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**CONSTRUCTION SPECIFICATION FOR
ABRASIVE BLAST CLEANING - CONCRETE CONSTRUCTION**

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929.01 SCOPE

This specification covers the requirements for abrasive blast cleaning of concrete surfaces and reinforcing steel.

929.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

ASTM International

D 4285-83 (R2006) Standard Test Method for Indicating Oil or Water in Compressed Air

The Society for Protective Coatings (SSPC)

VIS 1-2002 Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning

Joint Publications of the Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE)

SSPC-SP 6/NACE No. 3-2007 Commercial Blast Cleaning

929.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Abrasive means a solid substance capable of grinding or wearing down.

Fiber Reinforced Polymer (FRP) Reinforcement means a structural reinforcing bar made from glass fibers or carbon fibers held in a polymeric resin matrix binder. FRP includes dowels, reinforcing bars and grids.

Layer, Reinforcing Steel means two or more reinforcing bars placed in a plane parallel to a concrete face.

Mat, Reinforcing Steel means transverse and longitudinal layers of reinforcing steel tied together.

Structure means any bridge, culvert, tunnel, retaining wall, wharf, dock, guideway or any part thereof, or other reinforced concrete component designed to carry loads, including high mast pole footings and sign support footings.

929.06 EQUIPMENT

929.06.01 Air Compressor

The air compressor for abrasive blast cleaning shall be capable of delivering material at a pressure of 620 kPa. The air pressure shall be measured in the delivery system at a distance not greater than 3 m from the nozzle end.

The compressed air shall be clean, dry, and free of oil residue when tested according to ASTM D 4285.

Nozzles used for abrasive blast cleaning shall have a minimum diameter of 8 mm and the size shall be indicated on the nozzle.

Hoses used for abrasive blast cleaning shall have an internal diameter not less than 40 mm.

929.07 CONSTRUCTION

929.07.01 General

Abrasive blast cleaning shall only be permitted when the concrete and reinforcing steel are surface dry.

Areas and components not designated for abrasive blast cleaning shall be protected from adjacent abrasive blast cleaning operations.

All new epoxy coated reinforcing steel and any FRP reinforcement in the vicinity of the abrasive blast cleaning operations shall be protected from damage.

Adequate access to the work area shall be provided to facilitate the work and for any inspection or measurement required by the Contract Administrator.

929.07.02 Abrasive Blast Cleaning of Reinforcing Steel

Abrasive blast cleaning of existing reinforcing steel applies to both epoxy coated and uncoated reinforcing steel.

All existing epoxy coated reinforcing steel within a concrete removal area shall be abrasive blast cleaned to remove the epoxy coating. Reinstatement of the epoxy coating on the existing reinforcing steel is not required.

The full circumference of the existing exposed reinforcing steel shall be abrasive blast cleaned to a commercial blast cleaned finish according to SSPC-SP 6/NACE No. 3, and the blast cleaned steel surfaces shall be according to the applicable visual standards specified in SSPC-VIS 1.

When silica sand is used as the abrasive material, the subsequent placement of concrete or shotcrete shall be done within 72 hours or the reinforcing steel shall be reblasted. When other types of abrasive materials are used, the subsequent placement of concrete or shotcrete shall be done within 36 hours or the reinforcing steel shall be reblasted.

929.07.03 Abrasive Blast Cleaning of Structural Steel in Contact with Concrete

All surfaces of existing structural steel against which new concrete is to be placed for the rehabilitation of a concrete structure component shall be abrasive blast cleaned to a commercial blast cleaned finish according to SSPC-SP6/NACE No. 3, and the blast cleaned steel surfaces shall be according to the applicable visual standards specified in SSPC-VIS 1.

The abrasive blast cleaning of structural steel shall be done immediately prior to placing coated reinforcing steel or FRP reinforcement.

Enclosure shall be provided during abrasive blast cleaning of structural steel to prevent escape of dust from the immediate work area into the natural environment, live traffic, waterways, and beyond the right-of-way.

929.07.04 Abrasive Blast Cleaning of Concrete Surfaces

929.07.04.01 General

All new and existing concrete surfaces against which new concrete is to be placed shall be abrasive blast cleaned.

The abrasive blast cleaning shall be of an extent to expose and clean the coarse aggregate and remove all dirt, laitance, and hardened concrete slurry. Any oil or grease on the surface of the concrete shall be removed using hand tools.

The abrasive blast cleaning of concrete surfaces shall be carried out not more than 48 hours prior to the placement of concrete against them.

Immediately after abrasive blast cleaning is completed, the surface shall be checked by the Contract Administrator for fractured concrete or loose aggregate. This material shall be removed using hand tools.

929.07.04.02 Concrete Surfaces for Overlays

Abrasive blast cleaning shall proceed by delineating an area of the deck not exceeding 10 m² and completing abrasive blast cleaning within the delineated area prior to proceeding to the adjacent areas of the deck surface.

When the concrete overlay is to be placed over cathodic protection anode mesh, the abrasive blast cleaning shall be completed prior to installing the mesh in that area.

Except when anode mesh is used, areas of concrete that are abrasive blast cleaned for the subsequent treatment of concrete overlay, shall have the overlay applied within 36 hours or shall be reblasted.

929.07.05 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

929.08 QUALITY ASSURANCE

928.08.01 General

After abrasive blast cleaning is completed, the abrasive blast cleaned concrete surfaces, reinforcing steel, and structural steel shall be examined by the Contract Administrator to verify that the requirements of this specification have been met.

929.09 MEASUREMENT FOR PAYMENT

929.09.01 Actual Measurement

929.09.01.01 Abrasive Blast Cleaning of Reinforcing Steel

Measurement for payment shall be of the area of concrete removed in square metres where reinforcing steel bars are exposed. When the removal exposes more than one mat of reinforcing steel, the measured area shall be for each mat of exposed bars that are to remain in place. There shall be no measurement for abrasive blast cleaning of reinforcing steel in volume of concrete that was not designated for concrete removal by the Contract Administrator.

When only one reinforcing steel bar is exposed in the area of concrete removal, the area shall be calculated based on the width of 200 mm by the length of the exposed reinforcing steel bar.

The total area shall be calculated to the nearest 0.1 m².

929.09.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

929.10 BASIS OF PAYMENT

- 929.10.01 Abrasive Blast Cleaning for Overlays - Item**
- Abrasive Blast Cleaning of Reinforcing Steel - Item**
- Abrasive Blast Cleaning of Structural Steel in Contact with Concrete - Item**

Payment at the Contract price for the above tender items shall be full compensation for all labour,

Equipment, and Material to do the Work.

Abrasive blast cleaning of reinforcing steel applies to abrasive blast cleaning of existing reinforcing steel that is either epoxy coated or uncoated reinforcing steel.

When the Contract does not contain a separate tender item for providing access to the work, the Contract price for the abrasive blast cleaning items requiring the access shall include full compensation for all labour, Equipment, and Material to provide such access.