood Primer (existing surfaces).

Intermediate Coat: Exterior House and Trim Paint.

Finish Coat: Exterior House and Trim Paint.

MDFT: 7.

### D. Paint System "D" – Paint Finish on Steel Bridges:

Prime Coat: As specified in Article 2.04B in Section 05 12 00, Structural Steel Framing.

Intermediate Coat: Steel Bridge Epoxy Paint.

Finish Coat: Steel Bridge Polyurethane Paint.

MDFT: 11.

## 3.05 INTERIOR PAINTING

### A. Paint Systems:

#### 1. Paint System "1" - Flat Finish on Gypsum Wallboard:

Prime Coat: P.V.A. Primer-Sealer, tinted toward finish color.

Intermediate Coat: Interior Flat Latex Paint.

Finish Coat: Interior Flat Latex Paint.

MDFT: 5.

#### 2. Paint System "2" - Eggshell Finish on Gypsum Wallboard:

Prime Coat: P.V.A. Primer-Sealer.

Intermediate Coat: Alkyd Primer-Sealer, tinted toward finish color.

Finish Coat: Eggshell Enamel.

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- MDFT: 5.
3. Paint System “3” - Semi-Gloss Finish on Gypsum Wallboard:
- Prime Coat: P.V.A. Primer-Sealer.
- Intermediate Coat: Alkyd Primer-Sealer, tinted toward finish color.
- Finish Coat: Semi-Gloss Enamel.
- MDFT: 5.
4. Paint System “4” - Flat Finish on Concrete, Masonry, and Plaster:
- Prime Coat: Alkyd Primer-Sealer.
- Intermediate Coat: Interior Flat Latex Paint.
- Finish Coat: Interior Flat Latex Paint.
- MDFT: 5.
5. Paint System “5” - Eggshell Finish on Concrete, Masonry, and Plaster:
- Prime Coat: Alkyd Primer-Sealer.
- Intermediate Coat: Alkyd Primer-Sealer, tinted toward finish color.
- Finish Coat: Eggshell Enamel.
- MDFT: 5.
6. Paint System “6” - Semi-Gloss Finish on Concrete, Masonry, and Plaster:
- Prime Coat: Alkyd Primer-Sealer.
- Intermediate Coat: Alkyd Primer-Sealer, tinted toward finish color.
- Finish Coat: Semi-Gloss Enamel.
- MDFT: 5.
7. Paint System “7” - Paint Finish on Metal:
- Prime Coat: Factory Prime Coat and field-applied Ferrous Metal Primer or Galvanized Metal Primer touchup, as applicable.
- Intermediate Coat: Enamel Undercoat Enamel, tinted toward finish color.
- Finish Coat: Semi-Gloss Enamel.
- MDFT: 5.

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8. Paint System "8" - Paint Finish on Woodwork and Trim:

Prime Coat: Shop Prime Coat or Enamel Undercoat, as applicable.

Intermediate Coat: Semi-Gloss Enamel, tinted toward finish color.

Finish Coat: Semi-Gloss Enamel.

MDFT: 5.

9. Paint System "9" - Paint Finish on Wood Shelves:

Prime Coat: Enamel Undercoat.

Finish Coat: Semi-Gloss Enamel.

For all exposed wood shelves in closets, Janitor's Rooms, and any other rooms or areas as indicated.

10. Paint System "10" - Paint Finish on Metal Handrails and Railings:

Prime Coat: Factory Prime Coat and field-applied Ferrous or Galvanized Metal Primer touchup, as applicable.

Intermediate Coat: Enamel Undercoat, tinted toward finish color.

Finish Coat: Heavy-Duty Gloss Enamel.

MDFT: 6.

11. Paint System "11" - Paint Finish on Concrete Floors, Steps, and Risers:

Prime Coat: Floor Enamel, thinned as recommended by paint manufacturer.

Finish Coat: Floor Enamel.

MDFT: 4.5.

12. Paint System "12" - Paint Finish on Elevator Machine Rooms Floors and at Elevator Pits:

Two Coats: Floor Epoxy.

MDFT: 4 total.

**3.06 CLEANING**

- A. Clean and retouch the work as necessary for a first-class job. All surfaces of the station or building and surrounding areas shall be left clean and neat in all respects, free from any paint spots, smears, smudges, or stain.

**END OF SECTION 09 91 00**