CLOSURE

Comparison of Design Specifications for the Design of Pipe and Round HSS Pedestrian Guardrail Systems

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I thank Mr. Moore for his interest in this paper and appreciate his understanding of the importance of properly designed guardrail systems. Too few architects and structural engineers have any real understanding regarding the design of miscellaneous metal components (including guardrails), resulting in poorly specified railings, or in some cases unsafe or impossible to construct railings. I would like to comment on some of Mr. Moore's observations.

The 2000 *International Building Code* does indeed allow for a one-third stress increase for guardrail systems designed using allowable stress design, however most other codes, particularly ASCE 7-98, the 1997 *Standard Building Code* and the 2001 *Florida Building Code* (a modification of the *Standard Building Code*) do not allow this stress increase. The one-third stress increase allowed by the 2000 IBC will most likely be removed from future editions of that code as it has from other codes, to make ASD designs equivalent to LRFD designs.

I further agree with Mr. Moore's observation that it is impossible to load a round guardrail at the top, and that it is more rational to apply the load at the centroid of the rail, but most codes specifically require the load be assumed to act at the top of the rail. I believe, however, that Mr. Moore's assumption might be allowed by the practice of "reasonable engineering judgment."

Finally, I also agree with the observation that it is impossible to develop the strength of a 1.9-in. O.D. pipe on a 1.5-in. wide channel flange. For years I have been encouraging my fabricator clients to eliminate the use of MC10×8.4 stair stringers and to replace them with C10×15.3 stringers. This is an example of why it takes a good engineer and a good detailer working together to produce functional guardrails.