



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

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

January 23, 1995

Refer to: HNG-14/SS-51

Mr. Herbert J. Henry
Telespar Product Manager
Unistrut Corporation
35660 Clinton Street
Wayne, Michigan 48184-2091

Dear Mr. Henry:

In your January 9 fax letter to Mr. James H. Hatton, you indicated that you wish to augment your Telespar Sign Post product offering by including posts made of ASTM A570 steel that will have a minimum yield strength of 413.69 MPa (60,000 psi). 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, with some limitations.

These limitations pertain to non-acceptance of a few post sizes and to the mechanical properties of the steel used in the posts. The square perforated sign posts that we have knowledge of meeting our breakaway requirements were made of steel with mill test reports showing yield strengths ranging from 417.82 to 453.68 Mpa (60,600 to 65,800 psi), ultimate tensile strengths ranging from 474.36 Mpa to 512.97 Mpa (68,000 to 74,000 psi), and elongations over 50 mm (2 inches) of between 16 and 18 percent. Our typical acceptance letter contains a caveat that "we anticipate that the States will require certification...that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that [tested] and that it will meet the FHWA change in velocity requirement." At the acceptance margins we believe it would be unwise for a supplier of perforated steel tube sign posts to make such a certification without confirming crash tests if the mill test reports for the steel used show ultimate tensile strengths greater than 550 Mpa (79,800 psi) or elongations over 50 mm (2 inches) greater than 20 percent. 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,

Jerry L. Poston, Chief
Federal-Aid and Design Division

Enclosure

Geometric and Roadside Design Acceptance Letter SS-51

Federal Highway Administration

HNG-14:JHatton:366-1329:gm:1-23-95:Henry

Copies to: HPD-1 HNG-1 HNG-10 HNG-14 Reader, 3128 File, 3128

Ras HFL-1 HHS-10 HSR-20 HNG-12

**Acceptable Uses of Perforated Square Steel Tube Sign Posts Made of ASTM A570 Steel
with a Minimum Yield Strength of 413.69 MPa⁽¹⁾**

| 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 | With Anchor Base ⁽²⁾ | Direct Burial | With Anchor Base ⁽²⁾ | Direct Burial | With Anchor Base ⁽²⁾ | Direct Burial |
| 63.5x63.5 (2.5x2.5) | 1.90 mm ⁽³⁾ | 2.66 mm ⁽³⁾ | 1.90 mm ⁽³⁾ | 2.66 mm ⁽³⁾ | 1.90 mm ⁽³⁾ | 2.66 mm ⁽³⁾ | 1.90 mm ⁽³⁾ | 2.66 mm ⁽³⁾ |
| 57.6x57.6 (2.25x2.25) | yes | yes | yes | yes | yes | yes | yes | yes |
| 55.6x55.6 (2.188x2.188) | " | " | " | " | " | " | " | " |
| 50.8x50.8 (2.0x2.0) | " | " | " | " | " | " | " | " |
| 44.6x44.6 (1.75x1.75) | " | " | " | " | " | " | " | " |
| 38.1x38.1 (1.5x1.5) | " | " | " | " | " | " | " | " |

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%.
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 57.6x57.6x2.66 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 57.6x57.6x1.90 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. 1.90 mm = 14 ga and 2.66 mm = 12 ga.