

ITEM 10599.2203 M – BASCULE SPAN MACHINERY ACCESS

DESCRIPTION

This work shall consist of furnishing and installing all platforms, railings, ladders, platform hatches, and roadway hatches for access to machinery on the bascule leaves and piers as shown on the Contract Plans including all hardware and connections required for complete installation. This work shall include furnishing all labor, materials and equipment necessary to satisfactorily complete the work in accordance with the Contract Plans and Specifications.

MATERIALS

General

The Contractor shall submit shop drawings of all fabricated items in accordance with the New York State Steel Construction Manual. All connection materials shall be as shown on the Contract Plans. Unless noted otherwise, all bolts, nuts and washers shall be galvanized in accordance with Section 719-01 (Type II) of the Standard Specifications and ASTM A153M.

All welding and fabrication shall be in accordance with the New York State Steel Construction Manual.

Composite Deck Access Platforms

Materials for composite deck access platforms shall be galvanized (unless otherwise noted) and meet the requirements specified in the following sections of the Standard Specifications and ASTM Specifications except as modified by the Contract Documents:

Lightweight Concrete Fill	Section 501-2; Section 703-10
Epoxy Coated Welded Plain Wire Fabric	ASTM A884M
Steel Deck	ASTM A653M
Galvanized Coatings and Repair Methods	Section 719-01
Fasteners	ASTM A325M

Open Grating Access Platforms

Materials for open grating access platforms shall be galvanized and meet the requirements specified in the following sections of the Standard Specifications and ASTM Specifications except as modified by the Contract Documents:

Grating	Section 596-2.01
Galvanized Coatings and Repair Methods	Section 719-01
Fasteners	ASTM A325M

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Railings

Materials for all railings shall be galvanized and meet the requirements specified in the following sections of the Standard Specifications and ASTM Specifications except as modified by the Contract Documents:

Galvanized Coatings and Repair Methods	Section 719-01
Posts and Rails	ASTM A53M, Schedule 40
Base Plates	ASTM A36M
Fasteners	ASTM A325M

Ladders

Materials for all ladders shall be galvanized and meet the requirements specified in the following sections of the Standard Specifications and ASTM Specifications except as modified by the Contract Documents.

Galvanized Coatings and Repair Methods	Section 719-01
Bars and rungs	ASTM A36M

Rungs shall be solid steel with anti slip, bonded abrasive surface. Anti-slip surface shall consist of a random hatch matrix with a surface hardness of at least 55 on the Rockwell "C" scale and a bond strength of at least 4000 psi. The anti-slip surface shall have a minimum coefficient of friction of 0.6 and be listed as slip resistant by Underwriters Laboratories.

Platform Hatches

Materials for all platform hatches, including all hardware, shall be stainless steel type 316 and meet the requirements specified in the following sections of the Standard Specifications and ASTM Specifications except as modified by the Contract Documents.

Stainless-Steel Sheet, Strip, Plate and Flat Bars	ASTM A666M, Type 316; with minimum sheet thickness indicated representing specified thickness according to ASTM A480M
Stainless-Steel Bars and Shapes	ASTM A276M, Type 316
Rolled-Stainless-Steel Floor Plate	ASTM A793M

Roadway Hatches

Castings for all roadway hatches shall be ductile iron and meet the requirements specified for ASTM A536M, grade 80-55-06.

CONSTRUCTION DETAILS

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General

Fabrication and erection shall be in accordance with the Plans, the New York State Steel Construction Manual and as directed by the Engineer. All erection shall be subject to the inspection of the Engineer who shall be given all facilities required for a visual inspection of workmanship and materials.

Composite Deck Access Platforms

Composite deck access platforms shall be manufactured from steel conforming to ASTM A653M with a minimum yield point of 230 Mpa. Floor deck shall extend over a minimum of three spans. Deflection caused by the dead load of wet concrete and deck shall not exceed $L/180$ for any span or 20 mm. Deck shall be selected to carry, by acting compositely with the concrete, a superimposed live load of 7.2 kpa without exceeding a deflection of $1/360$ of the span. Installation of the floor deck and accessories shall be in accordance with manufacturer's specifications as well as the SDI Manual of Construction with Steel Deck. Fasteners shall conform to manufacturer's specifications. Floor openings located and detailed on the structural drawings shall be cut by the contractor. Lightweight concrete shall be placed in accordance with Section 501-02 of the Standard Specification.

