

SPECIFICATIONS FOR TRAFFIC SIGNAL POLES AND MAST ARMS

1.0 General

This specification states the minimum acceptable requirements, materials, and workmanship for steel poles, mast arms, and miscellaneous hardware for traffic signal, sign, and street light support to be supplied to the City of Fort Worth, Department of Transportation and Public Works. These specifications should be used in conjunction the standard details sheets for traffic signal poles and traffic signal pole foundations.

2.0 Fabricator

Fabricator shall be certified under Category I, "Conventional Steel Structures" as set forth by the American Institute of Steel Construction Quality Certification Program (AISC). *Proof of this certification shall be submitted with the bid submittal to assure that the fabricator has the personnel, organization, experience, procedures, knowledge, equipment, capability and commitment to fabricate quality Traffic Signal Pole Structures.*

3.0 Design

Pole shaft, base plate, anchor bolts, mast arm, and structural connecting hardware shall be designed in accordance with loading and allowable stress requirements of the 1985 AASHTO "Standard Specifications for Structural supports for Highway Signs, Luminaires, and Traffic Signals". Loading shall be based on an Isotach wind velocity of 80 mph. If requested, calculations and detail drawings shall be submitted for verification of compliance to these specifications.

4.0 Tubular Members

The tubular member's cross-section shall be round and shall have a constant linear taper of 0.14 inches/foot. It shall be fabricated from conforming to the requirements of ASTM A595 Grade A. Tubular members shall be of the same thickness throughout the length of the entire member.

4.1 Mast Arms

The mast arms shall have a horizontal length as called for on attached drawings. All mast arms shall be manufactured and shipped in one piece with no circumferential splices. A removable end cap for attachment on the end of the mast arm shall be supplied with each mast arm.

4.2 Pole Shafts

Pole shafts shall be 27.5 feet in height (type 41, type 43, and type 45) or 21 feet in height (type 42, type 44 and type 46) with the arm to pole attachment connection located at a height of 20 feet. Two hand-holes shall be reinforcing rim welded into the shaft of the pole and at 180 degrees behind the mast arm as shown in detail drawings. Hand-holes shall be supplied with a cover. Each pole shall be provided with a pole cap secured in place with setscrews or other suitable fasteners. A “C-hook” wire support near top of pole and a grounding attachment in the lower hand-hole shall be provided in each pole shaft. Four 1.5-inch couplings with plugs shall be provided on each pole for the mounting of signals and pedestrian signals. These mounting points shall be at a height of 11 feet above the pole base.

Each type 41, type 43 and type 45 pole shall have a simplex luminaire arm flange that complies with our Street Luminaire Pole Details.

5.0 Base Plate

The base plate shall be of steel meeting or exceeding the requirements of ASTM A36. It shall be integrally welded to the pole shaft with either a telescopic welded joint or a full penetration butt weld with a backup bar. The bolt plate holes shall be slotted to allow up to a 10° rotation. The pole Type number shall be permanently marked on the bottom of each base plate.

Four removable nut covers, with self-threading screws for attachment shall be provided with each pole.

6.0 Mast Arm to Pole Connections

The mast arm to pole connection plates are to be fabricated from structural quality hot rolled carbon steel with a guaranteed minimum yield strength of 36,000 psi (A36). The mast arm plate shall telescope the arm shaft and be circumferentially welded inside and out. The pole plate shall be attached to the pole shaft by welded gusset plates top, bottom, and sides. Four size “F” hex head bolts (ASTM A325) with one lock washer per bolt shall be supplied with each pole to connect the mast arm to the pole.

7.0 Anchor Bolt Assembly

Anchor bolt material shall conform to the requirements of ASTM F1554 Grade 55. The bolts shall be galvanized to ASTM A153. Anchor plates shall match the hole pattern for each type standard and be clearly marked. The strength of the nuts shall equal or exceed the proof load of the bolts.

Anchor bolt assembly shall be delivered partly assembled. The anchor bolts, or rods, shall come with all nuts, flat washers and split washers on each rod. Then the four anchors bolts shall be matched with two plates and be delivered as a bundled unit.

The anchor bolt assemblies shall be purchased separately from the poles and shall be delivered within thirty days from date of order.

8.0 Fabrication

Welding shall be in accordance with AWS (American Welding Society) Structural Welding Code D1.1 Sections 1 through 8 and shall be performed by welders certified in accordance with AWS code. The tube's longitudinal seam welds shall be free of cracks and undercutting, performed with automatic processes, and visually inspected with questionable areas inspected by magnetic particle to AWS D1.1.

Each finished standard and mast arm shall be permanently marked by type for ease of field matching.

9.0 Finish

The traffic signal poles and mast arms shall be galvanized in accordance to ASTM A123. Each component must be completely coated in a single dip. No double dipping will be allowed. All miscellaneous hardware shall be galvanized per ASTM A153.

10.0 Material Certifications

All materials shall comply with the American Society for Testing and Materials (ASTM) specifications. The supplier shall furnish two copies of mill certificates reflecting the physical and chemical properties of the base metal of the pole and mast arm shafts, base plates, and anchor bolts. Two certified copies of the galvanizing test report shall be provided.

11.0 Delivery

All pole hardware will be packaged on a per pole basis. All items shall be delivered **120 calendar days from the date order is placed**. All shipments will be delivered from 6:00 A.M. to 12:00 P.M. Tuesday, Wednesday or Thursday. Deliveries are not accepted on Monday or Friday. No trucks will be unloaded after 12:00 P.M. Call 817- 871-8083 24 hours prior to delivery. The shipment shall be delivered to:

City of Fort Worth
Traffic Services Division
2500 Brennan Ave.
Fort Worth, Texas 76106

Invoices shall be sent to:

City of Fort Worth
Traffic Services Division
TPW Department
3409 Harley Ave.
Fort Worth, Texas 76107