

802-T-172 BOX TRUSS OVERHEAD SIGN STRUCTURES

(Adopted 01-15-09)

The Standard Specifications are revised as follows:

SECTION 802, AFTER LINE 134, INSERT AS FOLLOWS:

Vertical truss members and vertical diagonals shall be machined to provide a snug tube-to-tube fit to the chord along the entire edge before welding. Horizontal truss members and horizontal diagonals shall be slotted for the dimensions shown on the plans and welded to the gusset plates. They shall be sealed against water penetration.

Chord plates shall be machined from solid rounds. Mating surfaces shall be flat within 1/64 in. (0.4 mm). Flanges shall be given an additional finish if necessary to ensure contact between plates.

The cap bolts used to attach the top caps of end-support columns shall be located so as to miss the J hook.

The camber shown on the plans is for fabrication only. It shall be measured with the truss fully supported. The allowable camber tolerance is 25% of the specified camber value.

SECTION 910, BEGIN LINE 1163, DELETE AND INSERT AS FOLLOWS:

910.19 Overhead Sign Structures

The complete structure with signs in place shall be able to withstand wind pressure in accordance with AASHTO specifications for the ~~Design and Construction of Structural Supports for Highway Signs~~ *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*. The structure shall be designed to resist ~~movement by the wind which might contribute to the~~ fatigue of the material in accordance with the AASHTO specifications.

SECTION 910, BEGIN LINE 1187, DELETE AND INSERT AS FOLLOWS:

(a) Aluminum Overhead Sign Structures, Box Truss and Bridge Attached

Extruded tubes shall be of aluminum in accordance with ASTM B 221 (B 221M), B 241 (B 241M), or B 429, alloy 6061-T6. ~~Anchor base castings shall be of aluminum in accordance with ASTM B 26 (B 26M) or B 108, alloy 356.0-T6.~~ All other castings shall be of aluminum in accordance with ASTM B 26 (B 26M), alloy 356.0-T6. Plates shall be of aluminum in accordance with ASTM B 209 (B 209M), alloy 6061-T6. Plates shall be free of sharp edges and irregularities.

Welding material and procedures shall be in accordance with 803 and applicable AWS provisions.

Bolts, nuts, screws, and flat washers shall be passivated type 304 stainless steel. Bolts and screws shall be in accordance with ASTM A 193 (A 193M), grade B8. Hexagon nuts and washers shall be in accordance with ASTM A 194 (A 194M), grade 8. *High strength bolts, nuts and washers for chord splice connections, shall be in accordance with 910.02(f) and shall be galvanized in accordance with AASHTO M 232.*

The J hook shall consist of one 3/8-in. (10-mm) steel bar in accordance with ASTM A 307. It shall be spot welded to the inside of the end-support member. The J hook shall be hot-dip galvanized prior to welding or in the final assembly with the support column.

Neoprene pads shall be ultraviolet rated.

The safety cable shall be in accordance with 922.06(b).

Anchor bolts, *nuts and washers* shall be in accordance with ASTM ~~A 307~~ *F 1554, Grade 36*. A hexagon nut, leveling nut, and flat washer ~~in accordance with ASTM A 307, grade A~~, shall be furnished with each anchor bolt. ~~Threaded Top~~ ends of anchor bolts and associated hardware, *as shown on the plans*, shall be coated in accordance with ASTM A 153 or be mechanically galvanized and conform to the coating thickness, adherence, and quality requirements of ASTM A 153, class C.

Certified proof of the qualifications for a minimum of two welders shall be presented after the contract is awarded and before fabrication is started. This certification shall be from a commercial or public testing laboratory and qualifications shall be based on welding of aluminum alloy, 6061-T6 with consumable electrode type welding using aluminum alloy ~~ER4043~~ *ER5356* filler material. Welders shall qualify by passing the requirements of "Procedure and Performance Tests of Qualification Standard for Welding Procedures, Welders, and Welding Operations", latest edition, formulated by the Boiler and Pressure Vessel Committee of the American Society of Mechanical Engineers.

SECTION 910, BEGIN LINE 1227, DELETE AND INSERT AS FOLLOWS:

(b) Steel Overhead Sign Structures, Box Truss, Cantilever, Monotube, and Bridge Attached

Steel sections used for upright members, cross beams, or horizontal members shall be either tapered or constant cross section tubular members as specified herein. The tubular members may be either circular or multi-sided.

Box truss and bridge attached structures shall be fabricated from constant cross section tubular steel in accordance with ASTM A 53, type E or S, grade B (*minimum yield strength of 35,000 psi*). Constant cross section tubular steel with greater yield strength may be used, with written approval. However, structural dimensions must remain as shown on the plans. Structures shall be galvanized after fabrication in accordance with ASTM A 123.

SECTION 910, BEGIN LINE 1266, DELETE AND INSERT AS FOLLOWS:

Gusset, flange, and base plates shall be in accordance with ASTM A 36 (A 36M) and shall be galvanized after fabrication in accordance with ASTM A 123. Base plates for upright poles shall develop the full strength of the poles. Castings for the vertical pole top and horizontal arm and cap shall be in accordance with ASTM A 126 and shall be galvanized with a minimum coating of 2 oz/sq ft (610 g/m²). Bolts *and nuts*, except anchor bolts, ~~and nuts~~ shall be in accordance with ASTM A ~~307~~ *325, Type 1*. Two nuts for use in plumbing upright poles shall be furnished with each anchor bolt. ~~Anchor bolts, except for box truss structures, shall be in accordance with ASTM A 675, grade 90 (A 675M, grade 620); ASTM A 576 modified to 55,000 psi (379 MPa) minimum yield~~

~~strength; or ASTM A 307, grade A modified to 55,000 psi (379 MPA) minimum yield strength.~~ Anchor bolts for ~~box truss~~ *overhead steel* structures shall be in accordance with 910.19(a). Steel bolts, nuts, washers, and ~~threaded~~ *the top* ends of anchor bolts shall be coated in accordance with ASTM A 153 or be mechanically galvanized and conform to the coating thickness, adherence, and quality requirements of ASTM A 153, class C. Welding shall be in accordance with 711.32.
