

Special Specification 6375

Traffic Signal Pole Assemblies (City of Houston)



1. DESCRIPTION

Installation. Fabricate, furnish, and install steel traffic signal pole assemblies

2. MATERIALS

Provide new materials that comply with this specification and the details shown on the plans. Ensure the manufacturer of these items is experienced in construction of such items and furnishes evidence of having supplied similar items, which have been in successful operation, for a minimum of 3 years.

3. CONSTRUCTION

3.1 Traffic Signal Pole Assemblies. Provide traffic signal poles designed in accordance with the 1994 edition of the American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and as shown on the plans.

3.1.1 Anchorage. Include with each pole four L-type steel anchor bolts, complete with double hex nuts, lock washers, and flat washers. Hot-dip galvanized exposed nuts, washers, and the exposed threaded length of anchor bolts plus a minimum of 6 in. per Item 445, "Galvanizing." Provide anchor bolts that meet the requirements of ASTM F1554, Gr. 55. Include an anchor bolt template with each pole assembly.

3.1.2 Wind Resistance. Provide an entire pole and arm assembly rated to withstand AASHTO requirements for 90 mph wind.

3.1.3 Welds. Perform welds that meet the requirements of the AWS D1.1 Structural Welding Code - Steel.

3.1.4 Material Certification. Provide a completed and notarized Department Form 1818, as stated in Section 6.1.1, "Buy America" of the Department's Standard Specifications, listing all of the steel and iron components for each traffic signal pole assembly. Include as attachments representative mill test reports and material certifications for the component items for verification of compliance.

3.1.6 Pole Unit. Provide a pole unit and the materials used in its manufacture that meets the requirements of AASHTO, specifically 1994: Standard Specifications of Structural Supports for Highway Signs, Luminaries and Traffic Signals.

3.1.7 Pole Shaft and Arms. Provide a pole shaft and arms that are circular or octagonal in cross-section with no transverse joints or welds, except for allowable mast arm slip joints, and a maximum of two longitudinal welds per pole or arm. Ensure 100% penetration within 6 in. of circumferential base welds and 60% minimum penetration at other locations along longitudinal seam welds. Refer to the standards for exact sizes of the pole diameters. Ensure they are uniform in cross-section and uniformly taper from the pole shaft to the end of the arm. Construct the end of the arm at a height above the pavement, as detailed on the standards, with design vertical loadings, when installed on the pole.

3.2 Pole Shaft. Fabricate the pole shafts to the details shown in the plans.

Furnish the pole shaft with a reinforced handhole frame and steel cover along with a 1/2 in. - 13 UNC grounding provision, fabricated to the dimensions shown on the plans.

Include with each pole shaft a pole mounting plate as shown in the plans for the mast arm connection. Arrange it to accept four connecting bolts per the details of the plans.

As required, provide each pole with an ornamental pole top. Mechanically attach the pole top to the top of the shaft to provide access for wiring signals secured by a J-hook wire support. Use pole top material conforming with the requirements of AA-319.OF aluminum.

Drill the pole shaft in the field at required signal locations. Repair damaged galvanized coating in accordance with Item 445, "Galvanizing."

3.3. **Mast Arm.** Fabricate the mast arms to the details shown in the plans.

Use a straight flange plate mounted style mast arm and include a steel arm plate with four connecting bolts. Use bolts that are internally mounted to the pole plate and that meet the requirements of ASTM F3125 Grade A325.

A slip joint is permissible for arms 40 feet and greater in length. Fabricate the slip joint in the shop but it may be match marked and shipped disassembled. Ensure the pole and arm diameters are uniform at any cross-section and are reasonably straight.

Provide tenons for mounting the vehicle signal head assemblies on the mast arm at locations required. Refer to the plans for tenon details.

3.4. **Luminaire Arm.** Fabricate luminaire arms from 2-in. Schedule 80 pipe.

The length of the luminaire arm is shown on the standards or as required in the plans.

Connect the luminaire arm to the pole shaft with simplex fittings, and in accordance with details shown on the plans.

3.5. **Hot-Dip Galvanizing.** Hot-dip galvanize all fabricated parts and hardware in accordance with Item 445, "Galvanizing."

3.7. **Installation.** Locate so as to avoid conflict with utilities. Stake the traffic signal pole assembly locations for verification by the Engineer.

Use established industry and utility safety practices when working near overhead or underground utilities. Locate traffic signal pole assemblies as shown on the plans, unless otherwise directed to secure a more desirable location. Consult with the appropriate utility before beginning work.

Construct foundations for new traffic signal pole assemblies in accordance with item 416, "Drilled Shaft Foundations," and the details shown on the plans. Orient anchor bolts as shown on the plans.

Erect structures after foundation concrete attains its design strength, as required on the plans and Item 421, "Hydraulic Cement Concrete." Coat anchor bolt threads and tighten anchor bolts in accordance with

Item 449, "Anchor Bolts." Ensure that the structure is plumb. Do not grout between the base plate and the foundation.

4. MEASUREMENT

This Item will be measured by each traffic signal pole assembly installed.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Install Traffic Signal Pole Assemblies," of the types and sizes specified.

This price is full compensation for furnishing, fabricating, galvanizing, assembling, and erecting the pole upon a foundation; furnishing and erecting required mast arms and luminaire arms; furnishing and placing anchor bolts, nuts, washers, and templates; and materials, equipment, labor, tools, and incidentals.

New drilled shaft foundation will be paid for under item 416, "Drilled Shaft Foundations."