

ITEM 599.1114 10 M

**LIVE LOAD SHOES, CENTERING DEVICE,
BUMPER BLOCKS – SB BRIDGE**

ITEM 599.1115 10 M

**LIVE LOAD SHOES, CENTERING DEVICE,
BUMPER BLOCKS – NB BRIDGE**

DESCRIPTION

This work shall consist of replacing selected components of the Live Load Shoe assemblies, Centering Device assemblies, and Bumper Block assemblies. Components for each item to be replaced shall be as indicated in the Plans. Remove all materials as required in the Plans and replace as required in the Plans and herein. All components shall be cleaned and painted, where required.

The Contractor shall submit the adjustment procedure to be used for each of these assemblies to the Engineer for approval. Perform field measurements to verify existing conditions, fastener sizes and required shim thicknesses.

MATERIALS

A. General. The materials used to fabricate the Live Load Shoes, sole plates, bearing plates and fasteners shall be as shown on the Plans and as described in this Specification. The Contractor shall submit shop drawings for all new components of the Live Load Shoe assemblies.

B. Shims . All shims shall be new and shall be stainless steel ASTM A 666 Types 304 or 316.

C. Bolts. Where turned bolts are required, the Contractor shall provide new ASTM A449 high strength turned bolts and double ASTM A 563 alloy steel nuts to replace existing turned bolts and nuts. High strength bolts shall meet the requirements of ASTM A325.

D. Bumper Blocks. New Bumper Blocks shall be treated structural pine. Retention of treatment shall be 0.8 lbs./cu.ft. Chromated Copper Arsenate (CCA) in accordance with these Specifications. Treatment shall be by the full cell process. The salt preservative shall meet the following composition: CrO3 = 33.0% - 50.5%, CuO = 17.0% - 22.0%, As2O5 = 30.0% - 48.0%. The active ingredients in the solution shall be in proportions within the range required for the salt itself. Testing shall comply with the American Wood Preserver's Association, Standard A2. The preservative shall permeate the sapwood to a depth of 3.5 inches (88mm), or 90% of the sapwood thickness, whichever is greater. Plug all bored test holes tightly with treated plugs. The Contractor shall submit shop drawings for Bumper Block material to the Engineer for review. Shop Drawings shall include field verified dimensions and cut dimensions for Bumper Blocks and all peripheral steel shims or supports.

E. Lubrication. Where lubrication is required for ferrous machinery items that remain unpainted and make contact with other items as part of their function, such as Live Load Shoes, Centering Devices, shall be lubricated with a lubricant formulated to be a dry film lubricant. The dry lubricant shall be molybdenum disulfide based.

F. Anchors. Any replaced anchors for the Bumper Blocks or Live Load Shoe bearing plates shall be epoxy anchors, unless otherwise noted in the Plans. Epoxy anchors shall use high strength epoxy specifically formulated for use with anchors. Unless otherwise specified in the Plans, anchor material shall conform to type 316 stainless steel, shall be coarse thread all-thread material or other specifically sold as an epoxy anchor by an anchor manufacturer. Minimum embedment depth of epoxy anchors shall be 200 mm (8") unless prohibited by the configuration of the concrete or unless otherwise noted in the Plans.

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CONSTRUCTION DETAILS

A. Live Load Shoes. Shim Live Load Shoes and anchorages as required by the Engineer. In addition, all live load rockers shall be aligned such that line bearing occurs with the sole plate along the contact percentage or minimum length required in the Plans.

Where Live Load Shoe components are to be replaced, prior to any demolition and rehabilitation, measure the total thickness of the existing Live Load Shoes, shims and strike plates. Clean all surfaces being measured. Make all measurements necessary to determine the proper shim thickness at the Live Load Shoes and anchorage with leaves span heavy and with operating machinery applying a seating torque. These measurements are to be used as a guide. Remove existing assembly components, clean mounting steel, add proper shim thickness, and install new live load reaction assemblies. Proper shim thickness at the live load bearing shall be that thickness required to achieve a zero clearance between the Live Load Shoe and the live load strike plate with the span at a roadway elevation matching the piers and center span. Span tolerance at the toe shall be plus or minus 1.6 mm (1/16") from the required elevation. All surfaces except rubbing surfaces of the Live Load Shoe assemblies shall be painted as outlined in the Standard Specifications, "Structural Steel Painting Field Applied – Full Removal." Costs for painting shall be incidental to the painting of the structural steel.

Live Load Shoe alignment shall be as required in the Plans. If not shown, Live Load Shoe alignment shall create no more than 3 mm (1/8") offset across any Bascule Leaf joint with the Bascule Pier or the mating Leaf. Bumper Block alignment shall be as required in the Plans. Centering Device alignment shall be maintained.

B. Basis of Acceptance. All fabrication of Structural Steel shall follow all of the requirements of the New York State Steel Construction Manual (SCM). In addition, all shop drawings submitted shall follow all guidelines given in the SCM. No installation or rehabilitation work may take place until the shop drawings and procedures are approved by the Engineer.

C. Bumper Blocks. Bumper Blocks shall be cut such that the Bearing Plate makes even contact. The blocks shall be cut and positioned such that the gap between the Bearing Plate and the Bumper Block is uniform to the dimension required in the Plans when the leaf is in the fully raised position. Bumper Blocks shall be cut and set after the new span position limit switches and drives have been installed.

D. Demolition. Where removal or replacement is called for in the Plans or the Specifications, these components shall be removed in their entirety. Removal and disposal of such equipment shall include all shims, fasteners or other miscellaneous items that are also replaced through the work of this Contract. All removed components shall be disposed of properly, by the Contractor, in accordance with all local, State and Federal regulations. All associated fees shall be borne by the Contractor and shall be incidental to this payment item.

E. Painting. Painting of the Live Load Shoe and Centering Device Assemblies shall be incidental to this payment item. Cleaning and painting of all unfinished surfaces of machinery shall comply with requirements of the NYSDOT Standard Specifications, "Structural Steel Painting: Field Applied - Full Removal."

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METHOD OF MEASUREMENT

This work will be measured for payment on a lump sum basis for each bridge.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including painting and all removal and disposal of components to be disposed. Progress payments will not be made for this work.