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2006 CHAIRMAN’S MESSAGE

Kenneth J. Wright, PE
HDR Engineering, Inc.
2006 IBC General Chairman

As this year’s General Chairman, I am pleased to welcome you to the 2006 International Bridge Conference in Pittsburgh, the “City of Bridges”. The theme for the 23rd meeting of what has become the world’s premier bridge conference is “Advancing Bridge Technology Globally”. We have a strong international program that I trust will be both stimulating and educational.

On behalf of the Executive Committee, I urge you and your colleagues to attend as many of the technical sessions as possible. The conference begins with a Keynote session on Monday morning. We are pleased to have as our keynote speakers Mr. Malcolm Kerley, the Chief Engineer for the Virginia Department of Transportation; Mr. King Gee, from the Federal Highway Administration; and Ms. Carolann Wicks, the Secretary of Transportation from our 2006 featured state, Delaware.

The Keynote session will be followed by our Annual Awards Luncheon. The format for the awards presentation will be similar to that which debuted at the 2005 conference, in which a PowerPoint presentation highlighting the various award winners will be repeated throughout the duration of the luncheon. Please see the complete listing of this years winners later in this guide, and refer to the special conference magazine that highlights the 2006 award winners.

I invite you to take advantage of some of the fine opportunities available during the Conference. There are special interest sessions available in specific areas of interest. We have three half-day seminars that you will find informative: Seismic Engineering; Accelerated Bridge Construction; and an ACI-developed seminar on FRP. We have approximately 120 exhibitors that will present state of the art engineering services and products.
that may be of use in your daily business. Please take the time to visit with the exhibitors to learn about new technologies that you can apply in your daily design work. We will again sponsor a Tuesday afternoon bus tour that will focus on the ongoing rehabilitation of two major river bridges in the Pittsburgh area – one a large deck truss and the other a steel deck arch structure.

The technical program this year is again very strong and diverse. We offer papers on design, rehabilitation, construction and research. We have a number of papers with a truly international flavor including several from China, which will be the featured country for the 2007 International Bridge Conference. There will be a Chinese delegation attending this year’s conference to survey the conference and develop some ideas on what they will present about their country’s transportation system in 2007. Please make the delegation feel welcome at the conference as they prepare the 2007 IBC, scheduled for June 3-6, 2007 at the Pittsburgh Hilton.

I would like to offer a sincere thanks to all the IBC Executive Committee members that have given generously of their time and talents over the past year planning this conference. Their dedication and insights have made my job as the General Chairman very easy. Please seek out the committee members during the conference and share your thoughts on what you like about the conference, or what we could improve in the future. We value your input as we plan future conferences.

I look forward to meeting you during the Conference!

Kenneth J. Wright, PE
2006 IBC General Chairman
John A. Roebling Medal
Award for lifetime achievement in bridge engineering

2006  Charles Seim, P.E., F. ASCE
2005  Dr. John E. Breen, The University of Texas at Austin
2003  Hiroyuki Fujikawa, Honshu-Shikoku Bridge Authority
2002  Jackson Durkee, C.E., P.E., Consulting Structural Engineer
2001  James E. Roberts, California Department of Transportation
2000  Eugene C. Figg, Jr., P.E., Figg Engineering Group
1999  Abba G. Lichtenstein, P.E., Dr. Eng., A.G. Lichtenstein
1998  Dr. Man-Chung Tang, P.E., T.Y. Lin International
1997  Dr. Christian Menn, Swiss Federal Institute of Technology
1996  Frank D. Sears, Modjeski and Masters, Inc.
1995  Dr. John W. Fisher, Lehigh University
1994  Dr. Jean M. Muller, J. Muller International
1993  Arthur L. Elliott, Consultant/California DOT
1992  Frank L. Stahl, Ammann & Whitney
1991  Herbert Rothman, Weidlinger Associates
1990  T.Y. Lin, T.Y. Lin International
1989  Blair Birdsall, Retired/Consultant to New York DOT
1988  Carl H. Gronquist, Steinman, Boynton, Gronquist & Birdsall

