Thank you to the sponsors of the 30th Anniversary International Bridge Conference®. Through their generous sponsorship, we are able to provide many of the amenities and events offered at this year’s conference in celebration of our anniversary.
**TABLE OF CONTENTS**

General Information ................................................................. 2  
IBC Executive Committee ............................................................. 6  
Historical Information ................................................................. 8  
IBC 30th Anniversary Party ......................................................... 24  
Bridge Tour ........................................................................ 33  
IBC Awards Dinner ................................................................. 41  
Exhibitor Information ................................................................. 68  

**Technical Sessions**  
ABC, Part 1.......................................................................... 43  
ABC, Part 2.......................................................................... 53  
Construction, Part 1................................................................. 26  
Construction, Part 2................................................................. 45  
Design, Part 1.......................................................................... 28  
Design, Part 2.......................................................................... 47  
Evaluation & Analysis, Part 1.................................................... 31  
Evaluation & Analysis, Part 2.................................................... 51  
Featured Agency ...................................................................... 21  
Foundations........................................................................... 55  
Keynote .................................................................................. 14  
Long Span .............................................................................. 35  
Proprietary ............................................................................... 22  
Rail .......................................................................................... 34  
Rehab/Preservation, Part 1......................................................... 29  
Rehab/Preservation, Part 2......................................................... 39  
Rehab/Preservation, Part 3......................................................... 57  
Testing & Instrumentation............................................................ 37  

**Workshops**  
W-1: Application of Software in Load Rating Bridges.............. 59  
W-2: Extradosed Bridges............................................................. 59  
W-3: Owner’s Forum ................................................................. 60  
W-4: Engineering Ethics ............................................................. 60  
W-5: Accelerated Bridge Construction....................................... 62  
W-6: Bridge Preservation Strategies .......................................... 62  
W-8: Moving Towards BrIM ..................................................... 62  
W-9: BrIM Benefits and Rapid Bridge Design ............................ 64  
W-10: FRP Composites Advancements ...................................... 64  
W-11: Innovative Infrastructure Asset Management..................... 64  
W-12: Bridge Preservation - Western PA Projects..................... 65  
W-13: Saving Time and Money .................................................... 63  

**Special Interest Sessions**  
1: Autonomous Robotic Grit Blasting Systems ......................... 21  
2: ASCE’s 2013 Report Card for America’s Infrastructure ... 24  

**Seminars**  
1: NCHRP: Curved and Skewed Girder Bridges ...................... 66  
2: Steel Bridge Design.............................................................. 66
WELCOME TO THE 30TH ANNUAL INTERNATIONAL BRIDGE CONFERENCE®

Please read the following general information to learn about many of the new features of the IBC! With our return to the David L. Lawrence Convention Center (DLLCC), we have the opportunity to offer many new and exciting elements to the Conference, and many new improvements from the 2012 IBC. As always, Conference personnel (found at the Registration Desk) and IBC Executive Committee Members (look for their ribbons!) can be an additional valuable source of information!

REGISTRATION DESK

The Conference Registration Desk is located in HALL B* of the DLLCC, on the riverside of the convention center. The hours of operation are:

- **Sunday, June 2:** 5:00 - 7:00 PM
- **Monday, June 3:** 7:00 AM - 5:00 PM
- **Tuesday, June 4:** 7:00 AM - 5:00 PM
- **Wednesday, June 5:** 7:00 AM - 2:00 PM
- **Wednesday, June 5:** (*3rd Level) 2:00 - 5:00 PM
- **Thursday, June 6:** (*3rd Level) 7:00 AM - 1:30 PM

REGISTRATION AND ADMISSION

Full Registration includes admission to the Keynote Session, Featured Agency Session, daily Technical Sessions, Workshops, IBC Exhibit Hall, and the Monday, Tuesday, and Wednesday Exhibit Hall Buffet Luncheon, and 30th Anniversary Party! One-Day Registration includes the Technical Sessions, Workshops, and IBC Exhibit Hall and corresponding functions for that day only.

With so many new events included in the IBC, we hope to provide you with a better understanding of the various offerings for Conference attendees. You will still see the quality technical presentations as offered in all previous IBC’s; these are referred to as “Technical Sessions”, and include papers grouped into sessions of common subject matter. Again, we are offering several “Seminars” that are educational programs for continued training. We also offer for your consideration a number of “Workshops” presented by many of our co-sponsors and other industry-leading groups on an even wider variety of bridge industry subject matter.

Remember: seminars, tours, the IBC Awards Dinner, and conference proceedings require an additional registration fee. Please visit the Conference Registration Desk for details.

BADGE IDENTIFICATION

Please wear your IBC name badge at all times during the conference; it is your passport to all Conference activities. ESWP has authorized Room Monitors on staff to deny access to anyone not wearing the appropriate badge. As a safety consideration, we do suggest that you remove your badge when leaving the Conference.

MEETING INFORMATION

IBC functions are located in the DLLCC. Please check individual listings throughout this program for specific locations and times for all technical sessions, seminars and social functions. Events which require tickets will identify the specific location for these functions. Any changes in the program schedule will be posted or announced at the Conference Registration Desk.
CELL PHONES AND PAGERS
As a courtesy to the Speakers and fellow attendees, the IBC requests that all cell phones and pagers be turned off or switched to silent mode in all Presentation Rooms.

ATTENDEE REGISTRATION LISTS
Conference registrations received prior to May 30 have been compiled in the “IBC PRE-REGISTRATION LIST - PART 1 of 2”, and is available to all registered attendees in .PDF format, available to transfer to YOUR FLASH DRIVE. Please note, as we try to continually green the IBC, we are no longer printing Registration Lists for every attendee.

An addendum to the registration list, “PART 2 of 2,” will be available Thursday morning of the conference and reflects those attendees who registered after May 30, or on-site during the conference.

An electronic copy, produced in MS Excel, of the entire Attendee Registration List is available for purchase. The cost is $25 for IBC Exhibitors, and $95 for all others, the list will be e-mailed to you following the conference. Please know that the IBC never provides email addresses as a courtesy to our registered attendees.

MESSAGE BOARD
As a service to Conference registrants, a Message Board will be located in the Registration area of the DLLCC. The board will be available on June 2 -6. Messages will be retained until the end of each day.

IBC BRIDGE TOUR
Tuesday, June 4; 1:00 - 5:00 PM
Pittsburgh is the city of bridges, and the IBC is pleased to once again offer our tour of unique area bridges. A signed waiver and release and appropriate footwear will be required to enter the construction area. This guided tour departs from the Convention Center at 1:00 PM and will visit the Freeport Bridge, South Highland Ave. Bridge, Greensburg Pike Bridge, and Tri-Borough Expressway. (An additional fee of $40 is required; advance registration is required and seating is limited.) Please check the IBC registration Desk for availability and advance registration.

IBC EXHIBIT HALL
One of the main attractions of the Conference is the IBC Exhibit Hall. As you stroll through the many exhibits, you will be able to explore the latest technologies, products and services the bridge industry has to offer. Additionally, don’t forget to participate in our popular “Exhibit Hall Bingo” game for your chance to receive cash prizes, simply by visiting the exhibitors on your bingo card. All registered attendees will have a bingo card in their registration packet.
The IBC Exhibit Hall is located in HALL B. You will be able to view the exhibits during the following hours:
• Monday: 11:00 AM - 5:00 PM
• Tuesday: 8:00 AM - 5:00 PM
• Wednesday: 8:00 AM - 1:30 PM
The IBC will feature a Luncheon Buffet throughout the Exhibit Hall on Monday, June 3, Tuesday, June 4, and Wednesday, June 5 and is open (at no additional charge) to all conference-registered attendees and registered spouses.
HOST HOTEL INFORMATION
Enjoy the luxury and convenience of the IBC Headquarters Hotel, the Westin Convention Center Hotel. Linked to the DLLCC via Skybridge, or by an easy outdoor walk across Penn Avenue. Hotel reservations can be made by contacting the Westin Convention Center Hotel directly at 412-281-3700.
Westin Convention Center Hotel
1000 Penn Avenue
Pittsburgh, Pennsylvania 15222
412-281-3700

PRE-PRINTS AND IBC MERCHANDISE
Pre-prints for all technical presentations are available at the Merchandise Booth located just inside of the Exhibit Hall near the Conference Registration Desk. Pre-prints can be purchased for just $3.00 per copy. Again this year: purchase a 1 GB flash drive that contains all available pre-prints in .PDF format for only $30.00. Also, you can find copies of previous years’ IBC Proceedings (for $55 per volume). The Merchandise Booth will be open:
Monday: 11:00 AM - 5:00 PM
Tuesday: 8:30 AM - 5:00 PM
Wednesday: 8:30 AM - 1:30 PM

IBC GIFT ITEMS
Once again at this year’s IBC, you will have the opportunity to purchase the popular IBC neckties, IBC Golf Shirts, T-shirts, and Hats. These items are high quality and feature the popular IBC logo. The Gift Item Table is located near the Registration Desk, just inside of Hall B, where you can make your purchases throughout the Conference until Wednesday at 1:30 PM. Please be sure to stop by and shop before Wednesday and check out our newest styles for the 2013 IBC!

COFFEE STAND
Complimentary coffee breaks are available at various times throughout the Conference as noted in your Program Guide. Most breaks are presented in the Exhibit Hall.

PDH’S
Earn Professional Development Hours (PDHs) by attending the IBC! The Engineers’ Society of Western Pennsylvania (ESWP), sponsor of the IBC, is recognized as a Continuing Education Provider by the New York State Board of Professional Licensure and Florida Board of Professional Engineers, as well as many other state licensing boards. As such, your attendance at the IBC will qualify for continuing education credits in these states.
To obtain verification of attendance at the IBC from the ESWP, you must submit a PDH Request Letter. Official confirmation from the IBC Offices regarding each attendee's eligibility for PDHs will be mailed after the Conference. PDH Request Letters must be returned to ESWP. (PDH Letters can be obtained at the Conference Registration Desk or website, or by contacting the Engineers’ Society of Western PA, sponsors of the IBC.)
NOTE - For fulfilling continuing education requirements with New York State, attendees are required to sign in-and-out of IBC technical sessions, workshops or seminars on the session registry. Registry forms are located at the entrance to any of these sessions. Please note that ESWP is unable to verify your attendance in any session if you do not properly sign this registry!
GENERAL INFO

PROCEEDINGS
Proceedings are an optional order-only purchase and may be ordered in advance or on-site at the IBC for $30.00. Following the conference, proceedings may be ordered for $55.00. The official proceedings of the 30th Annual International Bridge Conference® will be available on CD in late Summer 2013 and mailed to you at that time.

PARKING
The Westin Convention Center Hotel does have its own parking facility, and valet parking is available for an additional cost of $22 per day. Simply pull up to the front door of the hotel to utilize this service. Parking at the David L. Lawrence Convention Center is also available. Self parking lots are in the immediate vicinity. Maps are available on line at http://www.pittsburghcc.com/cc/Directions.pxp

AMERICANS WITH DISABILITIES ACT
The International Bridge Conference® and ESWP support the Americans with Disabilities Act (ADA), which prohibits discrimination against, and promotes public accessibility for those with disabilities. We ask those requiring specific equipment or services as an attendee to contact the Conference Registration Desk

LOOKING AHEAD!
Interested in presenting a paper, workshop, seminar presentation at a future IBC? The IBC Call For Papers will open immediately following the 2013 Conference, and everyone is welcome to submit an idea for presentation. Visit www.eswp.com/bridge for more details.

JOIN US AT THE 2014 IBC!
Join us in 2014 for the International Bridge Conference,® June 8-12, 2014, David L. Lawrence Convention Center, Pittsburgh, PA. Many different sponsorship opportunities are available - don’t miss out and make your reservation early to take full advantage of all promotions!
GENERAL INFO

IBC EXECUTIVE COMMITTEE
The International Bridge Conference® (IBC) is sponsored by the Engineers’ Society of Western Pennsylvania (ESWP), a membership based, not-for-profit organization, located in Pittsburgh, PA. Learn more at www.eswp.com. The IBC is planned mainly through the volunteer efforts of these top industry professionals who make up the IBC Executive Committee. ESWP extends a sincere thank you to the entire Executive Committee (listed below in alphabetical order) for their efforts in planning this year’s conference. A very special thanks goes to the General Chair, William “Jay” Rohleder, Jr., P.E., S.E. for his leadership in planning this years conference.

VICTOR E. BERTOLINA, P.E.
SAI Consulting Engineers, Inc.
Budget Chair

CALVIN BORING JR.
Trumbull Corporation
Technical Program Co-Chair

ENRICO T. BRUSCHI, P.E.
AECOM
New Membership Chair

MATTHEW A. BUNNER, P.E.
HDR Engineering, Inc.
Seminars/Workshops Chair

RICHARD L. CONNORS, P.E., PMP
Bureau Veritas N.A., Inc.
Rules Chair

JOHN C. DIETRICK, P.E., S.E.
Michael Baker Jr., Inc.,
Technical Program Co-Chair
Education/Student Award Chair

DONALD W. HERBERT, P.E.
Pennsylvania Dept. of Transportation

GEORGE M. HORAS, P.E.
Alfred Benesch & Company

DONALD KILLMEYER, JR., P.E.
ms consultants, inc.
Tours Chair

ERIC S. KLINE, PCS
KTA-Tator, Inc.

THOMAS G. LEECH, P.E., S.E.
Gannett Fleming, Inc.
Awards Chair
Magazine Chair

M. MYINT LWIN, P.E., S.E.
Federal Highway Administration

THOMAS P. MACIOCE, P.E.
Pennsylvania Dept. of Transportation

MATTHEW P. McTISH, P.E.
McTish, Kunkel & Associates
Construction Chair

RONALD D. MEDLOCK, P.E.
High Steel Structures, Inc.
Co-Meetings Chair
IBC EXECUTIVE COMMITTEE (CONT’D)

GERALD J. PITZER, P.E.
Consultant

W. JAY ROHLEDER JR., P.E., S.E.
FIGG
General Chair

GARY RUNCO, P.E.
Allan A. Myers

HELENA RUSSELL
bridge design & engineering

LOUIS J. RUZZI, P.E.
Pennsylvania Dept. of Transportation

JEREMY SHAFFER, PH.D., PM
Bentley Systems, Inc.

STEPHEN G. SHANLEY, P.E.
Allegheny County Department of Public Works
Attendance/Marketing Chair

RACHEL STIFFLER
Vector Corrosion Technologies
Exhibits/Co-Sponsors Chair

JAMES L. STUMP, P.E.
Pennsylvania Turnpike Commission

DANIEL D. URANOWSKI, P.E.
Nicholson Construction Co.

THOMAS J. VENA, P.E.
A&A Consultants, Inc.
Keynote / Featured Agency Chair

KENNETH J. WRIGHT, P.E.
HDR Engineering, Inc.
Strategic Planning Chair

HONORARY MEMBERS

CARL ANGELOFF, P.E.
Bayer Material Science, LLC

JAMES DWYER
Advanced Rail Management Corporation

JOHN F. GRAHAM, JR., P.E.
Straen, Inc.

HERBERT M. MANDEL, P.E.
GAI Consultants, Inc.

LISLE E. WILLIAMS, P.E., PLS
Consultant
30th Anniversary Chair

EMERITUS MEMBERS

JOEL ABRAMS, PH.D.
Consultant

REIDAR BJORHOVDE, PH.D., P.E.
The Bjorhovde Group

ARTHUR W. HEDGREN, JR., PH.D., P.E.
Consultant
IBC HISTORICAL INFO

PREVIOUS GENERAL CHAIRMEN
2013  W. Jay Rohleder Jr., P.E., S.E.
2012  Matthew P. McTish, P.E.
2011  Thomas J. Vena, P.E.
2010  Jeffrey J. Campbell, P.E.
2009  Louis J. Ruzzi, P.E.
2008  Eric S. Kline, PCS
2007  M. Myint Lwin, P.E., S.E.
2006  Kenneth J. Wright, P.E.
2005  Enrico T. Bruschi, P.E.
2004  Thomas G. Leech, P.E., S.E.
2003  Robert F. Wellner, P.E.
2002  Donald W. Herbert, P.E.
2001  James D. Cooper, P.E.
2000  Donald J. Killmeyer, Jr., P.E.
1999  Gary Runco, P.E.
1998  Gerald J. Pitzer, P.E.
1997  Charles M. Schubert, P.E.
1996  Eric S. Kline
1995  Arthur W. Hedgren, Jr., Ph.D., P.E.
1994  Richard L. Connors, P.E., PMP
1993  Lisle E. Williams, P.E., PLS
1992  Dr. Reidar Bjorhovde
1991  Victor Bertolina, P.E.
1990  Carl Angeloff, P.E.
1989  Herbert M. Mandel, P.E.
1988  Peter Florian
1987  James D. Dwyer
1986  Stephan H. Dake
1985  John F. Graham, Jr., P.E.
1984  William J. Vandermark

PREVIOUS FEATURED AGENCIES
2013  Massachusetts
2012  Missouri
2011  Republic of Korea
2010  Maryland
2009  Pennsylvania
2008  Federal Highway Administration
2007  The People’s Republic of China
2006  Delaware
2005  Maine
2004  Pennsylvania Turnpike
2003  South Carolina
2002  Utah
2001  New York
2000  Kentucky
1999  Louisiana
1998  Massachusetts
1997  New Jersey
1996  Minnesota
1995  West Virginia
1994  Virginia
1993  North Carolina
1992  Ohio
1991  California
1990  Texas
1989  Illinois
1988  Michigan
1987  Connecticut
1986  Florida
1983  Pennsylvania
JOHN A. ROEBLING MEDAL
Awarded to an individual for lifetime achievement in bridge engineering. Major achievements may include design, construction, research and/or educational endeavors.

2013 M. Myint Lwin, P.E., S.E., Federal Highway Administration
2012 Dann H. Hall, Bridge Software Development International, Ltd.
2011 Michael J. Abrahams, P.E., Parsons Brinckerhoff, Inc.
2010 John M. Kulicki, Ph.D, P.E., Modjeski and Masters, Inc.
2009 Harold R. Sandberg, P.E., S.E., Alfred Benesch & Company
2008 Leonardo Fernandez Troyano, Carlos Fernandez Casado S.A.
2007 William B. Conway, P.E., Modjeski and Masters, Inc.
2006 Charles Seim, P.E., F. ASCE, T.Y Lin International
2005 John E. Breen, Ph.D., University of Texas, Austin
2003 Hiroyuki Fujikawa, Honshu-Shikoku Bridge Authority
2002 Jackson Durkee, C.E., P.E., Structural Engineer
2001 James E. Roberts, California Department of Transportation
2000 Eugene C. Figg, Jr., P.E., Figg Engineering Group
1999 Abba G. Lichtenstein, P.E., Ph.D., Retired (A.G. Lichtenstein & Associates)
1998 Man-Chung Tang, P.E., TY Lin International
1997 Christian Menn, Ph.D., Swiss Federal Institute of Technology
1996 Frank D. Sears, Modjeski and Masters, Inc.
1995 John W. Fisher, Ph.D., Lehigh University
1994 Jean M. Muller, Ph.D., J. Muller International
1993 Arthur L. Elliott, Retired (California DOT)
1992 Frank L. Stahl, Amman & Whitney
1991 Herbert Rothman, Weidlinger Associates
1990 TY Lin, TY Lin International
1989 Blair Birdshall, Retired (New York DOT)
1988 Carl H. Gronquist, Steinman, Boynton, Gronquist, & Birdshall
1987 Gerald F. Fox, Howard Needles Tammen & Bergenfeld

GEORGE S. RICHARDSON MEDAL
Awarded for a single, recent outstanding achievement in bridge engineering. Fields of endeavor may include design, construction, research or education

2013 Shandong Hi-Speed Qingdao Expressway CO., LTD, Jiaozhou Bay Bridge, Qingdao City, Shandong Province, China
2012 Nanjing Command Section of Beijing-Shanghai High-speed Railway, Nanjing Dashengguan Yangtze River Bridge, Nanjing, Jiangsu Province, China
2011 Anp & Highways Department Hong Kong, Stonecutters Bridge in Hong Kong, China
2010 Tianxingzhou Bridge Construction Headquarter of Huhanrong Railway Hubei Co., Ltd Wuhan Tianxingzhou Rail-cum-road Yangtze River Bridge
2009 Minnesota Department of Transportation, I 35-W Bridge over the Mississippi Bridge in Minneapolis, MN
2008 Nantong City, P.R. China, Sutong Bridge, Nangtong City, Jiangsu Province, China
2007 Maine Department of Transportation, Penobsbot Narrows Bridge and Observatory, Waldo and Hancock Counties, ME
2006 Donald White, Ph.D., William Wright, Ph.D., Mr. Michael Grubb, LRFD Unified Design Specifications for Steel Deck Girder Bridges
2005 GEFYRA S.A., Greece, Rion - Antirion Bridge
2004 CalTrans (Eugene Thimmhardy accepting), New Carquinez Bridge
IBC HISTORICAL INFO

2003  HNTB Corporation (Ray McCabe accepting), Leonard P. Zakim Bunker Hill Bridge
2002  British Columbia Ministry of Transportation, Lions Gate Bridge, Vancouver, British Columbia
2001  Rede Ferroviaria Nacional EP, Portugal, Tagus River Suspension Bridge Rail Addition Project
2000  HNTB Corporation (Ray McCabe accepting), Storrow Drive Bridge
1999  Gerard Sauvageot, J. Muller International, Confederation Bridge, Northumberland Strait, Canada
1998  Honshu-Shikoku Bridge Authority, Akashi-Kaikyo Bridge
1997  Virginia DOT, Parsons Brinckerhoff and Tidewater Construction Corp., George P. Coleman Bridge, Yorktown, VA
1996  John M. Kulicki, Modjeski and Masters, Inc., Development and Approval, LRFD Design Specifications
1995  Michel P. Virlogues and Bertrand Deroubaix Normandy Bridge
1994  Figg Engineering and Eastern Federal Lands Highway Div of FHWA, Natchez Trace Parkway Bridge, Tennessee
1993  Colorado Department of Transportation, Hanging Lake Viaduct, Glenwood Canyon, Colorado
1992  Washington State Department of Transportation, Lake Washington Floating Bridge
1991  James W. Neal, Jr., John F. Beasley Engineering, Inc., Roosevelt Lake Bridge
1990  L. Ray Davis, Hardaway Company, Ben Sawyer Bridge, South Carolina
1989  Tsutumu Yamane, Honshu-Shikoku Bridge Authority, Honshu-Shikoku Bridge Routes, specifically the Kojima-Sukaide Route
1988  Jean M. Muller and Eugene C. Figg, Jr., Figg and Muller Engineers, Inc., Sunshine Skyway Bridge across Tampa Bay, Florida

GUSTAV LINDENTHAL MEDAL
Awarded for a single, recent outstanding achievement demonstrating harmony with the environment, aesthetic merit and successful community participation.

2013  Government of the Northwest Territories, Deh Cho Bridge, Fort Providence, Northwest Territories, Canada
2012  Pennsylvania Turnpike Commission, I-76 Allegheny River Bridge, Oakmont, PA
2011  Buckland & Taylor Ltd., North Arm Fraser Crossing, British Columbia, Canada
2010  Construction Command Office of Zhushan Island and Mainland Link Project of Zhejiang Province, Xihoumen Bridge, China
2009  VDOT and Maryland State Highway Administration, Woodrow Wilson Bridge, South of Washington, DC linking VA and MD
2008  FHWA, WVDOH, and ODOT, Route 50 Bridge over the Ohio River and Blennerhassett Island, Parkersburg, West Virginia
2007  Construction Command Office of Nanjing No. 3 Yangtze River Bridge, Nanjing No. 3 Yangtze River Bridge, Nanjing, P.R. China
2006  South Carolina DOT, Arthur Ravenel, Jr. Bridge
2005  Compagnie Eiffage du Viaduc de Millau, Millau, France, Viaduct of Millau
2004  The Pennsylvania Turnpike Commission, Mingo Creek Viaduct, Pennsylvania
2003  Alexandre Chan, President JK Bridge, Brazil
2002  Figg Engineers, Broadway Bridge, Daytona Beach, Florida
2001  Henrik Christensen, Øresundskorsortiet, Denmark, Oresund Fixed Link Bridge Project
2000  Celia Kupersmith, Golden Gate Bridge, GGB Highway & Transportation District
1999  Kazu Hayashida, Hawaii Dept. of Transportation, Interstate H-3 Winward Viaduct

EUGENE C. FIGG, JR. MEDAL
Awarded for a single recent outstanding achievement in bridge engineering that, through vision and innovation, provides an icon to the community for which it was designed.

