

CHAIRMAN'S WELCOME

Welcome to Pittsburgh and IBC 2008.



Eric S. Kline

We particularly want to extend a warm Pittsburgh welcome to our Keynoters. Our slate of Keynoters includes US DOT Deputy Secretary VADM Thomas J. Barrett USCG (Ret.), ARTBA's Dr. T. Peter Ruane, AASHTO's Mr. John Horsley and AASHTO's Subcommittee on Bridges and Structures (SCOBS) Chairman Mr. Mal Kerley, P.E. Gentlemen, you honor IBC and all bridge professionals by your willingness to come here and share your thoughts with us. The journey that has brought each of you here is

truly uniquely American. We are anxious to hear your message and to be guided by your insights.

The Conference planning Committee has been hard at work for well over a year developing the format for the NEW IBC and planning this landmark 25th Anniversary Conference.

With IBC 2008, we are introducing a series of IBC firsts:

- We are celebrating IBC's 25th Anniversary
- IBC outgrew its previous site and we have moved here to the new and spacious DLCC
- This is the first time that a US government agency, the FHWA, has been featured as the IBC Featured Agency
- This is the largest IBC program ever: There are over 80 peer-reviewed Technical Papers, 17 Workshops, three Seminars, two NHI Courses, and over 160 Exhibitors and a spouses program
- There are four Committees holding major meetings at IBC 2008. We welcome the Associated Pennsylvania Constructors, The National Steel Bridge Alliance (NSBA), the Mid-Atlantic States Committees for Economical Steel and Concrete Fabrication (SCEF) and the TRB Subcommittee AFF10 (2) Bridge Aesthetics mid-year meeting

In order to accomplish more with less travel, we are planning to invite many more Committees to utilize IBC as a place to meet in the future. Please let us know how you feel about the combination of events and meetings?

We extend a warm welcome to each of you. Please enjoy Pittsburgh's 250 year Anniversary Celebration event while you are here

....eric

Eric S. Kline
2008 General Chair
KTA-Tator

CONFERENCE INFO

IBC EXECUTIVE COMMITTEE & CO-SPONSORS

The Engineers' Society of Western Pennsylvania wishes to thank and acknowledge the IBC Executive Committee members for the dedication to planning the premier bridge technology conference in the world: The International Bridge Conference®. Members include...

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CONFERENCE INFO

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Co-sponsors

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www.adsc-iafd.com

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American Public Works Association
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www.highwayengineers.org

Associated Pennsylvania Constructors
www.paconstructors.org

The Federal Highway Administration (FHWA)
www.fhwa.dot.gov

International Bridge, Tunnel and Turnpike Association (IBTTA)
www.ibtta.org

National Institute of Steel Detailers (NISD)
www.nisd.org

National Steel Bridge Alliance
www.steelbridges.org

Northeast Association of State Transportation Officials (NASTO)
www.nysdot.gov/portal/page/portal/nasto

Orthotropic Bridge Conference
www.orthotropic-bridge.org

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www.piledrivers.org

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Precast / Prestressed Concrete Institute (PCI)
www.pci.org

Prestressed Concrete Association of Pennsylvania (PCAP)
www.pcap.org

SSPC: The Society for Protective Coatings
www.sspc.org

Steel Erectors Association of America
www.seaa.net

Transportation Research Board (TRB)
www.trb.org

Publication Partners:

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www.roadsbridges.com

CoatingsPro Magazine
www.coatingspromag.com

CONFERENCE INFO

Welcome to the 25th Annual International Bridge Conference®

Please read the following general information to learn about many of the new features of the IBC! The move to a new location, and the celebration of the IBC's 25th Anniversary have provided an opportunity to offer many new and exciting elements to the Conference. As always, Conference personnel (found at the Registration Desk) and IBC Executive Committee members can be a valuable source of information!

Badge Identification

Please wear your IBC name badge at all times during the conference. Not only is the badge your passport to all Conference activities, but it also lists several important local phone numbers on the back. ESWP has authorized 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 David L. Lawrence Convention Center (DLCC) except for the IBC Awards Luncheon and daily Author's Breakfast, which are held in the Westin Convention Center Hotel, located across the street from the DLCC. Additionally, the 25th Anniversary Celebration - open to all registered attendees - will be held at the Senator John Heinz Regional History Center, located in the Strip District within easy walking distance from the DLCC. Please check individual listings in the program for specific locations and times for all technical sessions, seminars and social functions. Events which require tickets will also identify the specific location for these functions. Any changes in the program schedule will be posted or announced at the Conference Registration Desk.

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.

Registration Desk

The Conference Registration Desk is located on the 3rd Floor of the DLCC, in the Ballroom Foyer. The hours are as follows:

Sunday:	5:30pm to 7:30pm
Monday:	7:00am to 7:00pm
Tuesday:	7:00am to 5:00pm
Wednesday:	7:00am to 1:30pm

Attendee Registration Lists

Registrations received prior to May 23 have been compiled in the "IBC PRE-REGISTRATION LIST - PART 1 of 2", and is distributed free to all registered attendees.

An addendum to the registration list "PART 2 of 2," will be available Wednesday morning of the conference and reflects those attendees who registered after May 24 or on-site during the conference.

An electronic copy of the entire list is available for \$25 following the conference.

Message Board

As a service to Conference registrants, a Message Board will be located in the Registration area of the DLCC. The board will be available on June 1 - 4. Messages will be retained until the end of each day.

CONFERENCE INFO

IBC Exhibition

One of the main attractions of the Conference is the IBC Exhibit Hall. As you stroll through over 170 exhibits, you will be able to explore the latest technologies, products and services the bridge industry has to offer.

The IBC Exhibit Hall is located in the Ballroom and the Ballroom Foyer, You will be able to view the exhibits during the following hours:

Monday: 11:00am to 7:00pm

Tuesday: 11:00am to 5:00pm

Wednesday: 7:00am to 1:30pm

The IBC will feature a Luncheon Buffet throughout the Exhibit Hall on Monday and Wednesday, open to all registered attendees and registered spouses. Also, don't miss our popular Exhibitor Reception, on Monday evening from 5:00-7:00pm throughout the Exhibit Hall. All registered attendees will receive one ticket redeemable for a beverage at the reception, (Additional tickets can be purchased at the Conference Registration Desk.)

Host Hotel Information

Westin Convention Center Hotel
1000 Penn Avenue
Pittsburgh, Pennsylvania 15222

Pre-prints

Pre-prints for all technical presentations are available at the Pre-Print area located in the West Atrium of the Ballroom Foyer, 3rd level of the DLCC. Pre-prints can be purchased for just \$3.00 per copy.

New for this year: You can purchase a 1 GB flash drive that contains all available pre-prints in .pdf format for only \$25.00

Also, you can find copies of previous years' IBC Proceedings (for \$55 per volume). The Pre-Print Booth will be open:

Monday: 9:00am to 6:00pm

Tuesday: 8:00am to 5:00pm

Wednesday: 8:00am to 1:30pm

IBC Gift Items

Once again at this year's IBC, you will have the opportunity to purchase IBC Golf Shirts, T-shirts, Hats and a limited supply of special 25th Anniversary Golf Shirts. These items are high quality and feature the popular IBC logo. The Gift Item Table is located at the Pre-print desk in the West Atrium where you can make your purchases throughout the Conference until Wednesday at 1:30pm. Please be sure to stop by and shop before Wednesday!

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 25th Annual International Bridge Conference® will be available on CD in late Summer 2008 and mailed to you at that time.

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.

SUNDAY, JUNE 1

SPOUSE & GUEST PROGRAM

New for 2008 is a Spouse/Guest Program that will showcase some of the many attractions in Pittsburgh. Registration as a spouse or guest (\$95) will grant you access to the exhibit area which includes the exhibitor cocktail reception on Monday evening and lunch on Monday and Wednesday in the exhibit area. In addition, you will be able to attend the 25th anniversary celebration on Tuesday evening at the Senator John Heinz Regional History Center. Finally, as a registered conference attendee, you will be able to participate in the scheduled tours (described below.) There is an additional fee for each of the tours.

A Spouse/Guest Get Acquainted Breakfast Reception will be available on Monday morning where you can meet other spouses & guests, and make new friends to enjoy the "City of Bridges" with. There will be a brief presentation by a conference representative, and a representative of [VisitPittsburgh](#) to orient you to the conference and its activities as well as a brief introduction to the City of Pittsburgh and some of its many attractions.

Attractions on the schedule* are:

- Just Ducky Tours, (Monday) A narrated sight seeing tour of Pittsburgh on a vintage WW II amphibious vehicle.
- Carnegie Natural History Museum, University of Pittsburgh Nationality Rooms, (Tuesday) A tour of the largest natural history museum in the country and the ethnic heritage of Pittsburgh displayed in 26 different rooms.
- Tour of PNC Park. (Wednesday) Tour the most beautiful ball park in America, according to ESPN.com.

All of these events are based on minimum participation* and subject to cancellation due to lack of participation. For more information contact IBC personnel at the registration desk. Additional fees apply.

SCEF AND PCEF COMMITTEE MEETING SUNDAY, JUNE 1

TIME: 6:00-10:00 PM

ROOM: 316

The Mid-Atlantic States' Committees for Economic Steel and Prestressed Concrete Fabrication (SCEF and PCEF) will be meeting during the course of this year's IBC. The SCEF will be meeting Sunday evening, June 1st from 6-10 pm and the PCEF meeting time will be announced.

Both meetings are open to the general public. The committees are made up of representatives from FHWA and DOT offices in DC, DE, MD, NC, NJ, NY, PA, VA and WV; the respective industries; universities; and consulting firms. The committees were formed out of the recognized need to improve quality and economy of steel and concrete bridge structures through achieving uniformity and standardization of design and fabrication details, procedures and practices.

SUNDAY, JUNE 1

Over the past 27 years, the SCEF has developed and published standards in the areas of structural steel details, bearings, expansion joints, coatings, ancillary structures, and QC/OA practices for fabrication. Many of these standards have been elevated to the national level and have spurred the formation of other regional groups. In the past 10 years, the PCEF has developed regional standard shapes for prestressed concrete bulb-tees; economical diaphragm layouts; specification guidelines for precast/prestressed concrete bridge products, and a guidance manual for plants quality control.

Meetings of both committees will be carrying on the standardization efforts and strengthening the partnerships that have been forged over the years.

STEEL BRIDGE COLLABORATION MEETINGS SUNDAY TO WEDNESDAY, JUNE 1-4, 2008

STEERING COMMITTEE (SC)

- Sunday, June 1, 7:00pm - open to all, meeting in Room 315.

TASK GROUPS

TASK GROUP	DAY/TIME	COORDINATOR
TG 1 Detailing	Monday, June 2, 6:00 to 10:00pm	Walter Gatti
TG 2 Fabrication Specification	Tuesday, June 3, 8:00am to noon	Heather Gilmer
TG 4 QC/OA	Tuesday, June 3, 1:00pm to 5:00pm	Denis Dubois
TG 5 Repair Database	meeting w/ TG 2	
TG 8 Coatings	Monday, June 2, 6:00 to 10:00pm	Eric Kline
TG 13 Analysis of Steel Bridges	Monday, June 2, 5:00 to 10:00pm	Domenic Coletti

TASK GROUP MEETING SUMMARY CHART

ROOM	MONDAY Evening	ROOM	TUESDAY Daytime
315	TG 1	X	X
311	TG 8	310	TG-2 &TG-5
310	TG 13	310	TG-4

MAIN COMMITTEE

- Wednesday, June 3, 1:00

The Main Committee will meet Wednesday, June 3, from 1:00 to 4:00pm in Room 316.

SEMINAR: LRFD FOR HIGHWAY BRIDGE SUPERSTRUCTURES - STEEL (2-DAY)

Time: 8:00 AM-5:00 PM (Mon/Tues)

Room: 311

Presenter: NHI

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of steel superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

- Preliminary design concepts for steel superstructures
- Steel I-girder design (including miscellaneous steel detail design)
- Bearing design

OUTCOMES:

Upon completion of the course, participants will be able to:

- Describe the steel bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; steel bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for steel superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher.

TARGET AUDIENCE:

This course has been developed for the needs of practicing public and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

MONDAY, JUNE 2

KEYNOTE SESSION

Time: 8:30 AM – 12:00 noon
Room: 301-305
Chair: Eric S. Kline, KTA-Tator, Pittsburgh, PA

Vice Admiral Thomas J. Barrett, USCG (Ret.) Deputy Secretary of Transportation, U.S. Department of Transportation



Vice Admiral Thomas J. Barrett, USCG (Ret.) was confirmed as the Deputy Secretary of Transportation on August 8, 2007. Earlier, he became the Acting Deputy Secretary of Transportation on March 3, 2007.

In his role as Deputy Secretary, Barrett is helping the President and Secretary Mary E. Peters ensure that the United States and

its citizens have a safe, efficient, and reliable transportation system that meets vital national interests and enhances the quality of life for Americans today and into the future.

Deputy Secretary Barrett serves as the Department's chief operating officer, responsible for the day-to-day management of DOT's \$61.1 billion budget, 10 modal administrations, and approximately 60,000 employees.

Barrett was sworn in May 31, 2006, by then Transportation Secretary Norman Y. Mineta as the first administrator of the Pipeline and Hazardous Materials Safety Administration (PHMSA). The PHMSA Administrator is the agency's Chief Executive Officer and advises the Secretary on all matters falling within PHMSA's jurisdiction. The Administrator directs the agency's national program for protecting against risks to life and property inherent in the transportation of hazardous materials in commerce and the transportation of liquid, natural gas, petroleum, and other hazardous liquids by pipeline.

Before becoming PHMSA Administrator, Barrett was the Vice President and Chief Operating Officer of the Potomac Institute for Policy Studies. Prior to that, he served 35 years in the United States Coast Guard and attained the position of Vice Commandant. In that capacity, he served as second in command, Agency Acquisition Executive, coordinated the Coast Guard Leadership Council, and co-chaired with the Vice Chief of Naval Operations the Navy-Coast Guard Board, an inter-service policy coordination body. He was instrumental in improving maritime security post 9/11, expanding Coast Guard support to the National Foreign Intelligence Community, supporting Operation Iraqi Freedom, and smoothly transitioning the Coast Guard into the new Department of Homeland Security.

Barrett earned a B.S. in Biology from LeMoyne College, Syracuse, N.Y., and a Juris Doctor with honors from the George Washington University. He is a graduate of the Army War College and the National Defense University Capstone Course in National Security Strategy and Military Capabilities.

Barrett is married to the former Sheila Walker of Syracuse, N.Y. They are proud parents of four children, Tom, a Major in the United States Army, Matt, Rebecca and Paul, a Lance Corporal in the United States Marine Corp Reserve. Both Tom and Paul are Iraq veterans.



Dr. T. Peter Ruane, President and CEO, American Road and Transportation Builders Association (ARTBA), Washington, DC

Pete is the President and CEO of ARTBA, a 104-year old national federation of public and private transportation construction interests with over 5,000 members. He has over 35 years of experience in economic development, transportation and construction fields. Prior to joining ARTBA, he served as President/CEO of the National Moving & Storage Association and Deputy Director of the Office of Economic Adjustment, the Office of the Secretary of Defense and the President's Economic Adjustment Committee. He received numerous awards, including the top two government-wide management awards made available to a young federal executive. He is a graduate of Loyola College of Baltimore, holds a masters degree from Pennsylvania State University and a doctorate from George Washington University.



John Horsley, Executive Director, American Association of State Highway and Transportation Officials (AASHTO)

John Horsley has been the Executive Director of AASHTO since 1997. Horsley served at the U.S. Department of Transportation from 1993 to 1999. As Associate Deputy Secretary, he was an advocate for intermodal policies, quality of life initiatives, and liaison to state and local governments, U.S. Congress, and transportation constituencies. A native of the Northwest, Horsley was elected to five terms as County Commissioner in Kitsap County, a community just west of Seattle. He is a graduate of Harvard, an Army veteran, a former Peace Corps volunteer, and a Congressional aide. He did graduate study at Georgetown University. He is past President of the National Association of Counties, and was founding Chairman of the Rebuild America Coalition.



Malcolm T. Kerley, P.E., Chief Engineer, Virginia Department of Transportation

Mal Kerley, Chief Engineer for the Virginia Department of Transportation (VDOT), is a member of the AASHTO Standing Committee on Highways and has served as Chair of the AASHTO Highway Subcommittee on Bridges and Structures (SCOBS) since 2002. In July 2002, he was named Chief Engineer at VDOT, accountable for the quality, cost and timeliness of all engineering plans associated with the design of, and right-of-way acquisition for, VDOT transportation projects. He had served as Administrator of VDOT's Structure & Bridge Division from 1992 to 2002, responsible for planning, design, construction, maintenance and inspection of more than 20,000 bridges and overpasses. He began his career with VDOT in 1971. He has a civil engineering degree from the Virginia Military Institute (BSCE, 1971) and Master's degree from the University of Virginia (MECE, 1973).

MONDAY, JUNE 2

IBC 2008 BRIDGE AWARDS LUNCHEON

Time: 12:00 noon

Room: Westin Convention Center Hotel Ballroom

The International Bridge Conference® in conjunction with Roads and Bridges Magazine, Bayer Corporation and Bridge design and engineering Magazine, annually awards five medals and one student award to recognize individuals and projects of distinction. The medals are named in honor of the distinguished engineers who have significantly impacted the bridge engineering profession worldwide. The student award is named in honor of a former IBC General Chairman, champion of the student award's program and friend to the bridge community at large. All Awards will be presented at a special Luncheon Awards ceremony, opened to the first 300 registered attendees. The Luncheon is sponsored by the Sherwin Williams Company and will be held in the Grand Ball Room of the Westin Convention Center Hotel. Advance reservations are required, as there is limited seating available! Only those with tickets are eligible to attend. Please check at the conference registration desk for current information.

JOHN A. ROEBLING MEDAL

The John A. Roebling Medal recognizes an individual for lifetime achievement in bridge engineering. We, at IBC, are pleased to recognize Leonardo Fernandez Troyano as the 2008 recipient for his distinguished, more than 40 year career with Carlos Fernandez Casado S.A.

GEORGE S. RICHARDSON MEDAL

The George S. Richardson Medal, presented for a single, recent outstanding achievement in bridge engineering, is presented to recognize the Sutong Bridge, Nangtong City, Jiangsu Province, China.

GUSTAV LINDENTHAL MEDAL

The Gustav Lindentahl Medal, awarded for an outstanding structure that is also aesthetically and environmentally pleasing, will be presented to recognize the Route 50 Bridge over the Ohio River and Blennerhassett Island, Parkersburg, West Virginia.

EUGENE C. FIGG JR. MEDAL

The Eugene C. Figg Jr. Medal for Signature Bridges, recognizing a single recent outstanding achievement in bridge engineering, which is considered an icon to the community for which it is designed, will be presented to recognize the High-Main Street Bridge, Hamilton, Ohio.

ARTHUR G. HAYDEN MEDAL

The Arthur G. Hayden Medal, recognizing a single recent outstanding achievement in bridge engineering demonstrating vision and innovation in special use bridges, will be presented to recognize the Tri-Countries Bridge, Weil Am Rhein, Germany. This structure crosses the Rhine River between Weil Am Rhein, Germany and Huningue, France.

JAMES D. COOPER STUDENT AWARD

The James D. Cooper Student Award recognizes undergraduate/graduate students who demonstrate an interest and passion for bridge engineering. The award is presented to winners of a student competition for technical writing and engineering insight. The 2008 James D. Cooper Graduate Student Award is awarded to: Woo Soek Kim of the Pennsylvania State University for his paper entitled: Simplified Nonlinear Numerical Method for Integral Abutment Bridges. The 2008 James D. Cooper Undergraduate Student Award is awarded to: Heidi Clayville, Theresa Howell and Kristen Erickson of Washington University in St. Louis for their paper entitled: The New Daniel Boone Bridge Project: US Route 40/I-64 Across the Missouri River.

The committee would like to thank this year's award referees: John Aidoo, Rose-Hulman Institute of Technology, Terre Haute, IN; James Garrett, Carnegie Mellon University, Pittsburgh, PA; Kent A. Harries, University of Pittsburgh, Pittsburgh, PA; Dennis Mertz, University of Delaware, Newark, DE

Workshop 1: Bridge Programs Forum (W-1)

Time: 1:00-4:00 PM

Room: 306/307

The Bridge Programs Forum is a new feature at IBC and is a part of IBC's new continuously running construction industry track. Invited Owners from across the region will describe their upcoming bridge program. Attendees will get important details about participating owner bridge programs, including:

- bridges programmed for letting during the next 12 months
- major projects scheduled for letting in the next 3 to 5 years
- upcoming projects of interest to the large and medium sized contractors and fabricators
- the funding situation that is unique to each owner

In addition to presenting, Owner attendees will be able to assess the ongoing bridge construction and reconstruction programs in neighboring states in order to help ensure contractor capacity.

Industry participants can find out and plan for bidding and teaming for upcoming projects.

Consultants can learn about design projects scheduled for the next five years and perhaps beyond.

This forum is a major new addition to the IBC array of mission critical sessions intended to add an entire new dimension to the IBC.

MONDAY, JUNE 2

Workshop 2: Strategic Highway Research Program II (SHRP2) Bridge-related Renewal Research Projects (W-2)

Time: 1:00-4:00 PM

Room: 310

Objective:

To inform the bridge community about the SHRP2 bridge-related highway renewal research projects. The objective of this research is to achieve renewal that is performed rapidly, causes minimum disruption, and produces long-lived facilities. A related objective is to achieve such renewal not just on isolated, high-profile projects, but consistently throughout the nation's highway system.

TIME	TITLE	PRESENTER
1:00	Welcome by Presiding Officer	William Nickas
1:05	Introduction to SHRP2	Neil Hawks
1:20	Overview of SHRP2 Renewal Program	Robert Raab
1:40	Overview of SHRP2 Renewal Bridge-Related Projects	Monica Starnes
2:00	R-04, Innovative Bridge Designs for Rapid Renewal,	Frank Russo
Comments and Discussion by Audience		
2:45	Break	
3:15	R-19A, Bridges for Service Life beyond 100 Years: Innovative Systems, Subsystems, and Components	Atorod Azizinamini
Comments and Discussion by Audience		
4:00	Closing Remarks by Presiding Officer	William Nickas

Workshop 3: The "New" Steel Bridge Design Handbook Workshop (W-3)

Time: 1:00-5:00 PM

Room: 402

Presenter: NSBA

The original Highway Structures Design Handbook was produced by US Steel in the 1970s and subsequently maintained by AISC Marketing. Now, with federal grant money, the National Steel Bridge Alliance (NSBA), with HDR Engineering as the Principal Engineer, is undertaking the much-needed updating of this important industry document. Eventually, it will encompass 23 chapters and seven Design Examples. The chapters are being written by prominent engineers in the field and reviewed by a committee organized by NSBA. Presented by NSBA

The initial Chapters and Design Examples of the renamed Steel Bridge Design Handbook listed below are now available. This session will present an introduction to the new Handbook and review the

MONDAY, JUNE 2

content of the first phase of work, now completed.

- Selecting the Right Bridge Type
- Stringer Bridges
- Loads and Load Combinations
- Design for Constructability
- Bearing Design
- Corrosion Protection of Steel Bridges

Design Example - Two-Span Continuous Straight Composite I Girder

Design Example - Two-Span Continuous Straight Wide Flange Beam

Design Example - Three-Span Continuous Straight Composite I Girder

Workshop 4: Bridge Construction (W-4)

Time: 1:00-5:00 PM

Room: 406

This session will bring construction industry specialists to the IBC to describe best practices for bridge design from the perspective of general contractors, fabricators, detailers, and erectors. Speakers will address:

- Quality plans and specifications – what defines high quality and how to achieve it
- Effective detailing – information needed to achieve what shop drawings should illustrate
- Material availability and considerations - cost and schedule impacts
- Achieving rapid project delivery - methods and practices that facilitate rapid delivery without adding undue cost
- Construction for durability - details that function well over the long haul
- Best practices for bridge erection - what needs to be communicated on plans

This guidance will help engineers achieve projects that are safe, constructable, and cost-effective, and can be readily inspected, and is a part of IBC's new continuously running construction industry track forum.

TITLE	PRESENTER
Cost Effectiveness through Constructability Reviews	Mick Girondo, <i>Nyleve</i>
Detailing for Bridges - A guideline to achieving quality bridge shop drawings and the players involved	Jack Metcalfe, <i>National Institute of Steel Detailing</i>
Material Considerations	Don Fuchs, <i>Metals USA (steel)</i>
Steel Bridge Fabrication – Considerations for an Effective Project	Tom Wandzilak, <i>High Steel Structures</i>
Prestressed Concrete Bridges	Alan Derr, <i>Newcrete</i>
Bridge Erection – Ways and Means	TBD

MONDAY, JUNE 2

Workshop 5: TRB Structures: Steel Bridges – Evaluation and Rehabilitation for Safety (W-5)

Time: 1:00-5:00 PM

Room: 405

Current bridge funding levels are inadequate to replace the quarter of our nation's bridges that are classified as structurally deficient or functionally obsolete. Faced with budget constraints and an aging infrastructure, those responsible for bridge safety are challenged to maintain and preserve our nation's bridges, of which almost half built prior to 1960 are steel. This challenge will be met by developing better evaluation and rehabilitation methodologies so owners can maintain and preserve their bridge inventories under increased funding constraints. This session is cosponsored by the Transportation Research Board (TRB) Steel Bridge Committee (AFF20) and Dynamics and Field Testing of Bridges Committee (AFF40).