George S. Richardson Medal
Award for a single, recent, outstanding achievement

2006  Dr. Donald White, Dr. William Wright, Michael Grubb for LRFD Unified Design Specifications for Steel Deck Girder Bridges
2005  GEFYRA S.A., Greece for the Rion - Antirion Bridge
2004  California DOT for the Al Zampa Memorial Bridge
2003  HNTB for the Leonard P Zakim Bunker Hill Bridge
2002  The British Columbia Ministry of Transportation for the Lions Gate Bridge, Vancouver, British Columbia
2001  Rede Ferroviaria Nacional EP, Portugal for the Tagus River Suspension Bridge Rail Addition Project
2000  Ray McCabe, HNTB Corporation for the Storrow Drive Bridge
1999  Gerard Sauvageot, J. Muller International for the Confederation Bridge, Northumberland Strait, Canada
1998  Honshu Shikoku Bridge Authority for the Akashi-Kaikyo Bridge
1997  Virginia DOT, Parsons Brinckerhoff and Tidewater Construction Corp. for the George P. Coleman Bridge, Yorktown, Virginia
1996  John M. Kulicki, Modjeski and Masters, Inc. for Development & Approval, LRFD Design Specifications
1995  Michel P. Virloguex, Designer, Bertrand Deroubaix, Project Manager for the Normandy Bridge
1994  Figg Engineering and Eastern Federal Lands Highway Div., FHWA for the Natchez Trace Parkway Bridge, Tennessee
1993  Colorado DOT for the Hanging Lake Viaduct, Glenwood Canyon, Colorado
1992  Washington State DOT for the Lake Washington Floating Bridge
1991 James W. Neal, Jr., John F Beasley Engineering, Inc. for the Roosevelt Lake Bridge
1990 Denny A. McLeod, Rigging International for the Oakland Bay Bridge, California
1990 L. Ray Davis, Hardaway Company for the Ben Sawyer Bridge, South Carolina
1989 Tsutomu Yamane, Honshu-Shikoku Bridge Authority for the Honshu-Shikoku Bridge Routes, specifically the Kojima-Sakaide Route
1988 Jean M. Muller and Eugene C. Figg, Jr., Figg and Muller Engineers, Inc. for the Sunshine Skyway Bridge Across Tampa Bay, Florida

Gustav Lindenthal Medal
Awarded for a single, recent outstanding achievement demonstrating harmony with the environment, aesthetic merit and successful community participation.

2006 South Carolina DOT for the Arthur Ravenel Jr. Bridge
2005 Compagnie Elfage du Viaduc de Millau, Millau, France for the Viaduct of Millau
2004 The Pennsylvania Turnpike Commission for Mingo Creek Viaduct, Pennsylvania
2003 Alexandre Chan, for the President JK Bridge, Brazil
2002 Figg Engineers, Linda Figg, for the Broadway Bridge, Daytona Beach, Florida
2001 Oresund Fixed Link Bridge Project, Henrik Christensen, for the Oresundskorset, Denmark
2000 GGB Highway & Transportation District, Celia Kupersmith for the Golden Gate Bridge
1999 Hawaii Dept. of Transportation, Kazu Hayashida for Interstate H-3 Windward Viaduct

Eugene C. Figg Jr. Medal for Signature Bridges
Awarded for a single recent outstanding achievement in bridge engineering that, through vision and innovation, provides an icon to the community for which it was designed.

2006 T.Y. Lin International for the Dagu Bridge, Tianjin, China
2005 Turtle Bay Museums and Arboretum on the River, Redding, California, for the Sundial Bridge at Turtle Bay
2004 Shanghai Lu Pu Bridge Investment Development Co., Ltd. for the Lu Pu Bridge, China
2003 Buckland & Taylor, Ltd. for the Rama 8 Bridge, Bangkok, Thailand
2002 Jiangsu Provincial Department of Communications for the Jiangyin Bridge, China

Arthur G. Hayden Medal
Awarded for a single recent outstanding achievement in bridge engineering demonstrating innovation in special use bridges such as pedestrian, people-mover, or non-traditional structures.