2013  New York State DOT & Vermont Agency of Transportation, Lake Champlain Bridge, Crown Point, NY & Addison, VT
2012  Municipality of La Paz, The Triplet Bridges, La Paz, Bolivia
2011  Central Federal Lands Highway Division of the Federal Highway Administration, Mike O'Callaghan-Pat Tillman Memorial (Hoover Dam By-Pass) Bridge, Connecting AZ & NV
2010  New Jersey Department of Transportation, George Street Bridge, New Brunswick, NJ
2009  T.Y. Lin International, Sanhao Bridge over the Hunhe River, Shenyang, China
2008  Ohio Department of Transportation, High-Main Street Bridge, Hamilton, Ohio
2007  Florida Department of Transportation, Royal Park Bridge Replacement, West Palm Beach, FL
2006  T.Y. Lin International, Dagu Bridge, Tianjin, China
2005  Turtle Bay Museums and Arboretum on the River, Sundial Bridge at Turtle Bay, Redding, California, USA
2004  Shanghai Lu Pu Bridge Investment Development Co., Ltd, Lu Pu Bridge, China
2003  Buckland & Taylor, Ltd., Rama 8 Bridge, Bangkok, Thailand
2002  Jiangsu Provincial Department of Communications, Jiangyin Bridge, China

ARTHUR G. HAYDEN MEDAL
Awarded to recognize a single recent outstanding achievement in bridge engineering demonstrating innovation in special use bridges such as pedestrian, people-mover, or non-traditional structures.

2013  Phu My Hung Joint Venture Limited Liability Corporation, Starlight Bridge, Ho Chi Ming City, Vietnam
2012  ILEX, Peace Bridge, Derry-Londonderry, Northern Ireland
2011  New Plymouth District Council, Te Rewa Rewa Bridge, New Plymouth, New Zealand
2010  Cambridgeshire County Council, Riverside Bridge, River Cam, Cambridgeshire County, UK
2008  City of Weil Amrhein, Tri-Countries Bridge, Weil Am Rhein, Germany
2007  Project Bureau IJburg, Nescoibrug, IJburg, Amsterdam, The Netherlands
2006  BAA Gatwick, Gatwick Pier 6 Airbridge, Gatwick Airport, London U.K.
2005  City of Greenville, South Carolina, Liberty Bridge
2004  City of Winnipeg, Canada, Esplanade Riel Pedestrian Bridge, Canada
2003  Schlaich Bergermann und Partner, Duisburg Inner Harbor Footbridge, Germany
ABBA G. LICHTENSTEIN MEDAL
Awarded for a recent outstanding achievement in bridge engineering demonstrating artistic merit and innovation in the restoration and rehabilitation of bridges of historic or engineering significance.

2013 Oregon DOT, Willamette River (Oregon City) Bridge, Oregon City & West Linn, OR
2012 Florida DOT, Bridge of Lions Rehabilitation, St. Augustine, FL

HISTORIC PRESERVATION AWARD
Special and beyond the traditional guidelines of the medal categories.

2010 Walkway Over the Hudson, Poughkeepsie Highland Railroad Bridge, Hudson River, Albany & New York, NY

ENGINEERING EXCELLENCE AWARD
Special and beyond the traditional guidelines of the medal categories.


JAMES D. COOPER STUDENT AWARD
A Student Paper Competition Open to all Graduate and Undergraduate Students Attending an Accredited College or University that Offers a Civil Engineering Major.

2012 Zachary B. Haber, University of Nevada, Reno, Seismic Performance of Emulative Precast Bridge Column Elements with Grouted Coupler Connections
2011 Behrouz Shafei, University of California at Irvine, CA, A Novel Vulnerability Index for Design of RC Bridges Subjected to Seismic Hazards and Environmental Stressors (IBC 11-SP)
2010 Sarira Motaref, University of Nevada, Reno, Performance of Precast Bridge Columns with Energy Dissipating Joints (IBC 10-SP)
2009 Michael Loy, Oregon Episcopal High School, Developing a Novel pH Buffer Methodology to Inhibit Corrosion of Steel Reinforcement in Concrete (IBC 09-16)
2008 Graduate: Woo Seok Kim, The Pennsylvania State University, Simplified Nonlinear Numerical Analysis Method for Integral Abutment Bridges (IBC 08-43), Under Graduate: Heidi Clayville, Theresa Howell & Kristen Erickson, Washington University in St. Louis, MO, The New Daniel Boone Bridge Project: US Route 40/l-64 Across the Missouri River
2006 Seung Dae Kim, Chi Won In, Kelly E. Cronin, Carnegie Mellon University, A Reference-Free Debonding Monitoring Technique for CFRP Strengthened RC Structures Using Active Sensing
The road to the future starts here

www.kci.com

Comprehensive transportation strategies succeed when you reach out to GAI’s engineering leaders. Get the answers you need, from the professionals you trust.

There’s always a solution

---

Bridge Management
Bridge Design/Inspection
Highway/Traffic

Design-Build/P3
CMS/CE&I
Rail/Rail Signals

H&H/Scour Modeling
Integrated 3D FEA
Training/Manual Development

---

Knowledge • Creativity • Innovation

THE ROAD TO THE FUTURE STARTS HERE

---

ISO 9001:2008 Certified | Employee-owned Since 1988
MONDAY JUNE 3

KEYNOTE SESSION
8:30 – 11:30 AM  BALLROOM B/C

Chair: William J. (Jay) Rohleder, Jr., P.E., S.E.,
Conference Chair
FIGG Bridge Engineers, Inc., Exton, PA

Welcome
Thomas E. Donatelli, P.E.
ESWP President
Michael Baker Jr., Inc., Pittsburgh, PA

Welcome
Rich Fitzgerald
Allegheny County Chief Executive
County of Allegheny, Pittsburgh, PA

Rich Fitzgerald was sworn into office as Allegheny County’s 3rd Chief Executive on January 3, 2012 at Soldiers & Sailors Memorial Hall & Museum. Surrounded by his wife, Cathy Tomasovich Fitzgerald, and his children Jocelyn, Erin, Caroline, Tanner, Madeline, Louisa, Mara, and Jackson, Rich took the oath of office as administered to him by The Honorable James J. Hanley, Jr., Magisterial District Judge.

He attended St. Lawrence O’Toole grade school and Central Catholic High School before going on to attend Carnegie-Mellon University. He earned his B.S. in Mechanical Engineering with a business minor in 1981.

In 1982, Rich started a small business, Aquenef, (acronym for “water and energy efficiency”). Three decades later, the company is the leading provider of water treatment equipment and services in the Western Pennsylvania Region, with over 700 customers.

Rich first became active in government when his children began school. He and his wife became involved in the PTO and worked with local elected officials on zoning and other issues. In 1998, he worked on the campaign to change the form of government in Allegheny County and in 1999, ran for one of the district council seats on the newly-formed County Council. He represented District 11 from 2000-2011 and served from 2004-2011 as the President of Council.

During his time on County Council, Rich worked to reform government and save taxpayers money by taking on popular officials and eliminating a number of row offices. Rich also worked to improve the way Allegheny County does business. Through his legislation and leadership, Allegheny County now has a Homestead Exemption for property owners and a Human Relations Commission. In 2011, Rich resigned from County Council to run for Chief Executive, winning the seat by a huge margin on November 8, 2011.
8:45-9:10 AM
The Way Forward
Frank DePaola, P.E.
MassDOT Highway Administrator
Massachusetts DOT, Boston, MA

Frank DePaola is the Highway Administrator for the Massachusetts Department of Transportation. Prior to Mr. DePaola’s appointment to the Highway Division, he was the Assistant General Manager for the MBTA’s Design and Construction Directorate providing oversight to all aspects of the design and construction projects for the MBTA’s Capital Management Program.

Mr. DePaola has over thirty years experience in the design and construction industry. Prior to joining the Massachusetts Department of Transportation in 2009, Mr. DePaola was Senior Project Manager for Infrastructure for Harvard University’s Allston Development Group. Mr. DePaola was also Director of Construction for the Massachusetts Water Resources Authority.

Mr. DePaola is a licensed, registered Professional Engineer in Massachusetts and Rhode Island, and holds a Master of Science Degree in Civil Engineering from Northeastern University and a Bachelor of Science Degree from the University of Massachusetts-Dartmouth.

9:10-9:35 AM
Transportation Finance
Barry J. Schoch, P.E.
Secretary of Transportation
Commonwealth of Pennsylvania
Harrisburg, PA

Barry Schoch, P.E., was nominated by Governor Tom Corbett to be Pennsylvania Secretary of Transportation in January 2011.

Schoch has over 30 years’ experience in the engineering field and has been heavily involved in either consulting, managing or playing a key role in many of the pending or completed transportation projects in Pennsylvania over that time.

For the 15 years prior to becoming Secretary of Transportation, Schoch worked for McCormick, Taylor & Associates as vice president and manager of their Harrisburg office transportation department. His portfolio ran the gamut from concept planning to finance strategies to project designs. A few of his projects include the Mon-Fayette Expressway in Southwest Pennsylvania; the proposed interchange between the Pennsylvania Turnpike and Interstate 95; the South Central Centre County Transportation Study in Centre County; the I-83 master plan for the Harrisburg region; the widening and reconstruction of U.S. 30 in Lancaster County; and the rebuilding of the interchange of U.S. 15 and Route 581 in Cumberland County. He played key roles in improving PennDOT’s approach to context sensitive design and training for environmental quality efforts. He also managed engineering for studies of Mag-Lev in the Washington-Baltimore corridor and was
the project director for Pennsylvania’s proposed Mag-Lev project from Pittsburgh to Greensburg.

Schoch previously served as the president of the Pennsylvania Highway Information Association and as the chair of Pennsylvania Consulting Engineers transportation committee, and the Design Professionals Coalition Transportation Committee.

He graduated from Penn State University in 1982 with a degree in civil engineering and is a licensed professional engineer.

Impact of Map-21 on Bridges and Tunnels

M. Myint Lwin, P.E., S.E.
Director, Office of Bridge Technology
FHWA, Washington, DC

M. Myint Lwin is the Director, Office of Bridge Technology, Federal Highway Administration (FHWA), U.S. Department of Transportation. He is responsible for setting policies, regulations, program direction and guidance for the bridge and tunnel programs in accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and the Moving Ahead for Progress in the 21st Century Act (MAP-21). His office is responsible for providing stewardship and oversight to assure safety of the Nation's highway bridges, tunnels and other related highway structures.

He was the State Bridge Engineer with the Washington State Department of Transportation before joining FHWA. He has over 35 years of experience in design, specifications, construction, maintenance and inspection of highway bridges and structures.

He holds a BSCE degree from the University of Rangoon, Burma, and holds an MSCE degree from the University of Washington, Seattle, Washington. He is a registered Professional Engineer in Civil and Structural Engineering, a member of ACI, a Life Member of ASCE, a member of TRB Committees on Steel Bridges, Construction, and Basic Research, and Secretary of the AASHTO Highway Subcommittee on Bridges and Structures. He has authored numerous papers and books on bridge engineering, and taught courses in bridge design, construction and management, and NHI courses in bridge inspection. He is an advocate for advancing bridge technologies through working together with AASHTO, States, Industry, Academia, TRB and other stakeholders to assure safety, reliability, efficiency and sustainability of highway bridges and structures.
Design-Build Procurement and Best Practices

Michael Flowers, P.E.
President and CEO
American Bridge Company,
Coraopolis, PA

Michael D. Flowers, P.E. is President and Chief Executive Officer of American Bridge Company, headquartered in Pittsburgh, Pennsylvania. The 113 year old specialty bridge and marine contractor has annual revenues of about $550M.

Flowers joined American Bridge in 1975 after earning his Bachelor of Science Degree in Civil Engineering from West Virginia University, and went to work as a Design Engineer in the Pittsburgh Regional Engineering office. In the early years of his career he worked on industrial projects, mainly steelmaking facilities, which AB was designing and building for its then parent United States Steel Corporation. He also earned a Master of Science Degree in Civil Engineering from the University of Pittsburgh after three years of evening school.

Mike later was assigned to a business unit of AB responsible for major commercial construction projects in the United States working largely on high-rise buildings and bridge projects throughout the USA. His projects during this era to name a few included the two-tower Phase II of the Renaissance Center in Detroit, Michigan, the One Mellon Bank Center (55 stories), PPG Place (five buildings up to 40 stories), and Fifth Avenue Place (32 stories) buildings in Pittsburgh, PA and the Riverside Drive Viaduct in New York City – a total reconstruction of an historic 1,725’ (526m) 26-span deck arch viaduct.

When AB began to fall on hard times in the mid 1980’s, Mike joined Mellon Stuart Construction first in their commercial building division and then in the Heavy and Highway Division, which he ran for several years. In this capacity he worked on major bridge and highway projects in Pennsylvania and Illinois.

Returning to American Bridge in 1994 as Senior Vice President of Operations, Mike became involved with major bridge projects including the reconstruction of the Williamsburg Suspension Bridge in New York City, the MacArthur Causeway in Miami, the Tagus River Bridge rail deck addition in Portugal, the Lions Gate Bridge in Vancouver, BC, the historic reconstruction of the 160 year old Wheeling Suspension Bridge in West Virginia, the Gateway Boulevard (Arch) Bridge in Nashville, TN, the Kentucky Lakes (steel girder and truss) Bridges at Kentucky Dam and the world’s largest bascule structure, the 8-leaf Woodrow Wilson Bridge in Washington, DC.

Upon the award of the $1.7 billion San Francisco Oakland Bay Self Anchored Suspension Bridge in California to an American Bridge led Joint Venture in 2006; Mike took on Project Director responsibilities and moved to the site.
There he oversaw all aspects of this unique single tower, 12 lane suspension bridge construction project in the highly seismic Bay Area. The project contains 22,000 tons of temporary steel, 46,000 tons of permanent structural steel including a four legged steel tower and orthotropic box girder superstructure, and 5,500mt of prefabricated parallel wire strand cables.

Upon the retirement of Bob Luffy in 2010, Mike assumed CEO responsibilities. He is a skilled leader that is highly experienced in the technical and operational aspects of the company’s project activities. Mike oversees one of the world’s legendary bridge-building companies, with over 1,000 highly skilled employees across the United States and abroad. Under his direction, American Bridge will continue to strengthen its industry leading human engineering and field construction resources in the pursuit and construction of complex bridge and marine projects around the United States and the World.

Mike is married with four grown children and enjoys fly fishing and engineering history. He is actively involved with industry organizations including the Construction Industry Round Table.

**10:25- 10:50 AM**

**The Federal Role in Transportation**

*The Honorable Bill Shuster*

*Chairman, U.S. House Transportation & Infrastructure Committee (PA 9th District)*

*Hollidaysburg, PA*

Congressman Bill Shuster represents the hard-working people and small communities of Central and Southwestern Pennsylvania’s Ninth Congressional District.

This region played an important role in the growth of the Nation’s railroad industry, and because of the importance of transportation to the region and the Nation’s economy, Shuster has focused on improving our infrastructure since his first days in Congress.

As a result of his proven leadership on these issues in the House of Representatives, Shuster was selected by his colleagues to chair the Committee on Transportation and Infrastructure in the 113th Congress.

The Committee, one of the largest in Congress, has broad jurisdiction over all modes of transportation, including aviation, maritime and waterborne transportation, highways, bridges, mass transit, and railroads, as well as other aspects of our national infrastructure.

Infrastructure is the backbone of our economy, and as Committee Chairman, Shuster is committed to strengthening America’s national transportation and infrastructure network to make us more efficient, more competitive, and more prosperous.

Shuster has been a member of the Transportation Committee since coming to Congress in 2001. He previously served as Chairman of the Subcommittee on Railroads, Pipelines, and Hazardous Materials, as well as Chairman...

In addition to Congressman Shuster’s prominent role on transportation policy, he continues to be an active voice in support of our Armed Services and is a recognized leader on national security matters. As a member of the House Armed Services Committee, Shuster serves on the Subcommittee on Emerging Threats and Capabilities and in the 112th Congress was the Chairman of a special panel to investigate the challenges small and medium sized businesses face in doing business with the Department of Defense. This panel’s work led to National Defense Authorization Act provisions to help reduce barriers to entry for businesses and to expand our national defense industrial base.

Bill Shuster was born in McKeesport, Pennsylvania and grew up in Bedford County, Pennsylvania working on his family’s farm. After graduating from Everett High School, he attended Dickinson College in Carlisle, receiving a Bachelor of Arts in Political Science and History. He went on to earn a Master’s of Business Administration from American University in Washington, D.C.

Before beginning his career in public service, Shuster gained years of private sector experience, working in marketing and management with the Goodyear Tire and Rubber Corporation, and rising to District Manager for Bandag Incorporated. He was also a successful small business owner, having owned and operated an automobile dealership in East Freedom, Pennsylvania.

Shuster and his wife reside in Hollidaysburg, Pennsylvania and have two children.

10:50-11:15 AM
Transportation at a Cross Roads-MAP 21 and Beyond
Michael P. Lewis
Director, Rhode Island Department of Transportation
2013 AASHTO President
Providence, RI

Michael P. Lewis has served as the Director of the Rhode Island Department of Transportation since March 2008, being reappointed by Governor Lincoln D. Chafee in 2011.

Since joining RIDOT, he has led a public awareness campaign on transportation funding which has resulted in legislative funding reforms including the elimination of borrowing to provide federal matching funds, increases in license and registration fees for transportation, a shift in debt service away from transportation revenues, and the expansion of toll opportunities for Rhode Island.

In addition to his position as the Director of RIDOT, Lewis is chairman of the R.I. Public Railroad Corporation and a board member of both the R.I. Public Transit Authority and the R.I. Turnpike and Bridge Authority.

Director Lewis was named President of American Associ-
tion of State Highway Transportation Officials (AASHTO) on October 19, 2012. Director Lewis also chairs the Construction Subcommittee of AASHTO’s Standing Committee on Highways and is a member of both the Executive Committee and SHRP II Oversight Committee of the Transportation Research Board (TRB) and the Executive Committee of the Northeast Corridor Commission (NEC).

Lewis was an engineer with the Massachusetts Highway Department and then the Massachusetts Turnpike Authority from 1984 to 2001. From April 2000 through project completion in December 2007; he was Director of Boston’s Central Artery/Third Harbor Tunnel Project (Big Dig). Lewis is a member of the American Society of Civil Engineers and the Boston Society of Civil Engineers.

Lewis graduated with a Bachelor’s of Science degree in Civil Engineering from the University of Vermont.
FEATURED AGENCY SESSION: MASSACHUSETTS DOT
1:00 – 5:00 PM | FIGG THEATER

Chair: Alex Bardow, P.E., Massachusetts DOT State Bridge Engineer

1:00 PM
Successfully Implementing Innovation, a Presentation Including Accelerated Bridge Construction Case Studies & Lessons Learned
Thomas P. Donald, P.E., Director of Bridge Project Management

2:00 PM
Innovative Bridge Solutions in MassDOT’s New Bridge Manual
Alexander K. Bardow, P.E., Massachusetts State Bridge Engineer

2:45 PM
Communicating about Accelerated Bridge Construction — Case Studies and Resources
Eliza Partington, Bridge Technical Coordinator

3:15 PM
Managing Accelerated Bridge Construction
Victoria Sheehan, Accelerated Bridge Program Manager

4:00 PM
MassDOT’s Major Projects
Joe Pavao, MassDOT Project Manager

SPECIAL INTEREST SESSION
1:00 – 3:00 PM | THEATER 3

Autonomous Robotic Grit Blasting Systems - Sydney Harbour Bridge Case Study
Presented By: SABRE Autonomous Solutions

SABRE Autonomous Solutions is a new start up company spun out of the University of Technology Sydney (Australia). The world’s first autonomous grit blasting robot capable of working in an unstructured, complex environment will be unveiled. The objective is to demonstrate the potential for autonomous field robotics systems to provide safer, more efficient and higher quality abrasive blasting in complex steel bridges. The Sydney Harbour Bridge case study will be used to tell the story of how the SABRE robotic grit blaster was developed.

Speakers: Martin Lloyd, Chief Operating Officer, Greg Peters, Engineering Design Manager, and James Ross, Design Engineer, Sabre Autonomous Solutions, Sydney, New South Wales, Australia
PROPRIETARY SESSION
1:30 – 4:30 PM | COMPUTERS & STRUCTURES INC. THEATER
Chair: Rachel Stiffler
Vector Corrosion Technologies, McMurray, PA

1:30 PM
IBC 13-01: Accelerated Railroad Bridge Construction to Support Historical Transportation Modes
Quentin Rissler, P.E., Larson Design Group, Lititz, PA; Stephen Weaver, Strasburg Rail Road Company, Strasburg, PA; Jeffrey Given, P.E., Loftus Construction, Inc., Cinnaminson, NJ; Kevin Grant, CONTECH Engineered Solutions LLC, Denver, PA

A unique precast concrete arch railroad structure with precast foundation units was economically constructed on the historic Strasburg Rail Road mainline with a limited 14 day track outage which also included 2000 feet of track work. This successful accelerated bridge construction project will be examined as a case study on the importance of teamwork, communication and the appropriate use of technology in meeting modern design loads while maintaining historic transportation presentation requirements.

2:00 PM
IBC 13-02: The Quest for 100 Year Bridge Coatings in Japan
Winn Darden, AGC Chemicals Americas, Exton, PA

Fluoropolymer topcoats are ultra-weatherable, with potential lives of 100 years. Based on laboratory test results as well as results from the field, fluoropolymer topcoats are required for use on all bridges in Japan. These topcoats offer substantially lower life cycle costs compared to conventional coatings, and can virtually eliminate maintenance painting requirements. Dozens of monumental bridges, primarily in Japan, China, and Korea, have used fluoropolymer topcoats over the last 25 years.

2:30 PM
IBC 13-04: Scour and SHM on the Frontera Bridge
Stephen Schorn, E.I.T., Francois Callewaert, and Gilles Hovhanessian, Advitam Inc., Sterling, VA

Scour occurs all over the world. Affecting the integrity of a bridge, scour must be monitored using up-to-date methods. One method of monitoring scour is being implemented in Mexico on the Frontera Bridge, which shows advanced deterioration. The system, developed by Advitam, monitors the phenomenon 24/7 and alerts the owner if thresholds are reached that could cause potential failure. We will discuss the concept, uses and technical specifications of the monitoring system and its implementation.

3:00 – 3:30 PM | COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC
3:30 PM  
**IBC 13-05: Predicting Global Buckling Behavior in the Construction of Steel Bridges**

*Stephen Rhodes, Beng, MSc, Ceng, MICE* and *Terry Cakebread, BSc(Hons), CEng, MICE, LUSAS, New York, NY*

Global buckling modes, which may not be prevented by compliance with the member resistance checks in AASHTO Chapter 6, can be critical - particularly during construction of steelwork. Finite Element Analysis can be used to predict such modes. This paper describes practical approaches, including considering criteria which might be used to identify if such behavior should be of concern to the designer. Principles explored may also be of use in rating of steel bridges.