Chair: Richard A. Walther, PE, SE, Chair, TRB Dynamics and Field Testing of Bridges Committee (AFF40)

TIME	PRESENTER	TITLE
1:00	William Wright, <i>Federal Highway Administration</i>	Case Study of Minnesota I-35W Bridge Collapse
1:30	Glenn Washer, <i>University of Missouri</i>	Evaluation Methodologies for Steel Bridges
2:00	Steven Altstadt, <i>Purdue University</i>	Recent Research: Inspection Frequency of Non-redundant Bridges and Damage Tolerant Design for Steel Bridges
3:00	Mark Bowman, <i>Purdue University</i>	Estimating Effect of Fatigue on Serviceability
3:30	Michel Ghosn, <i>City University of New York</i>	Redundancy in Highway Bridges
4:00	Ray McCabe, <i>HNTB</i>	What Does the Future Hold?
4:30	Presenter Panel Discussion	

MONDAY, JUNE 2

Workshop 6: AASHTO Technology Implementation Group (TIG) Bridge Moves with Self-Propelled Modular Transporters (SPMTs) (W-6)

Time: 1:00-5:00 PM
Room: 404
Chair: Jim McMinimee, UDOT

Objective:

To inform bridge owners about the 2007 AASHTO Technology Implementation Group (TIG) national initiative to promote the use of self-propelled modular transporters (SPMTs) to quickly remove and replace bridges to minimize traffic disruption and improve work-zone safety. To highlight past, ongoing, and future bridge moves using SPMTs. To encourage bridge owners to consider the use of SPMTs for bridge replacement projects that would benefit from the speed and flexibility offered by this technology.

TIME	PRESENTER	TITLE
1:00	Hossein Ghara, <i>Louisiana DOTD</i>	AASHTO TIG Champions SPMTs: Free Assistance to Agencies Offered
1:20	William Nickas, <i>Corven Engineering (prev. FDOT)</i>	Florida DOT Keeps America Moving During Bridge Construction with SPMTs
1:45	Hossein Ghara, <i>Louisiana DOTD</i>	Louisiana DOTD Reduces Traffic Tangles with SPMT Bridge Moves
2:10	Jim McMinimee, <i>Utah DOT</i>	Utah DOT Program Adopts Ultra-Rapid Bridge Replacement with SPMTs
2:35	Jugesh Kapur, Munindra Talukdar, <i>Washington State DOT</i>	Washington State DOT Leads SPMT Revolution with Lewis & Clark Bridge Deck Replacement
3:30	Audience Discussion of Issues Related to Moving Bridges with SPMTs,	

Workshop 7: Heat-Straightening Repair of Damaged Steel Bridges (W-7)

Time: 1:00-5:00 PM
Room: 401
Presenter: FHWA

This program will focus on the latest strategies for the planning, design and implementation of heat straightening repair of steel bridges. A 250-page manual and two interactive training CD's will be demonstrated. A hands-on demonstration will also be included. **Actual, live demonstrations will be conducted on Tuesday, June 3 at 8:30 AM, 10:00 AM, 1:30 PM and 3:00 PM, outdoors curbside at the DLCC.**

Presenters:

- Krishna Verma, FHWA, Washington, DC;
- R. Richard Avent, Louisiana State University, Baton Rouge, LA

MONDAY, JUNE 2

Workshop 8: Design and Construction Monitoring of Structural Foundations - Best Practices and Pitfalls (W-8)

Time: 1:00 - 5:00 PM

Room: 403

Presenter: Jerry Dimaggio, FHWA

Structural foundations (shallow and deep foundations) for surface transportation structures continue to present one of the most challenging tasks to design and construction specialists in both private and public professional practice. Current trends like innovative contracting, risk management, limit states design (LRFD) and accelerated construction have further raised the bar for geotechnical, structural and construction specialists in order to meet project development and delivery demands on time and within cost estimates. These features are consistently on the critical schedule path, have significant costs, and are very risk prone to contract overruns and contract disputes.

The goal of this session is to share Best Practices to ensure future project success based on the presenter's 35 years of international experience with design and construction of infrastructure features.

The following topics are addressed in this workshop (all design related material is presented based on AASHTO LRFD Specifications, 4th Edition 2007):

- Subsurface Investigation
- Communication between Geotechnical, Structural, Hydraulic and Con
- Foundation Selection
- Design Process and Procedures (structural and geotechnical)
- Extreme Event and Hazard Considerations
- Plans, Specifications and Contracting
- Construction Monitoring and Inspection

MONDAY, JUNE 2

FEATURED AGENCY: FHWA SESSION

Time: 1:30–5:00 pm

Room: 301-305

Chairs: King W. Gee, *Associate Administrator, Federal Highway Administration*, and M. Myint Lwin, *P.E., S.E., Director, FHWA, Office of Bridge Technology*

IBC 08-01

History of America's Highways

King W. Gee, *Associate Administrator*

IBC 08-02

Research and Development of Bridge Technologies

Ian Friedland, *Technical Director on Research and Development*

IBC 08-03

The Highway Bridge Program

Tom Everett, *Principal Bridge Engineer*

IBC 08-04

Major Aspects of Geotechnical and Hydraulic Programs

Jorge Pagan, *Principal Bridge Engineer*

IBC 08-05

Major Bridges and Tunnels

Vasant Mistry, *P.E., Senior Bridge Engineer*

IBC 08-06

The Federal Lands Highway Bridge Program

Gary Jakovich, *Senior Bridge Engineer*

IBC 08-07

Technical Assistance in the Implementation of Bridge Technologies

Shoukry Elnahal, *Team Leader, Stewardship and Oversight of the Highway Bridge Program* Division Bridge Engineer

IBC 08-08

PennDOT's Perspective on the FHWA Highway Bridge Program

Tom Macioce, *P.E., State Bridge Engineer*

FHWA Display in Exhibit Hall

Visit the FHWA mega-display in the Exhibit Hall during all posted hours of operation.

FHWA Concrete Mobile Laboratory

The FHWA Concrete Mobile Laboratory will be on-site and equipped to demonstrate testing and acceptance of the latest concrete technology for pavements and bridges. The tractor measures 10' wide x 35' long and the trailer measures 10' wide x 50' long. The total length of the combination is around 85' plus. The Mobile Lab is self-contained as a small concrete lab. with a generator for electricity. For IBC, there will be no mixing of concrete, but demonstration of equipment and methods. It is going to be very clean!

Gary Crawford of FHWA will be the contact person for the Concrete mobile lab for this special IBC event. The trailer will be parked curb side so visitors can enter from the sidewalk without interruption to traffic. Demos will be available on Monday, Tuesday and Wednesday.

TUESDAY, JUNE 3

SEMINAR: LRFD FOR HIGHWAY BRIDGE SUPERSTRUCTURES - CONCRETE

Time:	8:00 am-5:00 pm (Tues & Wed)
Room:	401
Presented:	NHI

This new course expands the suite of FHWA services to assist State and local governments in a successful implementation of load and resistance factor design (LRFD). The course promotes the philosophy of the LRFD design platform and establishes the motivation for LRFD as the reassurance that safe design practices are being applied where needed. For structural applications, the curriculum follows the AASHTO "LRFD Bridge Design Specifications," 3rd Edition, 2004 (AASHTO LRFD), including the approved 2005 and 2006 Interims.

This course is a combination of instructor-led discussions and workshop exercises. It includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials, and provides hands-on experience in the AASHTO LRFD design and detailing of concrete superstructures. Exercise and example problems are based on components of overall comprehensive bridge design examples using AASHTO LRFD and provide comparisons between ASD, LFD, and LRFD design methods where meaningful.

The curriculum materials are comprised of a comprehensive design manual, FHWA Publication No. FHWA NHI 06-001, lecture and workshop exercises intended to promote or enhance a working knowledge of the AASHTO LRFD specification, and a participant workbook for lecture notes and exercises.

The curriculum material contains the following major topics:

- Preliminary design concepts for prestressed concrete superstructures
- Pretensioned concrete I-girder design
- Continuous pretensioned concrete I-girder design
- Staged construction of prestressed concrete girder bridges
- Bearing design

OUTCOMES:

Upon completion of the course, participants will be able to:

- Describe the concrete bridge superstructure design and construction process in accordance with the AASHTO LRFD specifications
- Identify the application of appropriate AASHTO LRFD specification articles dealing with selection of bridge type, size, and location; bridge economics; concrete bridge superstructure design; and bearings selection and design
- Demonstrate the use of the AASHTO LRFD specification requirements for concrete superstructure design through the completion of step-by-step procedures, student exercises, and design examples
- Successfully complete applicable learning outcome assessments with a combined score of 70 percent or higher.

TARGET AUDIENCE:

This course has been developed for the needs of practicing public

TUESDAY, JUNE 3

and private sector structural and bridge engineers with 1-10 years of experience. The primary audience is agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and have a working knowledge of the AASHTO LRFD or the "AASHTO Standard Specifications for Highway Bridges," and have relevant design experience using either of these specifications on at least one bridge superstructure.

SEMINAR: THE USE OF STRUT AND TIE MODELING IN BRIDGE DESIGN

Time: 8:00 am-12:00 noon

Room: 402

This seminar will cover the history of the Strut and Tie method, steps for using the method, design examples of bridge elements and automated design tools. In addition to Dr. Martin, presenters will include.

Moderator:

- Dr. Barney T. Martin, PE, *Modjeski and Masters*

Presenters:

- Dr. David Sanders, *University of Nevada, Reno*;
- Dr. Daniel Kuchma, *University of Illinois at Urbana-Champaign*;
- Dr. Gregor Wollman, *Michael Baker Jr., Inc.*

TUESDAY, JUNE 3

Workshop 9: SSPC Coatings (W-9)

Time: 8:00 AM-5:00 PM

Room: 307

Presenter: SSPC

- 8:30-9:00 am: J. Peter Ault, P.E. and Christopher L. Farschon - *Elzly Technology Corporation and Corpro Companies, 20-Year Performance of Bridge Maintenance Systems: In 1986-1987, New Jersey DOT applied forty-seven (47) different coating systems to various spans of the Mathis Bridge. Each experimental system was applied to a complete span comprising approximately 4,000 square feet of steel. Experimental coating systems included metallizing, various zinc-based systems, various levels of surface preparation, and several overcoating strategies (e.g., alkyd over a hand-tool cleaned surface). The paper will present the results of an inspection conducted in 2007, nominally 20 years after the initial coating application. The inspection showed varied service lives associated with the different coating systems. Some of the systems were in excellent condition after 20 years while others had completely broken down. In addition to the present condition of the test spans, the paper will review the historical performance of the various coating systems as well as the applied cost. Finally, several important implications for maintenance planners will be presented. These will include cost-benefit calculations and risk-reduction strategies.*
- 9:00-10:00am: Dr. Michael O'Donoghue, *ICI Devoe Coatings, Corrosion Mitigation For Steel Bridges: New Construction – Rapid Cure Polyaspartic Coating Systems Maintenance: High Ratio Calcium Sulfonate Coating Systems: In today's world of high performance coating systems the current milieu of multi-coat systems based on hard film formers provides some outstanding systems for new construction. Part A of this presentation outlines some of the best and most rapid curing systems available based on zinc, epoxy, polyurethane and polyaspartic coatings. For maintenance painting of bridges Part B of this presentation describes the successful use of an innovative high ratio calcium sulfonate coating system to solve corrosion problems in crevice corroded structure-critical connections and solve the problem of frozen bearings. Case histories and chemistry will be used to highlight the effective use of the technologies described.*
- 10:00-10:15am Break
- 10:15-10:45am Eric S. Kline, *PCS, KTA-Tator, Inc., One Hundred Years of Paint Performance: Fact or Fiction? Steel bridge painting is in its infancy as bridge construction extends back thousands of years. In those millennia the first bridge made of iron was built in 1779. The first steel was not used in a bridge until 1828. Some coated painted bridges are already over 100 years old. Can modern coatings protect steel bridges for the next hundred years? The author discusses how to achieve 100 years of service life using current materials and offers recommendations for research to improve the performance and economics of steel bridge painting.*
- 10:45-11:15am Joseph Walker, *Elcometer Instruments Limited Digital Data Management*
- 11:15-11:45am Derrick Castle and Dee L. McNeill, *Kentucky Transportation Cabinet and The Sherwin-Williams Company, Concrete Bridge Coatings in Kentucky: Progress in Lab and Field Testing Results; The continuing increase in usage of concrete structures, continued aging and deterioration of existing structures,*

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and ever increasing restrictions on the manufacturing parameters of coating systems are evidence that re-examination of the applicability and performance of protective coating systems for concrete structures is long overdue. The Kentucky Transportation Cabinet and the University of Kentucky, Transportation Research Center have partnered with manufacturers in the coatings industry to evaluate selected coating systems. The main objective of this project was to evaluate performance properties of various commercially available thin film coating systems for use on concrete.

- 11:45am-1:00pm Lunch
- 1:00-2:00pm, Sheri Thompson, *The Sherwin-Williams Company*, Boosting Your Customers Color Confidence Quotient, Learning Objectives:
 - Educate contractors on the basics of color, its influence on space and the customer
 - Develop a greater understanding of how environmental factors and light can affect color
 - Provide contractors with a list of questions to ask their customers, making the color selection process less daunting
 - Create an awareness of the selection tools available to contractors and their customers.
- 2:00-2:30pm, Stephen B. Karl, P.E., *Greenman-Pedersen, Inc. (GPI)* Visual Coating Condition Guide for NBIS Type Inspections; ; This section explores a potential solution to linking the knowledge and practices of coating evaluators and bridge safety inspectors via the introduction of an inclusive visual coding guide that can be integrated with a state DOT's existing Bridge Management System. Most state DOTs maintain a comprehensive Bridge Management System as a tool in allocating resources to the inspection, maintenance, rehabilitation and replacement of bridges. These systems typically accept, store, update and report data on the physical and operating characteristics of bridge structures in the DOT's inventory. Most systems pay little to no attention to the existing coating systems on steel bridge structures. Providing the key link between the two traditional disciplines of coatings specialists and bridge safety inspectors is a necessary task to fill this gap in data reporting. Better data reporting will provide the opportunity for the state to cost-effectively repair the protective coatings prior to requiring complete replacement, thus extending the life and protection of the steel substrate. This paper describes work performed with multiple state and local DOTs to develop paint coding guides that fit the specific needs of these clients' Bridge Management Systems. The programs discussed reduce the subjectivity in the evaluation process, and provide a coatings management tool.
- 2:30-2:45pm Break
- 2:45-3:15pm Steve Feldman, *PPG*, The Use Of Polysiloxane Technologies (Coatings) To Reduce And Minimize The Cost's Associated With Maintaining The Anti-Corrosive Coating System On Bridges
- 3:15-3:45pm Cynthia L. O'Malley, *KTA-Tator, Inc.*, Benefits Of An Accurate Assessment Prior To Overcoating.
- 3:45-4:15pm Ronald F. Rauch, P.E., *New York City DOT*, From the Chemistry in the Can to the Chemistry on the Project (Follow up to the IBC 2007 Presentation)

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Workshop 10: Steel Railroad Bridge Load Rating Workshop (W-10)

Time: 8:00 AM-5:00 PM

Room: 403

Presenter: AREMA

The Session is a comprehensive program detailing methods and procedures suggested by AREMA for rating a steel railroad bridge. The AREMA Normal and Maximum Ratings are explained. Existing documentation required, such as bridge plans and inspection reports are discussed. Bridge inspection for the purpose of rating the bridge is presented. The rating loads specified by AREMA are explained in detail. The calculation of remaining fatigue life and the incorporation of fatigue into the bridge rating are presented. Structural analysis methods and the calculation of the rating values are presented with examples. The seminar provides 6.25 Professional Development Hours and Certificates of completion will be provided at the end of the seminar. Advanced registration is required.

Instructors:

- Stephen M. Dick, P.E., S.E., Ph.D., *Wilson Railway Inc.*
- Daniel A. Doty, P.E., *STV / Ralph Whitehead Associates*
- Steven P. Lorek, P.E., *HDR Engineering, Inc., Cincinnati, OH*
- Willis S. White, P.E. (Lead Instructor), *STV/Ralph Whitehead Associates, Inc., Chairman of Subcommittee 1 (Design and Loadings), AREMA Committee 15 (Steel Structures)*

Workshop 11: Foundation Drilling Workshop (W-11)

Time: 8:00 AM-5:00 PM

Room: 405

Presenter: ADSC

The International Association of Foundation Drilling will provide a full day session highlighting the current practice of micropile, drilled shaft, and earth retention construction for bridge projects. Topics of interest will be presented by industry leaders and will focus on state of the art equipment, innovative design and construction methodology, and quality control/quality assurance practices being used in bridge foundation construction.

Workshop Chair: Daniel D. Uranowski, P.E., *Brayman Construction*
8:00–9:45am Session I - ADSC General and Technical Committee Presentations Session; Moderator: Daniel D. Uranowski, P.E., *Brayman Construction Corporation*

- S. Scot Litke, *ADSC*, ADSC: The International Association of Foundation Drilling, and the Industry It Represents
- Allen Cadden, *Schnabel Engineering*, Micropile Design and Construction, A State of the Industry
- Jim Cahill, *Case Foundation Company*, Drilled Shaft Design and Construction
- Tom Richards, *Nicholson Construction Company*, Anchored Earth Retention Design and Construction

10:00–11:45am Session II - Micropile Design and Construction; Moderator: Allen Cadden, *Schnabel Engineering*

- Tom Tuozzolo/Scott Stonecheck, P.E., *Moretrench*, State Route 718 – State Street Bridge Micropile Foundations
- Jesus Gomez, Ph.D., *Schnabel Engineering*, New Jersey Turnpike

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Bridge Repairs with Micropiles

- Matthew J. Niermann, P.E., *Schnabel Foundation Company*, Micropiles for North Avenue Bridge, Chicago, IL
- John Szturo/Wayne Duryee, *HNTB*, Design and Construction of Micropiles for the Highway Interchange over Abandoned Lead and Zinc Mines Route 249/171 Joplin, Missouri

1:15–3:00pm Session III - Drilled Shaft Design and Construction; Moderator: Jim Cahill, *Case Foundation Company*

- Bret Rowan, *Malcolm Drilling Co.*, Case Study of Large Diameter Shafts with Caving Material and Rock Sockets
- Greg Peitz, *Brayman Construction Corporation*, Drilled Shafts for Susquehanna River Bridge, Harrisburg, PA
- Eric Risberg, *Case Foundation Company*, Drilled Shafts for I-35 Bridge Replacement, Minneapolis, MN
- William Maher, *McKinney Drilling Company*, U.S. Grant Bridge, Portsmouth OH

3:15–5:00pm Session IV - Anchored Earth Retention for Bridge Projects; Moderator: Kyle Camper, P.E., *Hayward Baker*

- Scott Dodds, *Brayman Construction Corporation*, Utilizing Nail Walls to Support Existing Bridge Abutments
- Jerold Bishop, *Geotechnical Design Systems, Inc.*, Phased Shoring Using Hollow Bars
- Kyle Camper, P.E., *Hayward Baker*, Anchored Bridge Abutments, Milwaukee, WI;
- Spark Johnson, P.E., *Northwest Cascade, Inc.* Geotechnical Construction Work for the Lake Whatcom Boulevard High Bridge #115 Replacement, Bellingham, WA

LUNCHEON INFORMATION

TIME: 12:00 noon - 1:30 PM

ROOM: The Westin Hotel, Allegheny
Grand Ballroom – Third Floor

Bridge Information Modeling (BIM): An Innovative New Approach to Bridge Project Delivery

The Westin is just a convenient stroll across the skywalk that connects to the David L. Lawrence Convention Center.

Open to all registered IBC attendees, and Free of charge! First come, first served!

TUESDAY, JUNE 3

SESSION: DESIGN, PART 1

Time: 8:30 AM – 12:00 noon
Room: 304/305
Chair: Gerald J. Pitzer, P.E., GAI Consultants, Inc.,
Homestead, PA

IBC 08-09 8:30 AM

Design/Build of I35W Bridge Replacement

Kevin Western, P.E., Minnesota DOT, Bridge Division, Oakdale, MN; Christopher Burgess, P.E., S.E., FIGG, Denver, CO

Locating a major Interstate bridge, accommodating ten lanes of traffic, with future transit potential, in the heart of any major city, is challenging. In the case of the I-35 bridge, there are also extremely compressed design and construction schedules, the emotional considerations of the public and including appropriate aesthetic elements.

IBC 08-10 8:55 AM

Steel-Composite Design of Railway Arch Bridge Improves Constructability & Efficiency

Sena Kumarasena, HNTB Corporation, Boston, MA

The paper will discuss the design and constructability aspects of a 372-m (1220-ft) long railroad bridge in a remote location in Katra, India. The proposed bridge has a 265-m (870-ft) arch span over the 200-m (650-ft) deep gorge and is designed to carry a two track rail road being built as a part of a large scale railway expansion project. The remote mountainous project location is inaccessible and temporary access roads that meander along the mountain slopes are being built for the transportation of construction equipment and material. The design-build team proposed a steel-composite design for the arch rib to improve the constructability and efficiency.

IBC 08-11 9:20 AM

Context Sensitive Aesthetic Treatments for the Farm Lane Underpass Project

Jeremy Hedden, Bergmann Associates, Lansing, MI; Neal Billetdeaux, Smith Group JJR, LLC, Ann Arbor, MI

The Farm Lane Road Underpass project provided an opportunity to investigate a Context Sensitive Solution process in the design of the rail grade-separations (rail over roadway). The project included extensive involvement with University groups (aesthetics, environmental, water resources, engineering & maintenance, and others) in addition to county, railroad and private utility coordination.

IBC 08-12 9:45 AM

IT-Streamlined Processes for Accelerating Bridge Delivery

Stuart Chen, University at Buffalo, State University of New York, Buffalo, NY; Arun Shirole, Arora and Associates, Robbinsdale, MN

It is being increasingly recognized that the current U.S. practice of information transfer during the bridge planning/ design/ fabrication/ construction/ operation/ maintenance processes involve repeated manual transcription of data that is error-prone, time consuming approvals (e.g. of shop drawings), and a lack of standardized formats that hinder electronic information transfer. It is also being recognized that without such standards, electronic information exchange is cumbersome at best, and often not possible. This paper presents current research to address this challenge under FHWA sponsorship

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to develop a program to explore the promise of parametric 3-D bridge information modeling (BrIM) as a technology that will enable acceleration of the bridge design and delivery, as well as enhance life-cycle management.

COFFEE BREAK

10:10-10:30 AM

IBC 08-13 10:30 AM

Alteration of CSX Transportation Bridge over the Mobile River, Hurricane, AL

Mostafa Kamal Elnahal, U.S. Coast Guard, Bridge Administration Office, Washington, DC

The presentation will address various design and construction challenges facing the on-going alteration of CSX Transportation Bridge over the Mobile River in Hurricane, Alabama including the search for the most economical scheme. Also, it will address the Coast Guard Program of Bridge Alteration that benefits several states and railroad companies.

IBC 08-14 10:55 AM

Design and Construction Engineering for the Replacement of Ramp TE

Martin Kendall, Jacobs Edwards and Kelcey, New York, NY

Ramp TE over the Cross Bronx Expressway is a tightly curved ten span concrete box girder bridge that is to be replaced with a five span twin steel tub girder bridge. The bridge is founded in a park and a demolition / construction scheme was developed to accommodate all of these factors.

IBC 08-15 11:20 AM

Empowered Public Participation in the Design of the Turtle Creek Viaduct

Frederick Gottemoeller, P.E., AIA, Bridgescape, LLC, Colmbia, MD; James Long, Ph.D., Olszak Management Consulting, Inc., Pittsburgh, PA; Frank Kempf, P.E., Pennsylvania Turnpike Commission

The viaduct runs through the center of an historic industrial town, Turtle Creek, Pennsylvania. The viaduct's builder, the Pennsylvania Turnpike Commission, empowered a community Design Advisory Team (DAT) to make basic design decisions. The DAT's decisions reduced the viaduct's impact on the town and enhanced the center's redevelopment potential.

SESSION:

INSPECTION/ANALYSIS, PART 1

Time: 8:30 AM – 12:00 noon

Room: 301/302

Chair: Jeffrey J. Campbell, P.E., Michael Baker Jr. Corp., Moon Township, PA

IBC 08-16 8:30 AM

3D Capture of Bridges Using Laser Technology

Jim Harvey, Waterways Ireland, Enniskillen, Northern Ireland; Brian Devlin, CEI Collins Engineers Ltd, Dublin, Ireland; Duncan Lees, Plowman Craven Associates, Hertfordshire, United Kingdom

Waterways Ireland implemented a programme to provide a more accurate bridge inventory of which 3D laser scanning was an integral

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part. This paper provides an overview of the laser scanning of 342 bridges as part of the programme implementation for the development of 3D CAD models representing each structure.

IBC 08-17 8:55 AM

Initial Data Analysis of a Structural Health Monitoring System for Carbon Fiber Composite Strands in a Cable Stayed Bridge

Keith Berube, Roberto Lopez-Anido, Ph.D., P.E., Vincent Caccese, Ph.D., P.E., University of Maine, Orono, ME

The Penobscot Narrows cable stayed bridge design implemented in Prospect, Maine presented an opportunity to install Carbon Fiber Composite Cable (CFCC) strands as a test case. Since the long-term response of the CFCC strands was of vital concern, a structural monitoring system was incorporated during the cable installation. A brief description of the instrumentation used and an analysis of the data recorded to date are presented in this paper.