Open Grating Access Platforms

The requirements of Section 596-3.01 and 596-3.02 of the Standard Specifications shall be met. Open grating access platforms shall be galvanized steel grating type. Main bearing bars shall be 38 mm x 5 mm, spaced 30 mm center-to-center. Cross bars shall be resistance welded at right angles to the bearing bars and spaced 100 mm center-to-center. No notching or cutting of bars is permissible prior to welding. Access platforms shall be bolted to supporting steel as per manufacture specification.

Railings

The steel pipe hand railings shall be fabricated to the dimensions shown on the Plans and in compliance with the specifications. The rails shall be fabricated and erected so that the rails are parallel to each other and to the adjacent surface and so that the posts are truly vertical to provide a neat workmanlike appearance when completed. The rail may be prefabricated in lengths suitable for transporting to the project site. All finishes shall be applied after fabrication and installation, or as ordered by the Engineer.

All bending of rails shall be done in the shop prior to galvanizing. Bending or curving hand rail to fit alignment requirements in the field shall not be permitted. The Engineer may order some bending or curving to allow for necessary minor adjustments.

Posts and rails shall be schedule 40 pipe galvanized both inside and out in accordance with ASTM F1083. Galvanizing shall conform to the requirements of 719-01 - Galvanized Coatings and Repair Methods, Type I. All components of the railing, including anchor studs, nuts and washers shall be galvanized. The rails, posts and all hardware shall be fabricated and ready for assembly prior to galvanizing. Galvanizing damaged by field welding or any other cause shall be repaired in accordance with the requirements of 719-01 - Galvanized Coatings and Repair Methods. Any hand railing not meeting the minimum requirements of 719-01 - Galvanized Coatings and Repair Methods shall be rejected.

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Post base plates shall be perpendicular to the post, unless otherwise noted. When the railing is to be placed on a preformed surface, the base plate may be placed parallel to the grade or may be perpendicular to the post and made level by the use of beveled shims. Beveled shims may be machined from the same type of material as in the post base plates or may be cast from material conforming to the requirements of 715-02 - Steel Castings, or 715-09 - Malleable Iron Castings.

Ladders

Ladders shall be installed in accordance with the details shown in the Plans and the direction of the Engineer. Galvanizing damaged by field welding or any other cause shall be repaired in accordance with the requirements of 719-01 - Galvanized Coatings and Repair Methods.

Platform Hatches

Platform hatches shall conform to the dimensions shown in the Plans. Top of hatch shall be flush with top of access platform. Door leaf shall be 6.35 mm stainless steel diamond pattern plate with minimum 25 mm manufacturer's standard insulation. Hinges and pins shall provide adequate pivot as to prevent the cover from protruding into hatch frame. Platform hatch shall be equipped with counterbalancing springs to provided smooth and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. Door shall lock automatically in vertical position by means of a heavy-duty hold-open arm with release handle. Installation shall be in accordance with manufacturer's instructions.

Roadway Hatches

Roadway hatches shall conform to the dimensions shown in the Plans. Castings shall be heavy-duty frames with seal type design and shall be capable of carrying MS23 traffic load. Hatches shall have solid lids sealed to provide water resistance. Lids shall be bolted to frames with countersunk stainless steel hex head cap screws. Top of roadway hatch shall be flush with wearing surface and shall follow roadway profile and cross slope by the use of beveled shims. Beveled shims may be machined from the same type of material as in the hatch casting or may be cast from material conforming to the requirements of 715-02 - Steel Castings, or 715-09 - Malleable Iron Castings.

METHOD OF MEASUREMENT

This work shall be measured on a lump sum basis.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the Contract Plans and Specifications.