4:00 PM  
**IBC 13-89: Verification Of Quality And Performance Of Modular Expansion Joints – America's Leading Role In Full-Scale Product Testing**

*Thomas Spuler and Colm O'Suilleabhain, Mageba SA, Bulach, Switzerland; Gianni Moor, Mageba USA LLC, New York, NY*

Laboratory testing to verify the functionality, performance and durability of bridge deck expansion joints has become increasingly important in recent years. Nowhere has the demand for such testing been stronger than in the United States, where a comprehensive range of standards specifying highly demanding testing has been published. The testing is described, and the consequences of the unnecessary requirement for such testing are discussed, enabling recommendations to be made regarding project-specific requirements for testing.
NEW! SPECIAL INTEREST SESSION
1:30 – 2:30 PM  THEATER 2

ASCE’s 2013 Report Card for America’s Infrastructure

Presented By: ASCE

Every four years, ASCE’s 2013 Report Card for America’s Infrastructure depicts the condition and performance of the nation’s infrastructure in the familiar form of a school report card—assigning letter grades based on the physical condition and needed fiscal investments for improvement. The Report Card covers 16 infrastructure categories and highlights initiatives and innovations that are making a difference in an easy to use new format of a tablet and smartphone app. However, America’s infrastructure grades also have economic consequences. In a recent series prepared by economists, the ASCE “Failure to Act” economic reports looked at infrastructure’s impact and how only investing at current, modest levels will hurt America’s GDP, citizen’s personal income, and jobs if these trends continue. Together, these report findings will give you the key facts and a compelling message to share with non-engineers and decision makers who will make decisions about America’s infrastructure through their votes.

Speakers: Andrew W. Herrmann, P.E., SECB, F.ASCE, ASCE President 2012 & Principal, Hardesty & Hanover, Pittsburgh, PA

IBC 30TH ANNIVERSARY PARTY!
5:00 - 7:00 PM  WEST ATRIUM & GARDEN TERRACE

Join us to celebrate the 30th Anniversary of the International Bridge Conference®! That’s right, in case you haven’t heard, the IBC turns the big 3-0 in 2013, and we are throwing a birthday party to help celebrate the event! ALL registered attendees are invited to attend - there is no additional cost, but you must present your official IBC name badge for entry. The party is held in the West Atrium and Garden Terrace of the David L. Lawrence Convention Center, just over the skybridge walkway.

Enjoy appetizers and beverage service compliments of the Engineers’ Society of Western Pennsylvania, proud sponsors of the IBC!

A brief program will be conducted to introduce the past Chairmen of the IBC, as well as the traditional singing of “Happy Birthday” to the IBC.

Be sure to bring your copy of Reflections as many of the contributing writers will be present for book signing.
CONSTRUCTION, PART 1

8:30 AM – 12:00 NOON FIGG THEATER

Chair: M. Myint Lwin, P.E., S.E.
Federal Highway Administration, Washington, DC

8:30 AM

IBC 13-06: The Innovative Design and Construction of New Steel Trusses within the Existing Iconic Washington Avenue Bridge in Minneapolis, MN
John Milius, P.E., AECOM, Philadelphia, PA; Mike Pamperin, P.E., Ames Construction, Inc., Burnsville, MN

A unique bridge rehabilitation scheme was implemented for the iconic Washington Avenue Bridge, a double-decker bridge carrying an upper pedestrian deck and a lower roadway deck. In addition to highway traffic, bridge rehabilitation accommodated two lanes of light rail to the lower deck. By interlacing trusses within the existing girder-floorbeam superstructure, the rehabilitation converted the non-composite fracture-critical bridge into a redundant multi-girder composite structure, functional for combined pedestrian, highway and proposed light rail usage.

9:00 AM

IBC 13-07: Incremental Launch Method for Steel Truss Bridge Erection
Jerry M. Pfuntner, P.E., S.E., FINLEY Engineering Group, Inc., Tallahassee, FL

This presentation will focus on the construction engineering design and details for the Chelsea Street Bridge in Boston and the Checkered House Bridge Rehabilitation in Vermont that allowed the contractors to erect two steel trusses, using the incremental launch methods. The following details and technical solutions for the following elements will be discussed: • Launch systems and temporary launch bearings and guides. • Erection stresses in steel members. • Temporary supports. • Analysis techniques, including stability checks. • Lessons learned and recommendations for future applications.

9:30 AM

IBC 13-08: NCHRP Report 725: Recommendations for Curved and Skewed Steel Girder Bridge Construction Engineering
Brandon Chavel, Ph.D., P.E., HDR Engineering, Inc., Cleveland, OH; Domenic Coletti, P.E., HDR Engineering, Inc., Raleigh, NC; Donald White, Ph.D., Georgia Institute of Technology, Atlanta, GA; Andres Sanchez, Ph.D., E.I.T., HDR Engineering, Inc, Pittsburgh, PA

The recently completed NCHRP Report 725, “Guidelines for Analytical Methods and Erection Engineering of Curved and Skewed Steel Deck-Girder Bridges,” investigated the analysis of curved and skewed steel girder bridges, and aimed to improve construction engineering for steel girder bridges. Many of the findings and recommendations from this project can be immediately implemented by practicing bridge engineers. These findings and recommendations are the main focus of this paper.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION
10:30 AM

An integrated jacking and shoring support system was developed to not only act as temporary support for jacking up existing girders but also act as the shoring for the pier cap concrete pouring. This new system includes three harmonically integrated parts: the vertical steel pipes, the horizontal self-balanced tie-rods collar system, and the tie-rod suspended platform. The steel pipes functioned as the supports to the platform and the temporary bearings. The self-balanced tie-rods collar system was used to provide the stability to the 28m high support steel pipe to avoid the use of massive shoring towers! In addition, the tie-rod suspended platform is developed not only to support the pier cap pouring but also to provide the added lateral stability to the support pipes.

11:00 AM
IBC 13-10: Alexander Hamilton Bridge Rehabilitation of Approach Spans Superstructure
Roger Haight, P.E. and Michael Abrahams, P.E., Parsons Brinckerhoff, New York, NY; Gary Dinmore, P.E., Halmar International, Pearl River, NY

The Alexander Hamilton Bridge, carries I-95 over the Harlem River in New York City. The $407 million rehabilitation is the largest single-contract construction project in NYSDOT’s history. Construction will continue through 2013. The project includes new reinforced concrete deck and modifications to the approach superstructure while maintaining eight lanes of traffic. In a Value Engineering Study, new welded plate girders were used in lieu of the intended truss girders to improve and simplify the design and construction.

11:30 AM
IBC 13-11: MNDOT Approved Supplier Program
Todd Niemann, Minnesota DOT, Oakdale, MN; Anna Petroski, DOT Quality Services, Chicago, IL

MNDOTs Approved Supplier Program for structural steel is designed to develop suppliers with fully functioning, robust, and comprehensive quality programs. MNDOT believes an effectively implemented and regularly maintained Quality Management System (QMS) is a key indicator of a supplier’s ability to consistently produce a quality product for continued project success. A fully functioning QMS should reduce error, deviation, and rework. This in turn provides profitability for the supplier and improves quality and timeliness for the owner.
DESIGN, PART 1
8:30 AM – 12:00 NOON THEATER 2
Chair: Gerald J. Pitzer, P.E.
Consultant, Pittsburgh, PA

8:30 AM
IBC 13-12: The Benefits of Using Seismic Isolation Bearings on the SR 520 West Approach Bridge
Greg Knutson, P.E., S.E., HDR Inc., Seattle, WA
The SR 520 West Approach Bridge is a 6,000 foot long, 42-span bridge that will connect the corridor’s new floating bridge to the shoreline in Seattle, Washington. This presentation will introduce the fundamentals of seismic isolation and the reasons for selecting isolation as the earthquake resisting system. It will also present the costs and benefits of utilizing isolation, and will discuss assumptions and techniques employed during the non-linear time history analysis of the bridge.

9:00 AM
IBC 13-13: Pennsylvania’s Segmental Bridges
William Johnson, IV, P.E., S.E. and Ken Heil, P.E., FIGG, Exton, PA
Pennsylvania is home to three concrete segmental bridges - the I-76 Susquehanna River Bridge (2007), the state’s first vehicular segmental bridge; the I-76 Allegheny River Bridge (2010) with a record 532’ span; and the Monongahela River Bridge (2012). As each bridge was accomplished, valuable information was gained to provide a foundation for the next bridge. Each of these context sensitive bridges features aesthetically pleasing design in harmony with surroundings and construction to preserve the environment.

9:30 AM
IBC 13-14: Branching Out From Conventional Design: Harbourside West Pedestrian Overpass
Schaun Valdovinos, M.S., P.Eng., Hatch Mott MacDonald, Vancouver, British Columbia, Canada
Harbourside West Pedestrian Overpass is a 690-ft long bridge located in North Vancouver, BC and forms a critical link in the Spirit Trail, a multi-use greenway. The bridge crosses over three railway tracks and provides direct access to a waterfront park system for pedestrians and cyclists. Design of the overpass has many innovative features including “tree piers” supporting the long, serpentine approach viaducts and a flat network arch used to span over the railway tracks.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM
IBC 13-15: 800’ Continuous Steel Girder Structure – Curved and Fully Joint-less
Michael Liona, P.E. and Rasmin Kharva, P.E., Hardesty and Hanover, New York, NY
The structure was designed to be fully joint-less to eliminate typical deck joints which are costly to maintain and are a main cause of superstructure and substructure deterioration. At a length of approximately 800 feet, this
4-span continuous steel girder bridge will be the longest fully joint-less curved structure owned by NYSDOT when completed. Finite element modeling was used to determine the full range of thermal movements of the structure taking into account thermal gradients.

11:00 AM
**IBC 13-16: Seismic Design of Bridges for Increased Reliability**
Roy Imbsen, Anoop Mokha, Victor Zayas, and Stanley Low, Earthquake Protection Systems, Inc., Vallejo, CA

Bridges designed and built to current AASHTO minimum design requirements to provide “life safety” using a ductile design approach will not provide a resilient and sustainable bridge. A seismic resistant construction method that takes advantage of modern technology is presented that reduces construction costs and increases reliably to avoid bridge damage. A bridge can now be economically constructed to have a 98% reliability to achieve “continued functionality” for a 2500 year event using the new Triple Pendulum Bearing Technology.

11:30 AM
**IBC 13-17: US Route 29 Gainesville, VA Interchange**
Christopher Lowe, P.E., Virginia DOT, Richmond, VA; Mark Unterkofler, P.E., Dewberry, Inc., Fairfax, VA

Numerous train crossings of the at grade intersection with US 29 result in traffic congestion for the 54,000 daily vehicles on this urban highway. A 77 degree skew, expensive right-of-way, and constrained vertical profile present additional challenges. The new bridge requires 11 lanes of traffic to span over four rail lines with provisions for collision protection of the abutments. A structure with prestressed concrete beams oriented perpendicular to traffic was chosen as the solution.

**REHAB/PRESERVATION, PART 1**
8:30 AM – 12:00 NOON   THEATER 3
Chair: Jeremy Shaffer, Ph.D., PMP, Bentley Systems, Incorporated, Pittsburgh, PA

**IBC 13-18: Rehabilitation of the PennDOT Structures Surrounding Amtrak’s 30th Street Station**

PennDOT implemented a $50 million program to rehabilitate the bridges that combine to form a road network around Amtrak’s 30th Street Station in Philadelphia. The age and general lack of proper maintenance resulted in the bridges being classified as structurally deficient. A work plan was developed outlining a sequence of construction to limit the impacts to Amtrak’s train operations. All surface improvements were coordinated with project stakeholders to return a great public space adjoining station.
TUESDAY JUNE 4

9:00 AM
IBC 13-19: Wearing Surfaces for Orthotropic Steel Decks in the United States
Charles Seim, P.E., Consulting Bridge Engineer, El Cerrito, CA
This paper focuses on wearing surfaces (WS) that have been used in the United States since orthotropic steel decks were introduced in the 1960s. It lists functions that are required for good WS performance; compares thin to thick WS; comments on composite versus non-composite action of WS; discusses fatigue and the role of WS in reducing fatigue effects in steel decks; suggests methods of testing WS to assess performance; and lists research-needs of wearing surfaces in the United States.

9:30 AM
IBC 13-20: Investigation and Repair of the Diefenbaker Bridge Fracture
Reed M. Ellis, Ph.D., P.E., Stantec Inc., Edmonton, Alberta, Canada; Robert Connor, Ph.D., P.E., Purdue University, West Lafayette, IN
This paper presents the case study of the investigation and repair of a 7 span fracture critical steel girder bridge which experienced brittle fracture in August 2012. The investigation concluded the fracture was a constraint induced fracture (CIF). The resulting repair involved reconstructing a portion of one of the two girders while supporting the structure. The structure was instrumented with strain gauges and a load test was performed after the repair.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM
IBC 13-21: A Bridge Inspectors Guide to NDT
Jason Stith, Ph.D., P.E., S.E. and Michael Baron, P.E., Michael Baker Jr., Inc, Louisville, KY; George Gorrill, P.E., S.E., Michael Baker Jr., Inc., Chicago, IL
Efficient maintenance of our bridges will be critical in the coming decades. The decision made by bridge inspectors will direct scarce resources. This paper will compare several nondestructive testing (NDT) techniques available to inspectors when visual inspection is insufficient including magnetic particle, ultrasonic, radiographic and high-energy x-ray testing. Each NDT method comes with practical advantages and disadvantages for the owner which were highlighted during their use in the fitness-for-service evaluation of the Sherman Minton Bridge.

11:00 AM
IBC 13-22: South Street Bridge Reconstruction – A Multi-Modal Link to University City, Philadelphia, PA
Richard Kemper, Gannett Fleming, Inc., Audubon, PA; William E. Gural, P.E., City of Philadelphia, Philadelphia, PA; Thomas Piotrowski, AIA, SARP and Bruce Chamberlin, H2L2, Philadelphia, PA
The reconstruction of the South Street Bridge is the largest and most complex public works bridge project in the City of Philadelphia’s history. The bridge provides multi-modal connections to residential neighborhoods and
University City community on either side of the Schuykill River, a commuter train station, interstate ramps, and multi-use river trail. This paper will illustrate innovative methods to cost-effectively address site constraints and incorporate context sensitive designs in bridge reconstruction in an urban environment.

11:30 AM

IBC 13-23: M2 Motorway Upgrade, Sydney, Australia: Bridge Lengthening, Widening and Other Modifications under Traffic

Henry E. Ah-Cann, Ph.D., B.E., MIEAust and Darrell Meyers, B.E., MIEAust, NPER3, MIABSE, AECOM Australia, Sydney, New South Wales, Australia

The M2 Motorway Upgrade required ten existing bridges to be lengthened, widened and modified whilst they remained in service. This paper describes the application of external post-tensioning tendons to lengthen three existing girder-type over-bridges and to extensively modify a further over-bridge. Topics such as the behaviour of external tendons, the use of shear friction to attach new components to existing structure, durability and tendon replacement are discussed. Sustainable engineering outcomes were achieved by modifying existing bridges to meet new requirements, rather than the alternative of demolition and replacement.

EVALUATION & ANALYSIS, PART 1

8:30 AM – 12:00 NOON  COMPUTERS & STRUCTURES INC. THEATER

Chair: Kenneth J. Wright, P.E.
HDR Engineering, Inc., Pittsburgh, PA

8:30 AM

IBC 13-24: Improved Analysis of Steel I-Girder Bridges Using 2D-Grid Models

Andres Sanchez, Ph.D., HDR Engineering, Inc., Pittsburgh, PA; Donald White, Ph.D., Georgia Institute of Technology, Atlanta, GA

This paper discusses the characteristics, attributes, and limitations of 2D-grid analysis methods. The effects of horizontal curvature and support skew on the behavior of bridges under construction are investigated to demonstrate how current 2D-grid analysis methods can deliver inaccurate predictions of the structural responses of bridges with complex geometries. Based on these studies, improved modeling techniques that can be implemented in 2D-grid analysis for a better representation of the structural behavior of steel girder bridges during construction are introduced.

9:00 AM

IBC 13-25: Experimental Evaluation of Hybrid FRP-Concrete Bridge Truss Girders of Different Spans

Mamdouh El-Badry, Ph.D., P.Eng., Mohammad Hadi Aghahassani, and Mohammad Hossein Moravej Hamedani, University of Calgary, Calgary, Alberta, Canada

A bridge system with precast concrete truss girders and cast-in-situ deck is presented. The girder flanges are connected by vertical and diagonal concrete-filled FRP tubes.
The verticals, under compression, and the diagonals, under tension, are connected to the flanges by GFRP dowels and headed bars, respectively. The flanges are pretensioned and the girders externally post-tensioned with CFRP tendons. Advantages include reduced self-weight and enhanced durability. Tests on girders with different span-to-depth ratios show excellent performance.

9:30 AM

IBC 13-26: Load Rating Analysis of the Historic Albertus L. Meyers Bridge
Eric Martz, P.E., KCI Technologies, Mechanicsburg, PA; James McGee, P.E., PennDOT, Allentown, PA; Richard Schoedel, P.E., Michael Baker Jr., Inc., Moon Township, PA
The Albertus L. Meyers Bridge (aka 8th Street Bridge), is a historic gateway located on the south side of Allentown, Pennsylvania. Constructed in 1913, the bridge configuration includes nine reinforced concrete open spandrel arches and eight approach spans. This paper will focus on the three-dimensional load rating analysis of the main arch spans, and explain how modern structural analysis techniques coupled with historical records were used to predict the structural behavior.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM

Wagdy Wassef, Ph.D., P.E. and Vanessa Storlie, E.I.T., Modjeski and Masters, Inc., Mechanicsburg, PA; Mark Mlynarski, P.E., Michael Baker Corporation, Moon Township, PA
The AASHTO Manual for Bridge Evaluation (MBE) uses the load and resistance factor rating (LRFR) method. The first edition of the MBE included load factors that many practitioners found to be high. The high load factors led to bridges with unsatisfactory rating factors even though these bridges had satisfactory rating factors using the load factor rating (LFR) method. AASHTO, through the National Cooperative Highway Research Program (NCHRP), initiated the NCHRP Project 12-78 to investigate the large reported differences between the rating factors produced by the two rating methods.

11:00 AM

IBC 13-28: A Proposed Markup Language for Finite Element Analysis Data Exchange
Lubin Gao, Ph.D., P.E. and M. Myint Lwin, P.E., S.E., FHWA, Washington, DC
Nowadays a huge number of finite element method-based computer applications are available to structural engineers to perform daily design and evaluation tasks from the simple beam to complex 3D or so-called 4D structural analysis. However, engineers sometimes feel frustrated with the interoperability between software packages. The current structural analysis, design or load rating software packages have limited compatibility in data exchange. This paper will: (1) describe the preliminary ideas for
bridging the gap with a proposed finite-element markup language (FEML); (2) provide a sketch of the proposed FEML; (3) discuss the possibility of developing a public domain FEML viewer; and (4) demonstrate the virtual reality modeling with FEML with an example.

**11:30 AM**

**IBC 13-29: Re-Evaluating the Effect of Connection Length in Riveted Steel Connections**

Bo-Shiuan Wang, Ph.D., Jeffrey W. Berman, Ph.D., Charles W. Roeder, Ph.D., P.E., and Dawn E. Lehman, Ph.D., University of Washington, Seattle, WA; Saura Jost, E.I.T., Meyer Borgman Johnson, Minneapolis, MN

A proposed modification to the way connection length is accounted for is presented. Analytical models calibrated to experiments from the literature are used to study the force distribution to fasteners along the connection length. The study shows that connected element yielding is necessary to cause larger forces in outer fasteners, the long connection effect. If gross section yielding is not occurring, the long connection effect is demonstrated to be negligible.

**IBC BRIDGE TOUR**

**1:00 - 5:00 PM DEPARTS FROM STREET LEVEL OF EAST LOBBY**

The IBC is pleased to offer the Tour of Unique Area Bridges in Pittsburgh, the city of bridges. This guided tour departs from the Convention Center at 1:00 PM and will visit the Freeport Bridge, South Highland Ave. Bridge, Greensburg Pike Bridge, and Tri-Borough Expressway. (An additional fee of $40 is required; advance registration is required and seating is limited.) Please check the IBC registration Desk for availability and advance registration. A signed waiver and release and appropriate footwear will be required to enter the construction area.
RAIL

1:30 – 4:30 PM FIGGG THEATER

Chair: James Dwyer
Advanced Rail Management Corporation, Wexford, PA

1:30 PM

IBC 13-30: I-90 Track Bridge – The Challenge of Taking Light Rail Vehicles on to the Homer M. Hadley Floating Bridge

Thomas Cooper, P.E., P.Eng., Parsons Brinckerhoff, Denver, CO; Andy Foan, BSc, C.Eng., FIMechE, FPWI, Andy Foan, LTD, Sandiacre, Nottingham, UK; Travis Thornstad, University of Washington, Seattle, WA

The Central Puget Sound Region’s transit agency, Sound Transit, is planning to install light rail transit on the I-90 Homer M. Hadley floating bridge. Placement of light rail across the floating bridge presents unique challenges due to the dynamic, multidimensional movement of the bridge deck.

This paper will address the approach to developing the concept, engineering studies to determine the validity of the design and the physical testing program for components and prototype.

2:00 PM

IBC 13-31: Major Bridge Structure in the World Trade Center

Martin Kendall, P.E., STV Incorporated, New York, NY; Mark Pagliettini, P.E., Port Authority of New York and New Jersey, New York, NY; Kishor Doshi, P.E., STV Incorporated c/o WTC Downtown Design Partnership, New York, NY

The reconstruction of the World Trade Center complex in New York City includes the construction of a unique underground bridge structure. This bridge supports two subway tracks and Cortlandt Street Station to span over the PATH Transit Hall, and the newly reconstructed Greenwich Street through the heart of the WTC site. The primary trusses of the bridge structure are completely composed of heavy welded construction, both shop welded fabrication and field welded assembly.

2:30 PM

IBC 13-32: Replacement of the BNSF Approach Spans over the Mississippi River

David Rogowski, P.E. and Josh Crain, Genesis Structures, Kansas City, MO; Kevin Becker, Walsh Construction Company, Chicago, IL

The BNSF Railroad crosses the Mississippi River at Burlington, Iowa. The original 120 year old bridge consisted of six 250 foot approach spans, one 360 foot swing span and two 80 foot girder spans. This paper will focus on the complex planning, equipment and construction activities required to replace the approach structures in five 36 hour closures.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC
IBC 13-33: Foundation Design and Construction Challenges of 100-Year Old Saugus River Railroad Bridge Emergency Rehabilitation
Aravinda Ramakrishna, P.E. and Raymond Mankbadi, P.E., Hardesty & Hanover, LLC, West Trenton, NJ; Andrew Coates, P.E., Hardesty & Hanover, LLC, New York, NY

The 100 year old MBTA Saugus Drawbridge is located near the mouth of the Saugus River to Boston Broad Bay in Saugus, Massachusetts. Due to concerns about the severe degradation of the support at Pier 6, the Bridge underwent a temporary rehabilitation to ensure the safety of traffic crossing the structure. This paper presents a case history that covers the planning and construction of a Temporary Pier Bent to improve the load rating of the bridge.

IBC 13-34: Detailed Engineering Facilitates Rapid Construction of Hybrid Road/Rail Grade Separation in Tightly Constrained Urban Setting without Interruption to Road or Rail Traffic
John Stephenson, M.Eng., P.Eng., P.Eng., Region of Waterloo, Kitchener, Ontario, Canada; Peter Johnson, P.Eng., AECOM, Mississauga, Ontario, Canada; Ted Brumfitt, P.Eng. and Michael Sampson, IBI Group, Waterloo, Ontario, Canada

Detailed engineering permitted construction of a new grade separation carrying an urban arterial roadway over a critical rail line servicing a major automobile manufacturer. Geometrically, the project was tightly constrained by existing infrastructure in this industrial/commercial zone. Operationally, full roadway traffic had to be provided during daily peak demand periods (with minor restrictions in off-peak hours), while daily rail traffic could not be impeded, with the exception of the annual one week automotive industry shut-down in July.