IBC 08-18 9:20 AM

Load Testing, Analysis and Structural Health Monitoring for Evaluating the Load Capacity of Aged RC Bridges

John Prader, Drexel University, Philadelphia, PA; Franklin Moon, Drexel University, Philadelphia, PA

The State of West Virginia has a large population of aged reinforced concrete bridges that lack documentation. These bridges are now being subjected to larger loads than their original designers intended. This paper is intended to provide an overview of the techniques and methods which were used to quantify the load capacity of two undocumented bridges.

IBC 08-19 9:45 AM

Simplified Head-On Dynamic Barge Collision Analysis for Bridge Design

Michael Davidson, and Gary Consolazio, University of Florida, Gainesville, FL

A design-oriented means of conducting dynamic barge-bridge collision analysis is presented, validated using full-scale experimental data, and demonstrated using two bridges in the state of Florida. The impact analysis technique is shown to capture pier response phenomena, with respect to pier column internal forces, not found in static analysis results.

COFFEE BREAK

10:10-10:30 AM

IBC 08-20 10:30 AM

Bridge Evaluation through Advanced Analysis and Nondestructive Field Measurements/Monitoring

Ed Zhou, URS Corporation, Gaithersburg, MD

This paper addresses advanced methods and technologies for bridge structural problems and concerns identified by regular inspections or other means. The methods include in-depth finite element analysis, field testing/measurements using strain/displacement transducers, structural health monitoring using a collection of advanced sensors, and combinations of them.

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IBC 08-21 10:55 AM

Instrumentation and Load Test of the Huey P. Long Bridge

Thomas Weinmann, Danielle Kleinhans, Varsha Singh, CTLGroup, Skokie, IL

This paper describes the truss monitoring program for the widening of the Huey P. Long Bridge in New Orleans, consisting of a 900-ct. sensor array utilizing both static and dynamic systems, measurement of existing eyebar forces through vibration methods and load testing to calibrate the monitoring systems.

IBC 08-22 11:20 AM

New Jersey Turnpike Authority Next Generation Bridge Inspection Program

Jean Laird, New Jersey Turnpike Authority, Woodbridge, NJ; Jeremy Shaffer, InspectTech, Pittsburgh, PA; John A. Paul, LS Engineering Associates Corp., Montville, NJ

The New Jersey Turnpike Authority is one of the nation's largest toll-road systems and operates both the New Jersey Turnpike and the Garden State Parkway. In the past these two major roadways operated as separate entities and had developed different bridge inspection programs for the nearly 1,000 combined structures (over 20' in length). Organizing all of this information into paper and computer formats for the various stakeholders has proven to be a difficult challenge. The New Jersey Turnpike Authority has just embarked on a program to standardize the format of the reports. This is being accomplished by implementing a new computerized inspection and inspection management program that is capable of handling the wide variety of structure types, various consultants, and output needs. This presentation will examine a brief history of the Turnpike and Parkway and their respective bridge inventories and inspection programs.

SESSION: ABC CONSTRUCTION

Time: 8:30 AM – 12:00 noon

Room: 406

Chair: Mary Lou Ralls, P.E., Ralls Newman, LLC, Austin, TX

IBC 08-23 8:30 AM

An Owner's Perspective on Implementing an Accelerated Bridge Construction Program

Stan Burns, Utah Department of Transportation, Salt Lake City, UT; Carmen E. L. Swanwick, HDR Engineering, Inc., Salt Lake City, UT

The Utah Department of Transportation has successfully implemented prefabricated bridge systems and accelerated bridge construction on ten projects utilizing different elements and technologies from full-depth prefabricated precast concrete deck panels, prefabricated precast concrete bent caps, total superstructure systems, self propelled modular transport practice, to temporary bridge use. This article discusses the organizational lessons learned from implementing Accelerated Bridge Construction.

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IBC 08-24 8:55 AM

Accelerated Replacement of the 4500 South Bridge over I-215 in Salt Lake City, UT using SPMT's

Michael Arens, Michael Baker Jr., Inc., Salt Lake City, UT; Boyd Wheeler, Utah Department of Transportation, Salt Lake City, UT

The 4500 South Bridge over I-215 in Salt Lake City, UT required replacement due to structural deficiencies. The Utah Department of Transportation (UDOT) required Accelerated Bridge Construction (ABC) techniques to minimize traffic impacts, improve work zone safety, and move forward the use of ABC for future projects. UDOT, Michael Baker Jr., Inc, and the Contractor evaluated several bridge types and ABC options, and decided on the use of Self Propelled Modular Transporters (SPMT's) to move the bridge superstructure into place.

IBC 08-25 9:20 AM

Accelerated Bridge Construction Using Precast Piers

Eric Yermack, Arora and Associates, P.C., Lawrenceville, NJ

The Route 70 over Manasquan River project utilized a unique precast pier solution to construct a replacement bridge. The precast system consisted of architectural, HPC pier columns, caps and cofferdams with post-tensioning. The method of construction satisfied environmental requirements and produced a signature bridge over 700 days ahead of schedule.

IBC 08-26 9:45 AM

Accelerated Bridge Re-decking of Bridges on the George Washington Memorial Parkway

Gary Jakovich, P.E., Eastern Federal Lands Highway Division, Sterling, VA; W. Jay Rohleder, Jr., P.E., S.E., FIGG, Exton, PA

Successful use of prefabricated panels achieved accelerated bridge re-decking on the heavily traveled (40,000 ADT) George Washington Memorial Parkway. This innovative application of segmental bridge construction methods was implemented on three bridges and developed to keep traffic moving while installing high-strength low maintenance new bridge decks.

COFFEE BREAK 10:10-10:30 AM

IBC 08-27 10:30 AM

Rapid Replacement of the Hood Canal Bridge Approach Spans

Joseph Merth, PE, Washington State Department of Transportation, Olympia, WA

To minimize traffic impacts the Washington State Department of Transportation developed an innovative method to replace the Hood Canal Floating Bridge Approaches in two weekend closures. The single-span 154' west approach was replaced in 51 hours, and the five - span 605' east approach was replaced in 49 hours.

IBC 08-28 10:55 AM

Rapid Replacement of the Island Park Drive Overpass

Michel Vachon, McCormick Rankin Corporation, Ottawa, ON; Quazi Islam, Ministry of Transportation Ontario, Kingston, ON

The Island Park Drive Overpass carrying over 150,000 vehicles / day on Highway 417 in Ottawa, Ontario, Canada is at the end of its lifespan. It was decided to replace it using rapid replacement techniques with an overnight highway closure. The replacement was successfully completed in August 2007 in 17 hours.

TUESDAY, JUNE 3

IBC 08-29 11:20 am

Hyper Design /Hyper Build ~ It Can Work

Thomas Anella, P.E., Rama Krishnagiri, P.E., *PB, Princeton, NJ*;
Manu Patel, P.E., *New Jersey Department of Transportation, Trenton, NJ*

NJDOT's I-280 Stickel Bridge Rehabilitation is a Hyper-Design/Hyper Build Project. The 32-month original design schedule was reduced to 15 months and the 3-year staged construction cut to 21 months. The project is a success as the aggressive schedule is being met, due to all parties working together in perfect harmony to reopen all lanes with minimal disruption.

Workshop 12: FRP Composites in Bridge Construction (W-12)

Time: 9:00 AM-12:00 noon

Room: 306

Presenter: ACMA

FRP composites used in new bridge construction and rehabilitation provide bridge engineers with innovative solutions to today's infrastructure problems. Composites advantages such as lightweight, high strength, and corrosion resistance contribute to easy transportation, offsite construction, modular assembly, rapid installation, and long-term durability that provide cost-effective solutions and value to the bridge owner. Attendees will learn the state of the practice in using composites including applications on installation and inspection of bridge decks, advancements in rehabilitation, and new field installations of cable stays and girders.

Program includes:

- David White, P.E., Sika Corporation, Repair Techniques Utilizing FRP Composites for Concrete Bridges;
- William J. Rohleder, Jr., P.E., S.E., Figg Bridge Engineers, Inc. Successful Carbon Fiber Strand Application in Cable Stay Bridge;
- Mark Henderson, P.E., LJB, Inc., A Bridge Inspectors Approach to FRP Composites;
- Dan Richards, Ph.D., P.E., ZellComp, Inc., Weather Extremes No Obstacle to the Vermont Installation of a Mechanically Fastened FRP Deck;
- Pete Emrich, Molded Fiber Glass Companies, Composite Beams Molded by Resin Infusion

ASSOCIATED PENNSYLVANIA CONSTRUCTORS' BRIDGE COMMITTEE MEETING

Time: 9:00 AM-12:00 noon

Room: 315

The Associated Pennsylvania Constructors' Bridge Committee meets quarterly in Harrisburg with Penn DOT to discuss Pennsylvania's bridge concerns in detail. This proactive group includes representatives from bridge building contractors and design firms working for the Department. Our June '08 discussion venue will be in Pittsburgh in conjunction with the IBC. We open the meeting to all attendees to demonstrate our approach to problem solving. Continuing dialogue is absolutely necessary.

TUESDAY, JUNE 3

SPMT DEMONSTRATIONS

Time: 9:00 AM -4:00 PM; Hourly demonstrations
Room: Exhibit Hall D
Presenter: FHWA

Join other 2008 IBC participants at a demonstration of the latest for ultra-rapid bridge construction: self-propelled modular transporters (SPMTs). SPMTs offer maximum speed and flexibility for accelerated bridge construction. They can reduce onsite construction time to just minutes or hours. Come see these amazing machines move forward, sideways, diagonally, in a circle, and spin about a point!

Throughout the day on Tuesday, June 3, 15-minute demonstrations will be held hourly on the hour from 9:00 a.m. - 4:00 p.m. (except 12:00 noon) in Exhibit Hall D. Come see these amazing machines move forward, sideways, diagonally, in a circle, and spin about a point! Demonstrations courtesy Mammoet (www.mammoet.com) and Barnhart (www.barnhartcrane.com).

Workshop 13: Bridge Failures: Investigation, Design, Research, and Construction Perspectives; A Panel Discussion (W-13)

Time: 1:00-5:00 PM
Room: 404

In light of recent notable bridge failures, this session has been organized to highlight some of the lessons learned from past failures. Prominent engineering professionals will offer their perspectives covering case studies of failures, design considerations against failure, and infrastructure rehabilitation. Following the presentations, the speakers will be available for audience questions and moderator-guided discussion.

- Coordinator and Moderator: Danielle D. Kleinhans, Ph.D., P.E., *CTLGroup*
- W. Gene Corley, Ph.D., S.E., P.E., *CTLGroup*, Solving the Mystery of Collapse of an Unloaded Bridge
- Walter J. Gatti, *Tensor Engineering Company*, Bridge Failures During Construction
- John M. Kulicki, Ph.D., P.E., *Modjeski and Masters, Inc.*, Bridge Failures and Design Specifications
- Dennis R. Mertz, Ph.D., P.E., *University of Delaware*, The Inherent Safety of the AASHTO Specifications: Design and Rating
- Gérard Desgagné, ing., M.Sc., *Ministère des Transports du Québec*, Bridge Collapse in Laval, Quebec: Technical Causes and Lessons Learned

BUS BRIDGE TOUR

Time: 1:00 to 5:00 PM

Location: Meet at outdoor curbside East Lobby / DLCC

Pittsburgh is the city of bridges, and the IBC is pleased to once again offer our tour of unique area bridges. The tour this year includes stops at the Boulevard of the Allies Bridge over Forbes Avenue in Oakland and the new bridge being built to carry the Pennsylvania Turnpike over the Allegheny River in Harmar. These two structures are scheduled to be under construction in 2008. The tour will finish with a ride on the Monongahela Incline to Mount Washington for a breathtaking view of the City. This guided tour departs from the Convention Center at 1 pm. An additional fee of \$40 is required.

TUESDAY, JUNE 3

SEMINAR: GETTING THE BEST PROPOSAL – AND PROJECT

Time: 1:00-5:00 PM

Room: 402

In today's large project civil construction environment, a serious situation exists, in that there are frequently more project opportunities than there are qualified contractors to pursue them. While this will not last forever, owners and engineers must look closely at the requirements they place on proposers for major civil/bridge projects, if they want to receive competent and responsible proposals. This is especially true for projects being procured using the design-build approach.

Recently, several major projects have gone begging for competition, with the result being that the owner either received no response to the RFP, or there was only one competitor and the pricing was well over budget. Another recent problem is that because there are so few qualified teams even responding to the initial Request for Qualifications (RFQ), less qualified teams are being included on the "short list". This has resulted in contract awards to teams who have submitted unreasonably low price proposals, with the owners receiving a lower quality end product.

These major design-build projects require the investment of significant resources to prepare a competitive proposal, and the stipends typically offered cover about 25% of the actual proposal costs. Therefore, contractors are becoming more selective as to where they commit their bidding resources. The best qualified contractors will walk away from bidding opportunities if they feel, a) the contract terms are too onerous, b) the scope is not clear and open to too much interpretation, or c) the evaluation and award criteria do not provide an "even playing field". They want the type of competition that allows the project to be won on innovation, not mistakes or misinterpretation – truly the "best value."

The panel assembled to address these issues includes senior representatives of three of the major national civil/bridge contractors, and a major surety representative. They will address the contractual, design and scheduling issues that create an environment for providing a best value, competitive proposal – and will give the owner a high quality final product, within budget and on or ahead of schedule. Major topics to be addressed will include: Fair and reasonable RFO process, Appropriate design levels for the RFP, Technical "traps" to avoid, Reasonable Risk Sharing, Work restrictions that affect cost and schedule, Reasonable contract terms and conditions, including: Insurance and Bonding Considerations, Standard of Care, Liability of the Parties, Hazardous Materials, and Differing Site Conditions.

Moderator:

- G. M. (Pat) Stricklin, *GMS Consulting, Inc.*

Presenters:

- Patrick Flaherty, *Fluor Corporation*
- Robert H. Luffy, *American Bridge Company*
- Ralph Salamie, *Kiewit Pacific Structures District*
- Brian Reynolds, *Zurich North America*

Workshop 14: American Galvanizers Association (W-14)

Time: 1:00–5:00 PM

Room: 306

Presenter: American Galvanizers Association

1:00–3:00 pm - 2-Hour Galvanize It! Workshop for AIA/NCEES Credit Presented by The 2-hour Galvanize It! seminar educates architects, engineers, and other specifiers on the design and integration of corrosion protection into his/her project. Attendees of this course will receive a certificate and two CEU/PDH credits. The seminar will explore:

- Corrosion theory
- Hot-dip galvanizing (HDG) process
- Design & fabrication of steel products for HDG
- Specifications & Inspection
- Duplex systems – painting over galvanizing
- Cost analysis
- Project applications of HDG

3:00–4:00pm - Comparative Life-Cycle Cost of Hot-Dip Galvanizing and Paint Systems. Using job specific data provided by the attendees, such as overall size, structural steel mix, site environment conditions, surface preparation type (blast, hand/power), application type (spray, brush), and design service life, the session will use web-based software to automatically calculate the initial and life-cycle costs for hot-dip galvanizing and a variety of paint systems (1 coat, 2 coat, 3 coat, epoxy, urethane, zinc-rich, etc.) for a hypothetical project. The calculations are based on material, labor, and application costs derived from recent galvanizing and paint industry surveys and standard financial equations for net future value and net present value will be used to calculate the life-cycle cost. Attendees will learn what specific variables affect durability and overall project cost of corrosion protection systems.

Presenter: Philip G. Rahrig, *American Galvanizers Association*.

4:00–5:00pm, 1-Hour Galvanize It! Workshop for AIA/NCEES Credit The 1-hour Galvanize It! seminar educates architects, engineers, and other specifiers on the design and integration of corrosion protection into his/her project. Attendees of this course will receive a certificate and one CEU/PDH credit. The seminar will explore:

- Hot-dip galvanizing (HDG) process
- Design & fabrication of steel products for HDG
- Specifications & Inspection
- Duplex systems – painting over galvanizing
- Cost analysis
- Project applications of HDG

Presenters:

- Melissa Lindsley, *American Galvanizers Association*
- Philip G. Rahrig, *American Galvanizers Association*

PROPRIETARY

Time: 1:30–5:00 PM

Room: 303

Chair: Kent A. Harries, Ph.D., FAcI, P.Eng., University of Pittsburgh, Pittsburgh, PA

IBC 08-30 1:30 PM

The Security Assessment of Cable Assemblies In Structures

Timothy W. Klein, P.E., WireCo World Group, Kansas City, MO

The paper identifies the vulnerability of cable assemblies and their response under extreme heat conditions. The paper describes new practices being developed to increase the security and functionality of cable assemblies. High performance materials have shown to increase the functional operating temperature without affecting the mechanical properties.

IBC 08-31 1:55 PM

Locked Coil Cables and Their End Connections - Product Potentials and Application of Design Codes

Martin Bechtold, Bridon International GmbH, Gelsenkirchen, Germany; Barrie Mordue, Bridon International Ltd., Doncaster, United Kingdom

Locked coil cables are tension components suited to use on architectural pedestrian and cycle bridges. The galvanising with Zn95A15 performs three times better compared to zinc without the disadvantages of the much thicker class C galvanising. The design standard ASCE 1996 which is currently under revision will include locked coil cables and Zn95A15.

IBC 08-32 2:20 PM

Significant Improvement of the lift-off method based on ultrasonic testing

Gilles Hovhanessian, Advitam, Velizy, France

Measuring the tension of prestressing bars and bolts is often critical for bridge owners. The UPUS is a cost-effective process bringing significant improvement over the traditional lift-off method especially by improving the accuracy and reducing the risk of deformation or rupture. This paper will present the method and its applications in NDT.

IBC 08-33 2:45 PM

Improving Rating Accuracy in Visual Inspections via Software

Jeremy Shaffer, Michael Schellhase, InspectTech, Pittsburgh, PA

Conducting visual bridge inspections and generating quality reports can be a tedious process prone to errors and inefficiencies. This presentation will cover how software can effectively be used to streamline the process from the field to report generation to integration into an asset management program.

COFFEE BREAK 3:10-3:30 PM

IBC 08-34 3:30 PM

Ultra-Weatherable Fluoropolymer Coatings for Bridges

Winn Darden, AGC Chemicals Americas, Simi Valley, CA; Takashi Takayanagi, AGC Chemicals, Tokyo, Japan

Fluoropolymer resins have been used to make ultra-weatherable top coats for steel and concrete bridges. Coating life can exceed 60 years

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with excellent color and gloss retention. Because of their performance, the Japanese government requires the use of these coatings on all bridges. Life cycle costs are substantially reduced using fluoropolymer coatings.

IBC 08-35 3:55 PM

SafeLane Overlay Performance Testing

Wilfrid Nixon, Asset Insight Technologies, Iowa City, IA; Bob Persichetti, Cargill SafeLane, York, PA

This paper reports two winters (2005-2006 and 2006-2007) of results on the performance of the SafeLane overlay on 26 different highway structures (20 bridges) around the United States. The study examines the safety and operational benefits of the overlay. In particular, the safety benefits were significant.

IBC 08-36 4:20 PM

One-Coat Paint System That Encapsulates Lead-Based Paint and Eliminates Sandblasting

J.E. Pritchett, Superior Products International II, Inc., Shawnee, KS; Sandra Hubbert, Superior Products International DOT Group, Charleston, SC

Encapsulation of lead-based paint and existing rust with minimum surface preparation and no regulated sandblasting can save millions at a time when transportation budgets are being reduced. Allocating monies toward as many bridges as possible is the key to addressing "at risk" inventories that fall outside the established priority rankings.

GEOTECHNICAL

Time 1:30–5:00 PM

Room: 304/305

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

IBC 08-37 1:30 PM

Field-Measured Behavior of an Integral Abutment Bridge with Short Steel Pile-Supported Abutments

William Davids, Thomas Sandford, University of Maine, Orono, ME; Sara Ashley, SW Cole Engineering Inc., Norwood, MA; John DeLano, GZA Geoenvironmental Inc., Norwood, MA; Christopher Lyons, E/Pro Engineering, Augusta, ME

The response of an instrumented IAB with short HP-supported foundations in western Maine is discussed. Pile and bridge behavior during construction and due to seasonal temperature changes is presented. The results indicate that short HPs driven to bedrock without special tip details should perform well in IABs.

IBC 08-38 1:55 PM

Osterburg Cell Load Test - Allegheny River Bridge

Gene Lipovich, Suresh Gutta, American Geotechnical & Environmental Services, Inc., Canonsburg, PA

To allow a more efficient design, an osterberg load cell test was performed during the design phase on a full scale, 84 - inch diameter, and 110 - foot deep drilled shaft. Using the rock socket design parameters allowed by the load test, significant cost savings were realized by the turnpike commission.

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IBC 08-392:20 PM

Settlement of Bridge Approach Embankments

Suresh Gutta, Ph.D., P.E., Sebastian Lobo-Guerrero, Ph.D., Neil Styler, Ph.D., P.E., *American Geotechnical and Environmental Services, Inc., Canonsburg, PA*; Neal W. Fannin, P.E., *PennDOT, District 2.0*

Settlement of bridge approach embankments may cause 'bump' at the bridge ends, due to settlement of the embankment and/or settlement of foundation soils. Comparison of measured and predicted settlements and time rate of consolidation of the foundation soils at eighteen bridge abutments constructed within the new I-99 corridor were considered.

IBC 08-402:45 PM

Underpinning Pile Foundations of Adjacent Continuous Multi-Level Curved Steel Box Girder Structures

Matt Pierce, *DMJM Harris, Pittsburgh, PA*; Firooz Panah, *DMJM Harris, Boston, MA*

Construction of an LRT system in Pittsburgh, PA requires foundation underpinning of two adjacent multi-span steel structures. This paper details underpinning topics related to alternatives investigation, viaduct foundation load development, unique underpinning design approach, complex construction sequencing and tolerances, viaduct instrumentation and monitoring and current construction status.

COFFEE BREAK3:10-3:30 PM

IBC 08-413:30 PM

Metal Straps as Soil Reinforcement on Full Height Abutments

Wendy Haugeto, Mike Yang, Arjuna Ranasinghe, *Michael Baker Jr., Inc., Princeton, NJ*

The first application of metal soil straps to support the complete lateral load on a thirty (30) foot high Full Height Abutment was constructed in Mercer County, New Jersey on the Alexander Road Bridge. Through a case study of this bridge, this paper demonstrates the advantages of using metal straps to support the lateral load over a more conventional system that uses piles for this purpose.

IBC 08-423:55 PM

Engineering Use of Low-Strength Concrete In Highway Construction

Y Frank Chen, *Penn State Harrisburg, Middletown, PA*; Tom Imholte, Tom Rowader, Dan Hacker, *Dawood Engineering, Enola, PA*

This paper presents an acceptable engineering practice as related to the use of unreinforced Class C concrete in highway construction. The important issues including stability checks, thermal cracking, concrete mixture, and cost are discussed. Another objective of this paper is to address the concern on the use of low-strength material.

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James D. Cooper Student Award Winner

IBC-08-43.....4:20 PM

Simplified Nonlinear Numerical Analysis Method for Integral Abutment Bridges

WooSeok Kim, The Pennsylvania State University, University Park, PA

Due to the significant inelastic and hysteretic behavior of integral abutment bridges (IABs), long-term behavior typically presents the worst case for design. This paper presents simplified numerical modeling methodologies under thermal and time-dependent loads, and soil-structure interaction based on field monitoring of IABs on the I-99 corridor. The proposed numerical model provides accurate, long-term prediction of IAB behavior and response.

LONG SPAN BRIDGES

Time: 1:30 – 5:00 PM

Room: 301/302

**Chair: Herbert M. Mandel, P.E., GAI
Consultants, Inc., Homestead, PA**

IBC 08-44.....1:30 PM

Colorado's Longest Span Crosses 28 Rail Lines

Dean Sandoval, Karen Rowe, Colorado Department of Transportation, Pueblo, CO; Steve Fultz, PE, Figg, Denver, CO

The \$27 million Fourth Street Bridge passes through Pueblo and provides clear spans over the Union Pacific Railroad (23 rails), Burlington Northern Santa Fe Railroad (5 rails) and the Arkansas River. The 1137 long twin, cast-in-place post-tensioned segmental box girders are being built from above in balanced cantilever with form travelers.

IBC 08-45.....1:55 PM

Design of Long Span Bridges to Resist Progressive Collapse

Theodore Zoli, HNTB Corporation, New York, NY

Long span bridges have not been designed to resist progressive collapse explicitly; many long span bridge forms, due to reasons of structural efficiency, are intrinsically non-redundant, i.e. they incorporate elements whose localized failure would precipitate collapse. There are also long span bridge forms that are susceptible to progressive collapse due to the loss of a series of adjacent members as a result of a single loading event. In either case, this class of structures may be termed to have single point vulnerability. Herein, aspects of long span bridge design as they relate to single point vulnerability and progressive collapse are discussed together with some suggestions for potential improvements in design strategies.

