

**ITEM 026030**

**Item 0260301 - STEEL SPAN POLE**

**Item 0260302 - STEEL SPAN POLE, COMBINATION**

**DESCRIPTION**

This item shall consist of furnishing and installing a steel span pole of the type specified, complete with a bracket with all necessary fittings and bolts to attach to the pole, slip fittings for luminaire, pole cap, ornamental bolt covers and grounding nut, on a prepared foundation at the location designated on the plans or as indicated by the Engineer and in conformity with these specifications.

**REFERENCED ITEMS**

None

**REQUIRED SUBMITTALS**

Material Certificate of Compliance:

Submit 5 copies of material certificate of compliance for poles, weld testing and paint in accordance with the contract general requirements.

Shop Drawings:

Submit 5 copies of shop drawings for poles and paint process in accordance with the contract general requirements and with the design details approved and signed by a professional engineer licensed to practice in Connecticut State.

Color Sample:

A material sample weighing no more than 10 pounds and that has been finished according to the specified paint process and paint color shall be submitted for approval.

**MATERIALS**

The materials for this work shall conform to the following requirements:

1. **SHAFT**

The shaft shall have no more than two (2) longitudinal continuous arc welds. There shall be no intermediate horizontal joints or welds. Only one length

of sheet steel shall be used which shall be formed into a continuously tapered shaft, having a taper of approximately 0.14 inches per foot. After welding and cold-rolling, the shaft shall be placed under sufficient pressure to flatten the weld and increase the physical characteristics of the shaft so that the metal will have a minimum guaranteed yield of 48,000 p.s.i. Laminated pole designs, e.g. two-ply pole shafts, will not be permitted. Cross-section shapes other than round shall not be allowed. The base shall telescope the shaft and shall have two continuous transverse arc welds: one being on the inside of the base at the end of the shaft, and the other weld on the outside at the top of the base. The welded connection shall develop the full strength of the adjacent section to resist bending action. All hardware accessories shall be of high strength, double galvanized, first quality steel.

2. **ANCHOR BASE**

The anchor base shall have four holes to receive the anchor bolts, four holes for ventilation located in the body of the base directly behind each anchor bolt hole, and four tapped holes for attaching the ornamental anchor bolt covers. There shall be a reinforced hand hole with a minimum size of 6 inches by 10 inches, complete with cover, welded to the shaft 8 inches above the base.

3. **POLE SIZE**

The traffic span pole shall have a length, load at yield, maximum deflection and bolt circle as shown on the plans.

4. **FINISH**

The pole, luminaire bracket and all hardware shall be hot-dip galvanized, conforming to the requirements of ASTM A123 and, if indicated on the plans or directed by the Engineer, shall also be painted according to:

1. Tnemec process Series 1075, Endura-Shield II, or approved equal
2. Tnemec process Series 1072, Fluoronar, or approved equal

Color of the finished product shall be BLACK or as approved by the Engineer.

5. **WIRE ENTRANCE FITTING**

All steel span poles shall include wire entrance fittings. The number and size of wire entrance fittings shall be as required to accept the cables shown on

the plans. A neutral bracket and a separate 1" entrance fitting shall be provided for service cable.

**6. BRACKET**

The bracket shall be the single member type for brackets ten (10) feet and under in length and truss type for brackets twelve (12) feet and longer. The truss type shall consist of an upper and lower member securely joined by means of a vertical strut. The upper and lower members shall be two (2) inch I.P.S. steel pipe without ornamental steel scroll. The length of the bracket shall be as shown on the plans. The bracket shall be mounted to the pole by means of a bolted plate so that the angle for the arm may be adjusted in the field.

The pole end of both members shall have a steel fitting welded bit, which will permit the positioning of the member on the plate on the pole. The member shall be secured to the pole by cap screws, providing a weather resistant connection and smooth wiring raceway.

**7. SPAN CLAMP**

The span clamp shall be heavy duty type double galvanized and shall support a minimum load of 12,000 pounds.

**8. FABRICATION**

The steel pole and bracket shall be fabricated in conformance with the material requirements of Article M.16.04.1 of The State of Connecticut, Department of Transportation, Standard Specification for Roads Bridges and Incidental Construction (Form 816).

**9. SPAN POLE INFORMATION**

Span pole information shall be included on the poles in the form of stamping on the top of the baseplate, or by riveting an aluminum tag on the pole. Information shown shall include:

- Pole type A, B, C or D
- Name of manufacturer
- Year of manufacture
- ASTM designation of span pole steel

- Diameter and gauge thickness of the pole
- Height of the pole
- Controlling AASHTO load case (when the pole is designed by the manufacturer)

### **CONSTRUCTION METHODS**

The recommended installation procedure is as follows:

1. Install the steel pole baseplate onto the leveling nuts and tighten the anchoring nuts loosely.
2. "Rake" the unloaded pole back by adjusting the nuts as necessary, to an amount equal to estimated final pole deflection.
3. Tighten up the anchoring nuts to a "snug-tight" condition while insuring that the leveling nuts are always in firm contact with the baseplate. A "snug-tight" condition is defined as the tightness attained by the full effort of a man using a spud wrench.
4. Check all nuts for looseness after the traffic lights and other loads are in place, paying special attention to the leveling nuts on the tension bolts. Retighten any loose nuts to a "snug-tight" condition.
5. Grout underneath the baseplate.

Each pole shall be effectively grounded, using a 5/8-inch by 10-foot ground rod with #8 AWG solid, bare, tinned copper wire attached to the pole by a stainless steel bolt and to the ground rod by a square head bolt clamp.

The brackets shall be erected perpendicular to the centerline of the roadway. The mounting height shall be a nominal 30 feet measured from the center of the light source to the pavement directly below.

The opening between the concrete foundation and the steel pole base shall be grouted and neatly finished with a non-shrink, non-staining grout conforming to the material requirements of Article M.03.01.12 of The State of Connecticut, Department of Transportation, Standard Specification for Roads Bridges and Incidental Construction (Form 816).

### **METHOD OF MEASUREMENT**

This work will be measured for payment by the number of poles of the type

specified completed and accepted in place.

**BASIS OF PAYMENT**

This work will be paid for at the contract unit price each for "STEEL SPAN POLE (TYPE)", which price shall include all materials, pole, pole cap, luminaire bracket, handhole, ornamental anchor bolt covers, miscellaneous hardware, ground wire, ground rod, entrance fittings, neutral bracket, and span clamp, surface preparation, surface finishing including galvanizing, paint, painting, labor, tools and all work incidental thereto.

<b><u>PAY ITEM</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PAY UNIT</u></b>
0260301	Steel Span Pole	EA
0260302	Steel Span Pole, Combination	EA