



5110 - 1 DESCRIPTION

1.01 The work shall consist of the preparation of the structural steel surfaces, the application, protection and drying of the paint coatings in accordance with this specification, and the supplying of all tools, tackles, scaffolding, labour and materials necessary for the entire work.

1.02 The steel surfaces that are designated on the plans to be painted will receive one shop coat of primer prior to shipment, except that splices and connections will be left unpainted. The Contractor shall complete the painting of these areas.

1.03 The work shall include the cleaning of bare steel and painted surfaces after the superstructure concrete has been placed.

5110 - 2 MATERIALS

2.01 The Contractor shall supply all paint thinners, solvents and abrasives.

2.02 The Department will supply the paint f.o.b. the bridge site. The paint system and thickness requirements will be identified in the Special Provisions.

5110 - 3 CONSTRUCTION

Scaffolding and Work Platforms

3.01 The safety of the scaffolding, staging and work platforms shall be the responsibility of the Contractor. All requirements of the Occupational Health and Safety Act and the Workers' Compensation Board shall be met.

3.02 The Contractor shall have sufficient scaffolding, staging and work platforms to permit assessment of the cleaned and painted areas by the Department inspector while work is progressing on other spans.

3.03 Scaffolding, staging and work platforms shall not be suspended from the structural steel.

Protection of Concrete and Other Surfaces

3.04 The Contractor shall take necessary precautions against damaging or disfiguring any portion of the structure. Masking, covering or other suitable means shall be used to protect the piers, abutments, concrete slope protection and other portions of the structure from being painted, from damage due to the cleaning operations or paint overspray, or from paint spillage. Overspray onto the underside of the concrete deck shall not extend more than 50 mm from the edge of the steel girders.

Protection of Workers

3.05 The Contractor shall be responsible for the supply and use of appropriate safety equipment for all his workers employed on site.

Protection of Property of Others

3.06 The Contractor shall take whatever steps are necessary to protect the property of others and the environment from damage caused by the cleaning and painting operations. This may include rescheduling these operations to periods of light traffic volumes and/or light wind, the use of protection devices such as tarps or spray sheets, or whatever other arrangements may be necessary.

Surface Preparation

- 3.07 Areas where oil or grease are present shall be cleaned in accordance with the requirements of Steel Structures Painting Council Surface Preparation Specification No. 1 (SSPC-SP1) Solvent Cleaning. The type of solvent used shall first be approved by the Engineer.
- 3.08 Areas covered by wet concrete may be cleaned by washing with water.
- 3.09 Unpainted steel surfaces stained by dry concrete, and steel surfaces to be painted, shall be cleaned in accordance with the requirements of Steel Structures Painting Council Surface Preparation Specification No. 7 (SSPC-SP7) Brush-off Blast Cleaning.
- 3.10 Concrete splash and staining on painted surfaces shall be cleaned in accordance with the requirements of Steel Structures Painting Council Surface Preparation Specification No. 2 (SSPC-SP2), Hand Tool Cleaning and Surface Preparation Specification No. 3 (SSPC-SP3), Power Tool Cleaning.
- 3.11 All steel surfaces which may have been subjected to salt spray during transport shall be pressure washed using a minimum pressure of 20 MPa prior to any abrasive blast cleaning.
- 3.12 Clean water, or compressed air from which oil and water have been removed, shall be used to remove dust and blasting abrasive from the cleaned bare steel or painted surfaces. Where necessary, the surface shall also be wiped with dry cloths.
- 3.13 The abrasive used for blast cleaning shall be clean and dry, with a grading and hardness suitable to produce an acceptable anchor pattern.
- 3.14 Blast cleaned surfaces shall be painted as soon as possible following completion of the cleaning operations. If unusual circumstances occur which prevent all repaired surfaces from being primed the same day, or if significant rusting forms, a light sandblast will be required over all unprimed surfaces prior to recommencement of priming.

Application of Paint

- 3.15 Paint shall not be exposed to the air until it is required for immediate use. Any paint which has become oxidized, thickened, ropy, lumpy or dirty shall be discarded.
- 3.16 Paint shall be applied by brush, roller or spray, or a combination of these methods. On all surfaces which are inaccessible for brushes or rollers, and where spraying is not being employed, the paint shall be applied with sheepskin daubers specially constructed for the purpose.
- 3.17 Spray equipment shall be of ample capacity for the work and shall at all times be kept clean and in good working order. Spray guns shall be suited to the kind of paint being used, and shall be operated with orifices, nozzles and pressure suited to the kind of paint and its consistency. Air lines shall be equipped with water traps to positively remove condensed moisture.
- 3.18 Brushes shall be in good condition, with uniform hair length and free of loose hairs. Brushes shall generally be moved in a series of part circles to thoroughly fill all irregularities after which the coating shall be smoothed by a series of parallel strokes. All areas showing excessive brush marks will be rejected.
- 3.19 For each application of field paint, all bolts, nuts and washers, and all edges of plates and rolled shapes shall be pre-painted. This pre-paint shall be allowed to dry completely if general painting of the entire surface, including the pre-painted areas, cannot be done before the pre-paint begins to dry.
- 3.20 All coats of paint shall be allowed to dry thoroughly prior to application of subsequent coats. In general, at least 24 hours of favourable drying weather will be required before a mid-coat may be applied over the primer, or before the finish coat may be applied over the primer or mid-coat.
- 3.21 "Dry overspray" shall be removed prior to application of the next coat of paint.
- 3.22 Blast cleaning shall be conducted and scheduled to avoid contamination of wet painted surfaces.

3.23 The Contractor shall measure the wet film thickness at sufficient locations to substantiate that proper technique is being used to apply the paint, and to confirm that paint thickness will meet these specifications without resulting in runs or sags.

3.24 Thinners shall not be used unless prior approval of the Engineer has been obtained. When approved, only thinners meeting the requirements of the paint manufacturer and added in accordance with the manufacturer's directions shall be used.

Quality of Work

3.25 The Department will provide an inspector to examine and approve the cleaning and painting work. The dry film paint thickness will be measured by an Elcometer 246 Electronic Thickness Gauge, or equivalent.

3.26 The Contractor shall provide and move scaffolding, staging or work platforms as required to facilitate inspection of the work.

3.27 Painted surfaces will be considered to lack uniformity, continuity and soundness if any of the following defects are apparent to the Engineer:

- (a) Runs, sags, holidays or shadowing caused by inefficient application methods.
- (b) Evidence of poor coverage at bolts or rivets, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
- (c) Surfaces which have been bashed, scraped, spotted by rain or otherwise damaged.
- (d) "Orange peel" texture.
- (e) Surfaces damaged by overspray.

3.28 Defects shall be repaired by the Contractor to the satisfaction of the Engineer. Where necessary, repairs may include paint removal, recleaning the steel and repainting. All repair work shall be the responsibility of the Contractor.

Weather Conditions

3.29 Paint shall not be applied when air temperature or the steel temperature are below 10°C, nor when the steel has absorbed sufficient heat (above 50°C) to cause the paint to blister or produce a porous paint film, nor when it is possible the air temperature may drop below 2°C before the paint is dry. No painting shall be done when relative humidity meets or exceeds 85% or when the substrate temperature is within 3°C of the dew point.

3.30 Paint shall not be applied to damp surfaces, nor when the air is misty, windy or otherwise unsatisfactory for the work.

5110 - 4 MEASUREMENT

5110 - 5 PAYMENT

5.01 Payment for FIELD SURFACE PREPARATION AND PAINTING OF STRUCTURAL STEEL will be included in the contract lump sum price for STRUCTURAL STEEL ERECTION (Specification 5100).