IBC 08-46.....2:20 PM

Experience from the Global Analysis of Sutong and Stonecutter's bridge

Dorian Janjic, TDV GmbH Graz / Bentley systems, Incorporated, Graz, Styria, Austria

The challenges in design for long-span bridges - either stay cable or suspension bridges with high pylons and slender deck section - are related to optimising the stressing sequence of the cables, geometrically non-linear behaviour of the structure, simulation of erection procedure, and to dynamic problems such as wind-induced

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vibrations. The Stonecutter's Bridge in Hong Kong is the first designed stayed cable bridge to span more than 1000m (1018m, currently under the construction) and the Sutong Bridge in China (1088m, closed in summer 2007) is the first built stayed cable bridge breaking this limit. For both bridges the RM software package has been used for global analysis, by consultants Ove-Arup (Hong Kong) and HPDI (Beijing).

IBC 08-472:45 PM

Design of Florida Avenue Bridge over the Inner Harbor Canal

Eric Nelson and Dan Davis, DMJM Harris, Glen Allen, VA

The Florida Avenue Bridge project in New Orleans, Louisiana includes a five-span high-level bridge over the Inner Harbor Canal with a 470-foot center span. Paper will discuss design aspects of both the cast-in-place segmental concrete box girder and steel plate girder alternates for the main span unit.

COFFEE BREAK3:10-3:30 PM

IBC 08-483:30 PM

Replacement of the William R. Bennett Floating Bridge

Darryl Matson, Eduardo Pradilla, Karsten Veng, Buckland & Taylor Ltd., North Vancouver, BC

The William R. Bennett Bridge, a floating bridge across the Okanagan Lake in Canada, will replace the existing aging Okanagan Lake Bridge. The unique nature of this structure presented numerous challenges that were resolved with innovative thinking and close coordination between the design and construction teams.

IBC 08-493:55 PM

The Missouri River Pedestrian Bridge, Omaha, NE, USA - State of the Art Cable-Stayed Pedestrian Bridge

Christian Brown, HNTB, Omaha, NE; Hans Hutton, HNTB, Kansas City, MO; Ted Zoli, HNTB, New York, NY

The new Missouri River Pedestrian Bridge is destined to become a landmark for the surrounding community. The design concept is monumental in scale and daring in concept. The main portion of the bridge spans the Missouri River and consists of a one-of-a-kind horizontally curved cable-stayed structure including a 506-foot main span and two 253-foot back spans. The superstructure is supported by single pylons near each bank that rise 200-feet above the water surface. Two planes of cables suspend the superstructure from the pylons. Due to the extreme flexibility of this bridge, many innovative solutions needed to be employed to address both wind and pedestrian induced vibrations.

IBC 08-504:20 PM

Aerodynamic Design of Baling River Bridge

Liu Gao, China Highway Planning and Design Institute (HPDI) Consultants, Inc., Beijing, P.R. China

Baling River Bridge is designed as an expressway link across the Baling River gorge in Guizhou Province, forming a part of National Highway from Shanghai to Ruili, which is one of "the Five Longitudinal, Seven Transverse" national trunk highways in "National Highway Development Plan" (1999~2020) promulgated by the Ministry of Communications of China. The aerodynamic design of Baling River Bridge was based on comprehensive wind engineering studies involving the conduct of wind tunnel tests using terrain field model covering the terrain within 9 km radius of the bridge, rigid section models for the bridge.

TUESDAY, JUNE 3

CONSTRUCTION

Time: 1:30 – 5:00 PM
Room: 406
Chair: Al M. Ahmed, P.E., *A&A Consultants, Inc., Pittsburgh, PA*

IBC 08-51 1:30 PM

Erection Engineering Considerations for Horizontally Curved Steel I-Girder Bridges

Shawn Tunstall, PE, Brandon Chavel, PE, Matt Bunner, PE, Jason Fuller, PE, HDR Engineering, Inc., Pittsburgh, PA

The erection of horizontally curved steel I-girder bridges can be complex. This paper will highlight aspects of curved steel I-girder bridge erection that should be considered by the design engineer and constructor's engineer in the development of the steel erection plans, so as to provide for a successful bridge construction project.

IBC 08-52 1:55 PM

Erection of the Twin-Box Steel Deck for Stonecutters Bridge

Michael Tapley, Maunsell AECOM, Shatin, Hong Kong; Brian West, Maeda - Hitachi - Yokogawa - Hsin Chong JV, Kowloon, Hong Kong

With a main span of 1018m, Stonecutters Bridge is a landmark cable stayed bridge across the entrance to the Hong Kong container terminals. The twin-box steel girder deck is one of the first of its kind, requiring innovative methods of analysis and erection techniques during construction.

IBC 08-53 2:20 PM

Incremental Launching of Final Composite Bridge Deck

Ladislav Sasek, Mott MacDonald Prague, Prague, Czech Republic; Radim Cap, Metrostav a.s., Prague, Czech Republic

Launching of final composite bridge deck has all advantages of launching method such as erection speed, lower costs and high quality of the bridge. Further innovation for composite bridges is the position of sliding bearings and the sliding trace structure. We decided to launch the structure supported on the concrete slab (bottom surface) next to the beam web. The concrete slab at this location is connected to the steel flange by means of studs and the beam web acts as a very rigid stiffener.

IBC 08-54 2:45 PM

Rapid Set Bridge Deck Overlays on the SR 376 Parkway in Pittsburgh, PA

Edward Liberati, P.E., HTNE Hydrodemolition Services / Modified Concrete Suppliers, Hilliard, OH

Presentation will include a detailed discussion and power point of the fast track weekend bridge deck repairs of the Parkway Bridges in Pittsburgh, PA. 21 bridge decks were repaired with Latex Modified Concrete Overlays in just 14 weekends. By utilizing innovative construction techniques and rapid set materials, work was able to be performed with minimal disruption to the 125,000 vpd which use the parkway. The existing bridge decks will now be preserved for another 25 years.

COFFEE BREAK

3:10-3:30 PM

TUESDAY, JUNE 3

IBC 08-553:30 PM

Design and Construction of the Providence River Bridge

Patricia Steere, P.E., Yihui Wu, Maguire Group Inc., Providence, RI

The design and construction of the 400-foot arch span of the Providence River Bridge was recently completed in Providence, RI. This span is a three-ribbed steel network arch design with a ten degree skew. The advantage of a network arch cable arrangement over an arch bridge with vertical cables is that it reduces the superstructure weight but still maintains adequate stiffness. The advantages are discussed, as well as the study that was used to determine the cable arrangement, the effect of the skew on the design, the method used to provide internal redundancy to the tie chord, and other design considerations.

IBC 08-563:55 PM

The Construction of Si Du River Suspension Bridge

Yinbo Liu, H & J International, PC, Collegetown, PA; Chongxu Wang, Road & Bridge Southern China, Zhongshan, China; Yuancheng Peng, CCSHCC, Second Highway Consultants Co. Ltd, Wuhan, China

The paper presents the key aspects of the construction of a 1222 meter long suspension bridge over Si Du river in the deep mountainous area in central China. The bridge spans over a 550 meter deep valley, which is the highest suspension bridge in the world. The challenges facing the construction include: limited working area, complicated geological conditions, restricted transportation access to the site, special wind gust conditions, and restricted access for superstructure installation.

IBC 08-574:20 PM

Replacement of a Rare Hanover Skewed Bascule - the Hamilton Avenue Bridge

Keith Griesing, P.E., Hardesty & Hanover, LLP, New York, NY

The rarely seen hanover skew bascule, also known as a knee-girder bascule bridge, is a unique and complex movable structure. The replacement of the skewed Hamilton Avenue Bridge with a new, fully operational span in sixty-four days created a one-of-a-kind project that challenged the owner, designers and constructor.

25TH ANNIVERSARY CELEBRATION

Time: 5:00-7:00 PM

Room: Heinz History Center - a short walk from the DLCC

Join us on Tuesday, June 3 from 5:00-7:00 PM for cocktails and hors d'Oeuvres to celebrate this very special 25th Anniversary Celebration. To allow all IBC attendees to enjoy a "Taste of Pittsburgh" the celebration will be held at the Senator John Heinz Regional History Center in the Strip District - a short walk from the Convention Center. (Limited transit shuttle will be available for those requiring transportation.) The walls and displays of the History Center tell the marvelous story of the Western Pennsylvania Region, and the menu will feature many items and favorites that come from this region.

WEDNESDAY, JUNE 4

DESIGN, PART 2

Time: 8:00 AM – 12:30 PM
Room: 304/305
Chair: Matthew P. McTish, P.E., *McTish, Kunkel & Associates, Allentown, PA*

IBC 08-58 8:00 AM

Updating the HL-93 LRFD Bridge Design Live Load Using Recent Traffic Data

Bala Sivakumar, HNTB Corporation, New York, NY; Michel Ghosn, City College of New York, New York, NY

LRFD HL-93 loading, calibrated using 1975 truck data from Ontario may not represent present U.S traffic loadings in many jurisdictions. Trucks have become much heavier and truck configurations have become more complex. Although the quality and quantity of traffic data has improved in recent years, it has not been used to update the bridge design loads. The objective of NCHRP Project 12-76, that will be completed in February 2008, is to develop and demonstrate the application of protocols for collecting and processing traffic data to calibrate national bridge live-load models for LRFD bridge design.

IBC 08-59 8:25 AM

Link Slab Continuity Detail on Long-Span Bridges

Wendy Haugeto, Michael Baker Jr., Inc., Princeton, NJ; Arjuna Ranasinghe, Michael Baker Jr., Inc., Newark, NJ

Many existing and new steel and concrete bridges with simply supported girders where the deck is made continuous over the supports have shown cracking of the deck and often complete separation at the point of continuity. The paper details several continuity options for simple span bridges used in both steel and concrete bridges and provides suggestions to improve them.

IBC 08-60 8:50 AM

An Innovative Approach to Improve Economy and Constructability of Steel Plate Girder Bridges

Richard Lawrie, Lubin Gao, Lawrie and Associates, Alexandria, VA

The paper's objective is to investigate the structural behavior of an innovative system and explore its benefits. Staging the deck pours and post-tensioning the deck in the negative moment regions can provide a more durable deck. Also, sections of the steel plate girders can be reduced, providing significant cost savings.

IBC 08-61 9:15 AM

Fast Track Design of Two Rail Bridges for the Farm Lane Underpass Project

Jeremy Hedden, Bergmann Associates, Lansing, MI; David Thurnherr, Bergmann Associates, Rochester, NY

The Farm Lane Road Underpass project on the campus of Michigan State University provided an opportunity to incorporate innovative contracting solutions with streamlined railroad and utility coordination to save construction time, reduce client costs, and offer significant reductions to the impacts on pedestrian and vehicular traffic on campus from the daily train delays.

IBC 08-62 9:40 AM

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3d Visualization in Bridge Construction Planning

Michael Mundy, R.A., *HNTB, Kansas City, MO*

This paper describes how 3D Visualization may be used to ensure contentment by all parties involved or affected by the bridge construction project, including examples of fixed, moveable, railroad, pedestrian and transit bridges. 3D Visualization encourages mutual understanding by builders, designers and the general public.

COFFEE BREAK

10:00-10:25 AM

IBC 08-63..... 10:25 AM

Finite Element Models for Curved Hollow Tubular Flange Girders

Richard Sause, Jun Dong, *Lehigh University, Bethlehem, PA*

Curved hollow tubular flange girders (CHTFGs) are innovative I-shaped steel girders with rectangular tube-shaped flanges designed for curved highway bridges. A finite element (FE) parametric study of CHTFGs is presented. The results suggest that CHTFG systems perform better than similar-sized conventional curved I-girders during transport, erection, and deck placement.

IBC 08-64..... 10:50 AM

Fatigue Behavior of Orthotropic Steel Decks - A Full-Scale Fatigue Test Under Running Wheel Loading

Xiaohua H. Cheng, *New Jersey Department of Transportation, Trenton, NJ*; Jun Murakoshi, *Public Works Research Institute, Tsukuba, Japan*

Most fatigue tests on orthotropic decks were conducted under fixed-point cyclic loading, focusing on a specific welded detail instead of all. To simulate truck wheel loads randomly passing on a deck, a unique wheel load testing machine was used on a full-scale specimen. This paper presents test results that would be helpful for design and inspection.

IBC 08-65..... 11:15 AM

Wind Design of Suspension Bridges

Dorian Janjic, *Tdv GmbH / Bentley Systems, Incorporated, Graz, Styria, Austria*

Sophisticated computer-aided dynamic wind analyses is becoming more and more important in bridge engineering. Especially suspension bridges are very susceptible for wind-induced vibrations because of their extraordinary slenderness. This paper presents novel solution for computer aided wind design of suspension bridges.

IBC 08-66..... 11:40 AM

Buckling Analysis Using Finite Elements

Terry Cakebread, *LUSAS, New York, NY*; Julian Moses, *LUSAS, Surrey, UK*

Increasingly designers are being asked to check for stability of structures during erection as well as thereafter. This presentation will show how to carry out linear and nonlinear buckling analysis on any bridge type, the ease of carrying this out, the techniques available and the key things to check for when modelling such effects.

WEDNESDAY, JUNE 4

REHABILITATION, PART 1

Time: 8:00 AM – 12:30 PM
Room: 301/302
Chair: Ronald D. Medlock, P.E., *High Steel Structures, Inc., Lancaster, PA*

IBC 08-67 8:00 AM

Investigation and Retrofitting of Web Cracking in US 202 Bridge in Montgomery County, PA

Sougata Roy, Ph.D., Ben T. Yen, R.S. Deo Alapati, Carl Bowman, *ATLSS Center, Lehigh University, Bethlehem, PA*; Jian Jin, *Jacobs Edwards and Kelcey, West Chester, PA*; James P. Van Dien, *HDR, King of Prussia, PA*; Henry Berman, *PennDOT, King of Prussia, PA*

Cracking in the web of main girder at the intersection with the floor beam connection plate, bearing stiffener and the bracket shelf plate for adjacent simple span in the north bound span of US 202 Bridge in Montgomery County, PA was investigated and a retrofitting strategy was developed. The “smiley” shaped crack originated from the web gap or cope in the transverse bearing stiffener near the termination of the bearing stiffener/floor beam connection plate-to-web weld above the bracket shelf plate and completely fractured the girder web towards the end. Towards the span, the crack growth was arrested in the web. The crack was unique in the sense that it had developed in a normally compression region of the structural component.

IBC 08-68 8:25 AM

Fatigue and Fracture Performance of Heat-Straightened Steel Bridge Girders

Michael Urban, *HNTB Corporation, Philadelphia, PA*; Robert Connor, *Purdue University, West Lafayette, IN*

This paper presents research conducted on the fatigue and fracture performance of damaged steel bridge girders. It will cover the laboratory testing, evaluation and inspection procedures before and after the repair, and recommended guidelines to be used in conjunction with the current state of practice.

IBC 08-69 8:50 AM

Seismic Reinforcement Project for Large Scale Bridges in Istanbul

Sabri Tekin, Seref Akin, *KGM General Directorate of Highways, Ankara, Turkey*

This project contains seismic reinforcement of large scale bridges in Istanbul such as First Bosphorus Bridge, Fatih Sultan Mehmet Bridge, New Golden Horn Bridge, etc. against a major prospective earthquake which would affect Istanbul and nearby regions.

IBC 08-70 9:15 AM

Thurston Avenue Bridge: New York’s 1st Induction Bent Tubular Arch

Susan Matzat, P.E., *LaBella Associates, PC, Rochester, NY*; Bob Meierhoff, *BendTec, Inc., Duluth, MN*

The addition of induction bent tubular shaped arches tied to two existing arches allows this “gateway” bridge on the Cornell University campus to uniquely meet capacity and aesthetic requirements. This “first of its kind” design and fabrication process has helped preserve and embolden steel arch bridge structures.

WEDNESDAY, JUNE 4

IBC 08-71 9:40 AM

Rehabilitation of a 115-year old Truss Bridge

Harold Plott, P.E., Pamela Mann, HSMM AECOM, Roanoke, VA; Luke Pugh, City of Roanoke, Roanoke, VA

The presentation will provide details on inspection, design and construction for the rehabilitated bridge crossing the Norfolk and Western rail lines, built in the early 1890's. The structure consists of a 100-foot steel Warren truss main span with built-up steel through-girder approach spans which were dismantled and delivered to an off-site fabricator for repairs, strengthening and painting.

COFFEE BREAK 10:00-10:25 AM

IBC 08-72 10:25 AM

Lightweight Fill Accelerates Critical Bridge Replacement Schedule

James Weaver, Haley & Aldrich, Inc., South Portland, ME; Wayne Chadbourne, Haley & Aldrich, Inc., Portland, ME

5,000 cy of EPS geofoam was used to construct approach embankments for the replacement of a critical bridge in Maine. The geofoam embankments were designed to reduce ground surface settlement and lateral loading on existing deteriorated bridge abutments. The use of geofoam also shortened the project construction schedule by 1.5 years.

IBC 08-73 10:50 AM

Design and Construction of the ASR Mitigation System for the New Jersey Abutment of Bayonne Bridge.

Wagdy Wassef, Modjeski and Masters, Inc., Mechanicsburg, PA; Stewart Sloan, Port Authority of New York and New Jersey, Newark, NJ

The main span steel arch of Bayonne Bridge, 1675 ft. long, is supported on massive concrete abutments. Test results identified Alkali Silica Reaction (ASR) as the cause of the abutment cracking. This paper describes the studies, the design and construction of the ASR mitigation system for the abutment.

IBC 08-74 11:15 AM

FDR Drive Rehabilitation and Outboard Detour Roadway

Neil Porto, HDR|Daniel Frankfurt, New York, NY

This paper summarizes the rehabilitation of the tri-level Franklin Delano Roosevelt Drive between East 54th Street to East 63rd Street on Manhattan's East Side. The \$104M rehabilitation included the following: Replacement of the deteriorated Southbound Viaduct; Rehabilitation of the Roof Structure; Rehabilitation of the at-grade Northbound FDR Drive; An outboard Detour Roadway constructed in the East River for Maintenance and Protection of Traffic.

IBC 08-75 11:40 AM

Rehabilitation of the 42nd Street Bridge over AMTRAK and Norfolk Southern

Christopher Menna, City of Philadelphia, Streets Dept., Bridge Section, Philadelphia, PA

The project involved the rehabilitation of a unique steel arch bridge in West Philadelphia. The structure was approaching the end of its life and had a history of numerous ruck collisions. Innovative rehabilitation schemes were devised to satisfy historic preservation criteria and to restore the structure's place in the neighborhood.

WEDNESDAY, JUNE 4

INSPECTION ANALYSIS PART 2

Time: 8:00 AM – 12:30 PM

Room: 406

Chair: Lisle E. Williams, P.E., PLS, *T.W. Consultants, Inc., Pittsburgh, PA*

IBC 08-76 8:00 AM

History and Inspection of New York City's Oldest Standing Bridge

Christopher Mele, Baker Engineering NY, Inc., Elmsford, NY; Ellen Macnow, New York City Department of Parks and Recreation, Flushing, NY

The history and inspection of the High Bridge, which is the oldest standing bridge in New York City. This unique inspection required historical research not typical for a bridge inspection, and a wide array of inspection techniques developed specifically for this bridge. This paper describes both the history and inspection of this structure.

IBC 08-77 8:25 AM

Lessons Learned from Non-Destructive Testing of Suspender Ropes

Michael Higgins, P.E., Pure Technologies, Columbia, MD

This paper summarizes the results of non-destructive testing of suspender ropes obtained from seven major highway bridges. The non-destructive testing was able to test the free length of small diameter cables to detect and quantify corrosion damage. The paper reviews the findings and documents areas of corrosion damage and the extent of damage.

IBC 08-78 8:50 AM

Field Monitoring and Instrumentation of Star City Bridge, West Virginia

Samir Shoukry, Mourad Y. Riad, Gergis W. William, West Virginia University, Morgantown, WV; Jimmy Wriston, West Virginia Division of Highways, Charleston, WV

The Star City Bridge in West Virginia is heavily instrumented with over 750 sensors of various natures that record time histories of key-performance parameters in the superstructure. The focus of this study is to provide real life set of data that would demonstrate the real-life behavior of long-span light-weight continuous bridge decks since early age of construction.

IBC 08-79 9:15 AM

Innovative Techniques for Suspension Bridge Cable Evaluation and Monitoring

Dyab Khazem, Parsons, New York, NY; Raimondo Betti, Columbia University, New York, NY

This paper discusses the objective of this unprecedented research which is intended to develop, integrate and deploy health monitoring technologies for detecting corrosion damage and monitor the internal environment of suspension cables for corrosion activities by direct and indirect sensing methods.

WEDNESDAY, JUNE 4

IBC 08-80 9:40 AM

Evaluation & Rehabilitation of the Deer Isle Suspension Bridge

Evan Lowell, P.E., TranSystems | Lichtenstein, Natick, MA

The Deer Isle Bridge is the only roadway connecting Deer Isle, ME to the mainland. This slender bridge has received numerous improvements to stiffen the superstructure, as it has experienced several episodes of undulating and swaying in the coastal winds. TranSystems/ Lichtenstein designed a deck replacement to : increase the bridges's load capacity, maintain its aerodynamic performance, and be constructed with minimal interruption to traffic.

COFFEE BREAK 10:00-10:25 AM

IBC 08-81 10:25 AM

Meeting the Needs for the Next 30 Years: DC Metro's New Structure Inspection Processes and System

Clay Bunting, Washington Metropolitan Area Transit Authority, Alexandria, VA; Jeremy Shaffer, InspectTech, Pittsburgh, PA

The Washington Metropolitan Area Transit Authority "DC Metro" maintains a large network of bridge and aerial structures. To help meet the current and future challenges Metro has adopted a new software inspection and management system. An overview of the metro system and the implementation of the new software will be covered.

IBC 08-82 10:50 AM

Comparison of New Advances in Underwater Bridge Inspection Technology

Bradley Syler, Daniel G. Stromburg, Collins Engineers, Inc., Chicago, IL

Inspection of bridge elements below water and the streambed surrounding these elements is essential for ensuring public safety and promoting long-term serviceability of bridges over water. Although technology has been used to supplement underwater bridge inspections for many years, new advancements in underwater technology have resulted in new and improved inspection, support and documentation methods.

IBC 08-83 11:15 AM

Long Term Structural Health Monitoring System of a Continuous Steel Girder Bridge

Varsha Singh, Thomas Weinmann, CTL Group, Skokie, IL

CTL Group developed and installed an instrumentation system for Sikessky Bridge in a joint effort with ConnDOT and University of Connecticut for long term performance monitoring. The system consists of 48 sensors and remotely triggered data collection system to measure maximum girder strains, global vibrations, pier tilt and expansion joint movement.

IBC 08-84 11:40 AM

Optical Fibre Extensometers for Concrete Structure Instrumentation

Gilles Hovhanessian and Bernard Basile, Advitam, Velizy, France; Sylvie Delepine-Lesoille, Dominique Richon, LCPC, Paris, France

The LCPC recently developed with its partners a composite-made "wave-shaped sensor" body that enables optimal bonding between optical fiber and concrete. The presentation will focus on the design/realization of optical fiber extensometers for concrete structure instrumentation, including the system's validation during the monitoring of concrete slab deformation in France.

WEDNESDAY, JUNE 4

Workshop 15: FHWA Accelerated Bridge Construction/ Highways for Life (W-15)

Time: 8:00 AM-5:00 PM

Room: 307

Moderator: Michael Culmo, CME Associates

This workshop will provide information on the state of the art practices of the Accelerated Bridge Construction Technology, including information on how by using innovative prefabricated bridge technologies and innovative equipment and contracting we can achieve our goals of rapid onsite construction with minimized traffic disruption, improved safety and constructibility, and improved durability, and at competitive construction costs and ahead of schedule. The workshop will include presentations on accelerated bridge construction techniques, equipment and details. Details of the new FHWA Manual entitled "Connection Details for Prefabricated Bridge Elements and Systems" will be presented.

