

I. PURPOSE

Purpose of this specification is to describe the manufacture of square steel tubular posts, including a telescopic system, for the mounting of various traffic type signs.

In the interest of uniformity these specifications shall not be varied. Tubing shall be Telespar, manufactured by Allied Tube & Conduit.

II. GENERAL REQUIREMENTS

A. *Material*

Steel posts shall conform to the standard specification for hot rolled carbon sheet steel, structural quality, ASTM designation A1011, Grade 55. Average minimum yield strength after cold forming is 60,000 psi.

B. *Shape*

The Cross section of the post shall be square tube formed of 12 gauge (.105 U.S.S. gauge) and 10 gauge (.135 U.S.S. gauge) steel, carefully rolled to size and shall be welded directly in the corner by high frequency resistance welding and externally scarfed to agree with corner radii.

C. *Finish*

Signposts shall be manufactured from hot-dipped galvanized steel conforming to ASTM A653, G90, Structural Quality, Grade 50, Class 1. The corner weld is zinc coated after scarfing operation. The steel is also coated with a chromate conversion coating and a clear organic polymer topcoat. Both the interior and the exterior of the post shall be galvanized.

D. *Cross Sections*

Perforated sign posts shall be one or more of the following sizes:

<u>Size</u>	<u>U.S.S. Gauge</u>	<u>Weight (lbs./foot)</u>
1 1/2" x 1 1/2"	12	1.70
1 3/4" x 1 3/4"	12	2.06
2" x 2"	12	2.42
2 1/4" x 2 1/4"	12	2.77
2 1/2" x 2 1/2"	12	3.14
2 3/16" x 2 3/16"	10	3.43
2 1/2" x 2 1/2"	10	4.01

E. *Holes*

Holes shall be $7/16 \pm 1/64$ inches in diameter. (1) Hole to be placed 6" on center on all 4 sides for anchor installation. Additional holes will be placed as required. On square tubing, holes shall be on centerline of each side in true alignment and opposite each other directly and diagonally.

F. *Length*

The length of each post shall have a permissible length tolerance of $\pm 1/4$ ".

G. *Telescoping Properties*

The finished posts shall be straight and have smooth, uniform finish . It shall be possible to telescope all consecutive sizes of square tubes freely and for not less than ten feet of their length without the necessity of matching any particular face to any other face. All holes and ends shall be free from burrs and ends shall be cut square.

H. *Tolerances*

Tolerances on outside sizes

<u>Normal Outside Dimensions</u>	<u>Outside tolerances at All Sides at Corners</u>
1 1/2" x 1 1/2"	$\pm .006$ "
1 3/4" x 1 3/4"	$\pm .008$ "
2" x 2"	$\pm .008$ "
2 1/4" x 2 1/4"	$\pm .010$ "
2 1/2" x 2 1/2"	$\pm .010$ "
2 3/16" x 2 3/16"	$+ .010$ "

Note: Measurements from outside dimensions shall be made at least 2 inches from the end of the tube.

Wall Thickness Tolerances:

Permissible variation in wall thickness is + .011", - .005".

Convexity and Concavity:

Measured in the center of the flat sides, tolerance in $\pm .010$ ", determined at the corner.

Squareness of Sides and Twists:

<u>Norman Outside Dimensions</u>	<u>Squareness Tolerance</u>	<u>Twist Permissible in 3' Length</u>
1 1/2" x 1 1/2"	± .009"	.050"
1 3/4" x 1 3/4"	± .010"	.062"
2" x 2"	± .012"	.062"
2 1/4" x 2 1/4"	± .014"	.062"
2 1/2" x 2 1/2"	± .015"	.075"
2 3/16" x 2 3/16"	± .014"	.062"

Note: A sample shall be considered to fail if its sides are not 90% to each other within the squareness tolerance listed above.

Straightness Tolerance:

Permissible variation in straightness is 1/16 of an inch in 3 feet.

Corner Radii:

Standard outside radius shall be 5/32 of an inch ± 1/64 inch.

III. INSTALLATION

The square end of the post shall not be modified or pointed, but shall be capable of being driven into the ground by using agency with the use of an approved driving cap.