IBC 13-35: Highway 61 Mississippi River Bridge Design & Construction
David Dahlberg, P.E., Todd Niemann, P.E., and Nancy Deubenberger, P.E., Minnesota DOT, Oakdale, MN

This major river crossing contains a 545 foot tied arch main span with steel arches and post-tensioned concrete tie girders. The arches contain no bracing, making this the longest bridge span supported by freestanding arches in the western hemisphere. Redundancy requirements made for a challenging design. During construction, steel was erected in a staging area, moved onto barges with SPMT’s, floated, skidded, and lifted with strand jacks into its final position above the Mississippi River.
2:00 PM

**IBC 13-36: Contractor Proposed Design and VECP Changes – Ironton Russell Cable-Stayed Bridge over the Ohio River**

Craig Finley, Jr., P.E., FINLEY Engineering Group, Inc., Tallahassee, FL; Thomas M. Hesmond, P.E., Brayman Construction Corporation, Ironton, OH

This presentation will describe Brayman Construction’s pre-bid activities that identified several elements of the bridge that could be changed to provide some cost savings and sequencing advantages. FINLEY Engineering Group, Inc. prepared the pre-bid designs for elements that Brayman used to prepare their winning bid. Innovations in construction sequence solutions saved the Owner $15.2M over the 2nd bidder and allowed the project to be awarded after 6 years of delayed due the cost being over the estimated budgeted amount. This project is the first the use of precast stay anchor blocks in USA.

2:30 PM

**IBC 13-37: Complete Stay Cable Replacement for the Luling Bridge, First of Its Kind in North America**

Armin Mehrabi, Ph.D., P.E., MBA, Bridge Engineering Solutions, Lewiston, NY; Paul Fossier, Louisiana DOT and Development, Baton Rouge, LA

All stay cables of the Luling Bridge in Louisiana were replaced after 28 years in service to address damages to protective sheathing, and exposure/corrosion of the main tension elements. Replacement design accommodated a construction sequence that required no lane closures during peak traffic hours. The new cable system allowed individual strand installation, and is expected to facilitate future inspections and replacement. The cable replacement design and its implementation are the first attempted in North America.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

**IBC 13-38: Katun River Bridge - Development of Aerodynamic Solutions to Control Vortex-Shedding, Galloping and Flutter**

Pierre-Olivier Dallaire, M.A.Sc., ing. and Stoyan Stoyanoff, Ph.D., ing., P.Eng., RWDI, Bromont, Québec, Canada; Evgenii Timofeev and Vladimir Verholina, Transmost, Saint Petersburg, Russia

Designed by the firm Transmost OAO, the Katun River Bridge is a unique signature cable-stayed bridge that will be located in the Republic of Altai, Russia and will be opened to traffic in few years. Because of its location in the valley, multiple challenges related to wind engineering design are to be considered for this structure. Experimental tests carried out on the proposed deck identified a high potential for vortex-induced vibrations at low wind speeds and insufficient galloping and flutter onset speeds. An extensive test program was then established to implement aerodynamic solutions.
4:00 PM

IBC 13-39: Comparison of Long-Span Girder Bridges versus Extradosed Bridges Built In Balanced Cantilever
Juan Sobrino, Ph.D., P.E., P.Eng. and Javier Jordan, P.E., PEDELTA Inc., Coral Gables, FL

Segmental concrete bridges with a long spans (over 300 ft) are very competitive built in balanced cantilever either cast-in-place or precast segments. This construction technique can be applied up to 650 ft (world record over 987 ft). The use of stays working as eccentric external tendons (extradosed bridges) reduces the typical depths of continuous girders as stays provides more stiffness to the system. The paper discusses the general structural behavior, methods of analysis, design features, construction process and main material quantities of both types of bridges. The paper includes some case studies of concrete bridges built in Latin-America (Colombia and Chile) which have been designed using the AASHTO Code.

TESTING & INSTRUMENTATION
1:30 – 4:30 PM | COMPUTERS & STRUCTURES INC. THEATER

Chair: Donald W. Herbert, P.E.
Pennsylvania Dept. of Transportation, Uniontown, PA

1:30 PM
IBC 13-40: Demonstration of Fiber Optic Instrumentation System for Prestressed Concrete Bridge Elements
Kent Harries, Ph.D., FACI, P.Eng., University of Pittsburgh, Pittsburgh, PA; Andrew Holford, exp Global Inc., Kitchener, Ontario, Canada; David F. Stevens, STRAEN Inc, Chicago, IL

Fiber optic-based sensors have been used on a relatively limited basis in North America. In this paper, load testing of a decommissioned prestressed adjacent box girder is presented. Fiber-optic generated measures of girder performance are compared with other experimental test data. The fiber optic system tested demonstrated excellent performance and data recovered correlated well with a well-established analytical modeling technique thereby demonstrating the immediate utility of the fiber optic system.

2:00 PM
IBC 13-42: Field Measurements of PA Route 30 Wrights Ferry Bridge during Passage of Super Load
Sougata Roy, Ph.D., Lehigh University, Bethlehem, PA

Response of the Wrights Ferry Bridge across Susquehanna was measured during passage of a super load consisting of a decommissioned transformer. The steel girder/ floor beam superstructure of the bridge was instrumented by the ATLSS Engineering Research Center of Lehigh University at key locations based on a plan developed in conjunction with Michael Baker, Jr. Inc. of Harrisburg PA, who was responsible for engineering the move. The measurements provided valuable insight into the structural behavior of the bridge.
2:30 PM

IBC 13-43: Development of Virtual Bridge Inspection Computer Based Training

Mary Rosick, P.E., Thomas Ryan, P.E., and Eric Mann, P.E., Michael Baker Jr., Inc., Moon Township, PA; Douglas Blades, P.E., FHWA, Washington, DC

FHWA-NHI Course 130055, Safety Inspection of In-Service Bridges, is essential for individuals performing or supporting bridge inspection. The course includes field trips to provide hands-on experience in recognizing deficiencies. However, the field trips are sometimes not feasible, prompting the need for an alternative. The virtual reality bridge inspection application allows students to experience inspecting bridges in the classroom using laptops. This paper discusses the development process and demonstrates the computer gaming application.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

IBC 13-44: Use of Instrumentation to Quantify Dynamic Movements of Bridge Substructures

Matthew Pavelchak and Mark Williams, Ph.D., P.E., S.E., Walter P Moore and Associates, Houston, TX

This paper explores a structural health monitoring case study regarding the use of digital inclinometers to quantify suspected dynamic movements of steel bridge bents under vehicular loading. The bridge involved in this study had a history of expansion joint distress and anecdotal evidence of dynamic substructure movements. The results of the monitoring indicate that the bents are experiencing rigid body rotations and torsional deformations. The results are being used to inform a rehabilitation project to provide additional bearing restraint.
TUESDAY  JUNE 4

REHAB/PRESERVATION, PART 2  
1:30 – 4:30 PM  THEATER 3

Chair: Matthew P. McTish, P.E.
McTish, Kunkel & Associates, Allentown, PA

1:30 PM

IBC 13-45: Tie-Down Replacement for Weirton-Steubenville Veterans Memorial Bridge
Gregor Wollmann, Ph.D., P.E., HNTB, Blacksburg, VA; James D. Simpson, P.E., HNTB, Scott Depot, WV; Rober L. Blosser, P.E., WVDOH, Charleston, WV

The Veterans Memorial Bridge is an asymmetrical cable-stayed structure with a single pylon and spans of 820 feet and 680 feet. Significant uplift forces at the end of the shorter span are transferred through a tie-down system into a concrete counter weight. The tie-down needed replacement after only 15 years of service. The presentation explains the causes of the poor performance of the initial system and presents design and installation of replacement systems.

2:00 PM

IBC 13-46: External Post-Tensioning of Existing Steel Bridges
Clyde Ellis, VSL, Haute Court, VA

Many bridges have been found to be under-strength because of increased loads, widening of the bridge deck, or change of the type of traffic. In many cases bridges that rate low are strengthened with conventional methods. The use of external post-tensioning to strengthen steel bridges has been used in many countries since the 1960’s. Their relative ease of installation, effectiveness for structural strength and economical advantages has been widely recognized. This technique is growing in popularity because of the speed of construction and the minimal disruption to traffic flow. This paper will provide information on how this technique can be applied.

2:30 PM

IBC 13-47: Route US 190 Mississippi River Bridge Rehabilitation Design, Cleaning, and Painting

The concepts and approaches for the structural rehabilitation, cleaning and painting of a major Mississippi River crossing, the US 190 Mississippi River Bridge at Baton Rouge, a five span cantilever truss, carrying both a major highway and mainline railroad, are discussed. The additional difficulties in control and phasing of highway and railroad traffic during construction and use of inclusive pay items for multiple repair types providing a payment baseline for additional repairs are also presented.

3:00 – 3:30 PM  COFFEE BREAK  BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC
The Murray Morgan Bridge in Tacoma, Washington is over 100 years old, making it an important transportation link and piece of the City’s cultural history. This 1,750 foot long bridge with a 221 foot long vertical lift span completed a $50 million design-build rehabilitation project that reopened it and extend its service life an additional 75 years. This presentation will review the details of how this project was successfully executed using the design-build delivery method.

The Newburgh-Beacon Bridge – South Span was constructed using A588 Weathering Steel. During a routine biennial inspection, it was discovered that water leaking through bottom chord splice locations was allowing excessive corrosion of the unpainted weathering steel interior of the chord box members leading to areas of severe section loss in several locations. The causes and effects of this box member problem were studied to provide a complete solution to protect the bridge from further deterioration.
IBC AWARDS DINNER

5:00 – 7:00 PM | BALL ROOM B

Host: Thomas G. Leech, P.E., S.E.
Gannett Fleming, Inc., Pittsburgh, PA

ESWP, in association with Bridge design and engineering (bd&e) Magazine, Roads and Bridges Magazine, Bayer MaterialScience LLC, and TranSystems, Inc. presents the 26th Annual IBC Bridge Awards Ceremony. Following Tuesday’s sessions, unwind and network apart from the Conference with fellow attendees and celebrate the Award winners at our IBC Awards Dinner. A separate registration is required with a fee of $40 ($50 without conference registration). Seating is limited, so please check at the IBC Registration Desk for availability.

The International Bridge Conference® annually recognizes individuals and projects of distinction. The medals are named in honor of the distinguished engineers who have significantly impacted the bridge engineering profession worldwide. Honorees will be recognized as follows:

JOHN A. ROEBLING MEDAL
Awarded to an individual for lifetime achievement in bridge engineering. Major achievements may include design, construction, research and/or educational endeavors. Presented to: M. Myint Lwin P.E., S.E., Washington, DC.

GEORGE S. RICHARDSON MEDAL
Awarded for a single, recent outstanding achievement in bridge engineering. Fields of endeavor may include design, construction, research or education. Presented to: Jiaozhou Bay Bridge, Qingdao City, Shandong Province, China.

GUSTAV LINDENTHAL MEDAL
Awarded for a single, recent outstanding achievement demonstrating harmony with the environment, aesthetic merit and successful community participation. Presented to: DEH CHO Bridge, Fort Providence, Northwest Territories, Canada.

EUGENE C. FIGG, JR. MEDAL
Awarded for a single recent outstanding achievement in bridge engineering that, through vision and innovation, provides an icon to the community for which it was designed. Presented to: Lake Champlain Bridge, Crown Point, NY – Addison, VT.

ARTHUR G. HAYDEN MEDAL
Awarded to recognize a single recent outstanding achievement in bridge engineering demonstrating innovation in special use bridges such as pedestrian, people-mover, or non-traditional structures. Starlight Bridge, Ho Chi Minh City, Vietnam.

ABBA G. LICHTENSTEIN MEDAL
Awarded for a recent outstanding achievement in bridge engineering demonstrating artistic merit and innovation in the restoration and rehabilitation of bridges of historic or engineering significance. Presented to: Willamette River (Oregon City) Bridge, Oregon City and West Linn, OR.
FTI’s StopCrackEX system cold expands a bushing into a drill stop, imparting residual compressive stresses around the hole - which protects it from cyclic loads and arrests further crack growth.
ABC, PART 1
8:30 AM – 12:00 NOON   THEATER 3
Chair:  Ronald D. Medlock, P.E.
High Steel Structures, Inc., Lancaster, PA

8:30 AM
Aaron Stover, P.E., S.E. and Terrence Tiberio, P.E., Michael Baker Jr., Inc., Louisville, KY

The Milton Madison Bridge project sets a precedent for replacement of river crossings and other major structures nearing the end of their useful life. This presentation will highlight the innovative reuse of existing substructure units and the procurement process that encouraged bidding contractors to minimize the bridge closure. Together this combination reduced the cost of replacing the bridge by approximately $50 million dollars and resulted in significantly less impact to the communities on both sides of the river.

9:00 AM

The recent construction of the Milton Madison Bridge over the Ohio River between Milton, KY and Madison, IN represents a precedent setting innovation in project concept using existing substructure units, project procurement offering contractors explicit incentives for closure schedules and resulting construction techniques that allowed a new superstructure to be built on existing piers with minimal traffic interruption. This paper will describe how the full scope of bridge design and erection expertise was used to deliver innovation at the lowest cost possible, with minimum inconvenience to the public.

9:30 AM
IBC 13-52: Design and Construction of the Bronco Arch Bridge
Gregg Reese, Summit Engineering Group, Inc., Littleton, CO

The Bronco Arch Bridge supports IH25 over the Platte River adjacent to Mile High Stadium in Denver, CO. The new bridge was designed as a Value Engineering Proposal which uses maximizes the use of precast concrete and an innovative construction sequence to accelerate construction while minimizing disruption to existing traffic. The paper will describe the design and construction engineering of this innovative bridge project which will be completed in early 2013.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.
Lateral sliding of superstructures provides an effective method for rapid bridge replacement. This paper presents four case studies for lateral slides including the 630 foot long Kenogami River Bridge. By implementing the lateral slide method these projects maintained traffic throughout each stage of construction. Means and methods presented in this paper also demonstrate how the lateral slide method can be used to accelerate bridge construction.

The three span prefabricated bridge consists of pre-deck steel modular superstructure system with precast substructures and precast bridge approaches. The bridge was originally designed as a conventional replacement with a construction duration of 6 months. HNTB redesigned this bridge using ABC techniques so that the replacement could be completed in a two-week period using prefabricated elements. The contractor fabricated all elements near the bridge site. The bridge has a jointless superstructure, connected using Ultra High Performance Concrete closure pours.

This project replaced the existing 32’-6” span cast-in-place concrete T-beam bridge carrying Route 62 (Princeton Road) over the Stillwater River in Sterling, MA, with a 45-foot span rolled steel beam bridge with composite pre-cast concrete deck panel and integral abutments. Featuring precast concrete deck panels, abutments and wingwalls, this is the first integral abutment bridge in Massachusetts constructed with all precast components. Project design, detail, criteria, construction, and materials specific requirements are presented in the paper.
8:30 – 11:30 AM   FIGG THEATER

8:30 AM

IBC 13-56: Multi-faceted Construction Project: A Unique Approach to Supporting Construction Phase Services

The $2.0 billion I-95 New Haven Harbor Crossing Corridor Improvement Program features the replacement of the Pearl Harbor Memorial Bridge with an extradosed cable-stay design, and the reconstruction of the I-95/I-91/Route 34 Interchange. CDOT implemented a unique approach to providing construction phases services by employing experienced, on-site design personnel on a full-time basis. This approach fostered increased collaboration and communication between construction staff and the project designers, resulting in improved submittal response times and innovative field solutions.

9:00 AM

IBC 13-57: Construction of the Q-Bridge: New Haven’s Extradosed Cable-Stayed Signature Bridge
Wade Bonzon, P.E., FIGG, New Haven, CT; John Dunham, P.E., Connecticut DOT, New Haven, CT

The new Pearl Harbor Memorial Bridge will be a 10-lane Signature Bridge carrying I-95 across the Quinnipiac River in New Haven, CT. It is the first major extradosed cable-stayed bridge constructed in the United States. It features a segmental concrete box girder superstructure constructed in balanced-cantilever. This paper will highlight the unique challenges during construction including details of the form travelers, geometry control methods, and the installation and stressing of the stay cable system.

9:30 AM

IBC 13-58: Unconventional Girder Erection on the Moses Wheeler Bridge
Douglas Whittaker, McNary Bergeron and Associates, Old Saybrook, CT; Joseph Zwain, PCL Civil Constructors, Inc., Tampa, FL

Site constraints limited the options available to erect plate girders on the I-95 Moses Wheeler Bridge in Connecticut. Walsh / PCL Joint Venture and McNary Bergeron & Associates developed a unique girder erection method for Stage I of this project that incorporated cranes on the existing bridge and temporary rolling carts to side launch girders into position. This presentation focuses on the extensive construction engineering required to develop this procedure and the challenges faced during construction.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.
10:30 AM

IBC 13-59: Construction of the US 281 Bridges Over the Colorado River
Robert A. Alonso, P.E., S.E., FINLEY Engineering Group, Inc., Orlando, FL; Eric Hiemke, Archer Western Contractors, Marble Falls, TX

This presentation discusses the construction engineering modifications made by FINLEY Engineering Group, Inc. for Archer Western Contractors for the construction of this bridge. This presentation provides innovative insight to practical details on how to build cast-in-place segmental bridges; gives the how's and why's on setting pier table and typical segment lengths for construction with form travelers; provides design and details of temporary falsework and offers recommendations to engineers and contractors on how to handle the geometry control for cast-in-place segmental bridges.

11:00 AM

IBC 13-60: Tri-Level Interchange
Amish Bhatt, AECOM, Chicago, IL and Dan Manojlovski, P.E., AECOM, Chicago, IL

Tri-Level Interchange Project is one of the six projects that comprise relocation of I-70 to a new bridge crossing the Mississippi River. The project’s scope includes the extension of I-64 mainline westward to connect to the relocated I-70 and reconstruction of the interchange. The project comprises flyover-curved ramp structures with the complex flared geometry. Project is also located near New Madrid Fault zone and the structures are designed to withstand seismic forces.
IBC 13-62: Bridging From Land to Light  
Tammy Heffron, P.E. and Darin Freeman, P.E., HDR Engineering, Inc., Denver, CO
This National Park Service project required the replacement of a historic, timber, suspension pedestrian bridge accessing the Point Bonita Lighthouse. The site is situated atop a 100-foot-high rock formation extending out into the Pacific Ocean. The many unique characteristics of this undertaking are highlighted. Topics such as tropical hardwood, sustainability, corrosion protection, partnering, incorporation of the CM/GC process, and the challenging access to this remote site will be discussed.

IBC 13-63: Challenges of Designing and Building Bridges in Alaska  
Leslie Daugherty, P.E., Alaska DOT & Public Facilities, Juneau, AK
Alaska’s short construction season, remote locations, frozen ground, and high seismic zones require innovative approaches to bridge design. Over the years, the Alaska Department of Transportation & Public Facilities (DOT&PF) Bridge Section has developed standard design approaches for their unique circumstances. This presentation will highlight the DOT&PF’s experience with addressing these numerous concurrent design challenges, including the research projects that have been useful in verifying the anticipated performance of these systems.

IBC 13-64: Integrating Cultural Symbolism into Bridge Design  
Schaun Valdovinos, M.S., P.Eng., Hatch Mott MacDonald, Vancouver, British Columbia, Canada
Squamish Pedestrian Overpass is a new landmark structure over of the Sea-to-Sky Highway in British Columbia. The design effort included collaboration with a Squamish Nation artist, cultural centre, and band members. In the end, the design not only addresses the engineering challenges, but seamlessly integrates cultural symbolism into the various elements of the bridge. This cultural symbolism tells the stories important to Squamish Nation and gives the bridge special meaning to the community it serves.
The newly constructed Rich Street Bridge is a landmark structure spanning the Scioto River in Columbus, Ohio. The new bridge is a 5-span, 563 foot long modern rib arch structure, designed to be pedestrian-friendly and to accommodate festival events. The configuration of the new bridge was selected in response to design criteria set by community representatives requiring that the bridge compliment the surrounding “family” of arch bridges while respecting the character of the surrounding area.

To accommodate the I-595 Express Toll Lanes (ETL) at the University Drive interchange, the owner’s concept proposed replacing two curved steel box girder ramp bridges. The redesign of the southbound ramp included reconfiguring the geometry of the bridge by-, removing and reconstructing the last span and a portion of the penultimate span using a spiral alignment, and raising the ramp 18in to meet the vertical clearance requirements. Subsequently, the northbound ramp did not require modification.

Recently, fatigue performance of several rounded bottom rib-to-deck and rib-to-floor beam connection details for a vertical lift bridge was evaluated by full-scale testing at Lehigh University. These connections were fabricated by varying the extent of labor-intensive joint preparations including different bevels, root openings and fit-ups. A novel test setup was designed based on 3D Finite Element Analyses of the entire bridge deck to reproduce the stress state in the specimen. The experimental studies identified unique fatigue fracture modes and helped in identifying cost-effective connection details.
## MONDAY JUNE 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 - 11:30 AM</td>
<td>IBC KEYNOTE SESSION - Ball Room B &amp; C, Third Floor</td>
</tr>
<tr>
<td>11:00 AM - 5:00 PM</td>
<td>Exhibit Hall Grand Opening (strolling buffet lunch at noon), Hall B</td>
</tr>
<tr>
<td>1:00 - 5:00 PM</td>
<td>Featured Agency Session MassDOT - FIGG Theater, Hall B</td>
</tr>
<tr>
<td>1:00 - 3:00 PM</td>
<td>Special Interest Session: Autonomous Robotic Grit Blasting Systems - Theater 3, Hall B</td>
</tr>
<tr>
<td>1:30 - 4:30 PM</td>
<td>Proprietary Session - Computers &amp; Structures Theater, Hall B</td>
</tr>
<tr>
<td>1:30 - 2:30 PM</td>
<td>Special Interest Session: ASCE’s 2013 Report Card for America’s Infrastructure - Theatre 2, Hall B</td>
</tr>
<tr>
<td>5:00 - 7:00 PM</td>
<td>IBC 30th Anniversary Party - West Atrium &amp; Garden Terrace, Third Floor</td>
</tr>
</tbody>
</table>

## TUESDAY JUNE 4

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 5:00 PM</td>
<td>Exhibit Hall open (strolling buffet lunch at Noon)</td>
</tr>
<tr>
<td>8:30 AM - 12 Noon</td>
<td>Construction, Design, Rehab/Preservation, Eval/Analysis, Part 1 Part 1 Part 1 Part 1</td>
</tr>
<tr>
<td></td>
<td>FIGG Theater, Theater 2, Theater 3, CSI, Inc. Theater</td>
</tr>
<tr>
<td>1:00 - 5:00 PM</td>
<td>IBC Bridge Tour - departs from Street Level on East Lobby (Tickets Required)</td>
</tr>
<tr>
<td>1:30 - 4:30 PM</td>
<td>Rail, Long Span, Rehab/Preservation, Testing &amp; Instrumentation, Part 2 Part 2</td>
</tr>
<tr>
<td></td>
<td>FIGG Theater, Theater 2, Theater 3, CSI, Inc. Theater</td>
</tr>
<tr>
<td>5:00 - 7:00 PM</td>
<td>IBC Awards Dinner - Ball Room B (Tickets Required)</td>
</tr>
</tbody>
</table>
## SCHEDULE

### WEDNESDAY JUNE 5

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 1:30 PM</td>
<td>Exhibit Hall open (strolling buffet lunch at Noon)</td>
</tr>
<tr>
<td>8:30 AM - 12 Noon</td>
<td>Construction, Design, ABC, Part 1, Eval/Analysis, FIGG Theater, Theater 3, CSI, Inc. Theater</td>
</tr>
<tr>
<td>1:00 - 5:00 PM</td>
<td>W1: FHWA, W2: Extradosed Bridges, W3: Owner's Forum, W4: Engineering</td>
</tr>
<tr>
<td>1:30 - 4:00 PM</td>
<td>ABC, Part 2, Foundations, Rehab/Preservation, Room 330, Room 329, Part 3; Room 328</td>
</tr>
</tbody>
</table>

### THURSDAY JUNE 6

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 - 12 Noon</td>
<td>Seminar: Steel Bridge Design (see ticket for room location)</td>
</tr>
<tr>
<td>8:00 - 12 Noon</td>
<td>W5: FHWA's ABC, Preservation, Room 330, Room 329, Room 327</td>
</tr>
<tr>
<td>1:00 - 5:00 PM</td>
<td>Seminar: NCHRP Report 725 Guidelines for Analysis of Curved and Skewed Girders (see ticket for room location)</td>
</tr>
<tr>
<td>1:00 - 5:00 PM</td>
<td>W9: BRIM Benefits, W10: FRP Composites, W11: Asset Management, W12: Western PA Bridge Preservation, Room 330, Room 329, Room 328, Room 327</td>
</tr>
</tbody>
</table>
EVALUATION & ANALYSIS, PART 2
8:30 AM – 12:00 NOON
COMPUTERS & STRUCTURES INC. THEATER

Chair: John C. Dietrick, P.E., S.E.
Michael Baker Jr., Inc., Cleveland, OH

8:30 AM

IBC 13-68: 3D Analysis and Structure Rehabilitation of TDOT’s SR56 Deck Truss over Caney Fork River

Multiple deck removal sequences for the rehabilitation and re-decking of TDOT’s 65 year old SR-56 Caney Fork River Bridge were analyzed using a three-dimensional analysis to determine the most appropriate and economical structure rehabilitation and deck replacement sequence. Use of lightweight concrete and truss strengthening provided sufficient capacity for AASHTO LRFD HL-93 live load for a structure originally designed for H15 live load. The rehabilitation included truss member and gusset plate retrofits and gusset “doubler” plates. Supplemental supports for fracture critical truss suspenders and post-tensioning of a deficient pier strut were also completed.