2006 BAA Gatwick for the Gatwick Pier 6 Airbridge
2005 City of Greenville, South Carolina, for the Liberty Bridge
2004 City of Winnipeg for the Esplanade Riel Pedestrian Bridge, Canada
2003 Schlaich Bergermann & Partner for the Duisburg Inner Harbor Footbridge, Germany
ATTENDEE INFORMATION

Meeting Information
All IBC functions are located in the Hilton Pittsburgh. Please check individual listings in the program for specific locations and times for all technical sessions, seminars and social functions. Any changes in the program schedule will be posted or announced.

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
The IBC registration is located in the Kings Garden area of the Hilton Pittsburgh. Registration hours are as follows:

- Sunday: 5:30pm to 7:30pm
- Monday: 7:00am to 6:00pm
- Tuesday: 7:00am to 5:00pm
- Wednesday: 7:00am to 1:30pm

Registration Lists
Registrations received prior to May 31 have been compiled in the IBC PRE-REGISTRATION LIST, and is distributed free to all registered attendees.

An addendum to the registration list will be available Wednesday morning of the conference and reflects those attendees who registered after June 1 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 Kings Garden area of the Hilton Pittsburgh. The board will be manned by registration staff on June 12, 13 & 14. Messages will be retained until the end of each day.

IBC Exhibition
One of the main attractions of the Conference is the IBC Exhibit Hall. As you stroll through over 120 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 Ballroom 1, the Ballroom Foyer, Kings Garden and the Boardwalk. You will be able to view the exhibits during the following hours:

- Monday: 11:00am to 7:00pm
- Tuesday: 7:00am to 5:00pm
- Wednesday: 7:00am to 1:30pm
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 hotel property.

Hotel Information
Hilton Pittsburgh  
Gateway Center  
Pittsburgh, PA  15222  
Tele: (412) 391-4600  
Fax: (412) 471-4485
Renaissance Pittsburgh  
107 Sixth Street  
Pittsburgh, PA  15222  
Tele: (412) 562-1200  
Fax: (412) 562-1644

IBC Gift Items
Once again at this year’s IBC, you will have the opportunity to purchase IBC Golf Shirts, Sweatshirts, and Hats. These items are high quality and feature the popular IBC logo. The Gift Item Table is located at the Preprint desk where you can make your purchases throughout the Conference until Wednesday at 2:00pm. Please be sure to stop by and see them before Wednesday.

Pre-prints
Pre-prints for all technical presentations are available at the Pre-Print area located in the Ballroom 1 Foyer. Pre-prints can be purchased for just $2.00 per copy. Also, you can find copies of previous years’ IBC Proceedings (for $55 per volume). The Pre-Print Booth will be open:

- **Sunday:** 5:30pm to 7:30pm
- **Monday:** 9:00am to 6:00pm
- **Tuesday:** 8:00am to 5:00pm
- **Wednesday:** 8:00am to 1:30pm

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 23rd Annual International Bridge Conference will be available in late Summer 2006 and mailed to you at that time.

Coffee Stand
Complimentary coffee and breakfast breads are available throughout the Exhibit Hall hours in the Le Bateau Room.
ATTENDEE INFORMATION

Pittsburgh Recreational Highlights

The Three Rivers Arts Festival is an annual Pittsburgh tradition marking the beginning of the summer season. The Festival, is a showcase for every imaginable craft in the exhibit booths surrounding the Hilton Pittsburgh, Gateway Center and Point State Park. In addition to the artists market, a wide variety of ethnic foods can be found across the street from the main entrance to the Hilton. Live performances of music and dance are scheduled throughout the day and evening. A world of cultural activity is right outside your door.

Nights come alive in the Cultural District, home to five theaters within walking distance of hotels and the convention center. The Cultural District also affords a selection of upscale and mid-range dining, from French to Italian, Tex Mex to Thai.

In the Strip District, the clubs are hot, the food is spicy, and dance floors pulse to the sounds of rock, blues, jazz and swing. Award-winning brewpubs serve up the finest lagers and ales, while classic Pittsburgh fare is featured at nearby diners. By day, the Strip is alive with street vendors and shoppers buying the freshest breads, pastries, cheeses, coffees and ethnic specialties.

