

1.0 GENERAL

1.1 Intent

- .1 The work of this Section shall include all labour, materials, tools, scaffolds and other equipment, services and supervision required for preparation and painting of all surfaces scheduled herein.
- .2 Paint all existing and new surfaces as per Schedule of Finishes and touch up painting of existing renovated surfaces. Include all field painting necessary to complete work shown, scheduled or specified, including back priming and surface preparation.
- .3 The work shall also include the painting of shop primed items and equipment installed under any other sections of the Specifications.
- .4 Ensure that surface preparation and shop primers comply with finishing paint system specified.
- .5 Prepare and touch up any damaged finish with same type, quality and colour of paint as originally used.
- .6 Do not paint aluminum or rubber surfaces and nameplates unless noted otherwise.

1.2 Reference Standards

- .1 Master Painters Institute (MPI), Architectural Painting Specification Manual, 1997.
- .2 Steel Structures Painting Council (SSPC), Steel Structures Painting Manual, Volume I & II.
- .3 Manufacturer's product and safety data sheets, and application instructions.

1.3 Qualifications

- .1 The work of this Section shall be performed by experienced applicators specializing in the surface preparation and application of the products specified herein.

1.4 Submittals

- .1 Provide the Departmental Representative with the credentials of the applicators, who will be performing the work on site, which clearly demonstrates compliance with the required qualifications, including:
 - .1 Key site personnel
 - .2 Equipment which will be used
 - .3 Information on projects of similar scope with similar products, including references
- .2 Submit the manufacturer's product data sheets, application instructions and safety data sheets.

1.5 Delivery/Storage

- .1 Deliver materials in sealed, original, labeled containers, bearing manufacturer's name, type, brand name, colour designation and instructions for mixing and/or reducing. No unsealed materials will be allowed onto the site.

- .2 Provide adequate storage facilities. Store materials at a minimum ambient temperature of 7° C and in a well ventilated area.
- .3 Take all precautionary measures to prevent fire hazards and spontaneous combustion.

1.6 Colour Schedule/Samples

- .1 Paint colours shall be selected by the Departmental Representative.
- .2 Prior to commencement of work, the Departmental Representative will furnish the colour schedule.

1.7 Additional Materials

- .1 Provide the Departmental Representative with a sufficient quantity (not less than 4 litres) of all types of coatings and colours scheduled.
- .2 Containers are to be tightly sealed and clearly labeled for identification.

1.8 Environmental Conditions

- .1 Measure moisture content of surfaces using an electronic "Moisture Meter". Do not apply finishes unless the moisture content of surfaces are below the maximums established on product data sheets.
- .2 Ensure surface temperatures and the surrounding air temperature are within the range established on product data sheets.
- .3 Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures established on product data sheets for 24 hours before, during, and 48 hours after interior application of finishes.
- .4 Provide minimum 325 lux (30f.c.) of lighting on surfaces during application of finishes.
- .5 Do not apply finishes in areas where dust is being generated.

2.0 PRODUCTS

2.1 Materials

- .1 Paints: technically appropriate first line products as listed in Schedule of Finishes.
- .2 Paint accessory materials: linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finishes specified shall be of highest quality product and approved manufacture.
- .3 Solvents: to be the odor free type where possible.
- .4 All markings and labeling of piping and equipment shall be black, stencil, spray coated, one quarter diameter of pipe or 25 mm for equipment. Stick- on markers not allowed.

2.2 Mixing

- .1 Paints shall be ready-mixed except for field catalyzed coating types.

3.0 EXECUTION

3.1 Condition of Surfaces

- .1 Thoroughly examine all surfaces scheduled to be finished prior to commencement of work. Report in writing to the Departmental Representative any condition that may potentially affect proper application. Do not commence until all such defects have been corrected.
- .2 Be responsible for the condition of surfaces or for correcting defects and deficiencies in the surfaces which may adversely affect work of this section.
- .3 Commencement of work shall imply acceptance of surfaces.

3.2 Preparation of Site Areas

- .1 Thoroughly vacuum and wipe clean all surfaces within the area to be finished, prior to and during painting application.

3.3 Protection

- .1 Adequately protect other surfaces from paint and damage. Make good any damage as a result of inadequate or unsuitable protection.
- .2 Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being finished and, in particular, surfaces within storage and preparation area.
- .3 Place cotton waste, cloths, empty containers and material which may constitute a fire hazard in closed metal containers and remove daily from site.
- .4 Remove all electrical plates, surface hardware, fittings and fastenings, prior to finishing operations. These items are to be carefully stored, cleaned and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove the permanent lacquer finish.
- .5 Do not paint fire rating labels on doors, door frames, or at other locations.