9:00 AM

IBC 13-69: Study on the T-PBL Panel Joint Structure in Hybrid Truss Bridge
Weiguo Yan, CCCC Highway Maintenance Engineering Technology Co., Ltd., Nanjing, Jiangsu, China

The most critical elements in a hybrid truss bridge are the panel joints. To analyze the stress-transfer mechanism and the mechanical characteristic of the T-PBL panel joint structure, three specimens of joint were made, the cyclic loading tests were carried out, and three-dimensional finite element analysis was done. Then the results of failure pattern, load - horizontal displacement curve, stress of steel tubes, stress of T-PBL and transverse bolts etc of the specimens were compared.

9:30 AM

IBC 13-70: Load Rating Steel Box Girder Bridges with LRFR: Special Considerations
Lubin Gao, Ph.D., P.E., FHWA, Washington, DC

Steel box girder bridges behave differently from steel plate girder bridges. The provisions in the current LRFD Specifications apply to straight multiple steel box beam bridges that meet the limitations specified in the code. This creates challenges to engineers in load rating steel box girder bridges. This paper will: (1) identify the issues and challenges; (2) discuss the provisions in the current LRFD Specifications; (2) compare the provisions between steel plate girders and steel box girders; and(3) discuss the special considerations in load rating steel box girder bridges.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.
10:30 AM

IBC 13-71: Estimation of the Maximum Von Mises Stress in Steel Truss Bridge Gusset Plate Connections

Bo-Shiuan Wang, Ph.D., Jeffrey W. Berman, Ph.D., Charles W. Roeder, Ph.D., and Dawn E. Lehman, Ph.D., University of Washington, Seattle, WA

Methods for approximating normal and shear stress distributions at critical sections of gusset plates are presented, including the horizontal section above the chord and vertical sections along the hangers and at the chord splice. Using the approximate stress distributions at the critical sections the equivalent Von Mises stress can be estimated for potential high stress locations and used to determined and locate the maximum stress on the gusset plate.

11:00 AM

IBC 13-72: Quick Scan Method - Dutch Approach for the Shear Assessment of Reinforced Concrete Slab Bridges

Eva Lantsoght, Cor van der Veen, Ph.D., and Joost Walraven, Ph.D., Delft University of Technology, Delft, The Netherlands; Ane de Boer, Ph.D., Ministry of Infrastructure and the Environment, Utrecht, The Netherlands

To assess a large number of reinforced concrete slab bridges for shear, recommendations based on experimental research are implemented in a spreadsheet-based “Quick Scan” method. In particular, transverse load redistribution is studied. The resulting method is used to study cases of existing slab bridges in The Netherlands, indicating the benefits of the proposed method as compared to previous “Quick Scan” approaches.

11:30 AM

IBC 13-73: Influence Line Based Load Ratings for Oklahoma DOT Truck Routing and Permitting

Rachel Sharp, P.E. and Kenneth Wilson, P.E., S.E., Michael Baker Jr., Inc., Moon Township, PA; William Edberg, Ph.D., P.E., HNTB Corporation, Boston, MA; Wes Kellogg, P.E., Oklahoma DOT, Oklahoma City, OK

Oklahoma Department of Transportation is enhancing their current automated truck routing and permitting internet based system. For approximately 170 relatively complex structures, an influence line based computer program is being developed to run parallel to the AASHTO Bridge Suite of load rating tools in an effort to expand the capacity of the current permitting system. This paper describes the influence line based program, including lessons learned from its development and implementation.
1:30 PM
IBC 13-74: A Short-Span Tied Arch Bridge
Robert Hong, P.E., S.E., P.Eng., H.W. Lochner Inc., Chicago, IL; Soliman Khudeira, Ph.D., P.E., S.E., Chicago DOT, Chicago, IL

The distinguishing characteristics of a tied arch bridge have long been regarded as an elegant solution for the long span crossing. The successfully completed 156'-8" long and 80'-4" wide parabolically-shaped Halsted Street Bridge over the Chicago River North Branch Canal demonstrates that a short-span tied arch can be done economically with attention to the steel details that accommodates both constructability and durability. The thoughtful steel detailing also ensures sufficient design redundancy and improves cost competitiveness.

2:00 PM
IBC 13-75: Construction and Movement of the Torrence Avenue Truss Bridge
John Boschert, P.E., S.E., Genesis Structures, Kansas City, MO; Damian Gronsky, P.E., Sarens / Rigging International, Alameda, CA; Curtis Luecke, P.E., Walsh Construction, Chicago, IL; Leonard Kapovich, S & J Construction Co. Inc., South Holland, IL

The Torrence Avenue Truss carries rail traffic over a busy roadway in an industrial area in southeast Chicago. The truss was assembled at-grade in a staging area adjacent to the final bridge position, then lifted onto Self-Propelled Modular Transporters (SPMT’s) for transport to the final position. At 394’ and approximately 4.75 million pounds, this is believed to be the largest truss bridge ever to be moved into place after being assembled off-site.

2:30 PM
IBC 13-76: Eggner’s Ferry Bridge: Innovative Approach to the Emergency Replacement of a Vital Crossing Over Kentucky Lake
Chou-Yu Yong, P.E., Terrence Tiberio, P.E., Jason Stith, Ph.D., P.E., S.E., and Dennis Baron, P.E., Michael Baker Jr., Inc., Louisville, KY

The collision of a cargo ship with Eggner’s Ferry Bridge knocking out one of the 322 feet truss spans. This paper focuses on the design strategy and opportunities to speed-up material procurement, simplify fabrication and assembly. Accelerated construction techniques are also presented in this paper. The Eggner’s Ferry Bridge emergency replacement project that completed in 17 weeks sets the benchmark for speedy emergency repair and replacement of structures that are disrupted by accidents or disasters.
3:00 PM

IBC 13-77: Alteration of Galveston Causeway Railroad Bridge over the Gulf Intracoastal Waterway, Galveston, TX
Kamal Elnahal, Ph.D., P.E. and Arvind Patel, P.E., PMP, U.S. Coast Guard, Washington, DC; Ralph Eppehimer, P.E., Modjeski & Masters, New Orleans, LA

This presentation addresses the alteration of the Galveston Causeway Railroad Bridge over the Gulf Intracoastal Waterway in Texas. The old bridge was replaced under the Coast Guard Alteration of Bridges Program. The presentation encounters various challenges and techniques used for the construction of the new bridge to overcome the complex site limitations and restrictions. It covers also accelerated construction method used to replace the movable span with the least interruption to rail and marine traffic.

3:30 PM

IBC 13-78: Implications Of The Funding Gap: A New Look at Efficiencies
David Cook, STRAEN, Inc, Chicago, IL

Certainly, money to manage the bridge inventory is tight and tightening. Options to manage the situation are paramount. What is spent is known, but how efficiently is it spent? What are the effects of inefficiently-scoped or mistimed expenditures such as refurbishment and replacement? How often does it happen and by how much? How could such efficiencies be measured? What information and analysis would be helpful? Who should take leadership on this kind of initiative?
1:30 PM

**IBC 13-79: Application of GRS-IBS Bridge Design in Massachusetts**

Thomas Pechillo, P.E., Collins Engineers, Inc., Dedham, MA; Richard Tobin, P.E., GEI Consultants, Inc., Woburn, MA

As part of its ground-breaking Accelerated Bridge Program (ABP) legislation, the Massachusetts Department of Transportation (MassDOT) is initiating several innovative bridge design and construction methods and techniques. One such occurrence of the application of these techniques is in Sheffield, Massachusetts, where MassDOT will be constructing a Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) bridge next year. GRS-IBS technology is part of the Federal Highway Administration (FHWA) Everyday Counts (EDC) initiative.

2:00 PM

**IBC 13-81: Non-Destructive Testing Of Drilled Shafts - Current Practice and a New Method**

George Piscsalko, P.E. and Garland Likins, P.E., Pile Dynamics, Inc., Solon, OH; Ben White, P.E., GRL Engineers, Solon, OH

Quality control of drilled shafts is greatly dependent upon the practices of the site personnel. In many applications it is difficult or not possible to fully inspect the shaft prior to concreting, such as when the shaft is drilled under slurry. There are numerous methods currently available to assess the integrity of drilled shafts. This paper will compare evaluations by two existing methods with a new method of Thermal Integrity Profiling for assessing integrity.

2:30 PM

**IBC 13-82: Fort Street Bridge over the Rouge River, Movable Bridge – Movable Foundation**

Jeff Routson, P.E., S.E., F.ASCE and Rick Wianecki, P.E., Hardesty & Hanover, Okemos, MI; Jose Garcia, P.E., Michigan DOT, Lansing, MI; Anne Zweibel, P.E., Hardesty & Hanover, Defiance, OH

During construction of the Fort Street Bridge in 1922, the Rouge River was significantly widened and deepened for navigation leading to movement of the bridge foundations. This movement was monitored for several decades. By 2000, MDOT determined that the existing bascule bridge needed major rehabilitation or replacement. The new 88-ft wide, 176-ft long single-leaf bascule leaf will weigh nearly 8 million pounds. The bascule pier will be supported by 132 HP18x204 piles driven to rock.
IBC 13-83: Full Scale Test Program for Support of MSE Walls Using Rigid Inclusions / Controlled Modulus Columns in New Jersey

Frederic Masse, DGI-MENARD, Bridgeville, PA; Alex Potter-Weight, DGI-MENARD, Pittsburgh, PA; Sherif Aziz, The Reinforced Earth Company, Vienna, VA; Mike Walker, GEI Consultants, Woburn, MA

After several successful projects on the Garden State Parkway and NJ turnpike for support of single-stage MSE Walls using Controlled Modulus Columns as an alternate to two-staged MSE Walls and surcharge, the Bass River Bridge Widening project presented additional challenges in terms of soil conditions and height of embankment that created opportunities for the design-build ground improvement contractor and its MSE wall designing partner to enhance their design and construction methods. The contractor also decided, in association with the wall system supplier to perform an independent large scale instrumented test! area on the project to demonstrate the ability of the design techniques to model the behavior of the system as well as the capacity of the system CMC to provide the necessary bearing capacity and settlement control to allow the construction of the highway without any consolidation period. This paper will present a detailed description of the design of the ground improvement system and MSE wall system as well as the results and conclusions of the monitoring data gathered on the large scale test program.
1:30 PM

IBC 13-03: Light, Solid-Surface Decking for Historic and Moveable Bridges
Maria Lopez de Murphy, Ph.D., Penn State University, University Park, PA; Amjad Aref, Ph.D., University at Buffalo, Buffalo, NY; Stephen Ayers, Ph.D., P.E., LeTourneau University, Longview, TX; Jerome O’Connor, P.E., BridgeComposites, LLC, Hornell, NY

Over the past 10 years, a new generation of FRP decking has been developed with funding from NYSDOT, FHWA and BridgeComposites, LLC, a technology incubator company at University at Buffalo. Though the deck materials initially cost more than alternatives, its use can be cost effective because installation is fast, the solid surface protects the superstructure from environmental damage, and it eliminates the issues of deck corrosion and fatigue. Details of the extensive testing regimen will be explained, which included railing and fire tests.

2:00 PM

IBC 13-84: Rehabilitation of the Historic Riegelsville Suspension Bridge

The Riegelsville Toll-Supported Bridge Rehabilitation project included the complex rehabilitation design of a 1904, three-span, 577 foot suspension bridge. The project helped to preserve this outstanding example of historic civil engineering infrastructure. For the floor system replacement, Ammann & Whitney designed a system for raising preconstructed 15’ floor sections up from a river barge using a movable gantry system. This procedure allowed for a wide array of maintenance and protection of traffic options during construction.

2:30 PM

IBC 13-85: Extending the Service Life of Bridges Using Seamless Pavements
Steve Griffiths and Geoff Bowmaker, AECOM Australia, Beecroft, New South Wales, Australia

The seamless pavement connection is an improvement to the interface between the highway pavement and bridge decks by eliminating all transverse joints and providing a reinforcement concrete connection between the pavement and bridge. This results in improved ride quality for highway users and reduced maintenance costs to the community by the elimination of expansion joints at the bridge abutments. Bridge to pavement connections using this technique were first completed in 2004 and have now been successfully used at over 50 bridge locations in Australia. This paper reviews the design principles and
compares actual performance with the design theory. It also provides details of pavement to bridge connections which can be used to eliminate expansion joints on existing structures.

3:00 PM

IBC 13-87: Reconstruction of the New Jersey Turnpike Authority’s Easterly Hackensack River Bridge

The New Jersey Turnpike’s Easterly Hackensack River Bridge, a 5600’ long viaduct structure with spans up to 375, has undergone a complete rehabilitation including a complete staged redecking, repainting, seismic retrofit, and installation of new structural steel which both enhances the bridge’s redundancy and increases the load rating of the structure. The rehabilitation work was designed to provide an additional 75 years while withstanding a 2500 year seismic event with minimal future maintenance costs.
WORKSHOPS

W-1: APPLICATION OF SOFTWARE IN LOAD RATING HIGHWAY BRIDGES
1:00 – 5:00 PM | ROOM 327

Presented By: FHWA

The objectives of this workshop are to provide bridge owners and engineers with fundamental knowledge in load rating highway bridges in accordance with the AASHTO Manual for Bridge Evaluation and tools and experience in performing load rating of bridges with computer software.

This workshop will consist of presentations from FHWA, AASHTO Bridge Analysis and Rating Task Force and State DOTs. It will also include demonstrations of the AASHTO Bridge Rating software and commercial bridge load rating software.

Speakers: Myint Lwin, P.E., S.E., Director, Office of Bridge Technology, FHWA, Washington, DC; Lubin Gao, Ph.D., P.E., Senior Bridge Engineer – Load Rating, Office of Bridge Technology, FHWA, Washington, DC; Dean Teal, Bridge Evaluation, Kansas Department of Transportation, Topeka, KS; Roy L. Eriksson, P.E., President, Eriksson Technologies, Temple Terrace, FL; C. C. Fu, Ph.D., P.E., Director, The BEST Center, Department of Civil and Environmental Engineering, University of Maryland, College Park, MD; Ron Love, P.E., Senior Product Manager, Bridge Information Modeling (BrIM), Bentley Systems, Chicago, IL; Mohsen Shahawy, Ph.D., P.E., President, SDR Engineering Consultants, Inc., Tallahassee, FL

W-2: EXTRADOSED BRIDGES
1:00 – 4:00 PM | ROOM 326

Presented By: Pedelta

This workshop will focus on the conceptual design of extradosed bridges, including the geometric arrangement, typical cross-section, methods of construction, etc. In addition, final design issues such as design criteria, permanent load supported by cables/girder, design of cables, fatigue on cables, and other topics will be discussed. Finally, case studies of various domestic and international extradosed bridge projects will be presented.

Topics:
- Design, testing and implementation of a stay cable system applicable for extradosed bridge. Case study: Kwydzin Bridge, Poland
- Behaviour and Design Criteria of Extradosed Bridges
- Extradosed Bridges in Japan
- Design of the St Croix Extradosed Bridge
- Pearl Harbor Memorial (Q) Bridge - A Construction Perspective

Speakers: Rachid Annan, Special Developments Manager, VSL International, Switzerland; Juan A. Sobrino, Ph.D., P.E., P.Eng, President of PEDELT A Inc., Coral Gables, FL; Akio Kasuga, Ph.D. Eng., Chief Engineer - Managing Executive Officer, Sumimoto Mitsui Construction Co. Ltd, Tokyo, Japan; Don Bergman, P.Eng., P.E., Senior Project Director - Vice President Major Projects, Buckland & Taylor/COWI, Canada; Sean Bush, Project Manager Pearl Harbor Memorial (Q) Bridge, Walsh / PCL JV, New Haven, CT
W-3: OWNER’S FORUM
1:00 – 5:00 PM ROOM 325

Presented By: High Steel Structures, Inc.

Owners will provide a forecast of their bridge program at this forum, including an overview of upcoming structures design, construction or inspection work.

W-4: ENGINEERING ETHICS
1:00 – 3:00 PM ROOM 324

Presented By: Burns White, LLC, Pittsburgh, PA

Many states now require 1-2 hours of continuing education on ethics. This workshop will include a current, relevant topic on Engineering Ethics. Additional case studies will also be presented that address various engineering ethics issues.

Speakers: Michael Cremonese and Katherine Wrenshall, Burns White, Pittsburgh, PA; Paula M. Selvaggio and Eric O. Pempus, Oswald Companies, Cleveland, OH
HDR’s experience has positioned us as a leader in the delivery of exceptional bridge and structures programs. Our highly skilled professionals have designed bridges and structures that meet our clients’ unique and individual needs and specifications. Our services include:

- Design
- Rehabilitation
- Construction Management
- Design-Build
- Condition Inspection
- Construction Inspection
- Construction Engineering
- Rating and Analysis
- Demolition
- Erection

BRIDGE ENGINEERING SOLUTIONS

CLOCKWISE: Shenandoah River Bridge, WV | Tappan Zee Hudson River Crossing, NY | Mike O’Callaghan – Pat Tillman Memorial Bridge at Hoover Dam, AZ-NV
THURSDAY JUNE 6

SEMINAR: STEEL BRIDGE DESIGN - TOOLS, RESOURCES, REFERENCES FOR DESIGNERS
8:00 AM – 12:00 NOON
See page 60 for description

W-5: ACCELERATED BRIDGE CONSTRUCTION
8:00 AM – 12:00 NOON ROOM 330
Presented By: FHWA
This Workshop, conducted by the FHWA as part of their Every Day Counts program will provide various presentations on Pre-fabricated Bridge Elements and Systems (PBES) and their role in ABC. Topics will include strategies in the areas of planning, engineering, materials, research, contracting, and construction.
Speakers: Benjamin Beerman, P.E., FHWA, Atlanta, GA; Mike Culmo, P.E., CME Associates, Inc., East Hartford, CT

W-6: BRIDGE PRESERVATION STRATEGIES
8:00 AM – 12:00 NOON ROOM 329
Presented By: FHWA
The objectives of this workshop are to showcase bridge preservation practices aimed to extend the service life of bridges, and to reduce the life-cycle cost of highway bridges, and to communicate bridge preservation program values, benefits and needs to stakeholders and the general public.
This workshop will consist of presentations from FHWA, State and Local Transportation Agencies, industry representatives on protective coatings, corrosion mitigation, and others. It will also provide an overview of NCHRP Project 14-24 Communicating the Value of Preservation.
Speakers: Anwar Ahmad, Senior Bridge Preservation Engineer, FHWA, Washington, DC; Dan Williams, Director of Engineering, Maryland Transportation Authority, Baltimore, MD; Kevin Irving, Marketing Manager, AZZ Galvanizing, Joliet, IL; Rachel Stiffer, Business Development Manager, Vector Corrosion Technologies, Pittsburgh, PA; Joe Crossett, Partner; High Street Consulting Group, Pittsburgh, PA; GeoStabilization International, Grand Junction, CO

W-8: MOVING THE BRIDGE INDUSTRY TOWARDS BRIM PROJECT DELIVERY AND DATA MANAGEMENT
8:00 AM – 12:00 NOON ROOM 327
Presented By: FHWA
This workshop is intended to be an open forum where the FHWA will share its vision for development and implementation of national standards for Bridge Information Modeling (BrIM), and appeal for broad stakeholder input. BrIM based engineering provides an opportunity to be better, faster, and more visualized, while reducing errors and conflicts in project development, construction, and asset management. Creation of credible, unbiased national BrIM standards will provide a common digital exchange format that ideally all software tools would accept both now and in the future. Successful implementation in the bridge industry requires a multi-year roadmap that includes a “top down” strategy involving policy-makers and owners, and a “bottom up” strategy involving practitioners and software providers. FHWA intends to work with all the stake-
holders to greatest extent possible and create an initial set of core BrIM standards that, once established, could be turned over to an industry-driven stewardship body for long-term ownership and management. We will explore opportunities and obstacles from stakeholders such as policy makers, owners, engineers, developers, and commercial software providers and solicit feedback from audience in roundtable discussion format.

Speakers: Brian Kozy, FHWA, Washington, DC; Chuck Eastman, Georgia Tech University, Atlanta, GA; Bob Lipman, NIST, Gaithersburg, MD; Scott Becker, WIDOT, Madison, WI; Mike Waddell, HNTB, Kansas City, MO; Ali Koc, Red Corp, New York, NY; Stuart Chen, University at Buffalo, Buffalo, NY

W-13: SAVING TIME AND MONEY AND CREATING LONGER LASTING BRIDGES

8:00 AM – 12:00 NOON ROOM 326

Presented By: SHRP2

This workshop provides detailed technical information on the most promising SHRP 2 products for the Bridge and Structures communities. Many of these products have direct impact on the state of practice to selection, design, construction and preservation of bridge and tunnel components, subsystems and systems. Several products are applicable to “bread and butter” bridges and can be applied by local bridge owners and contractors. Other products advance the body of knowledge of LRFD bridge service life design.

Topics:

- Design Guide for Bridges for Service Life
- Bridge for Service Life beyond 100 Years
- Innovative Bridge Designs for Rapid Renewal
- Selection Tool for Concrete Bridge Assessment Techniques
- Mapping Defects in or Behind Tunnel Linings
- Implementation Plans for SHRP 2 Bridge Products

Specific presentations will address: Service Life Design Guide for 100-year Bridges; Framework and Model AASHTO Design Specifications bridges for Service Limit States; Innovative Bridge Designs for Rapid Renewal (sample plans, design details and design and construction procedures for “workhorse bridges”); Selection Tool for Concrete Bridge Deck Assessment Techniques; Rapid Methods for Mapping Tunnel Lining Defects; and Geotechnical Solutions for Problematic Foundation Conditions. Additional SHRP 2 products will be briefly addressed, including Risk Management, Innovative Strategies for Managing Complex Projects and Performance Specifications for Rapid Renewal Projects.