Area Museums

Three hundred years of Pittsburgh history come alive at the Senator John Heinz Pittsburgh Regional History Center in the Strip District. Located in what was formerly the Chautauqua Lake Ice House, this museum offers a variety of exhibits that tell the story of the people who built and influenced Pittsburgh’s evolution from industrial megafroce to a center for technology, medicine, robotics and tourism.

From downtown, a short walk across one of Pittsburgh’s many bridges takes you to the North Shore, where visitors can experience the work of the pop art prince and Pittsburgh native Andy Warhol at The Andy Warhol Museum, the most comprehensive single-artist museum in the world. Another North Side “must see” is the Carnegie Science Center, an interactive amusement park for the mind, which features over 250 hands-on exhibits, including the largest science and sports exhibition in the world.

Please visit the Greater Pittsburgh Convention & Visitors Bureau information table located on the 2nd floor Mezzanine Level for more information regarding these attractions and many more.
IN MEMORIAM

JAMES DANIEL COOPER

Last year, the IBC lost a dear friend and ardent supporter when Jim Cooper passed away on Wednesday, November 23, 2005 at his home in Purcellville, VA.

Jim was born March 19, 1942 in San Francisco, CA to the late James and Zebulon Cooper. He is survived by his wife, Susan L. Cooper of Purcellville, VA, son James J. Cooper and wife Megan of Leesburg, VA, daughter Karen D. Campbell of Richmond, VA and several nieces and nephews.

Jim was a member of the American Society of Civil Engineers since 1965, and the Engineers’ Society of Western Pennsylvania. He was a published author of “Earth Quake Line Research”.

In addition to serving as the General Chairman of the 2002 International Bridge Conference, Jim was a long-time member of the IBC Executive Committee, and provided exceptional service to the IBC Student Awards Committee. It is out of respect for Jim and recognition of this service that we are proud to announce the “James D. Cooper Student Award” beginning in 2006.

We at the International Bridge Conference and the Engineers’ Society of Western Pennsylvania were honored by his presence - both personally and professionally. Jim was a dedicated volunteer, a warm personality and an enthusiastic mentor. He will be deeply missed.
11AM-6PM  Exhibit Set-up
5:30-7:30PM  Registration / Preprint Open
5-10PM  DINNER TOLLEY departs and returns to the Hilton front entrance continuously throughout the evening.

8AM-6PM  Registration / Preprint Open
11AM-7PM  Exhibit Hall Open

Opening Session

TIME: 8:30–11:00AM
Kenneth J. Wright, PE
IBC General Chair
HDR Engineering, Inc.
Pittsburgh, Pennsylvania

Michael G. Bock, PE, Esq.
President
Engineers’ Society of Western Pennsylvania
Schnader, Harrison, Segal & Lewis, LLP
Pittsburgh, PA

Dan Onorato
Chief Executive
Allegheny County, PA

Malcolm T. Kerley, PE
Chief Engineer
Virginia Department of Transportation
Richmond, VA

King W. Gee, PE
Associate Administrator for Infrastructure
Federal Highway Administration
Washington, DC

Carolann Wicks
Secretary of Transportation
State of Delaware
Awards Lunch

11:15AM–12:45PM
BALLROOMS 3 & 4

John A. Roebling Medal
Awarded to: Charles Seim, PE, F.ASCE

George S. Richardson Medal
Awarded to: Dr. Donald White,
Dr. William Wright and Michael Grubb

Gustav Lindenthal Medal
Awarded to: South Carolina DOT for the
Arthur Ravenel Jr. Bridge

Eugene C. Figg Jr., Medal
Awarded to: T.Y. Lin International for the
Dagu Bridge, Tianjin, China

Arthur G. Hayden Medal
Awarded to: BAA Gatwick for the
Gatwick Pier 6 Airbridge
Featured State: Delaware

1:30-5:00PM
BALLROOM 2

Session Chair: Dennis O’Shea, PE
Assistant Director, Design, Delaware DOT

Co-chair: Jiten K. Soneji, PE
Bridge Design Engineer, Delaware DOT

IBC 06-01
1:30PM  The Design Challenges for the First State
Barry A. Benton, PE, and Jason N. Hastings, PE, DelDOT, Dover, DE

Delaware is a small state that is unique in many ways. This presentation will give an overview of general information about the state as well as address some of the specific design challenges that the state has faced in recent years in responding to emergency storm events.