3.4 Preparation of Surfaces

- .1 Prepare surfaces to be painted or finished in accordance with MPI Architectural Painting Specification Manual, or the coating manufacturer's printed instructions, whichever is the more stringent.
- .2 Concrete surfaces which have been previously cured with conventional curing compounds or are contaminated with form oils must be completely cleaned by abrasive blasting. Acid etching is not acceptable, as it will not normally remove these contaminants. After surface is properly prepared, small holes or voids in cast concrete wall or overhead surface shall be filled in accordance with the coating manufacturer's recommendations.
- .3 Remove factory-applied bituminous coating from ductile iron piping, scheduled for painting, by shot-blast cleaning to SSPC method and degree specified in the applicable painting formula. Shop apply primer as specified, prior to installation of piping.
- .4 Touch up preprimed steel and iron surfaces with a primer compatible with the shop applied primer. Remove dust, dirt and grease.

- .5 Previously painted surfaces scheduled for painting shall be cleaned using appropriate previously specified method. Check existing paint coatings for compatibility with paint with which they are to be over coated. If coatings are not compatible, submit recommendations for review by Departmental Representative.

3.5 Application

- .1 Ensure that all testing of equipment and process and building systems has been successfully completed, before commencing painting of related surfaces.
- .2 Apply paint and other finishes in accordance with good trade practice, and manufacturers' printed instructions.
- .3 Cover surfaces satisfactorily with an even colour tone. Apply primer immediately after surface preparation, where recommended.
- .4 Apply each coat at the proper consistency.
- .5 Sand and dust between coats to remove defects visible from distance up to 1.5 m. Refer to paint manufacturer's technical sheets for coating and re-coating recommendations.
- .6 Do not apply finishes on surfaces that are not sufficiently dry.
- .7 Allow each coat of finish to dry before a following coat is applied, unless directed otherwise by manufacturer.
- .8 Backprime interior woodwork which is to receive a paint finish with enamel undercoat paint, immediately upon arrival at the job site.
- .9 Exterior and interior woodwork to be stained and/or varnished shall be back primed with gloss varnish reduced 25% with mineral spirits.
- .10 Prime top and bottom edges of wood and metal doors in accordance with applicable paint formula.
- .11 Use the following reference for contact surfaces.
 - .1 Steel surfaces in contact with aluminum shall receive one prime coat and one aluminum finish coat.
 - .2 Aluminum surfaces in contact with steel surfaces: prime coat with fast-dry modified alkyd primer.
 - .3 Wood surfaces in contact with other surfaces: prime coat (sealer).
 - .4 Aluminum surfaces in contact with concrete or masonry shall be prime coated with fast-dry modified alkyd primer, and painted with two coats of interior/exterior acrylic enamel.
 - .5 Any surfaces not in direct bonded contact but inaccessible after assembly shall receive either the full specified paint system or three coats of the specified primer before assembly.
- .12 Painting of previously painted surfaces touch-ups:

- .1 Clean areas to be painted using appropriate previously specified method.
- .2 Minimum coating requirements for spot-painting shall be as follows:
 1. No rusting, but prime coat exposed - Sand lightly and feather edges. Apply 1 to 2 finish coats to regain specified minimum dry film thickness.
 2. No rusting, but prime coat damaged - Clean area to base material, sand lightly and feather edges. Apply prime coat and two finish coats. Sand and feather edges between coats.
 3. Rust areas - Clean to original standard of surface preparation. Apply coats as per .2 above. Only apply additional spot finished coat, if required, to maintain appearance.
- .3 Check existing paint coatings for compatibility with paint with which they are to be over-coated. If not compatible, submit recommendations for review by Departmental Representative.

3.6 Process, Mechanical and Electrical Equipment

- .1 Piping shall be identified by colour coding and descriptions. Identification colours and description shall be as directed by the Departmental Representative. Prior to commencement of the work of this Section, the Departmental Representative will furnish a schedule including identification/description legend, colours, and abbreviations referenced on the drawings. Identification shall be carried out on the following items:
 - .1 All new and existing uninsulated and insulated piping, ducting and valves, flanges, couplings, etc.
 - .2 All new and existing process and HVAC equipment.
 - .3 All new and existing exposed electrical conduit as identified in Division 16.