Speakers: James Bryant, Ph.D., P.E., Second, Strategic Highway Research Program (SHRP 2), The National Academies; Atorod Azizinamini, Ph.D., P.E., Florida International University; Wagdy Wassef, Ph.D., P.E., Modjeski and Masters Inc.; Ken Price, Ph.D., P.E., HNTB; Dr. Nenad Gucunski, Rutgers University; Andrew Wimsatt, Ph.D., P.E., Texas Transportation Institute; Ken Jacoby, FHWA
SEMINAR: NCHRP REPORT 725: GUIDELINES FOR ANALYSIS AND CONSTRUCTION ENGINEERING OF CURVED AND SKEWED GIRDER BRIDGES
1:00 – 5:00 PM
See page 60 for description

W-9: BRIM BENEFITS AND RAPID BRIDGE DESIGN
1:00 – 3:00 PM | ROOM 330

Presented By: Bentley Systems, Inc.

Attendees will learn how the new paradigm of Bridge Information Modeling (BrIM), which is the future for designing, delivering, and sustaining transportation infrastructure and bridges, addresses the challenges faced by today’s engineers through integrated project delivery. Owner expectations and tight funding will continue to require projects of increasing complexity to be delivered more accurately, efficiently, and cheaply. Bridge Information Modeling is the way the bridge industry will address these new challenges.

Speakers: Ron Love, Bentley Systems, Chicago, IL; Jeff Kroon, Bentley Systems, Philadelphia, PA

W-10: FRP COMPOSITES ADVANCEMENTS IN DESIGN, REHABILITATION AND FABRICATION OF PREFABRICATED BRIDGE ELEMENTS AND SYSTEMS
1:00 – 4:00 PM | ROOM 329

Presented By: American Composites Manufacturing Association

This workshop offers six presentations on recent bridge installations focused on bridge decks, girders, and other bridge applications where the installations demonstrate support of the FHWA Prefabricated Bridge Elements and Systems program for new construction. Other presentations include rehabilitation solutions using structural strengthening systems applied to bridges located in seismic regions will demonstrate the feasibility of composites to extend the service life of structures, bridge pier protection systems, and an overview on specification of FRP rebar used in bridge decks along with several case histories. In addition, a presentation will be given on the development of a new AASHTO specification on concrete filled FRP composites tubes used as girders for bridge design.

Speakers: John P. Busel, American Composites Manufacturers Association, Arlington, VA; Scott Reeve, Composites Advantage, Dayton, OH; David White, P.E., Sika Corporation, Lyndhurst, NJ; Dustin Troutman, Creative Pultrusions, Alum Bank, PA; Markus Spieler, COLEVO, Sins, Switzerland

W-11: INNOVATIVE INFRASTRUCTURE ASSET MANAGEMENT
1:00 – 3:00 PM | ROOM 328

Presented By: Intelligent Infrastructure Systems (IIS)

As our infrastructures age and the resources available for their conventional replacements dwindle, there is increasing recognition that we need to innovate and increase the effectiveness of how we preserve, rejuvenate and renew existing assets. To accomplish these objectives we need considerable new knowledge and new paradigms that will help operate, inspect, maintain and repair/renew infrastructure in an optimal manner. This workshop will be a series of presentations focused on asset management practice at federal, state, and local agencies.
W-12: BRIDGE PRESERVATION - WESTERN PA PROJECTS
3:00 – 5:00 PM  ROOM 327

Presented By: Michael Baker Jr.

Bridge preservation aspects of various project in Western PA (PennDOT District 11-0). Projects covered will include Cross-town, Parkway North, Parkway East and other various bridge preservation projects.

SEMINARS (TICKETS REQUIRED)

IBC Seminars are intensive, four-hour, single-topic focused sessions. An additional fee of $175 is required for each seminar and advance registration is required, and a ticket will be provided to you at that time. Tickets are required to attend all seminars. Seating for each Seminar is limited, so please register early. Certificates of Completion are awarded upon completion.

STEEL BRIDGE DESIGN - TOOLS, RESOURCES, REFERENCES FOR DESIGNERS

8:00 PM – 12:00 NOON

Presented by: National Steel Bridge Alliance

Objective of this seminar is to introduce new, complimentary tools and resources available to the bridge design community, including girder design software, girder splice software, and the new Steel Bridge Handbook from FHWA. Efficient girder design will be reviewed using the new SIMON program and splice design will be reviewed using the new NSBASplice software. Attendees will develop better insight into economical bridge design, enabling them to use the provided software to quickly develop preliminary & final designs of steel bridge superstructures. Additionally an overview to the use of eSPAN140, a web based tool for a quick and easy assessment of steel options for simply supported, short span bridges will be provided. Finally an introduction to the FHWA's new Steel Bridge Design Handbook, a compendium of 19 volumes and 6 design examples prepared by a ‘Who’s Who’ of bridge design. A more detailed at the Redundancy and Bracing chapters will be provided.

Speakers: Bill McEleney, NSBA, Cranston, RI; Mike Grubb, M.A. Grubb & Associates, Pittsburgh, PA; Bob Cisneros, High Steel Structures, Lancaster, PA; Karl Barth, West Virginia University, Morgantown, WV; Brandon Chavel, HDR, Chicago, IL; Brian Kozy, FHWA, Washington, DC; Dennis Mertz, University of Delaware, Newark, DE

NCHRP REPORT 725: GUIDELINES FOR ANALYSIS AND CONSTRUCTION ENGINEERING OF CURVED AND SKEWED GIRDER BRIDGES

1:00 – 5:00 PM

Presented by: HDR Engineering, Inc.

The behavior of horizontally curved and/or skewed steel I- and tub-girder bridges is more complicated than that of straight, non-skewed bridges. These structures can experience significant three-dimensional deflections and rotations and system behavior, all of which can potentially compromise the constructability of the bridge, and in some cases, its structural integrity. Little has been previously published in the way of quantitative guidelines or recommendations on the appropriate level of structural analysis for construction engineering of these types of bridges. The recently published NCHRP Report 725, Guidelines for Analysis Methods and Construction Engineering of Curved and Skewed Steel Girder Bridges, provides bridge engineers with guidance that will be presented and discussed.

Speaker: Brandon W. Chavel, HDR Engineering, Inc., Cleveland, OH; Don White, Georgia Institute of Technology, Atlanta, GA; Andres Sanchez, HDR Engineering, Pittsburgh, PA; Cagri Ozgur, Paul C. Rizzo Associates, Pittsburgh, PA
Bridge Inspection
Underwater Inspection
Structural Engineering
Hydrographic Surveying
Transportation Planning
Civil Highway Engineering
Contractor Services
Design-Build Engineering
Land Surveying
New this year, the 2013 IBC Exhibit Hall has moved to Hall B of the David L. Lawrence Convention Center, where we can accommodate even more displays than ever before—heavy equipment, active displays and super-sized exhibits, along with numerous enhancements for your enjoyment. With more space than ever to accommodate additional features, the IBC Exhibit Hall is the place to be for attendees and exhibitors! In addition to the many vendor exhibits, the Featured Agency display from MassDOT is prominently featured in the center of the Exhibit Hall.

All registered attendees are welcome to enjoy our strolling luncheon buffets on Monday, Tuesday and Wednesday during the IBC, where you will find lots of goodies displayed throughout the Exhibit Hall. Please stop by and visit with our many exhibitors while enjoying your lunch. In addition, coffee breaks, when scheduled, will be located throughout HALL B.

The IBC Exhibit Hall is open:
- Monday: 11:00 AM - 5:00 PM, featuring complimentary lunch starting at 12:00 Noon.
- Tuesday: 8:00 AM - 5:00 PM, featuring complimentary lunch starting at 12:00 Noon.
- Wednesday: 8:00 AM - 1:30 PM, featuring complimentary lunch starting at 12:00 Noon.

Thanks to all of our returning and new Exhibitors! The following is a quick find numerical listing of all exhibitors. Following, an alphabetical listing with full contact information and company description can be found. This listing contains all Exhibitors as of May 20, 2013.

<table>
<thead>
<tr>
<th>BOOTH #</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hall B</td>
<td>Massachusetts DOT</td>
</tr>
<tr>
<td>201</td>
<td>Dynamic Isolation Systems</td>
</tr>
<tr>
<td>203</td>
<td>TRC Engineers, Inc.</td>
</tr>
<tr>
<td>207</td>
<td>Hardwire LLC</td>
</tr>
<tr>
<td>211</td>
<td>Bentley Systems, Incorporated</td>
</tr>
<tr>
<td>213</td>
<td>Pultrall Inc.</td>
</tr>
<tr>
<td>216</td>
<td>STV</td>
</tr>
<tr>
<td>217</td>
<td>Oldcast Precast</td>
</tr>
<tr>
<td>218</td>
<td>Z+F USA, Inc.</td>
</tr>
<tr>
<td>219</td>
<td>American Segmental Bridge Institute (ASBI)</td>
</tr>
<tr>
<td>221</td>
<td>Epoxy Interest Group of CRSI</td>
</tr>
<tr>
<td>223</td>
<td>SHRP2 Solutions</td>
</tr>
<tr>
<td>224</td>
<td>Headed Reinforcement Corporation (HRC)</td>
</tr>
<tr>
<td>225</td>
<td>Silica Fume Association</td>
</tr>
<tr>
<td>229/328</td>
<td>U.S. Bridge</td>
</tr>
<tr>
<td>237</td>
<td>ZPMC</td>
</tr>
<tr>
<td>300</td>
<td>KLAAS Coatings (North America) LLC</td>
</tr>
<tr>
<td>301</td>
<td>Harcon Corporation</td>
</tr>
<tr>
<td>302</td>
<td>Scougal Rubber Corporation</td>
</tr>
<tr>
<td>303</td>
<td>Advitam, Inc.</td>
</tr>
<tr>
<td>304</td>
<td>Neel Company, The</td>
</tr>
<tr>
<td>305</td>
<td>Campbell Scientific, Inc.</td>
</tr>
<tr>
<td>306</td>
<td>Terex Hydra Platforms</td>
</tr>
<tr>
<td>310</td>
<td>FIGG</td>
</tr>
<tr>
<td>311</td>
<td>Wirerope Works, Inc.</td>
</tr>
<tr>
<td>312</td>
<td>AZZ Galvanizing Services</td>
</tr>
<tr>
<td>313</td>
<td>Termarust Technologies</td>
</tr>
<tr>
<td>316</td>
<td>McClain &amp; Co. Inc.</td>
</tr>
<tr>
<td>318</td>
<td>Moog USA, Inc.</td>
</tr>
<tr>
<td>320</td>
<td>AECOM</td>
</tr>
<tr>
<td>322</td>
<td>Watson Bowman ACME</td>
</tr>
</tbody>
</table>
324 ..........Seismic Energy Products
329 ..........DOT Quality Services
330 ..........Snap-Tite
331 ..........American Shotcrete Association
332 ..........Phoenix National Laboratories, Inc.
336 ..........All Access Rigging
337/436 ...Pennoni Associates
400 ..........R.J. Watson, Inc.
401 ..........Reinforced Earth Company, The
402 ..........Outokumpu Stainless
403 ..........Vector Corrosion Technologies
404 ..........Transpo Industries, Inc.
405 ..........Carolina Stalite Company
407 ..........Highway Care
410 ..........Hayward Baker
411 ..........Modjeski and Masters, Inc.
412 ..........Viathor, Inc.
413 ..........D.S. Brown Company, The
428 ..........MMFX Steel Corporation of America
429 ..........G.W.Y., INC.
430 ..........Williams Form Engineering Corp.
431 ..........Bridge design & engineering
433 ..........H2L2/ Nelson Company
437 ..........Strand7 Pty Ltd.
500 ..........Sika Corporation
501/600/503/602 ... CBSI
502/504 ...American Composites Manufacturers Association
505/604 ...Acrow Corporation
506 ..........MDX Software
510 ..........Bridge Grid Flooring Manufacturers Association
511 ..........St. Louis Screw & Bolt
512 ..........Hilman Rollers
513 ..........Central Atlantic Bridge Associates
517 ..........Short Span Steel Bridge Alliance
519 ..........Sofis Company Inc.
521 ..........National Steel Bridge Alliance (NSBA)
523 ..........HRV Conformance Verification Associates, Inc.
525 ..........Eriksson Technologies, Inc.
528 ..........Lusas
529 ..........Euclid Chemical Co.
530 ..........Pittsburgh Rigging
531 ..........Evonik Industries
532 ..........Dymat Construction Products, Inc.
536 ..........Freyssinet, Inc.
537 ..........ZPMC
601 ..........WireCo World Group
603 ..........Loadtest
605 ..........FRP Bridge Drain Pipe
607 ..........Michael Baker Jr., Inc.
610 ..........Proto Manufacturing
611 ..........DBi Services
612 ..........Moffatt & Nichol
613 ..........G.M. McCrossin
616 ..........Bridge Access Specialties
617 ..........SPX Hydraulic Technologies (Power Team)
618 ..........Palmer Engineering
619 ..........Crafco Inc.
620 ..........VSL
621 ..........TranSystems Corporation
622 ..........Earthquake Protection Systems, Inc.
A Study on Wrapping Wire Tension Loss of Main cable of Suspension Bridge

Jinhyuk Choi, Bridge Engineering Team, Daelim Industrial Co., Ltd., Jongno-gu, Seoul, Korea
3A Composites
Booth #: 736
Contact: Markus Spieler
Phone: +41 79 540 38 54
E-mail: markus.spieler@3acomposites.com
Website: www.colevo.ch
3A Composites is a global provider of lightweight sandwich solutions and products, focused on the architecture, display, marine, transportation and wind energy markets, offering a unique product range for the respective high-end segments. COLEVO® is a new offering of 3A Composites for light and durable sandwich composite solution in bridges, bridge decks, and further lightweight applications in the civil engineering and construction market.

AASHTO
Booth #: 719
Contact: Erin Grady
Phone: 202-624-8182
Fax: 202-508-3835
E-mail: egrady@aashto.org
Website: www.transportation.org
The American Association of State Highway and Transportation Officials (AASHTO) advocates transportation-related policies and provides technical services to support states in their efforts to efficiently and safely move people and goods.

Acrow Corporation
Booth #: 505/604
Contact: Eugene Sobecki
Phone: 973-244-0080
Fax: 973-244-0085
E-mail: esobecki@acrowusa.com
Website: www.acrow.com
Acrow Corporation, a steel bridging company, has been in business for over 57 years. Acrow’s primary business is the engineering, manufacturing, and supply of prefabricated modular steel bridges for emergency, temporary detour, and permanent application. Acrow is an industry world leader that specializes in the design, manufacture, and supply of modular prefabricated steel Acrow Bridges and Superprop Shoring Systems.

Advitam, Inc.
Booth #: 303
Contact: Stephen Schorn
Phone: 703-674-0813
Fax: 703-342-0426
E-mail: stephen.schorn@advitam-usa.com
Website: www.advitam-usa.com
Advitam provides solutions and services for infrastructure management. ScanPrint is our asset management system offering inventory, inspection, reporting and LCC modules for bridges and other highway structures and assets. Advitam is also an expert in structural health monitoring and NDT; our EverSense system provides short/long-term solutions for bridge monitoring.
EXHIBITOR INFO

AECOM
Booth #: 320
Contact: Ken Butler
Phone: 804-515-8300
Fax: 804-515-8305
E-mail: Ken.Butler@aecom.com
Website: www.aecom.com
Ranked No.1 in Transportation by Engineering News-Record, AECOM is also among the industry leaders in bridges. With more than 1,100 bridge staff in over 75 offices, we have been contributing to successful bridge engineering projects worldwide, providing planning and environmental evaluation, financing, rehabilitation, design, inspection, and program and construction management.

All Access Rigging
Booth #: 336
Contact: Amy Guzma
Phone: 412-877-9660
Fax: 866-491-2140
E-mail: contact@allaccessrigging.com
Website: www.allaccessrigging.com
AARC is a nationwide bridge inspection support service company with over 30 years of experience. We provide access to the most challenging structures while eliminating the need for lane closures and track time. We also provide traffic control, bridge maintenance & repair, certified welding services. Penndot prequalified & hold PA & WV contractor licenses.

American Composites Manufacturers Association (ACMA)
Booth #: 502/504
Contact: John P. Busel
Phone: 914-961-8007
Fax: 703-525-0743
E-mail: jbusel@acmanet.org
Website: www.compositesinfrastructure.org
ACMA is the world’s largest composites trade association and hosts the largest composites conference in North America – COMPOSITES. The ACMA Transportation Structures Council serves to inform and educate engineers on FRP composites used in infrastructure applications. Products on display include FRP bridge decks, rebar, girders, bridge pier protection, and concrete repair/strengthening systems. Visit www.compositesinfrastructure.org.

American Segmental Bridge Institute (ASBI)
Booth #: 219
Contact: William R. (Randy) Cox
Phone: 512-523-8214
Fax: 512-523-8213
E-mail: info@asbi-assoc.org
Website: www.asbi-assoc.org
The American Segmental Bridge Institute (ASBI) is a nonprofit organization providing a forum where owners, designers, constructors, and suppliers can meet to further refine current design, construction, and construction management procedures, as well as evolve new techniques to advance the quality and use of concrete segmental bridges.
American Shotcrete Association

Booth #: 331
Contact: Mark A. Campo
Phone: 248-848-3742
Fax: 248-848-3740
E-mail: info@shotcrete.org
Website: www.shotcrete.org

The American Shotcrete Association (ASA) is a non-profit organization of contractors, suppliers, manufacturers, designers, engineers, owners, and others with a common interest to encourage and promote the use of the shotcrete method of concrete placement. ASA's vision is that the shotcrete process be understood and used in every beneficial application.

AST/Adhesive Systems Technology

Booth #: 631
Contact: Stephen Hirt
Phone: 763-592-2060
Fax: 763-592-2075
E-mail: ast@ast-corp.net
Website: www.ast-corp.net

Manufacturer of equipment used for bridge deck coating, dowel-ing, injection, & joint filling. Used for applications of epoxies, urethanes and other one & two part materials.

AZZ Galvanizing Services

Booth #: 312
Contact: Kevin Irving
Phone: 815-693-4242
Fax: 630-243-6426
E-mail: kevinirving@azzgalv.com
Website: www.azzgalvanizing.com

The steel bridge industry has looked to AZZ as a leading provid-er of corrosion protection services for more than four decades. As North America's largest after-fabrication galvanizer, we as-sure durability and safety for decades by applying molten zinc to metal components. Zinc corrodes at a rate 30 times slower than steel. The resulting coating serves as a rust-free shield that can last for decades.

Bentley Systems, Incorporated

Booth #: 211
Contact: Barbara Day
Phone: 919-851-8559
Fax: 919-851-8533
E-mail: Barbara.day@bentley.com
Website: www.bentley.com/IBC

Bentley Systems, Incorporated provides software for the lifecycle of the world's infrastructure. Bentley delivers Bridge Information Modeling (BrIM) technology for the entire bridge lifecycle. Bentley BrIM provides broad access to advanced bridge products in Bentley's comprehensive software portfolio. Bentley products provide an interoperable, data-managed bridge solution for planning, design, engineering, analysis, fabrication, construction, maintenance, and rehabilitation. These end-to-end solutions enable the transportation industry to efficiently and effectively address the challenges of new and aging bridges and deliver sustainable, long lasting infrastructure.
### Bridge Access Specialties

**Booth #: 616**

Contact: Jim Bunch  
Phone: 541-228-3210  
Fax: 541-736-7234  
E-mail: JimBunch@bridgeaccessspecialties.com  
Website: www.bridgeaccessspecialties.com  

Bridge Access Specialties is a Under Bridge Inspection Truck Rental Company. We rent UBITs to inspect Rail structures, Roadway structures and Transit elevated rail structures through out the United States.

### Bridge design & engineering

**Booth #: 431**

Contact: Lisa Bentley  
Phone: +44-207-973-4698  
Fax: +44 207 973 6677  
E-mail: l.bentley@hgluk.com  
Website: www.bridgeweb.com

The leading magazine for the international bridge industry.  
Every issue of Bd&e looks at the latest news, project reports, interviews and technical & application features from around the world. Bd&e is essential reading for anyone who finances, plans, designs, builds, maintains, operates or owns bridges.

### Bridge Grid Flooring Manufacturers Association (BGFMA)

**Booth #: 510**

Contact: Ryan Schade  
Phone: 419-257-5410  
Fax: 419-257-0332  
E-mail: bgfma@bgfma.org  
Website: www.bgfma.org

The Bridge Grid Flooring Manufacturers Association (BGFMA) industry group is comprised of companies who fabricate steel grid deck systems for bridges and other companies with an interest in this market. This professional organization is focused on the reliable development and application of open grid, grid reinforced concrete, and Exodermic™ bridge decks to meet the demands of the engineering community and traveling public.

### Campbell Scientific, Inc.

**Booth #: 305**

Contact: Mike Adams or Bill Bradford  
Phone: 435-227-9040  
Fax: 435-227-9001  
E-mail: info@campbellsci.com  
Website: www.campbellsci.com/structures

Campbell Scientific, Inc. manufactures data acquisition systems for bridge monitoring and testing. Proven on many of the world’s premier bridges, our rugged, stand-alone, DC powered instrumentation features multiple telemetry options, low power use, non-volatile data storage, rainfall histograms, real-time FFTs, and rugged reliability even in harsh, remote environments.
Carolina Stalite Company
Booth #: 405
Contact:  Dr. Reid W. Castrodale, P.E.
Phone:  800-898-3772
Fax:  704-642-1572
E-mail: rcastrodale@stalite.com
Website:  www.stalite.com
Stalite is a high performance lightweight aggregate manufactured by expanding slate at high temperatures. Lightweight concrete produced using Stalite has enhanced durability and a lower density that improves structural efficiency and reduces handling costs for precast elements. Stalite has been successfully used as geotechnical fill in a range of applications.

CBSI
Booth #: 501/600/503/602
Contact:  Jerry V. Clodfelter
Phone:  713-675-1180
Fax:  713-675-1140
E-mail: jvclodfelter@cbsii.com
Website:  www.cbsiusa.com
CBSI is the definitive resource for engineering matters relating to cable-supported structures. In addition to consulting services, CBSI personnel design, contract for, storehouse, and supply both custom and standard bridge strands, ropes and related structural sockets, casting and forgings. We are driven by a determination to provide each client with the finest products and services available today. We know the excellence of our work is our most important asset.

Center Rock Inc.
Booth # 702
Contact:  Christen Fisher
Phone:  814-267-7100 x223
Fax:  814-267-3841
Email: cfisher@centerrock.com
Website:  centerrock.com
Center Rock’s advanced engineering Low Profile Cluster Drills provide a cost effective solution for drilling excavation up to 120” in diameter. Hard rock and is our specialty plus speed. The Chilean Mine Rescue is proof!

Central Atlantic Bridge Associates
Booth #: 513
Contact:  Heinrich O. Bonstedt
Phone:  610-395-2338
E-mail: info@caba-bridges.org
Website:  www.caba-bridges.org
The Central Atlantic Bridge Associates (CABA) represents PCI Certified prestressed concrete bridge beam producers in the Central Atlantic region – Pennsylvania, Virginia, Maryland, Delaware, and New Jersey. It promotes the use, application, and technical development of prestressed concrete for the transportation markets.
Ceratech Inc.
Booth #: 637
Contact: Todd Miller
Phone: 1-800-581-8397
Fax: 443-524-4411
E-mail: todd.miller@pavemend.com
Website: www.pavemend.com
Pavemend Rapid, Permanent Concrete and Asphalt repair products are quickly becoming the choice for Turnpike, State DOT Bridge Crews and discriminating engineers who value superior permanent repairs and reduced traffic disruptions. Pavemend products are easier to use, offer greater durability, provide superior return on investment, and are the most sustainable repair products available today.

ChemCo Systems
Booth #: 629
Contact: John Bors
Phone: 650-261-3790
Fax: 650-261-3799
E-mail: bors@chemcosystems.com
Website: www.chemcosystems.com
Epoxy Asphalt is the highest performing surfacing for long span bridges around the world. With a design life typically exceeding 20 years, this pavement provides high bond strength and fatigue resistance on orthotropic steel decks. As a thermoset polymer, this pavement does not melt, offering superior performance in hot climates.

