ITEM 03573.97 M - PRESSURE WASHING AND ABRASIVE BLAST CLEANING

DESCRIPTION

This work shall consist of pressure washing, abrasive blast cleaning to remove all paint, rust, millscale, and other corrosion producing contaminants where indicated by the Contract Documents.

MATERIALS

1. **Water for Washing**. Water for pressure washing shall be clean, fresh water. Cleaners, detergents, or other additives will not be allowed. Salt water will not be allowed.

2. **Abrasive for Blast Cleaning.** Abrasive material for blast cleaning may be selected by the contractor. All abrasive shall be free of lead and corrosion producing contaminants. The abrasive selected for use shall be designed to leave a profile of approximately 40 *u*m to 65 *u*m in a dense, uniform pattern of depressions and ridges. Silica sand and other types of non-metallic abrasive containing more than 1.0% crystalline (free) silica, by weight, will not be allowed.

3. **Basis of Acceptance.** Water for washing and abrasive material for blast cleaning shall be approved by the Engineer.

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CONSTRUCTION DETAILS

All structural steel members, railings, downspouts, and other miscellaneous steel items as indicated by the Contract Documents shall be cleaned of all paint, rust, millscale, and corrosion producing products.

1. **Surface Preparation.** Steel surfaces shall be cleaned by a combination of pressure washing and abrasive blast cleaning.

   Pressure washing to remove dirt and debris shall be performed first. Abrasive blast cleaning to remove all paint, rust, and millscale shall be performed second.

   a. Pressure Washing. All steel surfaces to be painted shall first be pressure washed, using equipment operating at a minimum pressure of 21.5 MPa, and with a minimum flow of 9.5 L/minute. The pressure washer shall be operated at a distance of 150 mm to 300 mm from the steel surface. Water may be heated. After washing, the surface shall be allowed to dry before subsequent abrasive blast cleaning work is done.

      Pressure washing shall be performed to remove dirt, dust, animal waste, and water soluble contaminants. Clean, fresh water shall be used with sufficient pressure to remove surface contaminants and loose material. Hand scraping and hand scrubbing with a stiff bristled brush will be required as necessary to remove debris. When necessary, oil and grease shall be removed by hand-wiping, using solvents.

      After pressure washing, the cleaned surfaces shall be visually free of dust, dirt, oil and grease, animal waste, salts, and other debris.

Pressure washing will only be allowed when ambient air temperatures are greater than 4.5C and rising.

All solid residue shall be contained, collected, and allowed to air dry for treatment and disposal as hazardous paint removal waste under Item 571.01 M, as directed by the Engineer. The containment provided shall also prevent all spray and residue from falling on or interfering with trafffic, pedestrians, or surrounding property, near the site where the work is performed.

To minimize contamination of the washed surfaces, subsequent cleaning work shall be performed within 14 calendar days of the completion of washing work. If more than 14 days pass by or if the steel surfaces become dirty, they shall be rewashed in accordance with this specification, at no additional cost.

b. Commercial Blast Cleaning

All surfaces shall have all paint, rust and rust scale, mill scale, and other corrosion producing contaminants removed by abrasive blast cleaning to bare metal in accordance with SSPC-SP6, No. 6, Commercial Blast Cleaning.

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All equipment and compressors used in the cleaning operation shall be equipped with all necessary filters and traps to prevent moisture, oil, and other contaminants from being deposited on clean surfaces.

If recyclable abrasive are used they shall be cleaned of all paint, chips, rust, millscale and other foreign material after each use, and prior to reuse. All equipment used for cleaning abrasive shall be specifically designed for this purpose, and approved by the Engineer.

Special attention shall be given to the edges of beam and channel flanges, angles and plates, rivets, the heads of nuts and bolts, and similar surfaces that are marginally accessible and difficult to clean. These surfaces are often difficult to access, and are labor intensive and hard to clean. To remove heavy deposits of rust and scale, hand pounding using a hammer, or power tool cleaning using a needle gun or de-scaler may be necessary before abrasive blast cleaning work begins.

All fin, tears, slivers, burred and sharp edges that are present or occur during the blasting operation shall be removed by grinding, and then the area shall be reblasted to provide the required 40 *u*m to 65 *u*m deep anchor profile.

After cleaning operations are completed, all residue generated by the cleaning work shall be removed by vacuuming using HEPA filtered vacuums. A HEPA filter shall be defined as a filter that is at least 99.97% efficient for particles that are 0.3 *u*m in diameter, or larger.

Corroded and deteriorated surfaces that have been cleaned to to bare metal by abrasive blast cleaning shall be accepted by visual comparison to a project prepared standard(s) for each structure. The contractor shall prepare a project standard by abrasive blast cleaning a

representative area on the structure that is being prepared for painting. The prepared standard shall generally conform to SSPC VIS 1-89, "Visual Standard For Abrasive Blast Cleaned Steel," Pictorial Standard B SP6, C SP 6, and D SP 6, as applicable, and shall be approved by the Engineer before the start of general cleaning work. At least one standard shall be prepared for each structure that is being specified for cleaning. More than one

standard may be necessary if the cleaned steel differs significantly from the photographic standards due to surface conditions or other factors. Each standard shall be at least 300 mm x 300 mm in size, and shall be located in an area of the structure that is accessible to, and approved by the Engineer. The contractor shall protect the work standard from corrosion and contamination throughout the duration of work by applying a clear coat of polyurethane. At the completion of cleaning work the project standard shall be recleaned and painted in accordance with this specification. If in the opinion of the Engineer the project standard becomes deteriorated, or otherwise ineffective, it shall be re-established in accordance with this specification at no additional cost.

c. Specifications and Inspection Equipment. Prior to the start of and throughout the duration of work the contractor shall supply the Engineer with the following specifications and equipment.. *No work shall begin until these materials have been delivered to, and accepted by the Engineer*.

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EI 05-039

1. One bound copy of the Steel Paint Council Surface Preparation Specification, SSPC-SP 6, - Commercial Blast Cleaning.

2. One bound each of the Steel Structures Painting Council pictorial standards, SSPC-VIS 1-89, Visual Standard For Abrasive Blast Cleaned Steel.

METHOD OF MEASUREMENT

Payment shall be made by the lump sum price bid.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete the work. The cost of providing protection against damage during pressure washing and abrasive blast cleaning shall be included in the bid price. Payment for the disposal of dust and paint waste generated by surface preparation work will be paid for under other items, however, payment for the accumulation of paint removal waste for deposition in the paint removal containers shall be included in this item. Progress payments will be made based on the percentage of the structure cleaned in accordance with this specification.