conference preview

STREAMLINED DESIGN

BY DOMENIC COLETTI, PE

A forthcoming document provides guidance on streamlining the design process for routine steel girder bridges.

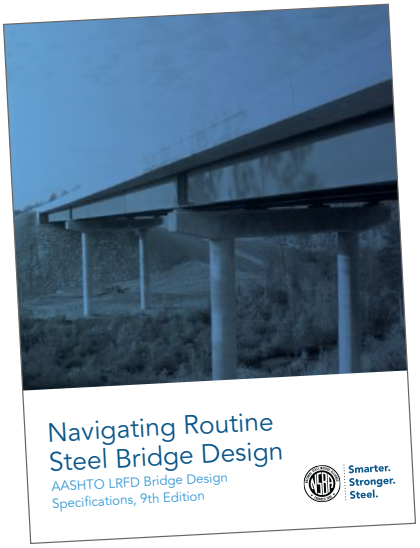
Domenic Coletti
(**domenic.coletti@hdrinc.com**)
is principal bridge engineer with HDR, Inc.

EVERY INDUSTRY has its workhorse.

For steel bridges, this role is played by "routine steel I-girder bridges," straight bridges with little or no skew, span lengths up to 200 ft, and routine framing and girder configurations. These "workhorse" bridges constitute a large part of the bridge inventory in the U.S. and can, and should, be effectively designed using relatively simple and quick methods based on line girder analysis. And a new design guide published by AISC and the National Steel Bridge Alliance (NSBA) is dedicated to this bridge type.

Prepared by HDR and MA Grubb and Associates, *Navigating Routine Steel Girder Bridge Design* is an innovative design aide intended to provide bridge designers an interactive filter and guide for navigating the provisions of the AASHTO *LRFD Bridge Design Specifications*, 9th Edition (AASHTO *LRFD BDS*) that are specifically applicable to the design of routine steel I-girder bridges. The guide is unique in that it is not intended to be a "static" printed reference document in its ultimate form, but rather will evolve into an interactive, web-based format.

Initially, the guide will be released in PDF format. This version will provide technical content, including a "Determination of Applicability" to routine steel I-girder bridge design for each Article of Section 6 (Steel Structures), as well as many Articles in Sections 1 (Introduction), 2 (General Design and Location Features), 3 (Loads and Load Factors), and 4 (Structural Analysis and Evaluation), of the AASHTO *LRFD BDS*. The guide will also include a discussion of each Article that explains why it is, or is not, applicable and provides suggestions for implementing the applicable Articles in ways that should result in a simpler design effort and more economical bridges.



The guide includes an outline of the basic tasks involved in designing superstructures for routine steel I-girder bridges, presented in a flowchart format. The PDF version will use extensive internal hyperlink referencing to allow the reader to walk through the steps of the design and quickly navigate to the Determination of Applicability and Discussion of the pertinent AASHTO Articles associated with each task. It will also include extensive external hyperlink referencing to a virtual library of previously published free design guides, such as the AASHTO/NSBA *Steel*

Al Bowman

Routine steel I-girder bridges—i.e., straight bridges with little or no skew, span lengths up to 200 ft, and routine framing and girder configurations—are the subject of a new guide from NSBA: *Navigating Routine Steel Girder Bridge Design*.

Bridge Collaboration Guidelines and Guide Specifications (available at **aisc.org/nsba**), the FHWA *Steel Bridge Design Handbook*, and others, and free design software, such as NSBA's SIMON line girder analysis program and Splice bolted field splice design spreadsheet (both available at **aisc.org/nsba/design-resources**).

The guide will be of value to design checkers as well. The outline of basic tasks can serve as a checklist when verifying that the necessary design tasks have been addressed. In addition, the Determinations of Applicability and Discussions can be used to clarify questions about the correct interpretation of the AASHTO LRFD BDS provisions.

Eventually, the intent is to migrate the technical content of the guide to an interactive web-based design aide. This is the most exciting aspect of this effort: communicating the Determination of Applicability and Discussion in an engaging manner suitable to the newest generation of bridge engineers.

Want to learn more about *Navigating Routine Steel Girder Bridge Design*? Tune in to the related WSBS session! And keep an eye out for the guide's release, which is expected to take place soon. ■

This article is a preview of the session "Steel Bridges Can be Easy with NSBA's Guide to Navigating Routine Steel Bridge Design," which is being presented via the 2021 World Steel Bridge Symposium, part of the online NASCC: The Steel Conference. For more information and to register, visit ***aisc.org/nascc****.*