Crafco Inc.
Booth #: 619
Contact: Lisa M Zentner
Phone: 307-287-6267
Fax: 480-940-0313
E-mail: lisa.zentner@crafco.com
Website: www.crafco.com
Crafco specializes in Pavement Preservation supplying the industry with bridge deck waterproofing membranes, crack and joint sealants, geo-composites, patching products and application equipment. Crafco’s knowledge comes from preserving pavements and the challenges that come with the never-ending efforts to maintain them.

CTS Cement Manufacturing Corporation
Booth #: 725
Contact: Chris Davis
Phone: 800-929-3030
Fax: 714-379-8270
E-mail: info@ctscement.com
Website: www.ctscement.com
CTS manufacturers Rapid Set® cement and Type K shrinkage compensating cement (SCC). Rapid Set® allows bridge deck overlays to be completed faster, with higher quality, long-term performance than Portland cement concrete. SCC has been used in over 800 bridge decks with reduced permeability, excellent durability and little to no cracks.
D.S. Brown Company, The

Booth #: 413
Contact: Bob Rose  
Phone: 732-451-0070  
Fax: 732-262-4443  
E-mail: brose@dsbrown.com  
Website: www.dsbrown.com  
Design and manufacture engineered bridge construction materials including expansion joint systems, structural bearing assemblies (elastomeric, HLMR and spherical), Cableguard™ elastomeric wrap (corrosion protection for bridge cables), and Exodermic™ (composite, unfilled steel grid) Bridge Decks.

DBi Services

Booth #: 611
Contact: Fred Grant  
Phone: 570-459-1112  
Fax: 570-459-0321  
E-mail: fgrant@dbiservices.com  
Website: www.dbiservices.com  
DBi Services provides global transportation infrastructure maintenance and operations solutions for highways, bridges and tunnels to toll authorities, government agencies, concessionaires and private partners. In addition, our High Friction Surfacing Treatment division provides application technology of skid-resistant surfaces and bridge deck coatings, making roads safer worldwide.

DOT Quality Services

Booth #: 329
Contact: Seth Bransky  
Phone: 312-285-5344  
E-mail: info@dotqs.com  
Website: www.dotqs.com  
DOT Quality Services is a specialized firm that develops standards of performance, creates and conducts supplier audit programs, and offers ISO 9001 and ISO 3834 Certification Services. Our quality audits are conducted by experienced quality professionals with technical and quality system certification credentials. All evaluations are done with a customer’s perspective to specific contracts, state specifications, and industry codes.

Dymat Construction Products, Inc.

Booth #: 532
Contact: D. Stephen Fitz  
Phone: 775-800-1190 or 775-420-8905  
E-mail: steve@dgsfitz.com or dsfitz@dymatinc.com  
Website: www.dymatinc.com  
Dymat provides high quality, American made bridge disc and sliding bearings, carbon fiber reinforced bearings, rubber bearings, slip seal expansion joints and simple base isolation systems as well as rapid construction systems for repairs to damaged columns and piers. Engineering assistance, proposal and submittal drawings and CAD for custom applications.
Dynamic Isolation Systems

**Booth #: 201**

Contact: Tung Ng  
Phone: 775-359-3333  
Fax: 775-359-3985  
E-mail: tng@dis-inc.com  
Website: www.dis-inc.com  

Dynamic Isolation Systems Inc. (DIS) has been at the forefront of seismic isolation for over 25 years. DIS designs, manufactures and tests seismic isolation bearings of all sizes and specializes in custom designs. We have supplied isolators for the majority of prominent isolation projects around the world. Please contact DIS for design assistance for your isolation project.

Earthquake Protection Systems, Inc.

**Booth #: 622**

Contact: Roy A. Imbsen  
Phone: 707-644-5993  
Fax: 707-644-5995  
E-mail: roy.imbsen@earthquakeproynction.com  
Website: www.earthquakeproyection.com  

Earthquake Protection Systems is the world’s leading manufacturer of seismic isolation bearings. Our Friction Pendulum bearings are used in the world’s largest and most critical seismic isolation applications. The new Triple Pendulum bearing provides the best seismic performance available in seismic isolation at a lower installed cost.

Epoxy Interest Group of CRSI

**Booth #: 221**

Contact: David McDonald  
Phone: 630-380-5845  
Fax: 847-517-1206  
E-mail: dmcdonald@epoxy.crsi.org  
Website: www.epoxyinterestgroup.org  

Epoxy-coated reinforcing steel is the most commonly used and most cost-effective method to reduce damage to concrete due to corrosion. The Epoxy Interest Group is a not-for-profit trade association providing an authoritative resource for information related to use of epoxy-coated steel.

Eriksson Technologies, Inc.

**Booth #: 525**

Contact: Roy Eriksson  
Phone: 813-989-3317  
E-mail: eriksson@eriktech.com  
Website: www.LRFD.com  

Eriksson Technologies provides consulting engineering services and develops and markets engineering design software. Engineering services are primarily rendered to precast/prestressed concrete fabricators that serve the transportation market. Our full range of services include detailing, shop drawing preparation, stressing bed design and retrofit, product design and re-design, lifting and handling, damage assessment, and repair. Engineering software includes applications for pretensioned bridge girder, spliced bridge girder, and precast and cast-in-place culvert design.
Euclid Chemical Co.

Booth #: 529

Contact: Mike Konkle  
Phone: 412-893-0462  
Fax: 216-481-7072  
E-mail: info@euclidchemical.com  
Website: www.euclidchemical.com  
The Euclid Chemical Company manufactures top quality concrete admixtures, repair products, sealers and coatings that meet the demands of the bridge industry. We strive to be “demonstratively better” to our customers through cutting edge research, technical support and service, product training and an education-driven specification effort.

Evonik Industries

Booth #: 531

Contact: Christopher Soldi  
Phone: 1-800-828-0919  
Fax: 973-929-8503  
E-mail: info.protectosil@evonik.com  
Website: www.protectosil.com  
Evonik Industries (formerly Evonik Degussa) is one of the world’s leading specialty chemicals companies. The Protectosil®, CHEM-TRETE®, and AQUA-TRETE® line of water repellents, corrosion inhibitors, anti-graffiti coatings and crack sealers has a proven history of maintaining and increasing the service life of concrete bridge decks and other mineral based substrates.

FIGG

Booth #: 310

Contact: Linda Figg  
Phone: 850-224-7400  
Fax: 850-224-5428  
E-mail: lfigg@figgbridge.com  
Website: www.figgbridge.com  
FIGG specializes in bridge design and construction engineering and management. Celebrating over 30 years of Creating Bridges as Art® for our customers with more than 300 awards for innovation, economy and aesthetics. Our focus on bridges allows us to create landmarks that incorporate function, sustainable design and beauty to enhance the quality of life for communities across America.

Freyssinet, Inc.

Booth #: 536

Contact: Claire Garrant  
Phone: 703-378-2500  
Fax: 703-378-2700  
E-mail: claire.garrant@freyssinetusa.com  
Website: www.freyssinetusa.com  
Freyssinet offers value added products and services to the civil engineering industry including: Multi-Strand and Thread Bar Post-tensioning Systems, Stay Cable Systems, Suspension Bridge Cables and Hangers, Expansion Joints, Bearings, Structural Dampers & Seismic Devices, Structural Repair/Strengthening, Barrier Cables, Monitoring Systems & Services, Heavy Lifting / Moving.
FRP Bridge Drain Pipe
Booth #: 605
Contact: Nathan Peters
Phone: 636-938-6313
Fax: 636-938-3120
E-mail: npeters@westfallcompany.com
Website: www.bridgedrainpipe.com
Our company specializes in fiberglass drain systems that provide a corrosion resistant, lightweight and extremely versatile alternative to traditional material designs. Our products have been installed on a wide range of projects including highway overpasses, bridges, approach slabs and railway structures. Come see our ever improving solutions for age-old problems.

G.M. McCrossin
Booth #: 613
Contact: Paul Martin
Phone: 724-933-9222
Fax: 724-933-9223
E-mail: pmartin@mccrossin.com
Website: www.mccrossin.com
McCrossin’s Foundations division provides the most comprehensive geotechnical and deep foundations services in the region. We service industrial, commercial, institutional, and recreational facilities, as well as the heavy highway and power generation/transmission industries. McCrossin has the capability to design all foundation structural elements and earth retention systems. Our team is expert at addressing difficult regional soil conditions for various applications, specifically karst, sinkholes, and limited access.

G.W.Y., INC.
Booth #: 429
Contact: Gene Mitchell
Phone: 603-547-3800
Fax: 603-547-3801
E-mail: info@gwyinc.com
Website: www.gwyinc.com
G.W.Y., Inc is North America’s largest supplier of both Tone and Makita structural bolt installation tools. G.W.Y., Inc has a full line of electric wrenches for all installation methods (Calibrated Wrench, DTI, TC Bolt & Turn of Nut). G.W.Y., Inc sells, rents, services and carries an extensive inventory of tools and parts. G.W.Y., Inc’s consulting staff is known for their ability to solve bolting problems both in house and at the jobsite.

Greenman-Pedersen, Inc.
Booth #: 630
Contact: Tony Serdenes
Phone: 410-880-3055
Fax: 301-490-2649
E-mail: tserdenes@gpinet.com
Website: www.gpinet.com
Greenman-Pedersen, Inc. is a top national engineering/architectural design and construction firm involved on major projects throughout the U.S. and overseas since 1966. GPI provides engineering, planning, survey, mapping and construction management and inspection on major highway and bridge construction and coatings projects to various industries.
Guardian Bridge Rapid Construction Inc.

**Booth #: 720**

- **Contact:** Crawford Dewar
- **Phone:** 519-831-9989
- **E-mail:** crawford@bridgedecks.ca
- **Website:** www.bridgedecks.ca

Epoxy Fiberglass composite bridges, abutments, wing walls, approach slabs, piers, wharfs and Advanced Composite Strengthening Systems.

H2L2/ Nelson Company

**Booth #: 433**

- **Contact:** Thomas Piotrowski
- **Phone:** 215-925-6562
- **E-mail:** tpiotrowski@nelsononline.com
- **Website:** www.nelsononline.com

NELSON H2L2 offers integrated design, architecture, and engineering services, designing award-winning bridges across the country.

Halferty Metals Company

**Booth #: 623**

- **Contact:** Michael Benson
- **Phone:** 304-281-8874
- **Fax:** 724-694-5340
- **E-mail:** mikebenson@halfertymetals.com
- **Website:** www.lbfoster.com

Halferty Metals Company specializes in permanent metal deck forms. Form depths range from 2 inches through 4 inches accommodating girder spacings up to 12'-0.

Harcon Corporation

**Booth #: 301**

- **Contact:** Harold Stoltzfus
- **Phone:** 717-687-9294
- **Fax:** 717-687-9296
- **E-mail:** info@harconcorp.com
- **Website:** www.harconcorp.com

Harcon Corporation provides Bucket Boats, Bridge Trackers and rigging services for bridge inspection and repair projects. Since 1988, we’ve eliminated the need for lane closures and track time on thousands of structures nationwide.

Hardwire LLC

**Booth #: 207**

- **Contact:** Tim Keller
- **Phone:** 410-957-3669
- **Fax:** 410-957-3424
- **E-mail:** tim.keller@hardwirellc.com
- **Website:** www.hardwirellc.com

Hardwire is the leading supplier of bridge protection and hardening solutions in North America. We manufacture a wide range of composite armor solutions to protect the cables–be it a stay cable, suspender cable, or main suspension cable–against a wide array of threats including blast, fragmentation, mechanical and thermal cutting tools and fire.
Hayward Baker

Contact: Greg Simmons
Phone: 410-551-1980
Fax: 410-551-8206
E-mail: gesimmons@haywardbaker.com
Website: www.haywardbaker.com

Hayward Baker is North America’s leader in geotechnical construction, providing the complete range of geotechnical construction techniques. Full Design-Build services are available for grouting, ground improvement, structural support, and earth retention.

Headed Reinforcement Corporation (HRC)

Contact: Jeremy Maldonado
Phone: 714-557-1455
Fax: 714-557-4460
E-mail: Jeremy@hrc-usa.com
Website: www.hrc-usa.com

HRC is known in the industry for delivering practical coupler and T-head solutions without reducing the capacity of the reinforcing steel for ultimate strength and ductility. HRC products are designed to exceed the tensile properties of the reinforcing steel used.

Highway Care

Contact: Sam Arnold
Phone: 702-204-0732
Fax: 702-242-4733
E-mail: sam.arnold@highwaycare.com
Website: www.highwaycareusa.com

Manufacturer of BarrierGuard 800 steel barrier. The best FHWA TL-3 & TL-4 approved barrier available for bridge rehabilitation. Lightweight, 60 pounds per foot, 21” footprint, rapid installation, no through deck penetration. Rental & Sales available.

Hilman Rollers

Contact: Jeff Hill
Phone: 732-462-6277
Fax: 732-462-6355
E-mail: sales@hilmanrollers.com
Website: www.hilmanrollers.com

Hilman Rollers are an essential component for bridge construction projects. They have proven their value in rapid bridge replacements, launching bridge segments, launching entire spans, as travelers for gantries; as well as being used in casting yards to move heavy segments. Hilman Rollers move the Heavyweights!
HRV Conformance Verification Associates, Inc.

Booth #: 523

Contact: H. Rochelle Stachel  
Phone: 412-788-2522  
Fax: 412-788-1697  
E-mail: hrstachel@hrvinc.com  
Website: www.hrvinc.com  

HRV provides global, cost-effective quality assurance inspection services to both public and private entities. Specializing primarily in the bridge and highway construction industry, HRV offers steel fabrication, precast and prestressed concrete fabrication, and coatings inspection services. Additional services include Construction Management, Scheduling, and nondestructive testing.

KLAAS Coatings (North America) LLC

Booth #: 300

Contact: Richard Taylor  
Phone: 866-317-3633  
Fax: 214-363-8422  
E-mail: info@klaascoatings-northamerica.com  
Website: www.klaascoatings-northamerica.com  

North American manufacturer Si-Rex03™ Silicone Resin Emulsion Paint (SREP) for concrete and masonry. Water repellent yet highly breathable architectural coating, Excellent resistance to UV, weathering, chalking, peeling/flaking for durability and protection that outlasts/outperforms conventional paints. Only inorganic pigments used for fade resistant colors. Primers (penetrating sealers): Si-Prime™ silane/siloxane blend; Cremsil™ 80% active octylsilane based thixotropic cream. Approved with various State DOTs.

LeJeune Bolt Company

Booth #: 710

Contact: Jeff Greene  
Phone: 952-890-7700  
Fax: 952-890-3544  
E-mail: jgreene@lejeunebolt.com  
Website: www.lejeunebolt.com  

Be the first to see LeJeune’s new TnA Torque and Angle Fastening System. Our revolutionary system uses a unique fixed spline 144ksi bolt and two stage electric tool to provide Safe, Simple, and Cost Effective structural bolt installation. Stop by booth 710 for a hands on demonstration.

Loadtest

Booth #: 603

Contact: Bubba Knight  
Phone: 352-378-3717  
Fax: 352-378-3934  
E-mail: bubbaknight@loadtest.com  
Website: www.loadtest.com  

LOADTEST, WORLD LEADER IN DEEP FOUNDATION LOAD TESTING  
State-of-the-art deep foundation load testing; Osterberg Cell® bidirectional deep foundation load testing, SoniCaliper® excavation quality control, or RIM-cell® design load confirmation. Anyplace in the world or just down the road, Loadtest has risen to every challenge, enhancing deep foundation designs with the Osterberg Cell®, the SoniCaliper®, and the RIM-cell®.
Lusas
Booth #: 528
Contact: Terry Cakebread
Phone: 800-97-LUSAS
Fax: 212-257-6441
E-mail: info@lusas.com
Website: www.lusas.com
Use LUSAS Bridge software for all your frequency, seismic, dynamic, nonlinear, buckling and fatigue analysis. Staged construction, creep modeling, prestress / post-tensioning and curved girder analysis is supported. Traffic load optimisation facilities simplify worst-case loading patterns. AASHTO and other design codes supported. Extensive results processing facilities are provided.

Mageba USA
Booth #: 717
Contact: Jim Hatch
Phone: 646-752-5543
Fax: 646-495-3005
E-mail: jhatch@magebausa.com
Website: www.magebausa.com
Mageba USA is part of a leading global manufacturer and supplier of bridge bearings, expansion joints, seismic protection devices and monitoring systems, which in recent years has contributed to the construction of major North American landmarks such as the JJ Audubon, Port Mann, Golden Ears and Deh Cho Bridges, and the Oakland Airport APM. Who we are, what we do, and where we are located can be found on our website at www.magebausa.com.

Massachusetts DOT
Booth #: Center Exhibit Hall B
Contact: Eliza S. Partington
Phone: 857-368-9290
Fax: 857-368-0601
E-mail: eliza.partington@state.ma.us
Website: www.massdot.state.ma.us/highway
Learn about the bridge program of Massachusetts in the Featured Agency Mega-display. Located in the center of Hall B, the Featured Agency display is at the crosswalk of the exhibit hall. Be sure to spend some time browsing the many displays and learn more about the bridge program of MassDOT.

McClain & Co. Inc.
Booth #: 316
Contact: Valerie Ellington
Phone: 540-423-1110
Fax: 540-423-1066
E-mail: sales@mccclainandcompany.com
Website: www.mcclainandcompany.com
McClain & Co. provides support services to Engineers, Contractors and Government Agencies for the Inspection, Maintenance, and Repair of our nation’s bridges. We offer the largest rental fleet of specialized underbridge access equipment: UBIU’s & Snoopers - Highway & Rail compatible - Platforms & Baskets reaching up to 75’ under bridge. Visit our website today for UBIU Rentals, TTC Sales & Services, Bridge Utility & Construction Services.
MDX Software

Booth #: 506
Contact: Chris Douty
Phone: 573-446-3221
Fax: 573-446-3278
E-mail: support@mdxsoftware.com
Website: www.mdxsoftware.com
Developer of curved and straight steel bridge design and rating software for AASHTO ASD, LFD, and LRFD.

Michael Baker Jr., Inc.

Booth #: 607
Contact: John C. Dietrick, P.E.
Phone: 412-269-6300
Fax: 412-375-3998
E-mail: JDietrick@mbakercorp.com
Website: www.mbakercorp.com
Baker is at the forefront of advancing the state-of-the-art across a wide range of bridge services including: Asset Management & Bridge Management Systems, Bridge Inspection, Bridge Health Monitoring, Context Sensitive Design, Design/Build & Other Alternative Delivery Methods, Software Development, Training and Construction Inspection & Management. Baker provides engineering, design, planning and construction services for its clients’ most complex challenges worldwide.

MMFX Steel Corporation of America

Booth #: 428
Contact: Kevin Bates
Phone: 949-476-7600
Fax: 949-474-1130
E-mail: kevin.bates@mmfx.com
Website: www.mmfx.com
MMFX Steel Corporation of America offers MMFX2 uncoated corrosion-resistant, high strength concrete reinforcing steel. MMFX2 rebar provides the lowest life cycle cost and repair free service for 100+ years. 5X more corrosion resistant, 2X the strength (Grade 100) of conventional steel. Commonly used in bridges, high-rise construction, and marine structures.

Modjeski and Masters, Inc.

Booth #: 411
Contact: Douglas Beaver
Phone: 717-790-9565
Fax: 717-790-9564
E-mail: debeaver@modjeski.com
Website: www.modjeski.com
Modjeski and Masters is a nationwide leader in the design, inspection, and rehabilitation of all bridge types. Additional life-cycle services include: field instrumentation and nondestructive testing, bridge security and vulnerability analysis, vessel collision analysis, scour analysis, suspension bridge cable and suspend-er investigations, fatigue evaluations, emergency evaluations and forensic studies, seismic evaluation and design, and bridge research/code/course development.
Moffatt & Nichol
Booth #: 612
Contact: Eric Vugteveen
Phone: 804-320-1996
Fax: 804-560-0959
E-mail: evugteveen@moffattnichol.com
Website: www.moffattnichol.com

Moog USA, Inc.
Booth #: 318
Contact: Christine Moog
Phone: 540-586-6700
Fax: 540-586-6161
E-mail: quotes@moogusa.com
Website: www.moogusa.com
Since 1980 Moog has been supplying their customers with state of the art mobile under-bridge inspection/maintenance equipment. Superior quality, innovative design, plus fulfilling our customer’s requirements have been the driving force of Moog’s success. Moog supplies units with reaches ranging from 15 ft. to 70 ft. and load capacities from 660 lbs. to 2,200 lbs.

N.E. Bridge Contractors Inc.
Booth #: 728
Contact: Bridget Waitkus
Phone: 508-238-1941
Fax: 508-238-2093
E-mail: bridget@bridgeriggers.com
Website: www.bridgeriggers.com
N.E. Bridge Contractors specializes in road and railroad bridge accessing equipment including: Under Bridge Inspection Trucks, Bucket Trucks, and Bridge Rigging. Underbridge Inspection Units are designed for completing all types of bridge inspection and maintenance work. You can easily access both roadway and railroad bridges with the large two-person basket. Our equipment can help you safely inspect, repair, and access every part of any bridge. Our equipment can help you safely inspect, repair, and access every part of any bridge.

National Steel Bridge Alliance (NSBA)
Booth #: 521
Contact: Brian Raff
Phone: 312-670-5415
Fax: 312-670-5403
E-mail: raff@steelbridges.org
Website: www.steelbridges.org
NSBA, a non-profit trade association, is the unified voice representing the entire steel bridge community. In addition to structural steel fabricators and producers, NSBA brings together the agencies and groups who have a stake in the success of steel bridge construction, including representatives from AASHTO, FHWA, state DOTs, bridge consultants, erectors, and representatives of the coatings, fastener, and welding industries. The NSBA’s mission is to establish steel as the bridge material of choice.
Neel Company, The  
Booth #: 304

Contact: John Dallain  
Phone: 703-913-7858  
Fax: 703-913-7859  
E-mail: info@neelco.com  
Website: www.neelco.com  

T-WALL®, the premiere prefabricated concrete retaining wall system in North America. PennDOT approved for heights to 50’. The precast T-WALL units install quickly and require no bracing, tiebacks or mechanical connections. Recognized as a leading designer and supplier for Highways, Waterways and Railroads, The Neel Company provides engineering, sales and construction support directly for consultants and contractors.

Oldcastle Precast  
Booth #: 217

Contact: Rian McCaslin  
Phone: 720-357-1297  
Fax: 303-794-4297  
E-mail: rian.mccaslin@oldcastle.com  
Website: www.oldcastleprecast.com  

For over 30 years, Oldcastle Precast has specialized in creating and delivering millions of tons of precast products, and we build every product to the highest standards of safety and reliability. With more than 80 locations nationwide, our precast and composite products are always close at hand.

Outokumpu Stainless  
Booth #: 402

Contact: Tom Holsing  
Phone: 1-800-833-8703  
Fax: 1-800-545-8617  
E-mail: tom.holsing@outokumpu.com  
Website: www.outokumpu.com/us  

Outokumpu High Performance Stainless offers Duplex Stainless Steels for road and bridge construction. Our stainless plate, pipe, coil, and bar (including rebar) products are the materials of choice for pedestrian, road, and highway bridge construction. Duplex grades like 2205 Code Plus Two® and our low-nickel, lean duplex LDX 2101®, combine the benefits of austenitic steels—high strength and high resistance to stress corrosion cracking—with very good resistance to uniform corrosion to deliver longer bridge life with lower maintenance. Stop by Booth 402 to learn more.

