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MODEL CLAUSES FOR CIVIL ENGINEERING WORKS

SECTION 173 PROTECTIVE COATING OF EXISTING STRUCTURAL STEELWORK AND IRONWORK

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SECTION 173

PROTECTIVE COATING OF EXISTING STRUCTURAL STEELWORK AND IRONWORK

Coating works **173.001** The protective coating system(s), coatings, sealants etc., shall be in accordance with Appendix 173/1.

Areas to receive partial protective coating systems shall be as specified on the Contract Drawings.

Preparation of surfaces generally **173.002** The preparation of the surfaces of existing structural steelwork and ironwork shall be in accordance with Appendix 173/1 and with the relevant Clauses of this Section of Model Clauses.

Blast cleaning **173.003** Prior to blast cleaning, heavy corrosion products shall be removed and thick deposits of oil, grease and other contaminants shall be scraped off from the areas to be coated. The surfaces shall then be washed down with fresh water and, where required, an emulsifiable degreaser to remove dirt and surface contamination using a water pressure of about 2000 to 4000 psi (140 to 280 bars).

The minimum surface standard shall be either;

- i) Sa2½ to BS EN ISO 8501-1, or
- ii) where a thermally sprayed metal coating is to be applied, Sa3 to BS EN ISO 8501-1.

Unless otherwise agreed with the Employer's Representative, containment shall be provided to on-site works so that spent grit, other debris and any overspray from the coating works does not contaminate the ground, adjacent buildings or water, or affect personnel or vehicles outside the work boundary.

Unless otherwise agreed with the Employer's Representative, non-metallic grit abrasives shall be used unless local blast cleaning by vacuum-blasting is employed.

Except where flash blasting cleaning is used and unless otherwise agreed with the Employer's Representative, only grit abrasives complying with the requirements of BS EN ISO 8504-2 shall be used. The abrasive shall be capable of providing a sharp, angular blast profile of 70 to 100 microns amplitude (that is, a mean peak to valley height (R_{tm}) of 70 to 100 microns).

Flash blast cleaning shall be undertaken using a fine expendable abrasive, such as furnace slag or mineral abrasives, and a pressure no greater than 2.7 bars (40 psi) to give a surface profile of 20 to 30 microns.

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Following blast cleaning, residual dust and debris shall be removed from blast cleaned areas using a soft dusting brush, or a vacuum cleaner, or clean dry compressed air or a combination of these. The level of residual dust shall be assessed in accordance with BS EN ISO 8502-3, residual dust levels shall not be worse than Class 1.

Arrangements for leaving in place any tightly adhering scale that is exposed following the blast cleaning of existing coatings, shall be agreed with the Employer's Representative.

Ultra High Pressure (UHP) water blasting

173.004 The Employer's Representative shall agree the quality of the fresh water to be used for UHP water blasting.

All deteriorated existing coatings and corrosion products shall be removed by the use of UHP water blasting at pressures of between 36,000 and 40,000 psi (about 2,700 bars) and with a water flow of between 12 and 20 litres per minute. This shall be by use of a hand held safety lance with a rotary head, or UHP blasting equipment fitted with a vacuum shroud. Hand held safety lances shall be used on complicated structures which have little flat surface area. Care shall be taken not to damage sound coatings on surfaces adjacent to the area being treated by UHP water blasting.

The Employer's Representative shall determine if the level of light flash rusting is acceptable and tightly adherent (that is, not easily removed by wiping with a cloth). The level of flash rusting will be compared with the pictorial reference in BS EN ISO 8501-4 and agreement reached following consultation with the Contractor. Unless otherwise agreed with the Employer's representative, flash rusting shall be removed by dry flash blasting.

Unless otherwise agreed with the Employer's representative, where no blast profile is present following UHP water blasting, the surfaces to be coated shall be blast cleaned.

During and following UHP operations, residual water shall be removed from all areas; water that does not drain naturally shall be physically removed by suction, mopping or similar means. Water discharged into the foul water sewer or surface water drainage shall be of a quality acceptable to the Environment Agency or local Water Authority as appropriate. This might involve filtering out solids and possibly holding filtered water in tanks until the results of water quality testing are available and consent obtained for discharging the water.

When UHP is the only preparation method used, the edges of sound coating adjacent to the prepared steel area shall be thoroughly abraded for a minimum width of 50 mm and the edges feathered or tapered to provide a smooth transition from the new coating to the existing sound coating.