The American Institute of Steel Construction together with the Structural Engineering Institute of Pittsburgh are proud to present

AISC T.R. Higgins Lecture

STRUCTURAL ENGINEERING INSTITUTE
Pittsburgh Chapter

Towards an Integrated Fracture-control Plan for Steel Bridges

Robert J. Connor
2018 ASIC T.R. Higgins Lecturer

Thursday, March 21, 2019

Hofbräuhaus Pittsburgh

2705 South Water Street, Pittsburgh, PA 15203

5:00 pm—Cocktail Reception
6:00 pm — Dinner
7:00 pm — Speaker

$20 Students & Government Employees
$35 Members / $40 Non-Members (through March 7, 2019)
$45 Members / $50 Non-Members (after March 7, 2019)

Register online at www.asce-pgh.org/event-3287005. Contact SEI Pittsburgh Chair, John Kennelly @ john.kennelly@hdrinc.com for more information.

The entire concept of what constitutes a Fracture Critical Member (FCM) is being revisited and many long-standing ideas and opinions are being shown overly conservative. Significant advances in the understanding of fracture mechanics, material and structural behavior, fatigue crack initiation, fatigue crack growth, fabrication technology, and inspection technology allow fracture to be addressed in a more integrated manner. New stand-alone AASHTO-ready guide specifications that give codified direction on 3D system analysis to verify redundancy, as well as guide specifications to evaluate internal member-level redundancy of mechanically-fastened built-up members, have been proposed. Additional research demonstrating the benefits of exploiting the improved toughness of modern HPS grades of steel has been completed. Through these advances, it is now possible to create an integrated FCP, combining the original intent of the 1978 FCP, with modern materials, design, fabrication, and inspection methodologies. Further, an integrated FCP will provide economic benefits and improved safety to owners by allowing for a better allocation of resources by setting inspection intervals and scope based on sound engineering rather than based simply on the calendar. This can make fracture no more likely than any other limit state; ultimately, allowing for a better allocation of owner resources and increased steel bridge safety.

ABOUT THE SPEAKER

Robert J. Connor is a professor of civil engineering and is director of the S-BRITE Center at Purdue University. Dr. Connor has worked in the area of fatigue, fracture, and other performance and durability issues related to steel bridges for over 25 years. Dr. Connor has successfully completed five NCHRP Projects as principal investigator and three as co-principal investigator. His research interests include fatigue and fracture of steel structures, field testing and remote monitoring of structures, bridge inspection reliability, and risk-based inspection methods. He received the George S. Richardson Medal in 2016, an AISC Special Achievement Award in 2012, and was the first recipient of the Robert J. Dexter Memorial Lecture Award in 2005.

ABOUT THE LECTURE

Each year, AISC's T.R. Higgins Lectureship Award recognizes an outstanding lecturer and author whose technical paper or papers, published during the eligibility period, are considered an outstanding contribution to the engineering literature on fabricated structural steel. The award is named for Theodore R. Higgins, former AISC Director of Engineering and Research, who was widely acclaimed for his many contributions to the advancement of engineering technology related to fabricated structural steel. The award honors Theodore for his innovative engineering, timely technical papers and distinguished lectures.

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