TIME	PRESENTER	TITLE
8:00	Vasant Mistry and Byron Lord, <i>FHWA</i>	Opening Remarks
8:15	Vasant Mistry, <i>FHWA</i>	National Perspective on ABC
8:45	Byron Nelson Lord, <i>FHWA</i>	Changing How We Build Bridges in America
9:15	Mary Lou Ralls, <i>Ralls Newman, LLC</i>	Update on Cost Effectiveness of Prefabricated Bridges
10:00	Coffee Break	
10:30	Michael Culmo, <i>CME Associates</i>	Connection Details Manual for Prefabricated Bridge Elements and Systems
11:00	Michael Culmo, <i>CME Associates</i>	Schematic Design of an Accelerated Bridge Project
12:00	Lunch	
1:00	Ray Wolfe, <i>California DOT</i>	Connection Details for Prefabricated Bridge Elements and Systems for Seismic Forces
1:30	Daniel Page, <i>Utah DOT</i>	Utah DOT Transition to ABC as Standard Practice
2:00	Matt Swenty, <i>Virginia Tech</i>	Research Update on Full-Depth Precast Concrete Deck Panels
2:30	Richard Nickel, <i>Carolina Bridge Co.</i>	Replace Seven Bridges in Forty-five Days – Case Study
3:00	Coffee Break	
3:30	William Duguay, <i>J.D. Abrams, L.P.</i>	Contractor's Perspective on ABC
4:00	Loet Schartman, <i>Mammoet USA</i>	SPMT Subcontractor's Perspective on ABC
4:20	Will Smith, <i>Barnhart Crane & Rigging</i>	SPMT Subcontractor's Perspective on ABC
4:40	Steven Sarens, <i>Sarens Group</i>	SPMT Subcontractor's Perspective on ABC

SCHEDULE AT A GLANCE

Sunday, June 1, 2008

- 1:00-6:00 PM Exhibit Hall Set-Up-Ball Room & 3rd Floor Foyer
- 6:00-8:00 PM Conference Registration Desk Open-3rd Floor Foyer
- 6:00-10:00 PM PCEF/SCEF Committee Meeting-Room 316

Monday, June 2, 2008

- 7:00 AM-7:00 PM Conference Registration Desk Open-3rd Floor Foyer
- 8:00 AM-5:00 PM NHI Course: LRFD Steel-Room 311
- 8:30 AM-12 noon Keynote Session-Room 301/305
- 11:00 AM-7:00 PM Exhibit Hall Hours-Ball Room & 3rd Floor Foyer, with Evening Reception from 5:00-7:00pm
- 12 noon-1:30 PM IBC Awards Luncheon-Westin Convention Center Hotel Ball Room
- 1:30-5:00 PM Featured Agency Session "FHWA"-Rooms 301-305
- 1:00-4:00 PM W1: Bridge Programs Forum-Room 306/307, W2: SHRP 2 Renewal Research Projects-Room 310
- 1:00-5:00 PM W3: NSBA Steel Bridge Design Handbook-Room 402; W4: Bridge Construction Workshop-Room 406; W5: TRB Steel Bridge Safety-Room 405; W6: AASHTO TIG SPMTs-Room 406; W7: FHWA Heat Straightening-Room 401; W8: Structural Foundations-Room 403
- 5:00-7:00 PM Exhibit Hall Reception-Ball Room & 3rd Floor Foyer
- 5:00-10:00 PM AASHTO TG 13-Room 310
- 6:00-10:00 PM AASHTO TG 8-Room 311; AASHTO TG 1-Room 315; PCEF/SCEF-Room 316

Tuesday, June 3, 2008

- 7:00 AM-7:00 PM Conference Registration Desk Open-3rd Floor Foyer
- 8:00 AM-12 noon Strut & Tie Seminar-Room 402; W9: SSPC Coating Workshop-Room 307; AASHTO TG 2&5-Room 310

Tuesday, June 3, 2008 (continued)

- 8:00 AM-5:00 PM NHI Course: LRFD Steel-Room 311; NHI Course: LRFD Concrete-Room 401; W-10: Steel Railroad Bridge Load Rating Workshop-Room 403; W11: Foundation Drilling Workshop-Room 405
- 8:30 AM-12 noon Technical Sessions: Design Part 1-Room 304/305; Inspection/Analysis Part 1-Room 301-302; ABC Construction-Room 406
- 9:00 AM-12 noon APC Bridge Committee Meeting (Room 315), W-12: FRP Composites Workshop (Room 306)
- 9:00 AM- 4:00 PM SPMT Demonstration -hourly demos from 9:00 AM until 4:00 PM, except noon-Exhibit Hall D; Heat Straightening Demonstration, hourly demos-Curb-side outdoors
- 11:00 AM-5:00 PM Exhibit Hall Hours-Ball Room & 3rd Floor Foyer
- 1:00-5:00 PM IBC Bridge Tour (meet Curb-side), Seminar: Best Proposal & Project-Room 402; W13: Bridge Failures Panel Discussion-Room 404; W14: American Galvanizers Workshop-Room 306; AASHTO TG 4-Room 310
- 1:30-5:00 PM Technical Sessions: Geo Technical-Room 304/305; Long Span-Room 301/302; Construction-Room 406; Proprietary Session-Room 303
- 5:00-7:00 PM IBC Anniversary Cocktail Party at the Heinz History Center

Wednesday, June 4, 2008

- 7:00 AM-5:00 PM Conference Registration Desk Open-3rd Floor Foyer
- 8:00 AM-5:00 PM NHI Course: LRFD Concrete-Room 401; W15: FHWA/HFL Workshop-Room 307
- 8:00 AM-12 noon W16: Western PA Transportation Forum Workshop-Room 306; Seminar: Integral Abutments-Room 402; Technical Sessions: Design: Part 2-Room 304/305; Rehabilitation: Part 1-Room 301/302; Inspection/Analysis: Part 2-Room 406
- 8:00 AM-1:30 PM Exhibit Hall Hours, with lunch-Ball Room & 3rd Floor Foyer
- 8:00 AM-3:00 PM W17: PennDOT Case Studies-Room 303
- 1:00-5:00 PM TRB AFF10 (2) Committee Meeting-Room 315; AASHTO Full Committee-Room 316
- 1:30-3:45 PM Technical Sessions: Historic-Room 304/305; Rehabilitation: Part 2-Room 301/302; Seismic-Room 406

WEDNESDAY, JUNE 4

Workshop 16: Western PA Transportation Research Forum (W-16)

Time: 8:00 AM-12:00 noon

Room: 306

Hosted by the University of Pittsburgh Department of Civil and Environmental Engineering, and moderated by Dr. Kent A. Harries and Dr. Melissa Bilec, University of Pittsburgh

The forum highlights both research-in-progress and recently completed bridge and transportation research funded by PennDOT and NCHRP. The forum is focused on technology transfer and is of interest to DOT engineers, consultants and practitioners. Forum attendees will receive a CD consisting of the presented papers. The forum is open to all IBC attendees.

TIME	PRESENTER	TITLE
8:20	Michael Bonini, <i>PennDOT</i>	Overview of PennDOT Research Program
8:40	Ronald Neufeld, Jason Monnell, Kent Pu, Matthew McCutcheon, <i>PITT</i> ; Donald Spaeder, Kent Cockley, <i>GAI Consultants</i> ; Thomas Gray, <i>TeraTech Consultants</i> ; Robert Hedin, <i>Hedin Environmental</i> ,	Jonathan Run Acid Rock Discharge Mitigation Strategies & Implementation Activities
9:00	Amy Landis, Melissa Bilec, Joe Marriott, Scott Shrake, William Collinge, <i>PITT</i>	Biodiesel Fuel Feasibility Study
9:20	Rania Asbahan, Julie Vandenbossche, <i>PITT</i>	Effects of Environmental Loads on Slab Curvature
9:40	J-S Lin, Luis Vallejo, Maria Jaime, <i>PITT</i>	Rational Approach for Rock Slope Design
10:00	BREAK	
10:20	Kent Harries, Jarret Kasan, John Aktas, <i>PITT</i>	Repair Methods for Prestressed Concrete Girder Bridges
10:40	Kent Harries, Amir Soltani, <i>PITT</i>	Application of High-Strength Reinforcing Steel in Bridge Design
11:00	Brandon Chavel, HDR; Kent Harries: <i>PITT</i>	Construction and Detailing of Horizontally Curved Steel I-girder Bridges
11:20	Piervincenzo Rizzo, Jennifer Kacin, Venu Annamdas, Jerry Bruck, <i>PITT</i>	Sensing Technology for Damage Assessment of Sign Supports and Cantilever Poles
11:40	Kent Harries, <i>PITT</i> ; James Garrett, Irving Oppenheim: <i>CMU</i> ; Dennis Mertz, <i>University of Delaware</i>	Future Directions in Bridge Engineering Research

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Workshop 17: PennDOT Construction Case Studies (W-17)

Time: 8:00 AM -3:00 PM

Room: 303

Presenter: PennDOT

The intent of this session is to present construction lessons learned that will help designers to improve future designs. Each case study will consist of a presentation and Q/A period, and will involve the owner, designer and contractor. Some topics include emergency superstructure replacement (I-880, CALTRANS), Curved Girder Erection, Flood Emergency Rehab/Replacement, Context Sensitive Solutions, Staged Construction (Penn DOT) and the North Shore Connector (Port Authority of Allegheny County).

TIME	#	TITLE
8:00am	1	CALTRANS - MacArthur Maze Tanker Fire/ Bridge Collapse
9:00am	2	PennDOT District 6-0 - I-95
9:30am	3	PennDOT District 8-0 - Dillerville Road Over Amtrak Accelerated Bridge Construction
10:00am	4	PennDOT District 2-0 - Bradford Bypass/ Pile Foundation Design/ 1/2 Width Construction
10:30am	5	PennDOT District 9-0 - Million Dollar Bridge Phased Construction
11:00am	6	PennDOT District 10-0 - East Brady Bridge community Involvement/ Environmental Issues
11:30am		Lunch
1:00pm	7	PennDOT District 12-0 – Emergency Design Build
1:30pm	8	Port Authority Transit - North Shore Connector Light Rail Transit
2:00pm	9	PennDot District 11-0 - Curved Girder Erection Over I-79

1. MacArthur Maze Tanker Fire/ Bridge Collapse, Barton Newton, California State Bridge Maintenance Engineer

In the early morning hours of Sunday, April 29, 2007, a tanker truck hauling 8,600 gallons of gasoline overturned, burst into flames and severed a critical link in the transportation network of the San Francisco Bay Area.

As the fire raged on the MacArthur Maze interchange near Oakland where Interstate Highways 80, 580 and 880 intersect, the California Department of Transportation (Caltrans) responded to protect the public and to assess the damage, re-route traffic and initiate an accelerated repair and reconstruction plan.

Like previous disasters such as the 1989 Loma Prieta and 1994 Northridge earthquakes, this tanker truck fire and subsequent bridge collapse tested Caltrans' emergency readiness and ability to respond to a major disruption of the Golden State's transportation system.

Caltrans delivered, reopening one of the damaged connector ramps (the East Bay Viaduct) in eight days and rebuilding nearly

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200-feet of the bridge (Distribution Structure) that collapsed in less than one month. This presentation will provide an overview of the response and recovery efforts employed by Caltrans by identifying the amount and severity of the bridge damage, initiating repairs and restoring traffic service as quickly as possible.

2. I-95, Craig J Beissel, *PennDOT Bridge Quality Assurance Division*

This presentation will talk about the events causing the failure and closure of I-95, the repair scheme, coordination and timeframe to begin and complete the repair, the coordination between all involved parties, repairs to other nearby piers and follow-up inspections.

3. Dillerville Road Over Amtrak Accelerated Bridge Construction, *Harivadan Parikh, PennDOT; Greg Burkhart, J.D. Eckman, Inc.*

The Concept was accelerated bridge construction using prefabricated system for the substructure and P/S box beams and removal of the existing superstructure using Gantry system.

4. Bradford Bypass, Section C09 – Pile Foundation Design and Detailing for Skewed Bridges Built with Half-Width Construction, *George Prestash, P.E. District Bridge Engineer, Engineering District 2-0,*

This presentation discusses the issues that may arise when designing, detailing, and constructing pile foundations for substructure units that are skewed and built with half width construction. This discussion will focus on the basic considerations for determining the typical section of the superstructure to accommodate construction phasing and temporary shoring, tips for laying out a constructible pile pattern, considerations to avoid interferences of battered piles, and strategies for implementing pile pattern modifications during construction. Additional presentation by Ben Allis, *DMJM Harris*

5. Million Dollar Bridge Phased Construction, *Ralph DeStefano, PennDOT District 9-0 Bridge Engineer*

The Million Dollar Bridge is a 5-span viaduct carrying US 220 over the Juniata River, Norfolk Southern mainline tracks and SR 1010 on the eastern edge of Huntingdon Borough, Huntingdon County. The viaduct consists of a 4-span unit over the river and railroad tracks, while a simply-supported single-span unit spans SR 1010. The support skew angles vary from 55 degrees to 39 degrees. The structure was built in 1948 and carries approximately 10,200 vehicles daily. The existing width is 37'-0" curb-to-curb and 44'-7½" out-to-out, which includes 3'-9" wide sidewalks on each side.

Virtually no work has been performed on the bridge since its original construction. Consequently, major repairs to the structure were needed. Design work on rehabilitating the structure began in 1995. However, with input from the local community seeking expansion of the 3-lane corridor to 5-lanes, the project became delayed due to funding and environmental constraints. With the condition of the bridge reaching a critical point – either rehabilitate or else loose the bridge altogether – and with the added realization that funds were not available to widen the corridor, the decision was made to undertake a \$11,000,000 major rehabilitation effort. Due to high traffic volumes and the lack of any acceptable detour route, two lanes of traffic had to be maintained during daylight hours. Controlling one lane of traffic through the work zone in the remaining hours with temporary traffic signals and working at night was permitted. This construction scheme results in third-

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width construction and very tight work areas for the contractor. The project is scheduled to be completed in Fall 2009.

6. East Brady Bridge community Involvement/ Environmental Issues, James Andrews, PennDOT

The project was the replacement of an existing four span through truss with a new structure on a new alignment. The project is located in Bradys Bend Township, Armstrong County and East Brady Borough, Clarion County and carries SR 68 across the Allegheny River.

Due to the project's impact on the local community, the Department utilized a Community Advisory Committee (CAC) to assist in the development of a preferred alignment and selection of context sensitive items to be incorporated into the project. In addition, there were several T&E species located in this section of the river that required extensive coordination by the Design Team.

The construction of the project involved some techniques not used in the District before, such as a cooling system placed in the tremie concrete for the piers; constant coordination with environmental agencies due to T&E species; and issues with bridge demolition.

The project was let for construction in 2006 and completed in 2007. KCI Technologies, Inc. of Mechanicsburg, PA was the Design Consultant, and Brayman Construction, Inc. of Saxonburg, PA was the general contractor. The project cost was approximately \$16 million.

7. Emergency Design Build - This session will bring together the design and construction experiences of the Design Build Projects in District 12-0. Two contractors and their designer will discuss their perspectives of the Emergency Design Build Projects built in District 12-0.

- Troy Pritts, PennDOT District 12-0 Design Project Manager,
- Dave Fasiczka, PennDOT District 12-0 Structure Control Engineer

Additional presentations will be made by:

- Mark Blum, Vice President, Mingo Creek Construction; S.R. 0019 - B10 project.
- Tim Schoedel, Project Manager, and Rich Gregori, P.E. Owner, Gregori Construction & Engineering, Inc.; S.R. 3012-B10 and S.R. 0018- Y10 & Z10 projects.
- Eric Meyer, P.E., Structures Manager, Whitman, Requardt and Associates, LLP ; the Consultant Designers of the Contractors.

8. North Shore Connector Light Rail Transit Project – Drilled Shaft Construction and O-Cell Testing, Louis Ruzzi, P.E., PennDOT District 11-0 Bridge Engineer and Keith Chong, *DMJM Harris, Inc.*

This session focuses on the verification testing and construction of the Drilled Shafts used in the underpinning of the SR-65 Bridge for the North Shore Connector Tunnel construction. O-cell testing and Cross-hole-sonic logging were performed for these shafts. Design and detailing considerations will be examined in contrast with the field construction of the test shafts and the production shafts.

9. Curved Girder Erection Over I-79, Louis Ruzzi, P.E., PennDOT District 11-0 Bridge Engineer. This session will bring together experiences from design, fabrication and construction to identify best practices for the erection of horizontally curved girders. A case study for the design, fabrication and erection of the SR 0079 Section A23 (Missing Ramps) project will be presented. The case study consists of a seven

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span bridge (Ramp G) that included two separate units (one- three spans and one – four spans).

Additional Presentations will be made by the following individuals:

- David A Frey, P.E., Michael Baker Jr., Inc., – Design concerns for development of conceptual erection documents for curved steel girders
- Thomas Wandzilak, P.E., High Steel Structures, - Fabrication of horizontally curved steel girders
- James Au, P.E., Balfour Beatty Construction – Erection of curved girders with limited project access.

SEMINAR: INTEGRAL ABUTMENTS

Time: 8:00 AM-12:00 noon

Room: 402

This seminar will focus on proper detailing for integral abutment bridges and how they can best be utilized. It will also cover full-scale test results from several bridges to demonstrate the functionality of these structures.

Moderator:

- Bryan J. Spangler, P.E., Senior Technical Advisor, Michael Baker Jr., Inc.

Presenters:

- Harry L. White, P.E., New York Department of Transportation;
- William C. Koller, P.E., Pennsylvania Department of Transportation;
- Jeffrey Volz, P.E., Pennsylvania State University
- Vasant Mistry, P.E., Federal Highway Administration.

TRANSPORTATION RESEARCH BOARD (TRB) COMMITTEE AFF10 (2) BRIDGE AESTHETICS MID-YEAR MEETING

TIME: 1:00-5:00 PM

ROOM: 315

Moderator: Joe Showers, CH2MHill

The group whose function is, "To educate the profession on how to improve the appearance of bridges and other structures during design, construction and operation" will hold its mid year meeting to continue its work including discussion of the development of the, "Bridge Aesthetics Sourcebook" and Website (www.bridgeaesthetics.org). Speakers and topics are yet to be determined. All are welcome to attend.

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HISTORIC

Time: 1:30 – 3:45 PM

Room: 304/305

Chair: James Dwyer, *STV, Inc., Pittsburgh, PA*

IBC 08-85 1:30 PM

Rehabilitation of the Haverhill-Bath Covered Bridge - Construction Phase

Sean James, Hoyle, Tanner & Associates, Inc., Manchester, NH

The Haverhill-Bath Covered Bridge, the second oldest covered bridge in the US, is undergoing a much needed rehabilitation. This paper will focus on the construction of the project, including bidding such specialized work, funding vehicles, temporary shoring and unique construction challenges faced by the design team and contractor.

IBC 08-86 1:55 PM

London Bridge Did Not Fall Down But Some Bridges Do - Part 2

Charles Seim, Consulting Bridge Engineer, El Cerrito, CA

This Part 2 to, "Did London Bridge Fall Down?" (presented during the 2007 IBC), continues the discussion of bridges that collapsed and bridges that failed to meet a level of performance or someone's expectation. The paper will also present examples, not to place blame, but to learn how and why events controlled by well meaning professional can quickly go wrong.

IBC 08-87 2:20 PM

Climbing Inspection and Analysis of Historic Long-Span Truss

C. Michael Cooper, P.E., David A. Thurnherr, P.E., Jeremy C. Miles, PE, Bergman Associates, Rochester, NY; Peter Melewski, PE, Bergmann Associates, Albany, NY; Elias Boumis, McLaren Engineering Group, West Nyack, NY

The 6,768-foot long Poughkeepsie-Highland Railroad Bridge is proposed for re-use as an iconic State Park that will be the world's longest pedestrian bridge. An in-depth structural inspection consisting of industrial rope access climbing techniques and diving formed the basis of a subsequent structural analysis, including 3D modeling of the seven cantilevered deck truss spans over the Hudson River.

IBC 08-88 2:45 PM

Rehabilitation of the 19th Century King's Covered Bridge

Samer Petro, Gannett Fleming, Morgantown, WV

This paper describes the construction of the rehabilitation of the King's covered bridge. Our approach involved extending the arches to bear directly on the stone abutments; and using traditional 19th century timber joinery methods such as joggle joints to replace deteriorated members. In addition, epoxy adhesives and Glass Fiber Reinforced Polymer (GFRP) rebars and plates were used as splices and joints. The rehabilitation methods and techniques are conducted in accordance with the Secretary of the Interior Standards for Historic Preservation. Rehabilitation is underway and expected to be completed by December 2007.

WEDNESDAY, JUNE 4

IBC 08-89 3:10 PM

Stay Cables of the Luling Bridge are to be Replaced

Armin B. Mehrabi, Ph.D., P.E., Bridge Engineering Solutions, Lewiston, NY

The Hale Boggs Bridge in Luling, Louisiana opened to traffic on October 5, 1983. At the time, it was the first cable-stayed crossing over the Mississippi River and had the largest navigation channel span of its kind in the western hemisphere. This paper summarizes an ongoing evaluation and cable replacement design program initiated by the Louisiana Department of Transportation and Development (LADOTD) to address deficiencies reported for the stay cables.

REHABILITATION, PART 2

Time: 1:30 – 3:45 PM

Room: 301/302

Chair: Matthew A. Bunner, P.E., HDR, Inc., Pittsburgh, PA

IBC 08-90 1:30 PM

A Model to Measure Performance of Concrete Bridges Strengthened with FRP-Composite Structural Systems

Kenneth C. Crawford, Directorate of Civil Engineering, DOD - Air Force, Edwards AFB, CA,

FRP (fiber reinforced polymer) structural systems provide a means for economical and rapid repair of concrete bridges but long-term FRP durability and bridge performance are an open question. This paper presents a model to inspect and test FRP system durability assess deterioration factors, and measure performance of the FRP-strengthened bridges.

IBC 08-91 1:55 PM

Crack Repairs to a Fracture-Critical Cross-Girder on the I-476 Bridge over the Schuylkill River

*John Milius, P.E., DMJM Harris / AECOM, Philadelphia, PA;
Ian Hodgson, P.E., S.E., The ATLSS Center, Lehigh University, Bethlehem, PA*

Cracks were recently discovered in the web of a fracture-critical cross-girder on the I-476 Bridge over the Schuylkill River 12 miles west of Philadelphia. The cracks resulted from out-of-plane distortion of the web at the base of a connection plate. This paper illustrates the cause of the cracking, outlines the objectives of a field testing and retrofit design program, and presents the results of retrofit repairs and post-repair monitoring program.

IBC 08-92 2:20 PM

IBC 08-92 Details of the Re-profiling on a Major Bridge Between the US and Mexico: Reynosa Bridge

Robert Gulyas, BASF

This presentation shows the importance of proper techniques for overlaying a bridge deck under existing traffic conditions to provide a permanent rapid repair overlay—not for durability reasons—but for profile and deflection control. This system used a Rapid Hardening Repair material and a special type of epoxy bonding agent to complete the project in adverse high temperatures night time conditions. The initial repairs did not perform as expected—so there are some very good lessons to be learned from this major project.

WEDNESDAY, JUNE 4

IBC 08-93 2:45 PM

Rehabilitation of the Historic Elm Street Truss Bridge Using an Innovative Disassembly Construction Technique

Michael Marks, P.E., EIC Group LLC, Fairfield, NJ; Michael Seelman, PE, Ferreira Construction Company Inc, Branchburg, NJ; Scott Patterson, P.E., Acrow Corporation of America, Parsippany, NJ

This historic lenticular truss was rehabilitated by completely dismantling and then re-assembling utilizing an Acrow prefabricated bridge to temporarily support the structure during construction. Load was transferred to the Acrow by jacking hangers attached to the truss verticals. Load testing confirmed the re-assembled truss was carrying load as predicted.

IBC 08-94 3:10 PM

Design of the Suspender Rope Replacement at the Twin Arches Carrying I-87 over the Mohawk River, Albany, NY

Ramesh Panchalan, Ph.D., Michael Mangione, P.E., Chas. H. Sells, Inc., Briarcliff Manor, NY

After 47 years of service, the suspender strands that support the Thaddeus Kosciuszko Twin Arch Bridges carrying Interstate i-87 (North Bound and South Bound) between the towns of Colonie in Albany County and Halfmoon in Saratoga County required replacement. The arches with the suspender strands support the built up floor beams, rolled stringer sections and a reinforced deck. This paper will briefly discuss the material and detail alternatives that were evaluated for replacing the suspender strands and connection assemblies including various alternatives to temporarily support the floorbeam ends during strand replacement. The paper will also briefly discuss the strand replacement procedure, design criteria, construction staging, strand replacement sequencing, maintenance and protection of traffic and maintenance measures recommended to prevent future corrosion of the suspender strands.

SEISMIC

Time: 1:30 – 3:45 PM

Room: 406

Chair: Gary Runco, STV, Inc., Pittsburgh, PA

IBC 08-95 1:30 PM

An Overview of Current State of the Practice for Seismic Design & Retrofit of Bridges

W. Phil Yen, FHWA, Turner Fairbank Highway Research Center, McLean, VA; Jerome O'Connor, MCEER, University at Buffalo, Buffalo, NY

There have been many recent changes in the field of earthquake engineering for highway bridges as a result of lessons learned from past events, funded research, and the development of new performance driven design philosophy based on consensus of best practice here and abroad. This paper will summarize current state of the practice for bridge design and retrofit. Particular attention will be given to the applied research that MCEER's team has conducted for Federal Highway Administration over the past five years that has contributed to these changes. Topics addressed will include performance based design, loss estimation and system analysis of the highway network, seismic retrofitting of bridges and other highway structures, seismic isolation and other innovative technologies, liquefaction, soil remediation, etc.

WEDNESDAY, JUNE 4

IBC 08-96 1:55 PM

Seismic Designs of I-195 Relocation Bridges, Providence, RI
Yihui Wu, Ph.D., P.E., The Louis Berger Group, Needham, MA;
Patricia Steere, P.E., Maguire Group Inc., Providence, RI

16 new bridges were designed to replace the existing Rhode Island I-195 interchange, which includes steel network arch bridge, steel box girder curved spans, steel I girder curved span, pre-cast concrete span and rigid frame cast in place concrete spans supported on drilled shaft, driven pile and shallow foundations. Seismic design of these bridges for 2500 year return period earthquake, construction conflict and solution, and non-linear analysis are presented in this paper.

IBC 08-97 2:20 PM

Long Span Bridge Maintenance Program

Gilles Hovhannessian, Advitam, Velizy, France; Aris Vlamis-Stathopoulos, GEYFRA, Halandri, Greece

Most European bridges are built and operated by private companies within 30 to 70 year concession contracts. Comprehensive inspection & maintenance manual are put in place for every infrastructure to be operated by Vinci group. The paper will describe typical content of the manual and describe one particular application.