IBC 06-02
1:55PM  The Proposed Crossing over Indian River Inlet
Douglass A. Robb, PE, and David Duke, DelDOT, Dover, DE; W. Denney Pate, PE, Figg Engineers, Tallahassee, FL

Over the past 20 years, the Delaware Department of Transportation has been monitoring one of the most severe bridge scour conditions known to exist in the United States. Past and present plans for a new 1000-foot main span bridge over the Indian River Inlet and an update on current construction progress will be presented.
The John E. Reilly (South Market Street) Bridge is a historic movable structure located in downtown Wilmington, DE. This presentation will provide an overview of the recent rehabilitation project while focusing on load testing results that were used to calibrate the bridge’s live load ratings and avoid load posting of the structure.

The Wilmington and Western Railroad sustained significant flood damage in September 2003, when runoff from torrential rains and resulting debris floating downstream destroyed six timber trestle bridges. With the help of FEMA and DelDOT, new bridges that would resist similar damage in the future were designed by URS and are currently under construction.

Delaware utilizes modern materials and construction techniques to integrate aesthetics into standard bridge elements. Specific techniques discussed include concrete form liner treatment, concrete rustication, concrete staining and coatings, cast and natural stone masonry and decorative lighting. Various case studies are presented, highlighted by the I-95 Brandywine Bridge and the historic North Market Street Bridge, both in Wilmington, Delaware. These case studies demonstrate added value to the bridges without compromising functionality and durability, while adding only minimal cost.
The partnership between the University of Delaware Center for Innovative Bridge Engineering and the Delaware Department of Transportation provides DelDOT with access to knowledge and people to address problems in the design, construction, evaluation, maintenance, and rehabilitation of bridges and related structures. The agency, in turn, provides students and faculty with the opportunity to conduct field research on actual bridges, offers internships to current students, and presents employment opportunities to graduates of the program.

Since the early 1990’s, Delaware’s Department of Transportation has utilized advanced composite materials for a variety of bridge applications. Significant research leading up to their implementation was conducted at the University of Delaware (UD). This paper reviews the research conducted at UD, and presents the existing FRP installations in Delaware.
Proprietary Session
4:00–6:00PM
BALLROOMS 3 & 4
Session Chair: Eric S. Kline
KTA-Tator, Inc., Pittsburgh, PA

IBC 06-08
4:00PM  SPS Orthotropic Bridge Decks: A New Solution to an Old Problem
Steven Kennedy, Intelligent Engineering, Ottawa, Ontario, Canada

An SPS plate is a composite sandwich fabricated with two steel plates bonded between an elastomer core. The elastomer prevents local buckling of the steel plates and allows the sandwich to develop the full strength of the steel in bending. The elastomer is fatigue insensitive and also acts as a dampener to reduce vibrations. The SPS plate acts as the deck plate and is fabricated into an orthotropic deck panel that can rapidly be bolted together in the field. The top plate necessitates a field welded joint between panels.

IBC 06-09
4:25PM  Non Destructive Testing of Suspender Ropes Using Magnetostriction
Michael Higgins, Pure Technologies, Columbia, MD

Corrosion or fatigue damage is difficult to find in suspender ropes with standard visual inspection techniques. This paper summarizes a technique developed to non-destructively test the condition of small diameter ropes/cables (less than 5”) to detect damage on the interior or exterior of the rope.

