CONTRIBUTING AUTHORS

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Reggie Holt is a senior structural engineer at the FHWA. He manages the Concrete Bridge Program at the FHWA headquarters in Washington, D.C.

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Dr. Richard Miller is a professor of civil engineering at the University of Cincinnati. He is chair of the PCI Research and Development Council and serves on several PCI committees, including the Bridges and Student Education Committees.

CONCRETE CALENDAR FOR SPRING 2021

The events, dates, and locations listed were accurate at the time of publication but may change as local guidelines for gatherings continue to evolve. Please check the website of the sponsoring organization.

April 12, 2021
ASBI Grouting Certification Training Course
Webinar

April 19–23, 2021
PTI 2021 Virtual Convention & Expo
Online

April 21–23, 2021
DBIA Design-Build for Transportation & Aviation
Online

April 29–30, 2021
PTI Level 1 & 2 Multistrand and Grouted PT Specialist Workshop
Hilton Seattle Airport & Conference Center
Seattle, Wash.

May 18–22, 2021
PCI Convention with The Precast Show
Ernest N. Morial Convention Center
New Orleans, La.

May 20–21, 2021
PTI Level 1 & 2 Multistrand and Grouted PT Specialist Workshop
Marriott Chicago O'Hare
Chicago, Ill.

June 7–8, 2021
ASBI 2021 Construction Practices Seminar
Marriott Seattle Airport
Seattle, Wash.

June 7–10, 2021
World of Concrete
Las Vegas Convention Center
Las Vegas, Nev.

June 7–11, 2021
2021 International Bridge Conference
Online

June 14–16, 2021
fib ***Symposium 2021***
Online

July 11–15, 2021
AASHTO Committee on Bridges and Structures Annual Meeting
The Westin Indianapolis
Indianapolis, Ind.

August 1–5, 2021
AASHTO Committee on Materials and Pavements Annual Meeting
Scottsdale, Ariz.

September 13–16, 2021
2021 Western Bridge Engineers Seminar
Online

Reader Response:

The *ASPIRE*® team received a reader comment on the Perspective article "Redundancy and Ductility for Bridge Design" in the Winter 2021 issue. The comments and editor's response are summarized below.

The reader did not understand the last sentence in the first paragraph under the subheading Structural Redundancy, which reads "However, using such methods will typically reduce the safety margin, with due credit given to sophisticated analyses." The reader suggested that "more sophisticated analyses resulting in better estimates of strength" should produce higher strengths than the minimums prescribed in the American Association of State Highway and Transportation Officials' *AASHTO LRFD Bridge Design Specifications*. Otherwise, those prescribed minimums are not conservative. Why would the use of more sophisticated analyses, which should produce higher strengths, "typically reduce the safety margin?" It would be very helpful if the sentence in question could be fully explained, starting with answering whether more sophisticated analyses resulting in better estimates of strength produce higher or lower strengths than the prescribed minimums from the AASHTO LRFD specifications.

Editor's Response:

As the reader states, it would seem logical to assume that the use of more-refined methods of design or analysis would lead to better designs. However, the situation is more complex than one might first assume.

More-sophisticated methods of evaluating the section capacity will typically result in a higher estimate for the resistance for a given section. However, using the more refined approach can result in a design that is less conservative because the designer may provide less reinforcement to support the design loads.

On the other hand, the use of more-sophisticated analysis methods generally results in lower estimates of the design load on a member, especially if the refinement reduces live load distribution factors. Therefore, the design would be made using a lower design load, so a lower resistance may be provided, resulting in a final design that is generally less conservative than when conventional analysis methods are employed.

This discussion reveals that design involves a system of methods for computing sectional resistance and evaluating design loads. If more-refined methods are used to determine either resistance or design loads, some of the conservatism that is generally present in conventional designs using line girder provisions may be reduced—that is, the overall margin of safety of the design may be reduced.