Palmer Engineering  
Booth #: 618

Contact: Randy Palmer  
Phone: 859-744-1218  
Fax: 859-744-1266  
E-mail: rspalmer@palmernet.com  
Website: www.palmernet.com  

Palmer Engineering is a full service engineering design and consulting firm with nine offices in four states. Palmer specializes in challenging transportation projects featuring highway and bridge design, inspection, and related services. We are committed to the needs of our clients. Let us utilize 44 years of experience to design your engineering solution.
Pennoni Associates

Booth #: 337/436

Contact: Ted Januszka  
Phone: 302-655-4451  
Fax: 302-655-2895  
E-mail: jlaning@pennoni.com  
Website: www.pennoni.com

Pennoni offers comprehensive bridge engineering services, including structural design, condition evaluation and inspection of highway, rail, movable, historic and long span structures. Our bridge engineers have successfully completed bridge projects that include underwater inspections, 3-D finite element analyses, emergency structural repairs, and constructability assessments for federal, state, and local agencies.

Phoenix National Laboratories, Inc.

Booth #: 332

Contact: Alexander Zuran III  
Phone: 602-431-8887  
Fax: 602-431-8889  
E-mail: alexiii@pnltest.com  
Website: www.pnltest.com

PNL provides independent bearing pad testing services in accordance with AASHTO and State DOT requirements.

Pittsburgh Rigging

Booth #: 530

Contact: Rusty Hufnagel  
Phone: 724-899-3060  
Fax: 724-899-2676  
E-mail: rustyhuf@gmail.com  
Website: www.pittsburghrigging.net

At Pittsburgh Rigging we have a fleet of Aspen Aerial Under Bridge Inspection Trucks consisting of 1-UB40, 1-UB50, 3-UB60’s and 1-A62. We provide Traffic Control Services, Bucket Trucks Manlifts, Core Samples and Cable Rigging Platforms for all types of Bridge Inspections. Contact Rusty Hufnagel for pricing and availability.

Protective Coating Systems

Booth #: 636

Contact: Bud Doyle  
Phone: 650-704-9400  
Fax: 650-587-9030  
E-mail: Bud@pcsnorthamerica.com  
Website: www.pcsnorthamerica.com

PCS is a solution provider for the bridge deck and concrete restoration and preservation markets. We manufacture and distribute the highest quality overlay and preservation materials and develop customized preservation solutions for the most demanding environments and conditions.

Proto Manufacturing

Booth #: 610

Contact: Robert Drake  
Phone: 313-965-2900  
Fax: 734-946-0975  
E-mail: info@protoxrd.com  
Website: www.protoxrd.com

• Determine dead load and load path  
• Provide base-line loads for other strain based instrumentation  
• Measure fracture critical members to improve safety
<table>
<thead>
<tr>
<th>EXHIBITOR INFO</th>
</tr>
</thead>
</table>
| **Pultrall Inc.**  
Booth #: 213 |
| Contact: Mario Guenette  
Phone: 418-808-6530  
Fax: 418-335-5117  
E-mail: mario.guenette@pultrall.com  
Website: www.vrod.ca |
| Established in 1987, Pultrall Inc. is the pioneer of non-metallic concrete reinforcement solutions in North America. Pultrall’s achievements include some of the most prestigious projects in North America and around the world. The company serves clients through a network of Authorized Distributors throughout North America, Latin America, Europe, Australia and the Middle East. |
| **R.J. Watson, Inc.**  
Booth #: 400 |
| Contact: Ron Watson  
Phone: 716-901-7020  
Fax: 716-901-7015  
E-mail: rwatson@rjwatson.com  
Website: www.RJWatson.com |
| R. J. Watson specializes in the design, manufacture, and testing of high load multi-rotational bearings, seismic isolation bearings, joint sealing systems, and waterproofing membranes. |
| **Red-D-Arc Welderentals**  
Booth #: 625 |
| Contact: Steve Featherstone  
Phone: 905-643-4212  
Fax: 905-643-4217  
E-mail: info@red-d-arc.com  
Website: www.reddarc.com |
| Red-D-Arc offers a full range of rental welding and positioning equipment for a variety of processes and applications.  
Our products - built to provide performance and reliability in the harshest environments - are available through over 50 Rental Centers in the United States, Canada, Mexico, Europe and the Middle East. |
| **Reinforced Earth Company, The**  
Booth #: 401 |
| Contact: John Shall  
Phone: 800-446-5700  
Fax: 703-348-8473  
E-mail: info@reinforcedearth.com  
Website: www.reinforcedearth.com |
| The Reinforced Earth Company (RECo) has completed over 40,000 structures in the US, building a reputation for engineering excellence, architectural creativity, and an unyielding focus on quality and customer support. With over 40 years of experience, RECo brings structural, geotechnical and economic value to projects of all types, sizes and complexities. |
EXHIBITOR INFO

Roads & Bridges Magazine
Booth #: 700
Contact: Ryan Hanson
Phone: 847-391-1000
Fax: 847-390-0408
E-mail: rhanson@sgcmail.com
Website: www.roadsbridges.com
As the leading monthly trade publication for the transportation construction market, Roads & Bridges reaches 60,000 engineers, contractors, DOTs and other public officials (local, county, state & federal).

Sabre Autonomous Solutions
Booth #: 732
Contact: Martin Lloyd
Phone: +61 (0)439 653 880
E-mail: martin.lloyd@sabreautonomous.com.au
Website: www.sabreautonomous.com.au
Sabre Autonomous Solutions is delighted to bring to you the world’s first autonomous grit-blasting robot capable of working in complex, unknown environments. Out robotic grit-blasters can significantly reduce worker occupational health & safety risks whilst increasing productivity and blast consistency. Sabre Autonomous Solutions - the future of blasting.

Safway Services
Booth #: 633
Contact: Jerry Dolly
Phone: 518-381-6000
Fax: 518-381-4613
E-mail: jerry.dolly@safway.com
Website: www.safway.com
The QuikDeck™ Platform System can provide the solution to reduce labor costs and enhance access for bridge construction, rehabilitation and maintenance. QuikDeck™ can significantly reduce man-hours and overall project costs. Safety is our number one goal. All QuikDeck™ components are designed to meet or exceed OSHA safety regulations.

Scougal Rubber Corporation
Booth #: 302
Contact: Rob Anderson
Phone: 206-783-2650
Fax: 206-764-4984
E-mail: roba@scougalrubber.com
Website: www.scougalrubber.com
Manufacturer of Steel Reinforced and Plain Elastomeric Bearings, PTFE Slide Bearings, Vibration Isolators as well as Cable Dampers and Sealing Boots. In business since 1916 Scougal Rubber has been a supplier to the bridge industry for over 40 years.
EXHIBITOR INFO

Sealite USA
Booth #: 712
Contact: Mark Novo
Phone: 603-737-1311
Fax: 603-737-1320
E-mail: m.novo@sealiteusa.com
Website: www.sealite.com
Sealite USA is a supplier of solar powered bridge navigation lighting as well as buoys and navigation aids for all types of bridge construction projects and obstruction lighting.

Seismic Energy Products
Booth #: 324
Contact: Steve Bowman
Phone: 903-675-8571
Fax: 903-677-3993
E-mail: steve.bowman@sepbearings.com
Website: www.sepbearings.com
Nation’s largest manufacturer of seismic isolation bridge bearings, elastomeric bridge bearings, and Fluorogold® Teflon® slide bearings.

Short Span Steel Bridge Alliance
Booth #: 517
Contact: Dan Snyder
Phone: 301-367-6179
Fax: 202-452-1039
E-mail: dsnyder@steel.org
Website: www.shortspansteelbridges.com
The Short Span Steel Bridge Alliance (SSSBA) is a group of bridge and culvert industry leaders - steel manufacturers, fabricators, coaters, service centers, owners, associations and universities - providing information on the design and construction of bridges and culverts up to 140 feet. Short span steel bridges and culverts are reliable, durable, cost effective, quickly fabricated and installed, and 100% recyclable after a long service life. Now available from the SSSBA: free standard designs and modular solutions, customized for your project, online via the eSPAN140 design tool.

SHRP2 Solutions
Booth #: 223
Contact: Carin Michel
Phone: 410-962-2530
E-mail: goshrp2@dot.gov
Website: www.fhwa.dot.gov/goSHRP2
The second Strategic Highway Research Program (SHRP2) involves over 100 research projects that address critical transportation challenges, specifically aging infrastructure, congestion, and safety. SHRP2 Solutions are innovative products that have emerged from this research that provide new approaches to improve the way transportation professionals plan, operate, and maintain America’s roadways.
EXHIBITOR INFO

Sika Corporation
Booth #: 500
Contact: David White, P.E.
Phone: 201-933-8800 x 6678
Fax: 201-507-7107
E-mail: white.dave@sika-corp.com
Website: www.sikaconstruction.com
Sika Corporation, Lyndhurst NJ, is a technology leader celebrating 100 years of experience in concrete materials and restoration technology. Sika’s innovative product line includes concrete admixtures, sealants, adhesives, corrosion inhibitors, specialty mortars, epoxy resins, structural strengthening systems, grouts, anchoring adhesives, overlays, and protective coatings.

Silica Fume Association
Booth #: 225
Contact: Tony Kojundic
Phone: 412-551-7873
E-mail: tony@silicafume.org
Website: www.silicafume.org
The Silica Fume Association provides technology transfer of high-performance concrete use and benefits to infrastructure owners, designers and concrete producers. Visit our booth and learn the latest HPC developments and use from around the US and world.

Skyline Steel
Booth #: 624
Contact: Steve Yassem
Phone: 412-437-1103
Fax: 973-795-1493
E-mail: steve.yassem@skylinesteel.com
Website: www.skylinesteel.com
Skyline Steel is a steel foundation supplier serving the U.S., Canada, Mexico, the Caribbean, Central America, and Colombia markets. It is a wholly-owned subsidiary of Nucor Corporation, the largest producer of steel in the U.S.

Snap-Tite
Booth #: 330
Contact: Joe Nagy
Phone: 304-224-4800
Fax: 502-235-8109
E-mail: joe.nagy@isco-pipe.com
Website: www.culvert-rehab.com
No-dig, high density polyethylene (HDPE) culvert lining pipe system. Meets AASHTO Standard M326 for rehabilitating culverts. Tough, light-weight flexibility for insertion into misaligned concrete or rusted deteriorated corrugated metal pipe. Use your own crews and doesn’t require traffic control.
EXHIBITOR INFO

Sofis Company Inc.
Booth #: 519
Contact: William J. Sofis, Jr.
Phone: 724-378-2670
Fax: 724-378-3719
E-mail: wsofis@sofiscompany.com
Website: www.sofiscompany.com
Sofis Company, Inc. has been a General Contractor for over 50 years. We are DOT prequalified. We have earned a reputation for knowledge and respectability specializing in Bridge Repair, Inspection and Support Services. Supplying top of the line Under Bridge Inspection Units, Cable Rigging, Lift Trucks, Traffic Control and all related services; with an exemplary safety record.

Spider-Systems Group
Booth #: 716
Contact: Spider-Systems Group
Phone: 877-774-3370
Fax: 206-575-6240
E-mail: spider@spiderstaging.com
Website: www.spiderstaging.com
Since 1947, Spider has been the leader in suspended scaffold-ing & fall protection solutions: platforms, work baskets, traction & material hoists, wind turbine access, Competent Person Training & more. And our new Systems Group delivers the response time, site support, project management & innovative solutions that the most mission-critical projects demand.

SPX Hydraulic Technologies (Power Team)
Booth #: 617
Contact: Jesus Guevara
Phone: 815-873-3769
Fax: 815-874-7886
E-mail: jesus.guevara@spx.com
Website: www.powerteam.com
POWER TEAM is a world leader in hydraulic special service tools & equipment for global construction markets. We manufacture precision quality high-pressure hydraulic products including pumps, jacking cylinders/rams, post tension jacks and valves. Products are sold through a worldwide network of stocking industrial distributors.

St. Louis Screw & Bolt
Booth #: 511
Contact: Joe Howard
Phone: 800-237-7059
Fax: 314-389-7510
E-mail: sales@stlouisscrewbolt.com
Website: www.stlouisscrewbolt.com
St. Louis Screw & Bolt is a domestic manufacturer of structural bolts including A325 and A490 hex bolts that sells direct to steel fabricators, erectors and general contractors.
Strand7 Pty Ltd.

Booth #: 437

Contact: Anne Delvaux
Phone: 252-504-2282
E-mail: anne@beaufort-analysis.com
Website: www.strand7.com

Beaufort Analysis, Inc. (BAI) is the distributor of the Strand7® Finite Element Analysis System in the United States. Strand7 is a general purpose finite element analysis program developed by Strand7 Pty Ltd, Sydney, Australia and is used throughout the world for the analysis of ship structures, aircraft, road and rail vehicles and a wide range of industrial products as well as for the analysis of buildings and bridges.

STV

Booth #: 216

Contact: Nicholas Altebrando
Phone: 212-777-4400
Fax: 212-529-5237
E-mail: Nicholas.altebrando@stvinc.com
Website: www.stvinc.com

STV offers multidiscipline engineering, architectural, planning, environmental, and construction management services to a wide range of public and private clients. We provide planning, environmental, design, program and construction management, and specialty services for the infrastructure, transportation and design-build markets. A 100 percent employee-owned firm, STV’s marked its 100th anniversary in 2012.

Terex Hydra Platforms

Booth #: 306

Contact: Gwen Caines
Phone: 803-326-4860
Fax: 803-366-0603
E-mail: gwen.caines@terex.com
Website: www.terex.com

Terex Hydra Platforms self erecting, self propelled, under bridge aerial access platforms used for bridge inspections and repairs.

Key Features:

- Patented Tower Separation System
- Five minute single lane deployment
- Remote start from platform
- Primary and Secondary hydraulic pumps
- 180 degree platform rotation
- Emergency Stops
- Hydrostatic Drive
- Operator activated Communication system

Termarust Technologies

Booth #: 313

Contact: Wayne Senick
Phone: 888-279-5497
Fax: 514-354-2799
E-mail: info@termarust.com
Website: www.termarust.info

Termarust Technologies manufactures (HRCSA) High Ratio Co-Polymerized Calcium Sulfonate coatings for steel/metal structures and solves the structure critical corrosion problems others choose to ignore, specifically in crevice corroded and pack rust joints and connections. It is ideal for flexible steel structures like bridges, towers, cables, high mast light poles, etc.
The Thortex Group
Booth #: 628
Contact: Kelly Strong
Phone: 610-831-0222
Fax: 610-831-1910
E-mail: KStrong.Thortex@gmail.com
Website: www.thortex.com
The Thortex Group – 3M Master Distributor
3M Scotchkote Encapsulation Coating Polynox 136: a single component, water based acrylic, and elastomeric coating used worldwide to protect Bridges and other steel and concrete structures. Polynox provides excellent corrosion protection and weathering properties - the ideal choice for bridges.

Transpo Industries, Inc.
Booth #: 404
Contact: John B. Karlson
Phone: 914-636-1000
Fax: 914-636-1282
E-mail: jkarlson@transpo.com
Website: www.transpo.com
Manufacturer of road safety products and specialized polymer concrete materials. Materials for the maintenance, rehabilitation and preservation of bridges. Breakaway supports for signs and light poles, Roadway Glare Screen, Polymer Concrete Barrier panel for roads, tunnels, and bridges, Anti-Skid Color Pavement Marking Surface, Airport blast fence and maintenance products.

TranSystems Corporation
Booth #: 621
Contact: Paul G. Norton, P.E.
Phone: 857-453-5477
Fax: 857-453-5451
E-mail: pgnorton@transystems.com
Website: www.transystems.com
TranSystems is a nationwide consulting firm, with our entire 900+ person staff of engineers, architects, and planners devoted solely to transportation. We are consistently listed among the ENR Top Ten Bridge Firms, providing bridge design, inspection, evaluation, load rating, rehabilitation and construction engineering services for fixed, movable and historic bridges.

TRC Engineers, Inc.
Booth #: 203
Contact: Robert Schamber
Phone: 916-366-0632
Fax: 916-366-1501
E-mail: rschamber@trcsolutions.com
Website: www.trcsolutions.com
TRC is a national engineering, consulting and construction management firm providing integrated services to the energy, environmental and infrastructure markets to both public and private sector clients. Today, the company has emerged as one of the nation’s leading engineering and consulting firms with the resources of 2,500 employees in more than 90 offices nationwide. TRC also markets, maintains and supports several bridge design software programs for several bridge structure types and offers training and workshops to consultants and public agencies. These software programs provide the necessary tools to model, analyze and design bridge components.
Trimble Navigation
Booth #: 706
Contact: Trimble
Phone: 937-245-5154
Fax: 937-233-9441
E-mail: infrastructure_sales@trimble.com
Website: www.trimble.com/infrastructure
Trimble is a leading provider of advanced positioning solutions, application software, wireless communications, and services to enable you to reach new levels of productivity and collaboration. Trimble GNSS Infrastructure is the most established and widely used GNSS infrastructure solution available. Its integrated solutions allow customers to collect, manage and analyze complex information faster and easier, making them more productive, efficient and profitable. Trimble GNSS Infrastructure solutions are always a wise investment.

Trinity Highway Products
Booth #: 724
Contact: Gwendolyn Samuel
Phone: 330-539-7305
Fax: 330-545-3718
E-mail: gwen.samuels@trin.net
Website: www.highwayguardrail.com
Trinity Highway Products, LLC is the leading manufacturer of highway guardrail, highway guardrail end treatments, temporary and permanent crash cushions, truck-mounted attenuators and cable barrier. Trinity is the market leader in booth innovation and safety standards.

U.S. Bridge
Booth #: 229/328
Contact: Raj Shah
Phone: 740-432-6334 ext. 293
Fax: 740-439-7349
E-mail: rshah@usbridge.com
Website: www.usbridge.com
U.S. Bridge designs and fabricates vehicular steel bridges for both the domestic and international markets, including the Liberty Series Bolted Modular Panel Bridge System for permanent, temporary or emergency applications. Liberty is designed with all-bolted connections (no pins, wear or maintenance), built in proportional camber and fabricated from new steel only. Single or double lanes available

Vector Corrosion Technologies
Booth #: 403
Contact: Rachel Stiffler
Phone: 724-941-2096
Fax: 724-942-4456
E-mail: rachels@vector-corrosion.com
Website: www.vector-corrosion.com
Vector Corrosion Technologies provides award winning products and services for concrete corrosion protection. Our innovative solutions include: chloride extraction, ICCP, and an array of galvanic protection systems (embedded galvanic anodes, galvanic jackets and activated arc spray zinc metallizing). Vector also provides corrosion evaluation and mitigation of post-tension corrosion.
Viathor, Inc.

Booth #: 412
Contact: Clark Verkler
Phone: 916-987-0246
Fax: 916-987-0248
E-mail: vinfo@viathor.com
Website: www.viathor.com

Viathor, Inc. is dedicated to the development of top quality, user friendly, bridge design and analysis software. VBent is a fully interactive substructure design tool for pier caps, columns and footings, for both non-integral and integral (monolithic) piers. VBent can read PAPIER input files, and has been approved and accepted for use by PennDOT. VBridge is a superstructure design program for reinforced or cast-in-place post-tensioned concrete bridges. VBridge can compute live load for any bridge configuration and support type (integral and non-integral piers). VBridge analyzes 3D bridge models, and creates Vbent input files by sharing geometry and load information.

VSL

Booth #: 620
Contact: Clyde Ellis
Phone: 410-859-6539
Website: www.structuraletechnologies.com

STRUCTURAL TECHNOLOGIES integrates products and engineering support services to create technology-driven solutions that repair, protect, and enhance transportation infrastructure. STRUCTURAL TECHNOLOGIES is the exclusive licensee of VSL Post-Tensioning Systems and related services in the U.S.A.

Watson Bowman ACME

Booth #: 322
Contact: Steve Pabst
Phone: 716-691-7566
Fax: 716-691-9239
E-mail: steve.pabst@basf.com
Website: www.wbacorp.com

Watson Bowman Acme Corp. has been at the industry forefront of design and manufacture of expansion control devices for the bridge construction industry. Since the 1950's, Watson Bowman Acme has provided technical support and product solutions for the most complex and challenging applications.

Williams Form Engineering Corp.

Booth #: 430
Phone: 616-866-0815
Fax: 616-866-1890
E-mail: williams@williamsform.com
Website: www.williamsform.com

Williams Form Engineering Corporation has been providing threaded steel bars and accessories for rock anchors, soil anchors, high capacity concrete anchors, micro piles, tie rods, tie backs, strand anchors, hollow bar anchors, post tensioning systems, and concrete forming hardware systems in the construction industry for over 85 years.
WireCo World Group

Booth #: 601
Contact: Richard Humiston
Phone: 816-270-4825
Fax: 816-270-4707
E-mail: richardhumiston@wirecoworldgroup.com
Website: www.MacWhyte.com

WireCo WorldGroup, the largest wire rope manufacturer in North America, leads in the production of structural bridge rope and strand. Our reputation for quality and service is unmatched. Each aspect of our engineering, manufacturing and fabrication process is monitored and controlled to assure the highest quality.

Wirerope Works, Inc.

Booth #: 311
Contact: William Austin
Phone: 570-327-4206
Fax: 570-327-4274
E-mail: w.austin@wireropeworks.com
Website: www.wireropeworks.com

We have a full (GP) General Purpose product line including spin resistant crane ropes. We are also capable of producing the largest diameter strand in the country, as well as having the longest prestretching track.

Z+F USA, Inc.

Booth #: 218
Contact: Jeremy Clements
Phone: 412-257-8575
Fax: 412-257-8576
E-mail: jcléments@zf-usa.com
Website: www zf-usa.com

Z+F USA, Inc. was founded in 1998 to expand the company’s market and to create a local presence for Z+F customers in the United States. Z+F USA, Inc. distributes and supports high quality electronic control equipment including; wire ferrules, wire processing machines and revolutionary 3D Laser Scanners and Software.

ZPMC (Shanghai Zhenhua Heavy Industries Co., Ltd)

Booth #: 537
Contact: Wang Wenjian
Phone: +8613817913748
Fax: +862158397000
E-mail: Wangwenjian@zpmc.net
Website: www.zpmc.com

ZPMC, a well-known heavy-duty equipment and steel structure manufacturer, locates in Shanghai. ZPMC has 8 production bases with total area of 6670 hectares, 10 kilometer coastline, heavy-duty dock of 3.7 kilometer and 26 transportation ships of capacity from 60,000 DWT to 100,000 DWT, delivering products to all over the world.

American Concrete Institute (ACI)  www.concrete.org
American Public Works Association (APWA)  www.apwa.net
Deep Foundations Institute (DFI)  www.dfi.org
National Council of Structural Engineers Associations (NCSEA)  www.ncsea.com
Precast/Prestressed Concrete Institute (PCI)  www pci.org
Short Span Steel Bridge Alliance (SSSBA)  www.steel.org
Structural Engineering Institute (SEI)  www.seinstitute.org
The International Association of Foundation Drilling (ADSC)  www.adsc-iafd.com
Transportation Research Board (TRB)  www.trb.org

Better Roads  www.betterroads.com
Bridge design & engineering  www.bridgeweb.com
CoatingsPro Magazine  www.coatingspromag.com
Concrete Construction  www.concreteconstruction.net
ENR Magazine  www.enr.com
Government Engineering Journal  www.govengr.com
Public Works  www.pwmag.com
Roads & Bridges Magazine  www.roadsbridges.com
The Journal of Protective Coatings & Linings and Paintsquare.com (JPCL)  www.paintsquare.com
ZweigWhite, LLC  www.zweigwhite.com

Join us for the 2014 IBC, June 8-12, 2014, at the David L. Lawrence Convention Center, Pittsburgh, PA USA

Exhibit sales and the Call for Papers opens immediately after the 2013 IBC!
CSI BRIDGE
INTEGRATED 3-D BRIDGE DESIGN SOFTWARE
From the developers of SAP2000
A product of Computers and Structures, Inc. | Proudly developed in the United States of America

THE FUTURE OF BRIDGE ENGINEERING IS HERE.

For Sales & Information:
(510) 649-2201 or sales@csiberkeley.com

COMPUTERS & STRUCTURES, INC.
Software for Structural and Earthquake Engineering
www.csiberkeley.com
CSI is an ISO-9001 certified company.