



SECTION 1044

POSTS FOR MARKERS AND DELINEATORS

1044.1 Scope. This specification covers galvanized steel and flexible posts used for mounting mile and object markers, delineators, drain and right of way markers signs and other similar purposes.

1044.2 Steel Posts. Posts shall be rerolled rail steel, in accordance with the mechanical requirements of ASTM A 499, Grade 60, and to the chemical requirements of ASTM A 1.

1044.2.1 Shape and Dimensions. Posts shall be of a channel or modified channel section. Posts for mile markers, object markers and delineators shall be of the dimensions and weights (masses) shown on the plans.

1044.2.2 Drainage and Right of Way Markers. Posts for drainage and right of way markers shall weigh (have a mass of) no less than 1.80 or more than 2.25 pounds per foot (2.68 or more than 3.35 kg/m), all tolerances included, and shall be of the lengths shown on the plans. Permissible variations in length will be a maximum of one inch (25 mm) under and 2 inches (50 mm) over that shown on the plans. Posts shall have no less than five drilled or punched 3/8-inch (9.5 mm) holes along the centerline of the web. Holes shall be on 2-inch (50 mm) centers, beginning one inch (25 mm) from the top of posts. Anchors or pointed ends on posts will not be required.

1044.2.3 Fiberglass Composite Right of Way Markers. Fiberglass reinforced polymer composite posts for right of way markers shall be 3 and 3/4 inches wide of a multi rib design weighing no less than 0.35 pounds per foot and shall be of the color and length as shown on the plans. The markers shall have a right of way decal meeting the description as shown on the plans. The markers shall be pointed on one end for installation into the ground to the depth as shown on the plans.

1044.2.4 Galvanizing. Posts shall be galvanized after fabrication in accordance with AASHTO M 111.

1044.3 Channel Post Delineator. Channel post for delineators shall be manufactured from ductile ASTM A 36 or ASTM A 1011 Gr 60 and as shown on the plans. Posts shall be hot dipped galvanized after manufacture in accordance with Sec 1080. Damaged coating shall be repaired in accordance with Sec 1081. The contractor shall furnish to the engineer three copies of the fabricator's certification that the material supplied is in accordance with the requirements specified.

1044.4 Square Steel Perforated Posts.

1044.4.1 Material.

1044.4.1.1 Steel. Steel shall be in accordance with ASTM A 1011, Grade 50, for hot rolled carbon sheet steel, structural quality. The average minimum yield strength after cold-forming shall be a minimum of 50,000 psi (345 MPa).

1044.4.1.2 Coating. Posts shall be hot-dip galvanized steel in accordance with ASTM A 653, G90, structural quality, Grade 50, Class 1. The corner weld shall be zinc coated after the scarfing operation. The steel shall also be coated with a chromate conversion coating and a clear organic polymer topcoat. Both the interior and the exterior of the post shall be galvanized.

1044.4.2 Dimensions.

1044.4.2.1 Dimensional Tolerances. All dimensional tolerances shall be in accordance with ASTM A 513, excepted as noted.

1044.4.2.2 Length. The length of each post shall be as shown on the plans.

1044.4.2.3 Weight Per Foot. The weight per foot (m) shall be in accordance with the following or as specified:

Square Steel Perforated Post Requirements			
Size	Thickness	Weight (mass)	Tolerance
2 in. x 2 in.	12 Gage	2.42 lbs/foot	± 0.12 lbs/ft
51 mm x 51 mm	2.77 mm	3.6 kg/m	± 0.18 kg/m

1044.4.3 Cross Section. The cross section of the post shall be square tube formed of 12 gage (2.77 mm) 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.

1044.4.4 Hole Punching. All holes shall be $7/16 \pm 1/64$ inch (11 ± 4 mm) in diameter on one-inch (25 mm) centers on all four sides down the entire length of the post. The holes shall be on the centerline of each side in true alignment and opposite each other directly and diagonally.

1044.4.5 Telescoping Properties. Finished posts for telescoping post systems shall be in accordance with the general dimensional requirements and shall permit consecutive square tubes to telescope freely, for no less than 10 feet (3 m) without the necessity of matching any particular face to any other face. The finished posts shall be straight, and shall have a smooth, uniform finish. All holes and ends shall be free from burrs, and ends shall be cut square.

1044.4.6 Bases. If bases are specified on the plans, one of the following FHWA accepted "Breakaway Anchor" systems shall be used.

a) Single. The anchor shall be one size larger than the signpost and driven using an appropriate sized drive cap. All anchors shall be driven into the ground leaving one to two holes exposed for signpost connection.

b) Two-Piece. An additional 18-inch (457 mm) outer sleeve, one size larger than the anchor, shall be used to double the anchor wall thickness at the critical bending area.

1044.4.7 Connecting Bolts and Nuts. Bolts used to connect posts to bases shall be $5/16$ inch (8 mm), 18NC threads, bent-truss head bolts in accordance with ASTM A 307, Grade A. The bolts shall be mechanically zinc galvanized in accordance with ASTM B 695, Class 25. The nuts shall be $5/16$ inch (8 mm), 18NC threads, serrated flange nuts in accordance with ASTM A 194 and zinc electroplated in accordance with ASTM B 633.

1044.4.8 Certification. The fabricator shall furnish to the engineer, a certification stating that the posts furnished comply with all requirements of this specification. The certification shall

include or have attached specific results of tests of the mechanical and chemical properties. The certification shall accompany each shipment of the material to the destination.

1044.5 Acceptance. Acceptance of posts furnished under this specification will be based on appropriate certification and on the results of any tests deemed necessary by the engineer at destination to ascertain compliance with these specifications. If requested, two posts shall be furnished for testing purposes from such lots as the engineer may determine.