

## 1608 - STRUCTURAL STEEL TUBING

### SECTION 1608

#### STRUCTURAL STEEL TUBING

##### 1608.1 DESCRIPTION

This specification governs cold and hot formed welded and seamless steel structural tubing. This includes round, square, rectangular, or special shape structural tubing, tapered or nontapered, for welded, riveted, or bolted construction of bridges, buildings, and general applications.

##### 1608.2 REQUIREMENTS

###### a. General.

(1) Unless specified otherwise in the Contract Documents, welds in tubing and structures fabricated from tubing are to comply with AWS D1.1. Circumferential welds and longitudinal welds within the area of a slip joint are to exhibit complete joint penetration. Other longitudinal welds are permitted partial joint penetration as a percentage of the governing plate thickness. This value is not permitted to be less than 60% for a plate thickness of 0.4 inch or less and not less than 80% for a plate thickness greater than 0.4 inch. Discontinuities such as hot and cold cracks, craters, undercut, gas porosity, inclusions, etc. observed in welds are subject to the detection methods, acceptability criteria, repair methods and procedures, and AWS D1.1. Nonstandard or special shape tubing is to comply with the design specified in the Contract Documents.

(2) If not governed by the component specification, when corrosion protection coatings are specified for tubing and tubing structures, these components are to be zinc coated by hot dip galvanizing after fabrication in compliance with ASTM A 123, Thickness Grade 85. Aluminum coating application after fabrication is acceptable when permitted and regulated by the specification that governs the component.

Grade 85 should still be a valid designation.

###### b. Materials Specifications.

- Cold formed welded and seamless structural steel tubing ..... ASTM A 500
- Hot formed welded and seamless structural steel tubing ..... ASTM A 501

##### 1608.3 TEST METHODS

Conduct all tests required by the applicable ASTM, AWS, or other component or material specifications of **subsection 1608.2**. Coating thickness may be measured 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.

##### 1608.4 PREQUALIFICATION

Not applicable.

##### 1608.5 BASIS OF ACCEPTANCE

Submit for approval to the project Engineer and Materials Regional Laboratory a Type A certification (certified mill test report), as specified in **DIVISION 2600**, that governs the analysis of all heats delivered to the project.

Inspection, and testing when applicable, by field personnel of steel structural tubing and structures fabricated from this tubing for compliance with corrosion protection coating thickness, weld quality, and dimensional requirements.

The final disposition of tubing and structures fabricated from tubing will be completed at the final destination as the result of inspection for the quality of workmanship, the delivery condition.

Certain fabricated tubing and tubing structures may also require inspection during the production process at the fabrication facility.