SECTION 1607

STRUCTURAL STEEL

1607.1 DESCRIPTION

This specification governs the structural steel shapes, plates, bars, and bearing pins utilized for construction purposes.

1607.2 REQUIREMENTS

a. General. Dimensions, standard ASTM/AISC shapes, and specific fabrication requirements are as specified in the Contract Documents. Property requirements for the base steel are governed by the classification, designation, or grade of steel specified in the Contract Documents and in accordance with **subsection 1607.2b**. If a steel component is utilized in a fracture critical application, this must be designated in the Contract Documents according to the provisions of AASHTO M 270 inclusive of Supplementary Requirement S84.

b. Structural Steel.

(1) Provide steel that complies with AASHTO M 270 or ASTM A 709. Miscellaneous structural items may utilize ASTM A 36 or A 500; etc., but material changes to the Contract Documents require the approval of the State Bridge Office or the Bureau of Construction and Materials, Operations Engineer. When AASHTO M 270 is specified, and unless shown otherwise in the Contract Documents, the requirements for toughness testing, Zone 2 or Zone 3 level as specified in the Contract Documents, are mandatory whether the steel component is subject to tensile stress or utilized in a fracture critical application or not. When ASTM A 709 followed by the letter "T" or "F" and a temperature zone number is specified, the supplementary requirements for toughness described above for AASHTO M 270 are required.

(2) Steel component edges that are produced by methods, such as mechanical shearing, that induce significant residual stress fields are to be stress relieved by machining not less than ¼ inch of material from the edge if the component is over 5/8 inch in thickness and subject to a calculated stress field. Fabrication procedures that produce low radius edge intersections are to have these stress concentration effects reduced by a fillet at the intersection of not less than 1 inch radius in accordance with the requirements and procedures of AASHTO/AWS D1.5. Discontinuities such as seams, rolling laps, tears, gas porosity etc. observed in steel components and weldments are subject to the detection methods, acceptability criteria, repair methods and procedures, and other requirements of AASHTO/AWS D1.5. Unless specified otherwise, steel components and fabrications are subject to AASHTO/AWS D1.5 for the quality of the final product. In addition, all structural steel components are subject to the quality requirements of ASTM A 6 throughout the fabrication process.

(3) Produce bearing pins from steel that complies with ASTM A 108, SAE 1018, or **subsection 1607.2b.(1)** unless specified otherwise in the Contract Documents.

c. Structural Steel (Merchant Quality). This is a hot-rolled carbon steel in shapes or bars for use in non-critical parts of a structure or facility. It must be suitable for moderate cold bending, moderate hot forming, punching and welding, and capable of serving it's intended purpose.

1607.3 TEST METHODS

Conduct all tests required by the applicable AASHTO, ASTM, AISC, AWS, or other component or material specifications of **subsection 1607.2b**.

1607.4 PREQUALIFICATION

Not applicable.

1607.5 BASIS OF ACCEPTANCE

a. Structural Steel. Submit for approval a Type A certification (certified mill test report), as specified in **DIVISION 2600**, that governs the analysis of all bar steel heats delivered to the project.

b. Structural Steel (Merchant Quality). Acceptance will be based on visual inspection for condition and compliance with dimensional requirements.

c. The final disposition of steel components provided through this specification will be completed at the final destination as the result of inspection by field personnel for the quality of workmanship, the delivery condition, compliance with dimensional requirements and receipt. Certain fabricated structural components may also require inspection during the production process at the fabrication facility.