IBC 08-98 2:45 PM

Seismic Design of Partially Concrete-Filled Steel Box Bridge Piers

Iraj Mamaghani, University of North Dakota, Grand Forks, ND

The use of concrete-filled steel sections in structures generally leads to a more efficient and economic system for resisting seismic forces, because of their excellent seismic-resisting characteristics such as high ductility, improved strength and energy absorption capacity. This paper deals with the seismic design of partially concrete-filled steel box bridge piers. The seismic design concepts and some important characteristic parameters of thin-walled steel box bridge piers are presented. The main ideas underlying partially concrete-filled steel box columns are explained. A seismic design and an evaluation procedure accounting for the effects of residual stresses are presented.

IBC 08-99 3:10 PM

An Assessment of Damage to Peru's Highway System After the M8.0 Piseo Earthquake

Jerome S. O'Connor, MCEER, University at Buffalo, Buffalo, NY;
Lucero Mesa, South Carolina DOT, Columbia, SC; Monique A. Nykamp, P.E., Shannon & Wilson, Inc., Seattle, WA

The presentation will show how AASHTO designed structures fared and how the road system performed during this unusually long period earthquake. It will show details that worked well and others that failed. It will illustrate why geotechnical considerations are paramount, and the value of considering multiple hazards when designing and retrofitting bridges.

EXHIBITS

- Monday: 11:00 AM - 7:00 PM
- Tuesday 11:00 - 5:00 PM
- Wednesday 8:00 AM -1:30 PM

ACMA

BOOTH: 1 & 2

Contact: John P. Busel
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E-Mail: jbusel@acmanet.org
Website: www.acmanet.org

ACMA is the world's largest composites trade association and hosts the largest composites conference in North America. The ACMA Transportation Structures Council serves to inform and educate practitioners on FRP composites used in civil engineering / construction applications. Manufacturers products on display include structural profiles, bridge decks, pedestrian bridges, rebar, piling, and concrete repair/strengthening systems. More information at www.acmanet.org.

ACROW CORPORATION

BOOTH: 715 & 717

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E-Mail: sales@acrowusa.com
Website: www.acrowusa.com

Acrow is an industry leader in the design and manufacture of prefabricated modular steel bridges. Acrow's principal business is the engineering, manufacturing, and supply of Acrow Panel Bridges. We have been in business for over 50 years. Acrow is based in North America with representation in 35 countries. Visit <http://www.acrowusa.com>

ADVITAM, INC.

BOOTH: 617

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E-Mail: jsteib@advitam-group.com
Website: www.advitam-group.com

Advitam devotes itself to understanding the risks of deterioration for infrastructures and implements software solutions, inspection, maintenance and monitoring systems in order to ensure their durability and serviceability at lower cost. Advitam's activities include: research and development of innovative technologies, software development, on-site inspections, monitoring system integration and installation, measurements, risk and deterioration analysis, assessment of life-span, recommendations for repairs, maintenance and life-extension.

AGC CHEMICALS

BOOTH: 722

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E-Mail: kjones@agcchem.com
Website: www.agcchem.com

AGC Chemicals Americas manufactures, markets, and sells high quality fluoroproducts including Fluon® fluoropolymer resins and compounds and Asahiklin fluorinated solvents. Our company also markets and sells Lumiflon® fluoropolymer coatings, Asahi Guard® water and oil repellants, F-Clean® greenhouse films, Sunsphere® fine silica additives, and various fluorointermediates.

EXHIBITS

AMERICAN ARMINOX

BOOTH: 219

Contact: Torben Krebs
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Fax: 815-550-8908
E-Mail: sakes@arminox.com
Website: www.arminox.com

American Arminox is proud to introduce a new grade of Duplex steel. 1.4362 (UNS2304) is a well known grade in the flat products range, where it has successfully been used for many years. Its corrosion resistance, combined with superior tensile values makes it suitable for a range of applications in severe conditions. We are now introducing this grade as reinforcement. 1.4362/UNS2304 will replace 1.4436 (316) and 1.4462/UNS2205 in our standard manufacturing program.

AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS (AASHTO)

BOOTH: 24

Contact: Jose Aldayuz
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Phone: 202-624-3610
Fax: 202-624-5469
Web: www.transportation.org

The American Association of State Highway and Transportation Officials advocates transportation-related policies and provides technical services to support states in their efforts to efficiently and safely move people and goods.

AMERICAN BRIDGE MANUFACTURING

BOOTH: 506

Contact: Darko Jurkovic
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E-Mail: djurkovic@americanbridge.net
Website: www.americanbridge.net

American Bridge Manufacturing is a major supplier of fabricated structural steel and steel grid deck to the new bridge and bridge rehabilitation markets. Rapid delivery requirements are facilitated with in-house detailing capability and on-site painting. Recently fabricated new steel bridge structures include a variety of truss, arch, girder and beam bridges. Customers are served from plants located in Pennsylvania and Oregon.

AMERICAN GALVANIZERS ASSOCIATION

BOOTH: 406

Contact: John Krzywicki
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Fax: 720-554-0909
E-Mail: marketing@galvanizeit.org
Website: www.galvanizeit.org

Serving the needs of specifiers, architects, engineers, contractors, and fabricators throughout North America since 1935, the American Galvanizers Association (AGA) provides information on the most innovative applications and state-of-the-art technological developments in hot-dip galvanizing for corrosion protection. Created to educate and train in the specification and use of hot-dip galvanized steel, the AGA maintains a large technical library, distributes numerous industry publications, offers free educational seminars, and provides toll-free technical support to the specifying community.

EXHIBITS

AMERICAN IRON AND STEEL INSTITUTE

BOOTH: 34

Contact: David Dock
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E-Mail: ddock@steel.org
Website: www.steel.org

The AISI mission is to advance steel as the material of choice and to enhance the competitiveness of member companies and the North American steel industry. Our vision is a sustainable North American steel industry committed to manufacturing innovative products that answer society's needs.

AMSCOT STRUCTURAL PRODUCTS CORP.

BOOTH: 701

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Website: www.4amscot.com

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APPLIED FOUNDATION TESTING

BOOTH: 517

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E-Mail: lsmart@testpile.com
Website: www.testpile.com

Specializing in statnamic axial and lateral load testing, crosshole sonic logging (CSL), sonic integrity testing, video shaft inspection device, post grouted shafts, shaft inspection, dynamic pile testing, conventional load tests.

APPLIED GEOMECHANICS, INC.

BOOTH: 411

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Website: www.geomechanics.com

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ATEMA, INC.

BOOTH: 220

Contact: Dan Hoffman
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Website: www.atemainc.com

CHECK!!! Atema ia a quality consulting, assessment and training firm serving structural steel. The firm creates customized supplier certification programs to state or projects specific provisions assisting DOTs and engineering firms assess their supply chain. Atema also assists fabricators and erectors meet requirements of national certification programs like AISC, AWS, ISO.

EXHIBITS

AZTEC GALVANIZING SERVICES

BOOTH: 725

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Web: www.aztecgalvanizing.com

Aztec Galvanizing Services a division of AZZ, Inc. headquartered in Fort Worth, Texas owns and operates 20 hot dip galvanizing plants throughout the USA, with kettles ranging from 25' to 58' in length. With Aztec's network of plants, they are able to accommodate the largest projects with customized turnaround time at a competitive price. Aztec has implemented "Galvextra", their Nickel-Zinc alloy process providing the high quality standards necessary in the highly competitive after fabrication steel market.

B&B ROADWAY, LLC

BOOTH: 109

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B&B Roadway designs and manufactures automated traffic control barriers and gates and navigational signal lighting for fixed and movable bridges, including custom equipment.

BAR SPLICE PRODUCTS, INC.

BOOTH: 609

Contact: Gary Foster
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Website: www.barsplice.com

Manufacturer of mechanical splices for rebar.

BARNHART CRANE & RIGGING

BOOTH: 702

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Barnhart embodies the concept of "Mind over Matter"...Barnhart specializes in utilizing cutting edge technology to provide innovative, engineered, lifting and moving solutions for the bridge building industry. We truly believe in "Building it Big, Moving it Once". Like our clients, you too will benefit from Barnhart's innovative, cost saving ideas.

BASF CONSTRUCTION CHEMICALS

BOOTH: 608

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BASF Construction Chemicals – Building Systems is the leader in providing high performance joint sealants, adhesives, waterproofing membranes, concrete repair products, grouts, architectural coatings, traffic deck membranes, preformed expansion joints and fiber reinforced polymer composite strengthening systems and are often combined to form integrated, single-source systems to solve the most challenging bridge restoration projects.

EXHIBITS

BENDTEC, INC.

BOOTH: 12

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E-Mail: wendy@bendtec.com
Website: www.bendtec.com

BendTec, Inc is a LEADER in the bending, fabrication, design, and engineering of large and small piping & structural steel for structural & architectural applications. BendTec is AISC certified in compliance with Simple Steel and Major Steel Bridges, Fracture Critical Endorsement & Sophisticated Paint Coating Endorsement.

BENTLEY SYSTEMS

BOOTH: 401 & 403

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Web: www.bentley.com

Bentley is a global provider of collaborative software solutions for creating, managing and sharing architectural, engineering and construction (AEC) content. Bentley offers engineering software based on MicroStation®: GEOPAK® Rebar, concrete detailing/scheduling, GEOPAK Bridge, object-oriented 3D bridge design and Bentley® InRoads Bridge, geometric bridge modeling. Bentley also provides a range of professional services.

BIG R MANUFACTURING, LLC

BOOTH: 720

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BOSCHUNG AMERICA, LLC

BOOTH: 121

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BRAYMAN CONSTRUCTION CORPORATION BOOTH: 222

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BRIDGE DESIGN & ENGINEERING MAGAZINE BOOTH: 600

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The leading magazine for the international bridge industry. Every issue of Bd&e looks at the latest news, projects 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: 19

Contact: Mark Kaczinski
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E-Mail: bgfma@bgfma.org
Website: www.bgfma.org

BGFMA... this next generation Bridge Grid Flooring Manufacturers Association industry group features an expanded professional organization focused on the reliable development and application of bridge grid flooring and Exodermic™ decking. The role of the association is to promote the use of grid reinforced concrete bridge decks through data collection, research/development and education.

BRIDGE LOVERS PORTAL BOOTH: 37

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Web: www.bridgeloversportal.com

Bridge Lovers Portal sells 3D Commemorative Crystals of Bridges in various sizes. The crystal bridges can be customized for special events. Bridge Lovers Portal will donate a portion of the sale of crystals to local organizations in order to assist them in their beautification/preservation projects.

BRIDON BOOTH: 114

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E-Mail: structures@bridon.com
Website: www.bridon.com

Bridon specialises in providing architects and designers with cable solutions which enable the most ambitious designs to be realised. As aesthetics become increasingly important, Bridon has been leading the way by developing the stylite range of cable systems. Bridon cable systems combine a century of manufacturing experience, proven technological expertise and cutting edge design to provide the bridge industry with a complete range of products from ultra high strength bridge wire to full locked coil cable systems.

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BUREAU VERITAS

BOOTH: 202

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Website: www.us.bureauveritas.com

Bureau Veritas helps clients comply with standards and regulations relating to Quality, Health and Safety, Environment and Social Responsibility. We can assist with clients' Quality Assurance needs during manufacture, fabrication and erection of industrial materials, engineered products, machinery and civil structures. Bureau Veritas provides inspection, testing, auditing, certification and training.

BURGESS & NIPLE, INC.

BOOTH: 201

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E-Mail: rstokes@burnip.com
Website: www.burgessniple.com

Burgess & Niple is a long-standing leader in bridge engineering services. Our expertise includes design, inspection and structure health monitoring. We integrate technology and aesthetics to deliver high-quality, landmark bridges. As pioneers in applying rock-climbing techniques for hands-on, structural inspections, we have improved safety and saved our clients millions of dollars.

CAMPBELL SCIENTIFIC, INC.

BOOTH: 407

Contact: Ken Stevens
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E-Mail: kstevens@campbellsci.com
Website: www.campbellsci.com

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, rainflow histograms, real-time FFTs, and rugged reliability even in harsh, remote environments.

CARGILL - SAFELANE

BOOTH: 8

Contact: Tom Donnelly
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Fax: 573-657-0575
E-Mail: tom_donnelly@cargill.com
Web: www.cargill.com

SafeLane Surface Overlay system is a patented polymer pavement overlay that reduces ice or frost formation on its surface while protecting infrastructure from corrosion and chloride intrusion. A polymer epoxy is mixed with aggregate and applied to pavement surfaces. This aggregate has the unique ability to store deicing liquids and releases them when weather conditions demand it. The result is safer, more durable roads and bridges that are easier to maintain.

EXHIBITS

CAROLINA STALITE COMPANY

BOOTH: 111

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Phone: 704-637-1515
Fax: 704-642-1572
E-Mail: rcastrodale@stalite.com
Website: www.stalite.com

Stalite is a high performance lightweight aggregate manufactured by expanding slate in a rotary kiln at high temperatures. Lightweight concrete produced using Stalite has reduced density that improves structural efficiency and reduces handling costs for precast elements, enhanced durability and design compressive strengths of 10,000 psi or more.

CETCO CONSTRUCTION DRILLING PRODUCTS BOOTH: 23

Contact: Justin Seago
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E-Mail: justin.seago@cetco.com
Website: www.constructiondrilling.com

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CHASE CONSTRUCTION PRODUCTS

BOOTH: 703

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Website: www.chaseconstructionproducts.com

Chase Construction Products manufactures custom fabricated products to meet the construction industry's ever changing requirements for water, corrosion and wear protection. Chase is a technically supported and quality assured resource for waterproofing sealants, expansion joint systems and accessories. Our Capital Services, E-poxy Engineered Materials and Royston brands of innovative products have been specified for use on major projects in the transportation, industrial and architectural markets.

CHEMCO SYSTEMS

BOOTH: 7

Contact: John Bors
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Fax: 650-261-3799
E-Mail: bors@chemcosystems.com
Website: www.chemcosystems.com

Epoxy Asphalt by ChemCo Systems has a 35-year history as a bridge deck surfacing. Most common applications are: 1) as thin overlays (3/4 to 2 inch thickness) for a lightweight wear course and 2) as a paving surface for orthotropic steel decks where toughness and elastic composite behavior are critical.

EXHIBITS

CLODFELTER BRIDGE & STRUCTURES INT'L, INC. (CBSI)

BOOTH: 311 & 410

Contact: Jerry Clodfelter
Phone: 713-675-1180
Fax: 713-675-1140
E-Mail: sjett@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.

COGNE SPECIALTY STEEL

BOOTH: 25

Contact: Giulio Girivetto
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E-Mail: giulio.girivetto@cogne.com
Web: www.cogne.com

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COMPUTERS & STRUCTURES, INC.

BOOTH: 101 & 200

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Fax: 646-330-5471
E-Mail: info@csiberkeley.com
Web: www.csiberkeley.com

Software solutions for structural and earthquake engineering for bridges and other structures; bridge templates for generating bridge models, automated bridge live load analysis, design with influence lines at surfaces; segmental bridge construction analysis (including creep and shrinkage), post-tensioned concrete box girder design, cable supported/stayed bridge analysis, base isolation and pushover analysis features.

CONSOLIDATED SYSTEMS, INC.

BOOTH: 205

Contact: Jonathan Causey
Phone: 803-251-5034
Fax: 803-744-6287
E-Mail: jonathan.causey@csisteel.com
Website: www.csisteel.com

With 50 years of service to the construction industry, the Csi - Metal Dek Group™ designs and manufactures various Bridge Dek™ profiles that can accommodate design spans ranging from 18" to over 13'. Csi offers permanent forming systems that can be utilized in both non-aggressive and extremely aggressive environments. Csi sales, engineering, and project management personnel work collectively to provide Engineered Solutions™ for its customers.

EXHIBITS

CONTECH BRIDGE SOLUTIONS, INC.

BOOTH: 13

Contact: Shirley Cultice
Phone: 800-526-3999
Fax: 937-254-8365
E-Mail: cultices@contechbridge.com
Website: www.contechbridge.com

CONTECH Bridge Solutions offers a comprehensive line of vehicular and pedestrian bridge products to suit any application need. A variety of plate, precast and truss products include CONTECH Structural Plate, CON/SPAN Bridge System, the BEBO Arch System, Steadfast Bridges and Continental Bridge. More than 65,000 structures are installed worldwide.

CON-TECH SYSTEMS LTD

BOOTH: 723

Contact: Dan McLean
Phone: 613-342-0041
Fax: 613-342-0609
E-Mail: dan@contechsystems.com
Website: www.contechsystems.com

CONTECH Bridge Solutions offers a comprehensive line of vehicular and pedestrian bridge products to suit any application need. A variety of plate, precast and truss products include CONTECH Structural Plate, CON/SPAN Bridge System, the BEBO Arch System, Steadfast Bridges and Continental Bridge. More than 65,000 structures are installed worldwide.

CORRPRO COMPANIES, INC.

BOOTH: 17

Contact: Clem Firlotte
Phone: 330-723-5082, x407
Fax: 330-722-7606
E-Mail: cfirlotte@corrpro.com
Website: corrpro.com

Corrpro offers complete cathodic protection and coating services to protect your structures, whether steel or concrete, from corrosion.

CTLGROUP

BOOTH: 22

Contact: Adrian Ciolko
Phone: 800-522-2285, x3054
Fax: 847-965-6541
E-Mail: aciolko@CTLGroup.com
Web: www.ctlgroup.com

CTLGroup provides engineering, construction technology consulting, and testing solutions. Refined diagnostic tools and laboratory resources enable CTLGroup to: * Inspect, monitor, and assess the condition of structures* Design and specify methods to extend the life of structures* Test and enhance construction quality* Conduct failure and forensic analyses* Conceive and evaluate new construction products and systems.

CYRO / EVONIK INDUSTRIES

BOOTH: 710

Contact: Eric Humphries
E-Mail: eric.humphries@evonik.com
Phone: 207-490-4384
Fax: 860-873-8642
Web: www.paraglassoundstop.com

CYRO/Evonik Industries offers transparent PARAGLAS SOUNDSTOP Noise Barrier Sheet, the aesthetic solution for noise control. PARAGLAS SOUNDSTOP TL-4 System is a lightweight safety / noise barrier

EXHIBITS

system for bridges and elevated roadway applications. It has been successfully tested under NCHRP 350 Test Level 4 conditions and has been approved for use as an attachment to a crashworthy barrier by the FHWA. CYRO Industries is a wholly-owned subsidiary of Evonik Degussa Corporation.

D.S. BROWN COMPANY, THE**BOOTH: 6**

Contact: Bob Rose
Phone: 732-451-0070
Fax: 732-262-4443
E-Mail: brose@dsbrown.com
Web: 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), FRP (Fiber Reinforced Polymers) and Exodermic™ (composite, unfilled steel grid) Bridge Decks.

D'APPOLONIA**BOOTH: 206**

Contact: David Leitze
Phone: 412-856-9440
Fax: 412-856-9535
E-Mail: dcleitze@dappolonia.com
Website: www.dappolonia.com

D'Appolonia provides civil, geotechnical and environmental engineering analysis and design services for infrastructure and transportation systems. The firm's areas of specialization include foundations, earth retention and excavation support structures, slope stabilization, ground improvement, subsidence mitigation, dewatering, instrumentation, geophysical reconnaissance and LRFD training for highway bridge substructures.

DAWOOD ENGINEERING**BOOTH: 709**

Contact: Thomas C. Rowader, PE
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Fax: 717-469-0938
E-Mail: trowader@dawood.cc
Web: www.dawood.cc

Dawood is a multi-disciplined consulting firm offering services to the public and private setor including civil/municipal, structural, highway, geotechnical, environmental, surveying, land/site development, and planning services.

DAYTON SUPERIOR CORPORATION**BOOTH: 28**

Contact: Pamela Furneaux
Phone: 937-428-6360
Fax: 937-312-9381
E-Mail: pamelafurneaux@daytonsuperior.com
Web: www.daytonsuperior.com

Dayton Superior, concrete accessories for all your needs including Aztec composites and plastic rebar chairs, Bar-Lock mechanical couplers for rebar splices, The Taperlock System of tapered thread for rebar splicing, a full line of Pre-cast products, and construction chemicals.

EXHIBITS

DEANGELO BROTHERS, INC.

BOOTH: 604

Contact: Fred Grant
Phone: 570-459-5800
Fax: 570-459-5500
E-Mail: fgrant@dbiservices.com
Website: www.dbiservices.com

We are your resource for industrial service solutions for federal, state and local governments, DOT's, railroads and industries throughout North America. Our Cleaning Management services include bridge cleaning, street sweeping, graffiti removal, tunnel washing and high-pressure cleaning. We also provide total Asset Management for contracts which include multiple maintenance services.

DEERY AMERICAN CORPORATION

BOOTH: 414

Contact: Wally Smith
Phone: 800-227-4059
Fax: 970-858-3679
E-Mail: info@deeryamerican.com
Website: www.deeryamerican.com

Manufacturer and Distributor of the FlexAble Bridge Joint System, mastic deck repair products in black or gray, waterproofing membranes and crack and joint sealants.

DGI MENARD

BOOTH: 607

Contact:
Phone:
Fax:
E-Mail:
Website: www.dgi-menard.com

DGI-Menard is the US branch of Menard, an international ground improvement specialty contractor. DGI-Menard is affiliated with The Reinforced Earth Company, the inventor and market leader of the Mechanically Stabilized Earth retaining wall industry, and Freyssinet, specialists in prestressing, cable stayed structures and structural repair. The three companies form the Freyssinet Group, a division of VINCI Construction, one of the world's largest construction companies.

DMJM HARRIS

BOOTH: 210

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Phone: 412-395-8888
Fax: 412-395-8897
E-Mail: norma.rowley@dmjmharris.com
Website: www.dmjmharris.com

DMJM Harris is a full-service engineering firm with offices in Pittsburgh, Philadelphia, Horsham and Harrisburg, PA, as well as in 25 other states. DMJM Harris offers professional services in Highway Design, Structural Engineering, NBIS and Structural Inspection, Traffic Studies and Engineering, Planning, ITS Design, Electrified Railroad Design, Mass Transit Systems Design, Program Management, Construction Management and Construction Inspection. DMJM Harris is one of 14 operating companies of AECOM, and is responsible for AECOM's ranking as the #1 firm in Transportation on ENR's current list of the Top 500 Design Firms. AECOM is also ranked #1 by ENR among "Pure" Designers in the engineering industry.

EXHIBITS

DYNAMIC SURFACE APPLICATIONS

BOOTH: 15

Contact: Mike Stachowicz
Phone: 570-546-6041
Fax: 570-546-2415
E-Mail: mstachowicz@dsa-ltd.com
Website: www.dsa-ltd.com

Dynamic Surface Applications, Ltd (DSA) is the manufacturer of the Thorma-Joint® asphaltic plug joint system and the installer of a variety of maintenance and safety products including Thorma-Joint and the Imprint® surfacing system.

DYWIDAG-SYSTEMS INTERNATIONAL (DSI) BOOTH: 102

Contact: Dave Martin
Phone: 973-276-9222
Fax: 973-276-9292
E-Mail: dsiamerica@dsiamerica.com
Website: www.dywidag-systems.com

DSI will be exhibiting our range of Bar and Multi-Strand Posttensioning Systems together with information on Stay Cables.

EARTHQUAKE PROTECTION SYSTEMS BOOTH: 15A

Contact: Anoop Mokha
Phone: 707-644-5993
Fax: 707-644-5995
E-Mail: anoop@earthquakeprotection.com
Website: www.earthquakeprotection.com

CHECK!!! 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.

ENERPAC

BOOTH: 408

Contact: Roberta Moring
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Fax: 262-781-1089
E-Mail: roberta.moring@enerpac.com
Website: www.enerpac.com

Enerpac, the global leader in high force hydraulic solutions, is exhibiting integrated systems for bridge building and rehabilitation. Whether you are constructing a signature bridge across a deep valley or lifting a national landmark for seismic retrofit, we will supply the high-force hydraulic solutions you need. Enerpac's broad line of standard and customized products offers the benefits of safety and efficiency to applications where high forces are required to get the job done.

EPOXY INTEREST GROUP OF CRSI

BOOTH: 30

Contact: Scott Humphreys
E-Mail: info@crsi.org
Phone: 847-517-1200
Fax: 847-517-1206
Web: www.crsi.org

Established in 2007, The Epoxy Interest Group (EIG) was formed to promote the use and advance the quality of epoxy-coated reinforcing steel. A special interest group of the Concrete Reinforcing Steel Institute, the EIG produces materials to promote, educate and support the use of epoxy-coated rebar in concrete construction.

EXHIBITS

ERICO

BOOTH: 700

Contact: Lou Colarusso
Phone: 440-248-0100
Fax: 440-248-0723
Website: www.erico.com

ERICO is a leading designer, manufacturer and marketer of precision-engineered specialty metal products serving global niche product markets in a diverse range of electrical, construction, utility and rail applications. LENTCON: Rebar splicing systems and other reinforcing products utilized to connect steel reinforcement rods in concrete.

ERIKSSON TECHNOLOGIES, INC.

BOOTH: 501

Contact: Cathy Shoemaker
Phone: 813-989-3317
Fax: 813-989-0617
E-Mail: shoemaker@lrfd.com
Website: www.eriktech.com

Eriksson Technologies develops, markets, and supports bridge design software for the AASHTO LRFD and AASHTO Standard Specifications. Eriksson also offers technical training, engineering consulting services, and technical publications, and is the underwriter and maintainer of LRFD.com.

