



U.S. Department
Of Transportation
**Federal Highway
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

June 3, 1996

Refer to: HNG-14/SS-62

Mr. Nick D. Calvi
National Signpost Representative
Western Highway Products, Inc.
Traffic Signs and Safety Products
10650 Fern Avenue
Stanton, California 90680

Dear Mr. Calvi:

This is in response to your March 19 letter to Mr. James H. Hatton, Jr., requesting acceptance of your company's Ulti-Mate telescopic square steel sign supports. In support of your request you included information on the geometric, chemical, and physical properties of the posts which indicate that they will be in reasonable close conformity with perforated square steel tube sign supports that we have previously found acceptable by virtue of full-scale crash testing. The 7/16-inch (11.1 mm) perforations punched 1-inch (2.54-mm) on-center on all four sides are identical to those on perforated square steel tube breakaway sign supports previously found acceptable.

On April 29 you provided a copy of a mill certification for the steel you intend to use in the fabricated tubes (ASTM A513-94, Grade 1012). The results compared favorably with the steel usually specified for these supports, namely the ASTM A653-94 specifications cited in the table below (A653 replaced the steel tube specification that was used in the past, namely A446.) The following table summarizes the sizes and materials you intend to use:

Wall Thickness	14 Gage (2.10 mm, 0.083 in)	12 Gage (2.66 mm, 0.105 in)
Steel (ASTM Specification)	A653-94 SQ Grade 50 modified to "Grade 55"	A653-94 SQ Grade 40
Sizes (SI units) mm	44.45, 50.80, 57.15	38.10, 44.45, 50.80, 57.15, 63.50
Sizes (customary US units) inches	1.75, 2.00, 2.25	1.50, 1.75, 2.00, 2.25, 2.50

In addition, you requested the Federal Highway Administration's (FHWA) acceptance of several of these posts installed in a variety of configurations for use on National Highway System (NHS) projects. After reviewing our records of experience with similar posts we

find that we can comply with your request. The post sizes and use conditions we will find acceptable for use on the NHS, if proposed by a State, are shown in the enclosed table.

Sincerely yours,

Seppo I. Sillan, Acting Chief
Federal_Aid and Design Division

Enclosure

Geometric and Roadside Design Acceptance letter SS-62

Acceptable Uses of Perforated Square Steel Tube Sign Posts, Per request of Western Highway Products

14 Gage posts are fabricated from ASTM A653 SQ Grade 50, Modified to "Grade 55", certified to 414 MPa min yield¹

12 Gage posts are fabricated from ASTM A653 SQ Grade 40¹

Post Size mm x mm (in x in)	One Post in a 2.1-m Path						Two Posts in a 2.1-m Path					
	Standard Soil			Weak Soil			Standard Soil			Weak Soil		
	With Anchor Base ⁽²⁾	Direct Burial	Direct Burial									
	2.10 mm ⁽³⁾	2.66 mm ⁽³⁾	2.10 mm ⁽³⁾	2.10 mm ⁽³⁾	2.66 mm ⁽³⁾	2.10 mm ⁽³⁾	2.10 mm ⁽³⁾	2.66 mm ⁽³⁾	2.10 mm ⁽³⁾	2.10 mm ⁽³⁾	2.66 mm ⁽³⁾	2.10 mm ⁽³⁾
63.5x63.5 (2.5x2.5)	-	yes	-	-	yes	-	-	-	-	-	-	-
57.2x57.2 (2.25x2.25)*	yes	yes	yes	yes	yes	yes	-	-	-	-	-	-
50.8x50.8 (2.0x2.0)*	yes	yes	yes									
44.5x44.5 (1.75x1.75)*	yes	yes	yes									
38.1x38.1 (1.5x1.5)	yes	yes	yes									

1. 413.69 MPa = 60,000 psi. The ultimate tensile strength of the steel coil used to produce the tube should not exceed 550 MPa (79,800 psi) or have an elongation measured over 50 mm (2 inches) greater than 20%. The Grade 40 steel used to fabricate the 12 gage posts is expected to show strengths proportionately less, with the same maximum elongation. In any event, the steel strengths should not exceed those in this note.

2. The anchor base may or may not have a strengthening sleeve at groundline. The anchor bases shall be sized to fit closely around the post. For 63.5x63.5 posts of both wall thicknesses and 57.2x57.2x2.66 posts the anchor bases shall be made of steel comparable to that of the posts and have wall thicknesses equal 4.55 mm (7 ga) or greater. For 57.2x57.2x2.10 posts and all 55.6x55.6 and smaller posts the anchor bases shall be made of steel comparable to that of the posts and have wall thicknesses equal 2.66 mm (12 ga) or greater.

3. The dimension shown is the wall thickness of the post. 2.10 mm = 14 ga and 2.66 mm = 12 ga.

* These three sizes are the only ones expected to be produced with a 14 ga wall thickness. The 38.1 x 38.1 post size is acceptable because it is smaller, and likely to be crashworthy.