



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

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

September 14, 1994

Refer to: HNG-14/SS-47

Mr. Ronald R. Merriman
Traffic Operations Engineer
Division of Operations
700 Broadway Avenue East
Pierre, South Dakota 57501-2586

Dear Mr. Merriman:

Thank you for your August 22 letter to William A. Weseman regarding the use of Franklin Steel and Marion Steel U-channels in the same small sign installation. You cited the problem that arose when Franklin Steel stopped producing the U-channel posts necessary to replace damaged EZE-Erect breakaway small sign supports. The EZE-Erect system consists of a Franklin Steel U-channel stub driven into the ground and a signpost of the same type U-channel and a strap/spacer device bolted to the stub. You requested acceptance of substituting a comparable strength Marion Steel "Rib-Bak" post (4.5 kg/m, 3.0 pound/foot) for the Franklin Steel post (6.0 kg/m, 4.0 pound/foot) and, we infer, omitting the strap/spacer device.

We concur in your request to splice U-channel posts from Marion Steel to stub posts from Franklin Steel. We recommend that you specify a splice detail that has been successfully crash tested for U-channel posts mounted in the appropriate soil type. Two splice arrangements using bolts and spacers have been found acceptable. We refer to these as the "Arizona" splice (strong soil only) and the "Florida" splice (single post in strong or weak soil). The Arizona splice was successfully crash tested using three 4.5 kg/m Marion Steel Rib-Bak stubs mounted in strong soil, with like cross-section signposts lapped behind them. Two 7.94-mm (5/16-inch) Grade 9 bolts were spaced at 102 mm. (The tested three-post support using 6 kg/m Marion Steel U-channel posts with a similar splice failed.) The successful "Florida Splice" was tested using single 6 kg/m Marion and Franklin Steel U-channel posts. Full-scale tests were conducted in both strong and weak soils, and with the signpost in back of the stub as well as in front. The splices consisted of 9.5-mm (3/8-inch), Grade 2 bolts spaced 152 mm apart. Test results in both soils and both post/stub orientations were successful, but more ductile Franklin Steel posts caused higher velocity changes than the Marion Steel posts. Please note, however, that only single 6 kg/m post supports were tested.

Because of the unsuccessful testing of the “Florida Splice” with the post in front of or behind the stub, we concur that either orientation is acceptable when splicing the Marion Steel posts to the Franklin Steel stub, although we still prefer the signpost to be behind the stub as is the case when the same section posts are being spliced. We will consider the splicing of 4.5 kg/m Marion Steel posts to 6 kg/m Franklin Steel stubs acceptable for use on the National Highway System. Our acceptance is limited to the breakaway characteristics of the support and does not cover its structural features.

Sincerely yours,

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

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Geometric and Roadside Design Acceptance Letter SS-47