The identification system shall be in accordance with the Piping Colour Schedule.
- .2 Remove grilles, covers and access panels for mechanical and electrical systems from location and paint separately.
- .3 Finish paint primed equipment.
- .4 Paint interior surfaces of air ducts, convector and baseboard heating cabinets that are visible through grilles and louvres with one coat of flat dark grey paint, to limit of sight line. Paint dampers exposed immediately behind louvres, grilles, convector and baseboard cabinets to match face panels.
- .5 Paint exposed conduits, pipes, ducts, hangers and other mechanical and electrical equipment occurring in all areas. Colour and texture to match adjacent surfaces, except as noted for colour coded piping.
- .6 Paint both sides and edges of plywood backboards for equipment before installation.
- .7 Leave electrical equipment in original finish except for touch-up as required, and paint mounting accessories and other unfinished items.

- .8 Paint exterior steel electrical light standards and other equipment except outdoor transformers and substation equipment.
- .9 Clean all damaged areas of factory finished equipment to SP-1. If factory finish is compatible, prime and finish as detailed. If factory finish is not compatible, submit recommendations for review by Departmental Representative.
- .10 Do not paint instruments, ground bus and connections, cable connectors, PVC jackets and aluminum trays.

3.7 Cleaning

- .1 As the work proceeds and upon completion, remove all paint where spilled, splashed or spattered.
- .2 During the progress of the work, keep the premises free from any unnecessary accumulation of tools, equipment, surplus materials and debris.
- .3 At the conclusion of the work leave the premises neat and clean.

3.8 Inspection

- .1 Contractor shall use wet thickness indicators for application guide.
- .2 Provide necessary facilities and co-operate with inspector.
- .3 Painted surfaces will be checked for actual dry film thickness in accordance with Steel Structures Painting Council, Paint Application Specification No. 2 (SSPC-PA2) five-spot method.
- .4 Repaint wherever dry film thickness found inadequate.
- .5 When defects are revealed, the Departmental Representative may request additional inspection to ascertain full degrees of defect, at no cost to the Owner.
- .6 Correct defects and irregularities as advised by the Departmental Representative and subject to further inspection under similar conditions as earlier inspections, at no cost to the Owner.

3.9 Schedule of Finishes

.1 Outdoor Finishes

Surface	Protective Coating System	Minimum D.F. Thickness
Ferrous Metal	Surface Preparation: Blast Clean New Steel to SSPC-SP10 Near White Blast, Surface Profile: 1-2 mils (25 – 50 microns).	
	1 st Coat: Zinc-rich epoxy primer, CAN/CGSB-1.181 Acceptable Products: - PPG Amercoat 68HS - Devoe Catha-Coat 303H - International Interzinc 52 - CarbolineCarbozinc 859	2.5 mils
	2 nd Coat: High-build epoxy, CAN/CGSB-1.153-M Acceptable Products: - PPG Amercoat 385 - Devoe Bar Rust 236 - International Interseal 670HS - CarbolineCarboguard 890	6-8 mils
	3 rd Coat: Low V.O.C. polyurethane, CAN/CGSB-1.177-M Acceptable Products: - PPG Amercoat 450 H.S. - DevoeDevthane 379 - International Interthane 990 H.S. - CarbolineCarbothane 134 HG	2-3 mils
Galvanized Metal	Surface Preparation: Clean to SSPC-SP1 Solvent Wash, as per Manufacturer's instructions. Welds must be neutralized.	
	1 st Coat: Vinyl etch primer, CAN/CGSB-1.121 Acceptable Products: - General Paint 39103/104 Metaprime - Glidden 27301/302 VinylWash Primer - International InterprimeVTA528/529 - CarbolineCarbocrylic 120 @ 1.0 – 2.0 mils DFT	0.3 - 0.5 mils
	2 nd Coat: High-build epoxy, CAN/CGSB-1.153-M Acceptable Products: - PPG Amercoat 385 - Devoe Bar Rust 236 - International Interseal 670HS - CarbolineCarboguard 890	5-6 mils

