1.2 Steel Structure Design and Detailing

1.2.1 Steel Girders

Design

Design according to *AASHTO LRFD Bridge Design Specifications*.

The minimum strength for deck concrete is 4000 psi with an approximate modulus elasticity of 3800 ksi. The modular ratio "n" does not need to be an integer number and for 4000 psi concrete must not be less than 7.60.

Oregon Department of Transportation does not require Certified Erector qualification for erection of steel bridges. For a complex project in which a contractor with such qualification is deemed necessary, obtain Bridge Engineering Section approval prior to including such requirement in the contract documents.

The top ½" of deck concrete thickness is considered sacrificial layer of deck concrete and does not contribute to deck strength. Beta version of deck design worksheet for steel girder bridges is located at:

ftp://ftp.odot.state.or.us/bridge/bddm/MathCad_Templates/

Please forward your comments or suggestions to the Steel Bridge Design Standards Engineer.

Top and bottom mats of reinforcing steel do not need to be on same alignments or spacing. Limit reinforcing steel spacing of steel girder bridge decks in conformance with AASHTO LRFD Bridge Design Specifications.

Consult with the Steel Bridge Design Standards Engineer for the latest design aids and design computer programs.

Details

See Standard Drawings BR600, BR605 and BR610 for general details.

(1) Girder Spacing

Use wider girder spacing to reduce the number of lines of girders, which will reduce shop and field labor. Girder spacing between 10' to 14' generally works well. (10' to 12' for spans less than 140' and 11' to 14' for spans greater than 140')

Background:

A consultant required a certified erector for a simple project. This revision should help ensure that the certified erector requirement is specified only when really needed.

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