

## 634 Wood and Tubular Steel Sign Posts

### 634.1 Description

- (1) This section describes furnishing and erecting wood and tubular steel posts to support signs.

### 634.2 Materials

#### 634.2.1 Wood

- (1) Furnish posts conforming to [507.2.2](#) for lumber and timber, of the dimensions the plans show, and having 4 sides surfaced (S4S). Use either beam and stringer grade or structural joist and plank grade material with a minimum stress grade rating of 1200 fb at 19 percent maximum moisture.
- (2) Select posts from one of the softwood species listed in [614.2.5](#) for wood posts and offset blocks.
- (3) Pressure treat posts conforming to [507.2.2.6](#) using chromated copper arsenate solution.

#### 634.2.2 (Vacant)

#### 634.2.3 (Vacant)

#### 634.2.4 (Vacant)

#### 634.2.5 Tubular Steel

##### 634.2.5.1 General

- (1) Furnish tubular steel sign post assemblies consisting of 3 telescoping square steel tubes as follows:
  1. Breakaway upper tube for mounting the sign.
  2. Inside anchor tube.
  3. Outside anchor tube.
- (2) Fabricate the tubular components using structural quality 12-gauge strip steel conforming to [ASTM A1011](#), grade 50 with an average minimum yield strength, after cold-forming, of 55,000 psi. Punch holes on all 4 sides for the full length as the plans show. Provide corner radii of approximately 5/32 inches and conform to other dimensions and tolerances as follows:

TABLE 634-1 TUBULAR POST DIMENSIONS AND TOLERANCES<sup>[1]</sup>

COMPONENT	OUTSIDE DIMENSIONS inches	OUTSIDE DIMENSION TOLERANCE inches	ALLOWABLE TWIST <sup>[2]</sup> inches/3 feet
Upper tube	2.00 x 2.00	+/-0.008	+/-0.062
Inside anchor tube	2.25 x 2.25	+/-0.010	+/-0.062
Outside anchor tube	2.50 x 2.50	+/-0.010	+/-0.075

<sup>[1]</sup> Measure at least 2 inches from the ends of the tubes.

<sup>[2]</sup> Hold one side on a flat surface plate and measure the twist at the corner 3 feet away.

- (3) Hot-dip galvanize each tube according to [ASTM A653](#) grade 90. Treat corner welds and cut ends with cold-galvanized organic zinc paint as manufacturer recommends.
- (4) The engineer will inspect sign post assemblies before installation. Ensure that the assemblies fit together without damaging the coatings. Replace scratched or otherwise damaged components at no expense to the department.

##### 634.2.5.2 Upper Tube

- (1) Furnish upper tubes fabricated to the lengths the plans show. If the plans show colored stock clean and phosphate before painting with an acrylic paint using an electrodeposition process followed by baking.

##### 634.2.5.3 Anchor System

- (1) Assemble the anchor system, consisting of the inner and outer anchor tubes, as the plans show with a 3-inch, grade 5 zinc plated bolt and nut. Ensure the holes of the 2 tubes match. For installations in poured concrete use an 18-inch inner tube and an 18-inch outer tube with no soil stabilization fins. For other installations use a 36-inch inner tube and an 18-inch outer tube with soil stabilization fins.

### 634.3 Construction

- (1) Obtain the engineer's approval and locate underground facilities before installing sign posts. Do not install sign posts until the finished grade is established.
- (2) Set and laterally position posts for supporting roadside signs as specified in [637.3.3.2](#). Erect posts in a true vertical position. Orient sign posts as the plan details show to ensure that posts will yield or break on impact as designed. For installations in concrete or asphalt, use box-outs as the plan details show.

- (3) Excavate holes for wood posts to the depths and at the locations the plans show or the engineer directs. Backfill with excavated material placed and compacted in 6-inch layers. Do not paint wood posts.
- (4) Cut upper tubes of steel posts to provide the sign height the plans show or the engineer directs. Treat cut steel post surfaces after installation with cold-galvanized organic zinc paint according to the paint manufacturer's instructions.
- (5) Attach the required sign panels as the plans show or as the engineer directs.
- (6) Remove and dispose of excess excavation, surplus material, and debris resulting from the installation.

**634.4 Measurement**

- (1) The department will measure the Posts Wood bid items as each individual post acceptably completed.
- (2) The department will measure the Posts Tubular Steel bid items as each individual post assembly, including each section and anchor, acceptably completed.

**634.5 Payment**

- (1) The department will pay for measured quantities at the contract unit price under the following bid items:

<u>ITEM NUMBER</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
634.0400 - 0699	Posts Wood (size) (length)	EACH
634.0800 - 0899	Posts Tubular Steel (size) (length)	EACH

- (2) Payment for the Posts Wood bid items is full compensation for providing, hauling, and placing the posts; for excavating and backfilling post holes.
- (3) Payment for the Posts Tubular Steel bid items is full compensation for providing, hauling, and placing the posts; treating cut post ends; and providing hardware and anchors. The department will not pay for replacing damaged posts or upper tube cut-offs.