Surface	Protective Coating System	Minimum D.F. Thickness
	3 rd Coat: Low V.O.C. polyurethane, CAN/CGSB-1.177-M Acceptable Products: - PPG Amercoat 450 H.S. - DevcoDevthane 369 - International Interthane 990 H.S. - CarbolineCarbothane 134 HG	2-3 mils
Wood Painted	1 st Coat: Acrylic bonding primer, CAN/CGSB-1.203 Acceptable Products: - General Paint 70-002 - Glidden 95310 - Porter Pittsburgh 515 Series 2 nd Coat: Acrylic exterior paint, CAN/CGSB-1.138 Acceptable Products: - General Paint 70 - line - Glidden 94300 Series - Porter Pittsburgh 519 Series 3 rd Coat: Acrylic exterior paint, CAN/CGSB-1.138 Acceptable Products: - General Paint 70 - line - Glidden 94300 Series - Porter Pittsburgh 519 Series	
Buried Steel Piping	Refer to Section 11010	

.2 Indoor Finishes

Surface	Protective Coating System	Minimum D.F. Thickness
Stainless Steel (non-submerged)	<p>Surface Preparation: SP1 solvent clean. Surface Profile: As per SSPC-SP-16 for Stainless Steel With a 1.5-3 mils Angular Surface Profile.</p> <p>1st Coat: High Solids Epoxy Coating, Acceptable products: <ul style="list-style-type: none"> - PPG Amerlock 2/400 - Devoe Devran 201H Primer </p> <p>2nd Coat: High Solids Epoxy Coating, Acceptable products: <ul style="list-style-type: none"> - PPG Amerlock 2/400 - Devoe Bar Rust 235 </p>	<p>2-3 mils</p> <p>4-6 mils</p>
Ferrous Metal (non-submerged)	<p>Surface Preparation: Blast Clean New Steel to SSPC-SP10 Near White Blast. Surface Profile: 1-2 mils (25-50 microns).</p> <p>1st Coat: Zinc-rich epoxy primer, CAN/CGSB-1.181 Acceptable products: <ul style="list-style-type: none"> - PPG Amercoat 68HS - Devoe Catha-Coat 303H - International Interzinc 52 - Carboline Carboguard 890 </p> <p>2nd Coat: High-build epoxy, CAN/CGSB-1.153-M Acceptable products: <ul style="list-style-type: none"> - PPG Amercoat 385 or 370 - Devoe Bar Rust 236 - International Interseal 670HS - Carboline Carboguard 890 </p>	<p>2.5 mils</p> <p>6-8 mils</p>
Ferrous Metal (submerged)	<p>Surface Preparation: Blast clean new steel to SSPC-SP10. Near White Blast. Surface profile: 2 mils (50 microns)</p> <p>Finish: High Solids Epoxy, ANSI/NSF 61. Acceptable products: <ul style="list-style-type: none"> - International Interline 925 - Devoe Devran 133 or Bar-Rust 233H - PPG Amercoat 395 (2 coats at 5-6 mils each) - </p> <p>Note: Factory manufactured components shall be blast cleaned as specified and primed before shipping. Acceptable products: <ul style="list-style-type: none"> - International Intergard EGA088/EGA089 at 2 mils DFT - Devoe Bar-Rust 233H at 3 mils DFT - PPG Amercoat 395FD at 3 mils DFT </p>	<p>10-12 mils DFT</p>
Galvanized Metal (non-submerged)	Surface Preparation: Clean to SSPC-SP1 Solvent Wash as per Manufacturer's instructions. Welds must be neutralized.	

Surface	Protective Coating System	Minimum D.F. Thickness
	<p>1st Coat: Vinyl etch primer, CAN/CGSB-1.121 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 39103/104 Metaprime - Glidden 27301/302 VinylWash Primer - International Interprime VTA528/529 - Carboline Carbocrylic 120 @ 1.0 – 2.0 mils DFT <p>2nd Coat: High-build epoxy, CAN/CGSB-1.153-M Acceptable products:</p> <ul style="list-style-type: none"> - PPG Amercoat 385 or 370 - Devoe Bar Rust 236 - International Interseal 670HS - Carboline Carboguard 890 	<p>0.3-0.5 mils</p> <p>5-6 mils</p>
Wood Painted	<p>1st Coat: Enamel undercoat or Waterborne epoxy (thinned) as per manufacturer's recommendations.</p> <p>2nd Coat: Waterborne epoxy (semi-gloss finish) Acceptable products:</p> <ul style="list-style-type: none"> - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735 <p>3rd Coat: Waterborne epoxy (semi-gloss finish) Acceptable products:</p> <ul style="list-style-type: none"> - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735 	<p>1.5 mils</p> <p>2 - 3 mils</p> <p>2 - 3 mils</p>
Gypsum Board	<p>1st Coat: Vinyl acrylic sealer, CAN/CGSB-1.119 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 51-087 Superseal - Glidden 36600 Ultra - Porter Pittsburgh 426 <p>2nd Coat: Waterborne epoxy Acceptable products:</p> <ul style="list-style-type: none"> - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735 <p>3rd Coat: Waterborne epoxy Acceptable products:</p> <ul style="list-style-type: none"> - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735 	<p>1.2 mils</p> <p>2 - 3 mils</p> <p>2 - 3 mils</p>

