


- Incompatibility of stresses in the unconfined cover concrete and confined concrete in the structural core;
- A plane of weakness created by the confining reinforcement (spirals or ties) that is used in relatively greater quantities in high-strength concrete

columns, to comply with the AASHTO LRFD specifications; and

- Instability of cover concrete resulting from the interaction that takes place between the expanding structural core and the cover concrete at or near the axial compressive capacity.

Reference

1. American Association of State Highway and Transportation Officials (AASHTO). 2017. *AASHTO LRFD Bridge Design Specifications*, 8th ed. Washington, DC: AASHTO. 

CONCRETE CONNECTIONS

Concrete Connections is an annotated list of websites where information is available about concrete bridges. Links and other information are provided at www.aspirebridge.org.

IN THIS ISSUE

<https://cptechcenter.org/performance-engineered-mixtures-pem>

This is a link to a website that gives details about the Performance Engineered Mixtures pooled fund project that is mentioned in the editor's note for the Focus article on p. 9.

<https://www.pittsburghmagazine.com/Best-of-the-Burgh-Blogs/The-412/February-2018/Five-Fun-Facts-about-Pittsburgh-Bridges/>

This is a link to a *Pittsburgh Magazine* feature with photos of several iconic bridges in Pittsburgh, Pa. The history of Pittsburgh's Roberto Clemente Bridge and other aesthetically notable bridges is the subject of a Perspective article on page 10.

<http://www.aspirebridge.com/magazine/2012Fall/RichStreet.pdf>

This is a link to an article in the Fall 2012 issue of *ASPIRE* about the Rich Street Bridge, which is discussed in the Perspective article on page 10.

<http://ndotprojectneon.com>

This is a link to a Nevada Department of Transportation website about Project Neon in Las Vegas, Nev. The Project Neon high-occupancy-vehicle connector flyover bridge is featured in a Project article on page 16 and a Concrete Bridge Technology article on page 30.

<https://www.keepsandiegomoving.com/I-5-Corridor/gilman-drive-bridge-intro.aspx>

This is a link to a website with videos and photos of the construction of the Gilman Drive Overcrossing at the University of California San Diego. The bridge is featured in a Project article on page 20.

<https://ucsdnews.ucsd.edu/feature/building-connections-campus-celebrates-gilman-bridge-opening>

This is a link to a news release about the opening of the Gilman Bridge that is featured in a Project article on page 20.

http://www.ltrc.lsu.edu/ltrc_18/pdf/presentations/Session_37-I-49-I-220_Interchange__Segment_K_Phase_2_Shreveport,_LA.pdf

This is a link to an illustrated presentation on the construction of Segment K of Interstate 49 in Louisiana. The presentation provides details about the precast concrete

segments and describes challenges of the project. The ramps of Segment K are featured in a Concrete Bridge Technology article on page 24.

<http://www.i49shreveport.com/Site>

This is a link to the official website for the Interstate 49 corridor project through Shreveport, La. Segment K of the project is featured in a Concrete Bridge Technology article on page 24.

<https://www.dot.state.mn.us/bridge/lrfd.html>

This is a link to access the Minnesota Department of Transportation's *LRFD Bridge Design Manual*, which contains details on the new MH-series shallow bridge beams. The development of the beams is the topic of a Concrete Bridge Technology article on page 34.

https://ftp.fdot.gov/file/d/FTP/FDOT%20LTS/CO/research/Completed_Proj/Summary_STR/FDOT_BC354_76_rpt.pdf

This is a link to the report on the vessel impact testing of the old St. George Island Causeway Bridge that is listed as a reference for the Concrete Bridge Technology article on page 36.

https://www.fhwa.dot.gov/publications/rtnow/17sep_oct_rtnow.pdf

This is a link to an FHWA news update that includes an article on a truck-platooning demonstration project in Virginia. The possible effects of truck platooning on bridge structures is the topic of the FHWA article on page 44.

<https://www.fhwa.dot.gov/pavement/concrete/pubs/hif16006.pdf>

This is a link to Federal Highway Administration (FHWA) Tech Brief FHWA-HIF-16-006, which provides information on the concept and applications of internal curing concrete. The use of internal curing concrete for bridge decks in New York is the topic of a Safety and Serviceability article on page 48.

https://www.dot.ny.gov/main/business-center/engineering/specifications/english-spec-repository/2019_5_specs_usc_tc_vol2_0.pdf

This is a link to the NY State Department of Transportation's *Standard Specifications*, which contain the new requirements for high-performance internally-cured concrete for bridge decks in Section 557. These requirements are mentioned in the Safety and Serviceability article on p. 48.