

## 1610 - STEEL FOR BRIDGE DRAIN SYSTEMS

### SECTION 1610

#### STEEL FOR BRIDGE DRAIN SYSTEMS

##### 1610.1 DESCRIPTION

This specification governs steel drainage systems applied to bridges.

##### 1610.2 REQUIREMENTS

**a. General.** The drainage system design, dimensions, method of corrosion protection, and specific fabrication requirements are to be as specified in the Contract Documents. Each method of corrosion protection dictates the use of certain steels. Only 1 method of corrosion protection is allowed for a structure. Property requirements for the steels and components are governed by the classifications, designations, or grades of steel, and the component specifications designated in the Contract Documents and in accordance with **subsection 1610.2b**.

##### **b. Material Specifications.**

(1) When it is specified that corrosion protection be provided by zinc coatings applied by hot dip galvanizing, identified as HDG, use structural steel and pipe that complies with ASTM A 36 and A 53 respectively. The testing requirements of **DIVISION 1600** for A 53 pipe are not required. Coat the pipe with zinc in accordance with A 53. Furnace welded pipe is not acceptable and the hydrostatic and flattening tests are not required. Coat components produced from structural steel and or pipe with zinc by hot dip galvanizing, preferably after fabrication, in compliance with ASTM A 123. When coating by this method after fabrication is not practical, protect all areas where the coating is removed by welding or other procedures by application of a zinc or zinc alloy coating as specified in **DIVISION 1800**. Thoroughly clean the damaged areas before application of the coating.

(2) When it is specified that corrosion protection be provided by copper bearing weathering steels, identified as CBW, use structural steel and pipe that complies with ASTM A 242 or A 588 and ASTM A 618, Grade II, respectively. The minimum acceptable copper content is 0.20%.

(3) When it is specified that corrosion protection be provided through the use of stainless steels, identified as SST, use basis stainless structural steel and pipe that complies with ASTM A 240, AISI/SAE designations 302, 304 or 305, or ASTM A 358, Class 2, Grade 304 and A 312 respectively. Hydrostatic testing is not required. Weld stainless steels according to the procedures of the applicable specification in order to avoid cracking and weld area sensitization to corrosion.

##### 1610.3 TEST METHODS

Conduct all tests required by the applicable ASTM or other component or material specifications of **subsection 1610.2b**. Measure the coating thickness by any one of the methods specified in ASTM B 633 and by eddy current methods, ASTM B 244, provided that appropriate calibration procedures and standards have been applied. The magnetic induction and eddy current methods are nondestructive in nature and are preferred. Destructive techniques, i.e., coating removal, may be utilized as referee methods.

##### 1610.4 PREQUALIFICATION

Not applicable.

##### 1610.5 BASIS OF ACCEPTANCE

Submit for approval to the Regional Materials Laboratory a Type A certification (certified mill test report), as specified in **DIVISION 2600**, for all drainage system components, excluding pipe, when the HDG or CBW corrosion protection method is specified and all components, including pipe, when the SST method is specified.

Receipt and approval of a Type D certification as specified in **DIVISION 2600** for pipe when the HDG or CBW corrosion protection method is specified.

Inspection and testing by field personnel of all components for compliance with dimensional requirements for all drainage system components and corrosion protection coating thickness when the HDG protection method is specified. Coating thickness is to be measured according to any of the procedures of **subsection 1610.3**.

The final disposition of all drainage system components will be completed at the final destination as the result of inspection for the quality of workmanship and the delivery condition.