EUCLID CHEMICAL COMPANY, THE

BOOTH: 9

Contact: Steve Scarpinato
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Fax: 815-522-2323
E-Mail: sscarpinato@euclidchemical.com
Web: www.euclidchemical.com

The Euclid Chemical Company is a leading manufacturer of polymer bridge deck overlay systems, epoxy adhesives and coatings, concrete and masonry ad mixtures, curving and sealing compounds, cementitious and epoxy grouts, joint fillers and sealants, as well as a complete line of concrete repair and restoration materials. These products are available world wide.

FIGG ENGINEERING GROUP

BOOTH: 11

Contact: Linda Figg
Phone: 850-224-7400
Fax: 850-224-5428
E-Mail: lfigg@figgbridge.com
Website: www.figgbridge.com

The FIGG Team is exclusively focused on the design, construction engineering and inspection of major bridges across America, creating landmarks and enhancing communities in which those bridges are located. FIGG's Bridge Design Charette process encourages public involvement in the design, building consensus as participants vote for elements of the design. FIGG-designed bridges have been honored with 253 awards for aesthetics, innovation and efficiency. The FIGG Team's passion is creating bridges as art, through visions inspired by owners and communities.

EXHIBITS

FORT MILLER COMPANY, INC., THE

BOOTH: 516

Contact: Scott Harrigan
Phone: 518-695-5000
Fax: 518-695-4970
E-Mail: sharrigan@fmgroup.com
Website: www.fortmiller.com

The Fort Miller Co., Inc., a Northeastern United States Based precast concrete company, manufacturers a broad spectrum of precast concrete products for the transportation industry. This includes such bridge related products as precast concrete box culverts, both three and four sided, bridge deck panels, pier caps, parapets, piers and segmental box girders. It also includes concrete and steel composite products such as Precast Concrete Steel Composite Superstructure Units (formerly Inverset) and light-weight bolt-down Effideck units.

FREYSSINET, LLC

BOOTH: 605

Contact: Andrew Micklus
Phone: 703-378-2500
Fax: 703-378-2700
E-Mail: dmicklus@freyssinetusa.com
Website: www.freyssinetusa.com

Freyssinet, a world wide leader in specialty construction techniques, is well known for prestressing and stay cable expertise. Freyssinet Systems are state of the art offering reliable performance, high quality and adaptability for bridges, buildings, storage facilities & floating structures. Freyssinet also provides complete structural repair and upgrading services.

GEOTECHNICS, INC.

BOOTH: 402

Contact: Randy O'Rourke
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Fax: 412-823-8999
E-Mail: rorourke@geotechnics.net
Website: www.geotechnics.net

Geotechnics is an independent accredited laboratory that is nationally recognized for providing high quality geotechnical and geosynthetic testing services. Geotechnics has been accredited by The American Association of State Highway and Transportation Officials (AASHTO), The United States Army Corps of Engineers (COE) and The Geosynthetics Accreditation Institute-Laboratory Accreditation Program (GAI-LAP). Geotechnics also provides Dynamic Pile Testing with a Pile Driving Analyzer® (PDA) to quickly and confidently assess the capacity and integrity of driven piles. Geotechnics currently has operations in Pittsburgh, Pennsylvania and Raleigh, North Carolina.

GERDAU AMERISTEEL

BOOTH: 602

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Phone: 865-566-7946
Fax:
E-Mail: amarquardt@gerdauameristeel.com
Website: www.gerdauameristeel.com

Major steel producer in the United States. Also major fabricator and coating operations for concrete reinforcing steel in North America.

EXHIBITS

GREENMAN-PEDERSEN, INC./SG PINNEY & ASSOCS.

INSTRUMENT SALES, INC.

BOOTH: 302

Contact: Pat Marazzi
Phone: 772-337-3080
Fax: 772-337-0294
E-Mail: pmarazzi@gpinet.com
Website: www.sgpinstrumentsales.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. Provides many multi-discipline services to various industries. Instrument Sales, Inc. a GPI Company specializes in corrosion instruments and other equipment plus safety equipment. Underwater Engineering Services a GPI Company specializes in power plant maintenance and marine construction. Acquired in 2006 CCC&L a (new) GPI Company specializes in expert witness testimony, coating conditions survey, including a full service laboratory.

H2L2

BOOTH: 116

Contact: Tom Piotrowski
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Fax: 212-688-9899
E-Mail: tpiotrowski@h2l2.com
Website: www.h2l2.com

CHECK!! Since the design of the Benjamin Franklin Bridge in the early 1900's by founder Paul Phillippe Cret, H2L2 Architects/Planners, LLC has provided Bridge Design services for a comprehensive range of projects, most recently, the Frederick Douglas-Susan B. Anthony Memorial Bridge (Troup-Howell Bridge) in New York, and the Royal Park Bridge in Florida.

HARCON CORPORATION

BOOTH: 110

Contact: Harry Stoltzfus
Phone: 717-687-9294
Fax: 717-687-9296
E-Mail: harry@harconcorp.com
Website: www.harconcorp.com

Harcon Corporation provides bridge access equipment and rigging services to consultants performing bridge inspections and contractors performing bridge maintenance. Our focus is on eliminating lane closures. Since 1988 we've provided our services on thousands of structures all over the eastern half of the United States.

HARDESTY & HANOVER, LLP

BOOTH: 5

Contact: Hank Pokigo
Phone: 410-573-1999
Fax: 410-573-0650
E-Mail: hpokigo@hardesty-hanover.com
Website: www.hardesty-hanover.com

Hardesty & Hanover, a world renowned bridge engineering firm, boasts 120 years of experience in engineering enduring structures. From conceptual design through construction inspection, Hardesty & Hanover projects include major bridges, highways, expressways, and heavy movable structures. We offer clients great customer service and projects that end on-time and under budget.

EXHIBITS

HATCH MOTT MACDONALD

BOOTH: 405

Contact: Thomas J. Jaworski
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Fax: 973-379-8970
E-Mail: thomas.jaworski@hatchmott.com
Website: www.hatchmott.com

Hatch Mott MacDonald is an award winning full service consulting engineering firm offering public and private clients multi-disciplined expertise and comprehensive capabilities in planning, environmental assessments, studies and analysis, design, architecture, procurement, construction engineering and inspection, project, program and construction management and facility maintenance and operations in the fields of bridges, highways, rail/transit, tunnels, aviation/airports, water conveyance, wastewater/cso, environmental, gas pipelines, building and utilities. With roots that date back more than 100 years and a world-wide pool of nearly 10,000 employees to draw from, Hatch Mott MacDonald has earned a reputation for technical excellence, innovation and client responsiveness on some of the most prominent and challenging projects.

HIGH STEEL STRUCTURES, INC.

BOOTH: 27

Contact: Steven Bussanmas
Phone: 717-390-4270
Fax: 717-399-4102
E-Mail: sbussanmas@high.net
Web: www.highsteel.com

High Steel Structures has been delivering quality to its customers for over 75 years. Founded in 1931, High Steel is one of the largest fabricators of bridge structural steel in the United States, with more than one million tons of bridge steel fabricated over the past 20 years.

HILMAN ROLLERS

BOOTH: 204

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

Hilman Rollers are an essential component for bridge construction projects. Whether used in the casting yard, built into segment launching equipment, moving entire bridge spans, or placing large castings - whatever the heavy load moving task - Hilman Rollers are the right tool to get the job done quickly, efficiently, and safely.

HOUSTON STRUCTURES

BOOTH: 504

Contact: Mike Ulven
Phone: 503-651-3174
Fax: 503-651-1176
E-Mail: mikeu@ulvencompanies.com
Web: www.ulvencompanies.com

Houston Structures Incorporated is a supplier of specialty forged, cast, machined and fabricated structural support products for the infrastructure industry. Located in Oregon, Houston Structures products supplied include open and closed wire rope and strand sockets, wire rope and strand assemblies, open and closed bridge sockets, anchor sockets, turnbuckles, and specialized cable castings and forgings.

EXHIBITS

HRV CONFORMANCE VERIFICATION ASSOCIATES, INC.

BOOTH: 619

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

HRV provides a comprehensive range of services worldwide in material/construction inspection, including steel, concrete, coatings, mechanical, and electrical. Serving the public and private sector, HRV is a leader in quality assurance, engineering consulting and expediting for the bridge/highway, water/wastewater, power, pressure vessel and commercial construction markets.

HTNE HYDRODEMOLITION SERVICES

BOOTH: 19A

Contact: Edward Liberati
Phone: 614-850-1425
Fax: 614-850-1427
E-Mail: eliberati@hughesgrp.com
Website: www.hydro-technologies.com

Hydro-Technologies, Inc. is the most experienced hydrodemolition company in North America. Our expertise is the selective removal of reinforced concrete using computer-controlled "high pressure water jet" robots. Our company specializes in the rehabilitation of the following type's reinforced concrete structures: Bridges, Parking garages, Tunnels, Plants, Dams. We understand what is important to the Owners and Contractors. Bridge deck preservation is necessary to keep our nation's roadway system in service. We have developed the Fast Track Hydro-Demolition Bridge Deck Overlay Method™ which is used by many Highway Departments and Contractor's as the fastest and most economical construction method to repair and preserve bridge decks. The service life

INSPECTTECH

BOOTH: 16

Contact: Jeremy Shaffer
Phone: 412-681-1521
Fax: 412-682-3068
E-Mail: shaffer@InspectTech.com
Website: www.inspecttech.com

InspectTech provides easy to use software solutions that streamline the inspection process from onsite to back-office. The BridgeInspectT software suite can be quickly customized for each client and offers significant time-savings to inspectors and managers. The bridge inventory and management software includes cost estimates, GIS interface, full searching, custom reports, maintenance, and scheduling modules. The standalone inspection software significantly enhances the inspection process through customized forms with pick lists, coding manuals, and digital picture integration. InspectTech works with governments, private owners, and engineering consulting companies to meet their specific software needs.

EXHIBITS

IVS HYDRODEMOLITION SERVICES

BOOTH: 519

Contact: Ron Ferdig
Phone: 724-335-2829
Fax: 724-335-4756
E-Mail: ron.ferdig@ivsgroup.com
Web: www.ivsgroup.com

Providing the best hydrodemolition services in the nation.

KB INTERNATIONAL, LLC

BOOTH: 721

Contact: Kenneth Goodhue
Phone: 423-266-6964
Fax: 423-267-6749
E-Mail: jennifer@kb.tech.com
Website: www.kbtech.com

KB International provides unique patented earth stabilization fluids, excavation fluids or slurries, in-situ grouting products, and services to the foundation and geo-construction industry worldwide. Our technologies are utilized in bored piling (conventional and reverse circulation), diaphragm walls (grab and cutter) and tunneling. Customer support: pre-project consultation, project specific engineering solutions, onsite training and laboratory backup.

KCI TECHNOLOGIES, INC.

BOOTH: 704

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Fax: 717-691-3470
E-Mail: mmarso@kci.com
Website: www.kci.com

KCI Technologies, Inc. is ranked among the top consulting engineering firms in the country by Engineering News Record. The employee-owned, multidisciplinary engineering firm employs more than 750 people in 23 offices in eight states - Delaware, Florida, Maryland, North Carolina, Ohio, Pennsylvania, Virginia, West Virginia, and the District of Columbia.

KTA-TATOR, INC.

BOOTH: 20

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Fax: 412-788-1306
E-Mail: srice@kta.com
Website: www.kta.com

KTA-Tator, Inc. (KTA) is a consulting engineering firm founded in 1949. KTA provides steel fabrication inspection services, coating consulting and construction inspection services and distributes inspection and monitoring equipment. An independent and unbiased philosophy has permitted KTA to provide expert professional services to its clients for over 50 years. The KTA Steel Group is pleased to again be a sponsor of the IBC. KTA-Tator, Inc. congratulates IBC on its 25th Anniversary.

LARSA INC.

BOOTH: 500

Contact: Ali Karakaplan
Phone: 212-736-4326 x. 203
Fax: 631-206-3610
E-Mail: ali@larsaUSA.com
Website: www.larsausa.com

LARSA's flagship product, LARSA 2000/4th Dimension, brings two decades of experience in the structural analysis of bridges and

EXHIBITS

structures to the new millennium. Based on a rock-solid, truly 3D, nonlinear analysis engine, LARSA 2000/4D boasts staged construction analysis, tendons, influence-based live load analysis, time-dependent materials, dynamic analyses for earthquake analysis, and a completely new user interface with a lean learning curve. LARSA is located in New York and is partnered with Research Engineers (STAAD) offices worldwide to provide unbeatable support services.

LEHIGH UNIVERSITY - ATLSS RESEARCH CENTER

BOOTH: 207

Contact: Robert P. Alpago
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E-Mail: rpa2@lehigh.edu
Website: www.atlss.lehigh.edu

The Center for Advanced Technology for Large Structural Systems (ATLSS) was established in 1986, and is Lehigh's internationally respected center for engineering research and education addressing the civil and marine infrastructure for Pennsylvania and the nation. This mission includes Pennsylvania's bridge and highway structures, and the contributions of research, education and technology transfer to enhancing their design and performance. ATLSS has extensive experience in laboratory and field instrumentation, testing, and fatigue and strength evaluation of bridges.

LOADTEST, INC.

BOOTH: 502

Contact: John Hayes
Phone: 352-378-3717
Fax: 352-378-3934
E-Mail: info@loadtest.com
Website: www.loadtest.com

Loadtest Inc, specializes in deep foundation testing using the award-winning Osterberg Cell method. Loadtest offers Osterberg cell testing equipment, installation services as well as full planning and specification support, field load testing and analytical services

LUSAS

BOOTH: 203

Contact: Terry Cakebread
Phone: 1-800-97-LUSAS (ext. 1)
Fax: 212-295-2121
E-Mail: terry.cakebread@lusas.com
Web: 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. A vehicle load optimisation facility simplifies worst-case loading patterns. AASHTO and other design codes supported. Extensive results processing facilities are provided.

MABEY BRIDGE & SHORE, INC.

BOOTH: 621

Contact: Kevin Traynor
Phone: 1-800-426-2239
Fax: 410-379-2801
E-Mail: k.traynor@mabey.com
Web: www.mabey.com

CHECK! M.B.S.I. carries the broadest range of products available for bridging, shoring, propping, and temporary roadways. Our expert Engineering Staff provides P.E. Certified arrangements, and our

EXHIBITS

knowledgeable on-site support staff can answer your jobsite questions. Available for sale or rent worldwide, Mabey's prefabricated bridges are for temporary, permanent, and emergency use.

MARION HILL ASSOCIATES, INC.

BOOTH: 106

Contact: Jeffrey Thomas
Phone: 724-847-3390
Fax: 724-847-1798
E-Mail: jthomas@marionhilldivers.com
Website: www.marionhilldivers.com

CHECK!!! Marion Hill Associates, Inc. (MHA) specializes in commercial diving, and marine construction projects. MHA has worked throughout the United States since 1980 and has been involved extensively in the cooperative effort of divers, construction teams, and aquatic biologists providing quality service and performance in this highly specialized field. The MHA team routinely handles unique problems that are encountered in the underwater construction environment.

MATERIAL TECHNOLOGIES

BOOTH: 31

Contact: Marybeth Miceli
E-Mail: matech@matechcorp.com
Phone: 310-208-5589
Fax: 310-473-3177
Web: www.matechcorp.com

MATECH Corp develops metal fatigue measurement & monitoring technologies. MATECH's "Electrochemical Fatigue Sensor" (EFS) is an instrument that detects actively growing vs. dormant cracks, including effectiveness of crack repair in metal bridge components. It can monitor cracks of a few microns, exceeding competing detection-only technologies by ten times or more.

MCCLAIN & CO., INC.

BOOTH: 300

Contact: Daniel McClain
Phone: 540-423-1110
Fax: 540-423-1066
E-Mail: sales@mcclainandcompany.com
Website: www.mcclainandcompany.com

Underbridge Access Equipment Rentals, Truck Mounted Aerial Platforms & Certified Traffic Control. Over 35 units including A-75's, UB-60's, Mark IV Snoopers, UB-50's, Bridgemasters, variety of 40' Platform & Bucket Snoopers, UB-30 rail-mounting unit, small & large Moog Platforms ranging 24' - 70'. Hi-Reach & Bucket Trucks 27-90'. Certified Operators, innovative audio/visual system for added safety, ANSI certified units.

MDX SOFTWARE

BOOTH: 3

Contact: Chris Douty
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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.

EXHIBITS

MICHAEL BAKER JR., INC.**BOOTH: 21**

Contact: Jeffrey J. Campbell
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Fax: 412-375-3998
E-Mail: jcampbell@mbakercorp.com
Website: www.mbakercorp.com

At Baker, we take pride in designing and maintaining bridges both large and small. Our broadbased experience allows us to offer diverse services from design and design management of bridges, to bridge inspection and training, to developing specialty software. From steel to concrete, from cable-stayed to truss - Baker knows bridges.

MICHELMAN - CANCELLIERE IRON WORKS BOOTH: 318

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Phone: 610-837-9914
Fax: 610-837-7939
E-Mail: ericm@mcironworks.com
Website: www.mcironworks.com

Michelman-Cancelliere Iron Works, Inc. founded in 1992 is a structural steel fabrication and painting firm located in Bath, PA. near Bethlehem. Our location is strategically positioned at a major business hub on the Eastern Seaboard. Michelman-Cancelliere Iron Works provides their steel services for new and existing bridges and new and existing buildings.

MOFFATT & NICHOL**BOOTH: 10**

Contact: Michael Harris
Phone: 804-320-1996
Fax: 804-560-0959
E-Mail: mharris@moffatnichol.com
Web: www.moffatnichol.com

Moffatt & Nichol's structural capabilities encompass all aspects of highway and railroad bridge design including planning, inspections, widening, rehabilitation and final design of new structures. Specialty capabilities include navigation crossings, deep marine foundations, vessel collision analysis, pier protection systems, scour analysis, seismic analysis and retrofit, and security assessments.

MONOTUBE PILE CORPORATION**BOOTH: 103**

Contact: Scott Udelhoven
Phone: 330-454-6111
Fax: 330-454-1572
E-Mail: monotube@raex.com
Website: www.monotube.com

End-driven longitudinally fluted steel shell for friction bearing applications available in a variety of diameters and tapers with engineering support for your project needs.

MORETRENCH AMERICAN CORPORATION BOOTH: 107

Contact: Scott Stonecheck
Phone: 412-793-9303
Fax: 412-793-9313
E-Mail: ssonecheck@mtac.com
Website: www.moretrench.com

Moretrench specializes in construction dewatering; ground/water treatment; ground freezing; hydraulic barriers; earth retention systems; soil and rock stabilization; foundation support; specialized concrete construction; grouting; tiebacks; micropiles; soil nailing; and

EXHIBITS

underpinning. These services are available through full service offices in New Jersey, Florida, New York, Massachusetts, Pennsylvania, Delaware and Washibgton DC.

NATIONAL STEEL BRIDGE ALLIANCE

BOOTH: 611

Contact: Jody Lovsness
Phone: 402-758-9099
Fax: 402-778-9499
E-Mail: lovsness@nsbaweb.org
Website: www.steelbridges.org

The National Steel Bridge Alliance is organized and dedicated to better serve our customers and members with state-of-the-art design and construction of steel bridges. We are a unified industry organization of businesses and agencies interested in the development, promotion and construction of cost effective steel bridges.

NDT CORPORATION

BOOTH: 618

Contact: Paul Fisk
Phone: 508-754-0417
Fax: 508-754-0418
E-Mail: paul.fisk@ndtcorporation.com
Website: www.ndtcorporation.com

NDT Corporation provides nondestructive and geophysical testing services for civil engineering projects. Our experience includes over 400 projects throughout the United States and Caribbean. Geophysical methods are used to characterize soil and bedrock conditions for bridge scour, seismic retrofit and other foundation studies. Nondestructive testing methods are used to determine the condition of bridge decks, piers and abutments as well as assessing post tensioning ducts for grout voids.

NON-DESTRUCTIVE TESTING GROUP

BOOTH: 509

Contact: Michael Forbes
Phone: 616-891-3570
Fax: 616-891-3565
E-Mail: mforbes@ndtg.net
Website: www.ndtg.net

Non Destructive Testing Group provides bridge fabrication inspections for steel and concrete prestressed bridges, NDT inspections on existing bridges, and bridge paint inspections. NDTG has developed and performs a complete sign structure inspection program. NDT's mechanical laboratory provides weld procedure qualifications, bridge bearing pad testing, and numerous other testing services.

NORTHEAST WORK AND SAFETY BOATS

BOOTH: 36

Contact: Jack Casey
E-Mail: safetycasey@aol.com
Phone: 860-930-9897
Web: www.safetyboats.com

Our firm services include rescue, inspection, and work boats as well as work platforms (barges). We have over nine years of experience working on many large federally funded bridge inspection, construction and rehabilitation projects throughout the northeast. Our boats vary in size and are designed specifically to maximize performance on diverse waterways. All vessels are outfitted with the required safety equipment and certified personnel.

EXHIBITS

NRS-USA

BOOTH: 33

Contact: Jiri Pol
E-Mail: jiri-pol@nrs-usa.com
Phone: 305-776-7689
Web: www.nrsas.com

Bridge Construction Equipment, Design, Manufacturing, Construction Engineering and Related Services. Worldwide Locations.

NX INFRASTRUCTURE

BOOTH: 26

Contact: Seth Fischer
E-Mail: seth.fischer@nxinfrastructure.com
Phone: 847-606-3441
Web: www.nxinfrastructure.com

NX Infrastructure, providers of the most advanced stainless steel clad rebar with a carbon steel core for corrosion resistant infrastructure projects.

OLSON ENGINEERING, INC.

BOOTH: 606

Contact: Larry Olson
Phone: 303-423-1212
Fax: 303-423-6071
E-Mail: cathys@olsonengineering.com
Website: www.olsonengineering.com

Olson Engineering, Inc. has provided state of the art non-destructive testing and evaluation services since 1985. Our continuous involvement in the NDT industry has enabled us to offer our clients the full range of testing techniques in order to assess the internal condition of existing structures and roadways.

OSMOS-USA

BOOTH: 505

Contact: John F. Graham, Jr.
Phone: 412-835-0325
Fax: 412-835-1413
E-Mail: gcigraham@aol.com
Website:

Infrastructure Asset Management

OUTOKUMPU STAINLESS

BOOTH: 707

Contact: Elisabeth Torsner
Phone: 765-529-0120
E-Mail: Elisabeth.torsner@outokumpu.com
Web: www.outokumpu.com/stainless/na

Outokumpu is an international stainless steel company with a vision to be the undisputed number one in stainless. Our plate, pipe, coil, and bar (including reinforcement bar) stainless products — particularly in duplex stainless — are becoming the materials of choice for pedestrian, road, and highway bridge construction. Duplex grades of stainless are ideal for road and bridge construction because it combines many of the beneficial properties of ferritic and austenitic steels, offering high strength and high resistance to stress corrosion cracking along with very good resistance to uniform corrosion. Outokumpu stainless is featured in the world's tallest bridge (the Stonecutters Bridge), currently under construction in Hong Kong and in the Padre Arrupe Bridge, which leads pedestrians over the Nervion River to Bilbao, Spain's famous Frank Gehry-designed Guggenheim Museum.

EXHIBITS

PALMER ENGINEERING

BOOTH: 316

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

Palmer Engineering has served the public for over thirty years in the areas of highway and bridge design, surveying, land development, and environmental services.

PAXTON-MITCHELL COMPANY

BOOTH: 511

Contact: Mark A. Pfeffer
Phone: 402-345-6767 x128
Fax: 402-345-6772
E-Mail: mpfeffer@paxton-mitchell.com
Website: www.paxton-mitchell.com

Manufacturer of the Snooper® Bridge Inspection and Maintenance Crane. Snooper®, the most widely used bridge inspection crane in the world, is capable of under bridge reaches from 30' to 60' and available in basket, platform, or combination configurations.

PENNONI ASSOCIATES INC.

BOOTH: 711

Contact: Jennifer Laning
Phone: 302-655-4451 x3629
Fax: 302-654-2895
E-Mail: jlaning@pennoni.com
Website: www.pennoni.com

Pennoni Associates is a multi-disciplined consulting engineering firm with 21 offices throughout the eastern United States. Pennoni, ranked as a best place to work in PA and NJ, offers services in Transportation, Underwater Inspection, Civil/Municipal, Environmental, Inspection and Testing, Surveying, Site Design and Landscape Architecture, MEP, Geotechnical and Structural Engineering.

PHOENIX NATIONAL LABORATORIES, INC. BOOTH: 616

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

Phoenix National Laboratories is an independent third party lab specializing in the testing of elastomeric bridge bearings. We test to the latest AASHTO and State specifications including Standard Specifications, LRFD, and M251. All test results are reviewed and stamped by a registered Professional Engineer.

PHYSICAL ACOUSTICS CORP.

BOOTH: 32

Contact: Richard Gostautas
E-Mail: sales@pac.ndt.com
Phone: 609-716-4000
Fax: 609-716-4179
Web: www.pacndt.com

Physical Acoustics Corporation (PAC) designs and manufactures acoustic emission sensors and acoustic emission measurement instruments under a quality program which is certified to ISO-9001 standards. Acoustic emission research is offered at the advanced basic level, with the company currently active on several commercial industrial and government applied research contracts. PAC's REACT

EXHIBITS

division is collaborating with universities and industry for advancing AE sensor technology. Our acoustic emission training and personnel certification program is respected worldwide.

PICKERING, CORTS & SUMMERSON, INC.