Surface	Protective Coating System	Minimum D.F. Thickness
Concrete Floors, Curbs and Housekeeping Pads	<p>1st Coat: Two Component Multi-Purpose Epoxy (thinned 10 - 15%) Acceptable products: - PPG Amercoat 240 - Sikafloor 261</p> <p>2nd Coat: Two Component Multi-Purpose Epoxy Acceptable products: - PPG Amercoat 240 - Sikafloor 261</p> <p>3rd Coat: Two Component Multi-Purpose Epoxy Acceptable products: - PPG Amercoat 240 - Sikafloor 261</p> <p>-----</p> <p>Or</p> <p>1st Coat: Two Component, 100% solids, epoxy coating Stonekote GS4</p> <p>2nd Coat: Two Component, 100% solids, epoxy coating Stonekote GS4</p>	<p>Completely fill surface</p> <p>3 mils</p> <p>3 mils</p> <p>-----</p> <p>4 mils</p> <p>4 mils</p>
Concrete Block	<p>1st Coat: Latex block filler, CAN/CGSB-1.188 Acceptable products: - General paint 70-224 Shur-fill - Glidden 36250 Ultra - Porter International 9203 Quik-Fil</p> <p>2nd Coat: Waterborne epoxy Acceptable products: - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735</p> <p>3rd Coat: Waterborne epoxy Acceptable products: - PPG Aquapon WB - Devoe Tru-Glaze-WB 4408 - International Intergard 735</p>	<p>Completely fill surface</p> <p>2 - 3 mils</p> <p>2 - 3 mils</p>
Copper Piping	<p>Surface Preparation: Degrease and sand.</p> <p>1st Coat: Clear Lacquer</p>	
Metal Conduit	Surface Preparation: Solvent wash to remove oils or grease. Acid etch with phosphoric acid and water (mixed 1:3). Keep surface wet for 2-3 minutes.	

Surface	Protective Coating System	Minimum D.F. Thickness
	<p>1st Coat: Anti-corrosive primer, CAN/CGSB-1.81-M Acceptable products:</p> <ul style="list-style-type: none"> - General paint 06-160 Q.D. - Glidden 5205 Series - Porter Pittsburgh 296 <p>2nd Coat: Alkyd enamel, CAN/CGSB-1.61 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 10-Line Marine Enamel - Glidden 4550 Glid-Guard Gloss Enamel - International Interlac 820 <p>3rd Coat: Alkyd enamel, CAN/CGSB-1.61 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 10-Line Marine Enamel - Glidden 4550 Glid-Guard Gloss Enamel - International Interlac 820 	<p>1.5 mils</p> <p>2 mils</p> <p>2 mils</p>
Canvas and Porous Surfaces	<p>Surface Preparation: Remove dirt and contaminates from surface.</p> <p>Sizing: Wallpaper Precoat</p> <p>1st Coat: Latex primer sealer, CAN/CGSB-1.119 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 51-087 Superseal - Glidden 94280 - Porter Pittsburgh 767 <p>2nd Coat: Alkyd enamel, CAN/CGSB-1.61 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 10-Line Marine Enamel - Glidden 4550 Glid-Guard Gloss Enamel - International Interlac 820 <p>3rd Coat: Alkyd enamel, CAN/CGSB-1.61 Acceptable products:</p> <ul style="list-style-type: none"> - General Paint 10-Line Marine Enamel - Glidden 4550 Glid-Guard Gloss Enamel - International Interlac 820 	<p>1.5 mils</p> <p>2 mils</p> <p>2 mils</p>
Factory Finished Equipment	<p>Surface Preparation: Clean to SSPC-SP1 Solvent Wash</p> <p>1st Coat: High-build epoxy, CAN/CGSB-1.153-M Acceptable products:</p> <ul style="list-style-type: none"> - PPG Amercoat 370 - Devoe Bar Rust 236 - International Interseal 670HS - CarbolineCarboguard 890 	<p>6 mils</p>

END OF SECTION