BOOTH: 705

Contact: John C. Wilhelm, PE
Phone: 609-737-2033
Fax: 609-737-7306
E-Mail: jwilhelm@pcs-inc.biz
Website: www.pcs-inc.biz

One of the region's leading engineering firms, Pickering Corts & Summerson, Inc. provides comprehensive engineering services from our headquarters in Newtown, PA, and three regional offices in West Trenton, NJ; Plymouth Meeting, PA; and Center Valley, PA. Thriving on a 90-year tradition of excellence, PCS maintains award-winning practices in Civil Engineering, Municipal Engineering, Landscape Architecture, Transportation Design, Land Surveying, Bridge Inspection, and Underwater Bridge Inspection. A recognized leader in bridge design and inspection, PC&S has inspected thousands of bridges in New Jersey and Pennsylvania, including many of the largest, most complex structures in the region. PC&S underwater inspection teams include professional, commercially-certified, divers and employ cutting-edge underwater imaging equipment.

PIERESEARCH

BOOTH: 123

Contact: Stan Agee
E-Mail: stanagee@piereseach.com
Phone: 817-265-0980
Fax: 817-275-2335
Web: www.piereseach.com

Piereseach manufactures concrete pier accessories, Centraligner pier sleds, Hijacker pier bolsters, Snapaligner pier wheels, and Bar Boosters, whose sole purpose is to keep a reinforcing steel cage centered and off of the floor of the drilled shaft.

PORTLAND CEMENT ASSOCIATION

BOOTH: 304

Contact: Dave Bilow
Phone: 847-972-9100
Fax: 847-972-9101
E-Mail: sbhide@cement.org
Website: www.cement.org

Where cement and concrete are concerned, so is the Portland Cement Association: in manufacturing, in raising the quality of construction, in improving our product and its uses, in contributing to a better environment. In practice, this mandate means well-rounded programs of market development, education, research, technical services, and government affairs on behalf of PCA members-cement companies in the United States and Canada.

EXHIBITS

POWER TEAM

BOOTH: 716

Contact: Rick Swansbro
Phone: 815-873-3720
Fax: 815-873-3391
E-Mail: rick.swansbro@fluidpower.spx.com
Website: www.powerteam.com

POWER TEAM is a world leader in hydraulic special service tools and 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.

PRECAST / PRESTRESSED CONCRETE INSTITUTE (PCI)

BOOTH: 303

Contact: John Dick
Phone: 312-786-0300
Fax: 312-786-0353
E-Mail: j.dick@pci.org
Website: www.pci.org

PCI is a unique association of producers, suppliers and professionals. It is dedicated to fostering greater understanding of the design and use of precast and prestressed concrete. It also encourages and recognizes excellence in the manufacture and use of these materials. Our professional members guide the Institute's efforts in product innovation, new technology adaptation, design methods development, training and quality assurance.

PRESTRESSED CONCRETE ASSOCIATION OF PENNSYLVANIA

BOOTH: 301

Contact: Heinrich O. Bonstedt
Phone: 610-395-2338
Fax: 610-395-8478
E-Mail: bonstedt@pcap.org
Website: www.pcap.org

The Prestressed Concrete Association of Pennsylvania is a non-profit industry organization of prestressed concrete bridge beam manufacturers approved by the Pennsylvania Department of Transportation as a material source and located in the Commonwealth of Pennsylvania.

PROTO MANUFACTURING, INC.

BOOTH: 706

Contact: Michael Brauss
Phone: 313-887-9583
Fax: 734-485-5732
E-Mail: proto@protoxrd.com
Website: www.protoxrd.com

Proto Manufacturing provides both measurement services and equipment for measured dead load stress and load path in bridges and structures. Proto's leading edge x-ray diffraction (XRD) technology is portable, cost effective and provided the necessary data for making informed decisions about the health of bridges and structures.

EXHIBITS

PURE TECHNOLOGIES

BOOTH: 108

Contact: Michael Higgins
Phone: 443-766-7873
Fax: 443-766-7877
E-Mail: mike.higgins@soundprint.com
Website: www.soundprint.com

Pure Technologies is a consulting company that focuses on non-destructive testing, structural monitoring, and evaluation of highway bridges. They specialize in structural monitoring and evaluation of cable supported bridges. In addition, they utilize the SoundPrint and CableScan non-destructive services to provide information on the condition structural cables.

Q.B. ASSOCIATES, INC.

BOOTH: 417

Contact: Neil Brown
Phone: 207-743-8885
Fax: 207-743-0598
E-Mail: neil@spg-antirock.com
Website: www.spg-antirock.com

Antirock has been protecting bridge decks world wide since 1976 with it's first installation still in place 30 years later. The bond created between the bridge deck and Antirock is unsurpassed by any waterproofing product in use today.

R.J. WATSON, INC.

BOOTH: 14

Contact: Marc Stafford
Phone: 716-691-3301
Fax: 716-691-3305
E-Mail: mstafford@rjwatson.com
Website: www.rjwatson.com

R.J. Watson, Inc. specializes in the design manufacture and testing of high load multirotational bearings, seismic isolation devices, joint sealing systems, waterproofing membranes and high strength fiber composite materials used to strengthen and rehabilitate structural members such as columns, beams, walls, piles, girders and slabs. In addition, R.J. Watson is now involved in the design and supply of FRP bridge deck and girder systems.

RAMPART HYDRO SERVICES

BOOTH: 601

Contact: Beth Newbold
Phone: 412-262-4511
Fax: 412-262-6188
E-Mail: bnewbold@rampart-hydro.com
Website: www.rampart-hydro.com

Rampart is the world leader in ultra-high pressure (UHP) Hydrodemolition and HydroCleaning. Ultra high pressure Hydrodemolition uses less water; is environmentally friendly; provides a superior bond; and is fast and cost effective. Rampart has used Hydrodemolition on bridge surfaces and substructures, dams, tunnels, and parking garages. Rampart now offers complete vacuum cleanup of the water and debris creating Dry Hydrodemolition. We look forward to helping you with your demanding projects.

EXHIBITS

REINFORCED EARTH COMPANY, THE

BOOTH: 603

Contact: Alicia Olson
Phone: 703-821-1175 x270
Fax: 703-821-1815
E-Mail: aolson@reinforcedearth.com
Website: www.reinforcedearth.com

The Reinforced Earth Company is a world leader in the design and supply of proprietary retaining wall system and earth-related technologies. Recognized as the supplier to some of our nation's largest highway construction projects, working as a subcontractor/material supplier on Department of Transportation and privately owned projects, we perform all duties associated with our jobs from sales, marketing, engineering, design, supply and construction assistance.

RJD INDUSTRIES, INC.

BOOTH: 416

Contact: Randall Decker
Phone: 949-582-0191
Fax: 949-582-0995
E-Mail: r-decker@pacbell.net
Website: www.rjdindustries.com

Manufacturer of products that avoid corrosion in concrete: SuperTie, fiberglass formtie systems; SpliceSeal, concrete reinforcement protection system; and FiberDowel, corrosion proof joint restraint system.

ROADS & BRIDGES MAGAZINE

BOOTH: 209

Contact: Rick Schwer
Phone: 847-391-1000
Fax: 847-390-0408
E-Mail: rschwer@sgcmail.com
Website: www.roadsbridges.com

As the leading monthly trade publication for the transportation construction market, Roads & Bridges Magazine reaches over 60,000 engineers, contractors, DOT and other public officials (local, county, state & federal). Our readers design, build and maintain the roads, highways, bridges, and viaducts across the US and Canada.

ROCTEST, LTD

BOOTH: 708

Contact: Jean Archaubault
Phone: 450-465-1113
Fax: 450-465-1938
E-Mail: jarchaubault@roctest.com
Website: www.roctest.com

Roctest/Smartec designs and manufactures a complete line of fiber-optic and vibrating wire instruments, as well as data acquisition systems essential in assessing the stability and potential risks of failure of bridges. Services also include installation, training, maintenance, and system integration

ROLAND KULLA

BOOTH: 124

Contact: Roland Kulla
Phone: 773-497-2549
E-Mail: kulla@ameritech.net
Website: www.rolandkulla.com

CHECK! Roland Kulla is a full time, professional artist who uses bridges as his primary subject matter. In the past ten years he has completed more than 100 large scale paintings of bridges in Chicago, New York City, Boston and Pittsburgh. He also does pencil drawings, woodcut prints, and lithographs.

EXHIBITS

SALIT SPECIALTY REBAR

BOOTH: 306

Contact: Kevin Cornell
Phone: 716-299-1990
Fax: 716-299-1993
E-Mail: kcornell@stainlessrebar.com
Website: www.stainlessrebar.com

Salit Specialty Rebar (SSR) is North America's stainless rebar specialist. At SSR we offer shipping across North America, fabricated rebar, dedicated equipment, on time delivery, cut to length, and shrink wrapped to avoid contamination. SSR offers all sizes in both metric and Imperial from our vast inventory.

SAS SUITE. LLC

BOOTH: 118

Contact: Lubin Gao
Phone: 443-280-3155
Fax: 703-644-9360
E-Mail: lgao@sassuite.com
Website: www.sassuite.com

SAS Suite is a progressive company dedicated to delivering software solutions to bridge engineers. Its flagship SNAPBridge™ Suite is a powerful and easy-to-use software for analysis and design of bridges. Bringing cutting-edge software technology and extensive bridge design expertise to customers, SAS Suite ensures that every solution meets specific requirements.

SCOUGAL RUBBER, CORP.

BOOTH: 719

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.

SEISMIC ENERGY PRODUCTS, L.P.

BOOTH: 211

Contact: Steve Bowman
Phone: 903-677-4318
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.

SHERWIN-WILLIAMS COMPANY

BOOTH: 510

Contact: Customer Service
Phone: 800-524-5979
Fax: 440-826-1989
E-Mail: sherwin@ultlead.com
Web: www.sherwin-williams.com/im

Sherwin-Williams Industrial and Marine Coatings group serves North America with a broad line of high-performance coatings, comprehensive technical service and the industry's largest distribution system. We can assist in product specification, corrosion control and development of maintenance programs that can add years to the service lives of bridge and highway applications.

EXHIBITS

SIKA CORPORATION

BOOTH: 4

Contact: David White
Phone: 201-933-8800 x4278
Fax: 201-933-6225
E-Mail: white.dave@sika-corp.com
Website: www.sikaconstruction.com.

Sika Corporation Construction Products Division, Lyndhurst NJ, is a technology leader with over 90 years of experience in concrete materials and restoration technology. Sika's product line includes concrete admixtures, sealants, adhesives, total corrosion management products, specialty mortars, epoxy resins, structural strengthening systems, grouts, anchoring adhesives, overlays, and protective coatings. Full Service sales and technical offices support customers nationwide.

SILICA FUME ASSOCIATION

BOOTH: 307

Contact: Tony Kojundic
Phone: 800-433-0535 x4
Fax: 412-299-7236
E-Mail: tony@silicafume.org
Website: www.silicafume.org

The Silica Fume Association, through a cooperative agreement with the FHWA, provides high-performance concrete technology transfer to transportation departments and the design community.

SOFIS COMPANY, INC.

BOOTH: 415

Contact: William Sofis
Phone: 724-378-2670
Fax: 724-378-3719
E-Mail: wsosis@sofiscompany.com
Website: www.sosiscompany.com

Sofis Co., Inc. has been a DOT prequalified General Contractor for over 45 years. We have earned a reputation for knowledge and respectability specializing in Bridge Repair, Inspection and Support Services. Supplying top of the line Snoopers, Cable Rigging, Traffic Control and all related services; with an exemplary safety record.

SOUND FIGHTER SYSTEMS, LLC

BOOTH: 217

Contact: Patrick Harrison
Phone: 318-861-6640
Fax: 318-865-7373
E-Mail: mstacy@soundfighter.com
Website: www.soundfighter.com

Sound Fighter® Systems (SFS) has been designing, engineering and manufacturing highly-effective absorptive sound walls since 1973 making us the oldest established manufacturer of absorptive noise barrier wall systems in America. Our LSE Wall System has been the go-to noise abatement tool of DOT's, Acoustic Engineers & Consultants, Developers, Architects, Oil & Gas Companies and Contractors around the world in countless different applications.

SPI DOT GROUP

BOOTH: 104

Contact: Sandra Hubbert
Phone: 843-554-6496
Fax: 843-554-6498
E-Mail: johnbgrey@aol.com
Website: www.spicoatings.com

SPI introduces Rust Grip, a one-coat paint system designed to be applied directly over existing, firmly bonded, lead based paint or rust.

EXHIBITS

Since the greatest expense in the coating process comes from surface preparation and the containment and disposal of that residue, Rust Grip will reduce overall project costs.

SPLICE SLEEVE NORTH AMERICA, INC.

BOOTH: 305

Contact: Stan Kunoki
Phone: 949-861-8393
Fax: 949-861-8419
E-Mail: ssnask@msn.com
Website: www.splicesleeve.com

Splice Sleeve North America markets the NMB Splice-Sleeve System, a grouted coupler for rebar used primarily to connect precast concrete elements like bridge piers and abutments, sound walls and retaining walls. Couplers exceed the requirements of AC-318 and AASHTO for type 2 performance. Also rated 18-KSI in NCHRP 10-35 fatigue test.

SSI

BOOTH: 218

Contact: Scott Fowler
Phone: 918-587-5567
Fax: 918-586-4910
E-Mail: scott.fowler@ssicm.com
Website: www.ssicm.com

Serving the companies that have been building america since 1969. SSI offers contractors and owners innovative products for new and remedial construction.

STIRLING LLOYD PRODUCTS, INC.

BOOTH: 514

Contact: Simon Greensted
Phone: 860-666-5008
Fax: 860-666-5106
E-Mail: northamerica@stirlinglloyd.com
Website: www.stirlinglloyd.com

'Eliminator' is the world's most widely-specified sprayed bridge deck waterproofing system, for highways with asphalt overlay and railroads without protection board. Over 75 million square feet and 5,000 bridges have been protected worldwide, installed and operating in every climatic condition. Very high performance anti-skid systems and polymer concrete overlays are also offered.

STRAININSTALL UK, LTD

BOOTH: 623

Contact: Matthew Anderson
Phone: 44-1761-414939
Fax: 44-1761-416655
E-Mail: m.anderson@straininstall.com
Website: www.straininstall.com

Using state-of-the-art instrumentation and monitoring techniques, our systems provide critical data about problem structures. Information delivered includes comprehensive static or dynamic load test data, in-situ live and dead load stresses, and structural health. We also apply CrackFirst, a fatigue sensor for welded joints that provides advanced warning of the rate at which design life is being consumed.

STRAND 7 PTY, LTD

BOOTH: 18A

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

Strand7's fully-integrated visual environment - combined with a suite of powerful solvers - gives you unparalleled functionality in a

EXHIBITS

single application. Construct models, run analyses and investigate results simultaneously using a seamless interface.

STRUCTURAL BRIDGES

BOOTH: 718

Contact: Dominique Tetreault
Phone: 418-683-2561
Fax: 418-688-8512
E-Mail: dominique.tetreault@canam.ws
Web: www.structalbridges.ws

Structal-Bridges is the Canadian leading manufacturer of steel bridges, structural bearings and expansion joints for the highway, railway and forestry industries. With an annual production capacity of 52,000 tons, Structal-Bridges is recognized for the quality of its products and the reliability of its service.

STRUCTURAL INTEGRITY SYSTEMS, LLC

BOOTH: 507

Contact: Monica Svaty
Phone: 316-634-1396
Fax: 316-631-2295
E-Mail: sisllc@southwind.net
Website: www.structuralintegritysys.com

Structural Integrity Systems, LLC (SIS) provides patented electronic wireless sensor solutions for In-situ bridge evaluation. SIS has the ability to provide NBIS reports and complete bridge engineering solutions for rehabilitation at a significant cost savings.

T - WALL RETAINING WALL SYSTEM

BOOTH: 404

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

The Neel Company provides complete engineering support to owners, consultants and contractors for the T-Wall Retaining Wall System. The DOT approved design, comprising of units with a monolithic precast reinforced concrete face and perpendicular stem, is backfilled with a select fill and no additional soil reinforcements. Also available to meet railroad loading. Contact The Neel Company directly for pricing or design assistance.

TERMARUST TECHNOLOGIES

BOOTH: 310

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

Termarust Technologies manufactures cost effective, high performance anti-corrosive coatings for steel/metal structures. The Termarust® RAVCS® High Ratio Calcium Sulfonate system stops the corrosion process specifically in crevice corroded and pack rust joints and connections and is ideal for flexible steel structures like bridges, towers, cables, high mast light poles, etc.

EXHIBITS

THYSSENKRUPP SAFWAY, INC.

BOOTH: 120 & 122

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.

TNO DIANA NORTH AMERICA

BOOTH: 409

Contact: David Begg
Phone: +44 (0) 1483 242439
Fax: +44 (0) 1483 206951
E-Mail: d.begg@tnodiana.com
Website: www.midas-diana.com

TNO DIANA and MIDAS IT have entered into a strategic alliance. Both companies have successful histories of developing Finite Element Analysis (FEA) software. Many structures around the world have been analyzed and designed using their products. In the alliance, TNO Diana and MIDAS IT are cooperating in technical areas based on the strengths of both companies. Extending the technologies of each company will result in new advanced analysis programs. The state of the art Pre- and Post-processor, MIDAS/FX+ will be integrated with DIANA. TNO DIANA will also become the distributor of co-developed products and MIDAS bridge design and geotechnical engineering products in Europe and the US.

TRANSPON INDUSTRIES INC.

BOOTH: 216

Contact: John Karlson
Phone: 914-636-1000
Fax: 914-636-1282
E-Mail: jkarlson@transpo.com
Website: www.transpo.com

Transpo manufactures Polymer Concrete for repairing and preserving concrete structures and HMWM for sealing cracked concrete. Our Thin (1/8"-1/2") Polymer Concrete Overlay Systems have been used on Concrete, Steel and FRP bridge decks throughout the US and Canada. Transpo's Castek Division precasts Polymer Concrete Safety Barrier Panels that are available in Jersey and F shapes, Flat single slope, and custom designs for bridge railing stay-in-place forms.

TRANSYSTEMS

BOOTH: 18

Contact: Melissa Bertoli
Phone: 212-244-1600
E-Mail: mabertoli@transystems.com
Web: www.transystems.com

TranSystems is comprised of more than 1,100 professionals in 36 offices throughout the U.S. Professionals who are committed to providing clients in all modes of transportation architecture, engineering, planning, real estate, security, and management consulting services. TranSystems believes no industry impacts the quality of everyday life, and the success of business, more than transportation. The way we see it, bridges, highways, ships, warehouses, hangars, and ports are

EXHIBITS

more than concrete and steel. We envision them as a living entity; a vast circulatory system designed not only to be utilized, but also to inspire and energize the people it serves.

TRC

BOOTH: 119

Contact: Terry Maechler
Phone: 916-366-0632
Fax: 916-366-1521
E-Mail: tmaechler@trcsolutions.com
Website: www.trcsolutions.com

CHECK!! TRC provides engineering services in support of the transportation and bridge industries with proven excellence in federal, state and local agency projects. Another service TRC provides is the selling, supporting and maintaining of multiple engineering design programs through IMBSEN Software Systems.

TRICON PRECAST, LTD.

BOOTH: 308

Contact: Robert May
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Fax: 281-931-0061
E-Mail: rmay@triconprecast.com
Website: www.triconprecast.com

An industry leading precast concrete manufacturer headquartered in Houston, Texas, Tricon Precast Ltd. Provides innovative engineered MSE wall and bridge systems throughout North America. Products include; Retained Soil Wall System, Redi-Span Bridge System, Con-Struct Prefabricated Bridge System, Temporary Wire Wall System, Sound Wall System and Traffic Barriers. Product Licenses Available.

TRINITY HIGHWAY PRODUCTS, LLC

BOOTH: 29

Contact: Gwendolyn Samuels
Phone: 330-539-7305
Fax: 330-545-3718
E-Mail: gwen.samuels@trin.net
Web: www.highwayguardrail.com

Trinity Highway Products, LLC., headquartered in Dallas, Texas, is a leading manufacturer of highway guardrail, highway guardrail end treatments, temporary and permanent crash cushions, truck-mounted attenuators, and cable barrier systems. Offering a full line of standard and proprietary products, Trinity Highway Products is a recognized innovator of highway safety products. Trinity Highway Products manufactures products that have been tested, approved, and accepted as meeting established federal and state safety guidelines.

UNITEX

BOOTH: 105

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Phone: 947-747-2907
Fax: 401-294-5851
E-Mail: steve@unitex.chemicals.com
Website: www.unitex.chemicals.com

CHECK!!! Unitex creates and manufactures products for the repair and protection of concrete, including epoxies, epoxy machine grouts, low modulus repair mortars, injection epoxies, and NSF - certified and Green - Spec listed products. Unitex also provides onsite technical support and product application training.

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VECTOR CORROSION TECHNOLOGIES

BOOTH: 117

Contact: Chris Ball
Phone: 813-830-7566
Fax: 813-830-7565
E-Mail: chrisb@vector-corrosion.com
Website: www.vector-corrosion.com

Vector offers a portfolio of solutions for concrete corrosion repair and protection. Innovative solutions include electrochemical chloride extraction, cathodic protection, and an array of galvanic protection systems, including embedded galvanic anodes, galvanic jackets, and activated arc-spray zinc metalizing. Vector also provides evaluation, repair and mitigation services for post-tension corrosion and temperature resistant composite strengthening systems.

VIATHOR, INC.

BOOTH: 208

Contact: Clark Verkler
Phone: 916-987-0246
Fax: 916-987-0248
E-Mail: cww@viathor.com
Website: www.viathor.com

Viathor, Inc. is dedicated to the development of top quality, user friendly, bridge design and analysis software. Our flagship software, Vbent, is a fully interactive, all-in-one bridge substructure program for designing pier caps, columns and footings in integral (monolithic) and non-integral piers.

VSL

BOOTH: 508

Contact: Bonnie Pilkington
Phone: 410-850-7000
Fax: 410-850-4111
E-Mail: bpilkington@structural.net
Website: www.vsl.net

A leader in innovative technology and proven systems for post-tensioned structures, VSL is regarded worldwide as a multi-disciplined bridge partner. VSL's team of highly trained bridge specialists provide contractors and engineers with design support, construction systems and services for new and existing segmental, cast-in-place and stay cable bridges.

W.J. CASTLE ASSOCIATES

BOOTH: 35

Contact: William J. Castle
Phone: 609-261-2268
E-Mail: bcastle@wjcastlegroup.com
Web: www.wjcastlegroup.com

The Castle Group is a unique organization that allows you to draw upon the expertise of a world-class marine engineering firm with the practical know-how of an experienced marine contractor. The Castle Group consists of three companies which offer unparalleled innovation, execution, cost-effectiveness and timeliness. Simply stated, we can analyze problematic marine structures, design appropriate repairs, and then perform the repairs ourselves without having to subcontract any of the work. Additionally, we provide custom designed bridges to private owners as well as state and local governments - from the design phase through installation.

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WATSON BOWMAN ACME CORP.

BOOTH: 610

Contact: Debbie Steiger
Phone: 716-691-7566
Fax: 716-716-564-2609
E-Mail: debbie.steiger@basf.com
Website: www.wbacorp.com

Watson Bowman Acme Corp., a BASF Construction Chemical Business, is an ISO9001:2000 certified company and industry leader in developing, manufacturing and delivering expansion control systems and specialty products to the transportation market.

- * Armored Joint Systems
- * Armorless Joint Systems
- * Joint Seals
- * Segmental Joint Systems
- * Joint Header and Spall Repair

WESTFALL COMPANY, INC.

BOOTH: 315

Contact: Garland R. Westfall
Phone: 636-938-3113
Fax: 636-938-3120
E-Mail: gwestfall@westfallcompany.com
Website: www.westfallcompany.com

Fiberglass drain systems and other corrosion resistant products for elevated highways, bridge approaches and bridges. Come see new solutions for age-old problems. Website: www.westfallcompany.com/bridgedrain.html.

WHEELING CORRUGATING COMPANY

BOOTH: 400

Contact: Michael Benson
Phone: 304-234-2326
Fax: 304-234-2378
E-Mail: bensonmw@wpsc.com
Website: www.wheelingcorrugating.com

Wheeling Corrugating Company specializes in permanent metal bridge deck forms. Form depths range from 2 inches through 4.5 inches accommodating girder spacings up to 15'-0".

WILLIAMS FORM ENGINEERING

BOOTH: 309

Contact: Ryan Williams
Phone: 616-822-1851
Fax: 616-822-1890
E-Mail: ryan@williamsform.com
Website: www.williamsform.com

Williams Form Engineering Corporation has been offering high capacity Ground Anchors, Concrete Anchors, Post Tensioning Systems, and Concrete Forming Hardware to the construction industry for over 80 years.

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WIRECO WORLD GROUP

BOOTH: 317

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E-Mail: richardhumiston@wirecoworldgroup.com
Web: www.wirecoworldgroup.com

Wire Rope Corporation of America, Inc., 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: 503

Contact: Bill 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.

ZPMC / BUSCH INDUSTRIES

BOOTH: 100

Contact: John H. Busch
Phone: 616-957-3737
Fax: 616-957-9951
E-Mail: tech@buschindustries.com
Web: www.zpmc.com

The Shanghai Zhenhua Port Machinery Company, ZPMC, is one of the world's largest and most respected crane manufacturer and steel fabricator. ZPMC has established itself as a world class fabricator on large scale projects such as the San Francisco Oakland Bay Bridge, the Incheon Bridge and the Donghai Bridge.