IBC 06-10
4:50PM  Implementation of the Electrochemical Fatigue Sensor
Brent Phares, Material Technologies, Inc, Ankeny, IA; Marybeth Miceli, Sam Schwartz, PLLC, New York, NY

A nondestructive evaluation technology, under development since the early 1990’s, was recently packaged and released for widespread use for the detection of fatigue cracks in steel bridge members. This paper will present technical information on the system, summarize the need for the technology, and summarize a typical application.
MONDAY, JUNE 12

5:15PM IBC 06-11
Positive Protection from Corrosion of Post-tensioning Anchorages on Bridges
Robert Gulyas, Degussa Building Systems, Cleveland, OH; Walter Hanford, Degussa Building Systems, Daytona Beach, FL

Post Tensioned (P-T) anchorages require prevention of corrosion to assure the durability of the terminus. This is a greater concern for bridges designed with a 100 year service life. Specific examples of failures of the P-T anchorage have led the industry to seek out better systems for protection of this “lynch pin” of a P-T Bridge support system. Establishing 100% confidence in the anchorage system is paramount.

5:40PM IBC 06-12
Innovative Two-Part FRP Decking System
Dan Richards, PhD, PE, ZellComp, Inc., Durham, NC; Lei Zhao, University of Central Florida, Orlando, FL

ZellComp’s patented, two-part FRP decking system offers a cost efficient superior design. Bottom sections are installed before top sections are attached, providing easier access during construction. The mechanically-fastened system requires no structural bonding. Details of the extensive fatigue and strength testing by the Florida DOT will also be described.

Welcome Reception

5-7:00PM
EXHIBIT HALL

Enjoy cocktails and appetizers throughout the entire Exhibit Hall. The Welcome Reception is a great way to renew old friendships and make new friends. Hosted by the IBC Exhibitors... be sure to visit the Exhibitors in Ballroom 1, Foyer, Kings Garden, Featured State Room and the Boardwalk.
Design, Part 1

**8:30AM-NOON**

**BALL ROOM 2**

Session Chair: Donald W. Herbert, PE

*Penn DOT, Uniontown, PA*

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**IBC 06-14**

8:30AM  **Horizontally Curved Steel Girder Bridges: A Comparison of AASHTO Design Specifications**

Danielle Kleinhans, PhD, PE, Modjeski and Masters, Inc., Harrisburg, PA; John Kulicki and Wagdy Wassef, PhD, PE, Modjeski and Masters, Inc., Harrisburg, PA

This presentation compares the three most recent curved girder design specifications; the 1993 Guide Specifications; the 2003 Guide Specifications; and the 2005 LRFD Interims. Differences and similarities between the shear and flexural design protocols are highlighted, and detailed information is provided for examples that expose these areas of interest.

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**IBC 06-15**

8:55AM  **Innovative Replacement of a Community Landmark - The Royal Park Bridge**


This paper presents successful implementation of innovative management and design to overcome complex challenges in replacement of the Royal Park Bridge in Palm Beach County, Florida. The project involved expedited replacement of a historic Florida DOT movable bridge that served as the key link between Palm Beach and mainland Florida. Engineering challenges included increased channel clearance requirements, limited soil foundation capacity, maintenance of traffic, and bridge aesthetics.
TUESDAY, JUNE 13

IBC 06-16
9:20AM  Stretching Span Limits for Concrete Segmental Bridges
Paul Bott, HDR Engineering, Inc, Bellevue, WA; John Sherk, HDR Engineering, Anchorage, AK

This paper presents the history, factors and constraints that led to the selection of record setting span lengths for two concrete segmental bridges in Ketchikan, Alaska. Key factors include clearing the FAA Part 77 Airspace, maintaining safe passage of large cruise ships and avoiding placing foundations in very deep water.

IBC 06-13
9:45AM  River Life Task Force West End Pedestrian Bridge Competition
Lisa Schroeder, River Life Task Force, Pittsburgh, PA

Why a Pedestrian Bridge at the West End? The view from the deck of the West End Bridge is one of the most spectacular urban vistas in the United States. The Bridge marks the confluence of the Monongahela, Allegheny, and Ohio Rivers and defines the westernmost boundary of Three Rivers Park—a grand, urban park under development along Pittsburgh's riverfronts. Yet for all its beauty and symbolic importance, the West End Bridge presents a significant gap in Pittsburgh's trail system, has limited accessibility for non-vehicular traffic and limited connectivity to the adjacent neighborhoods.

The Riverlife Task Force is a local community group that provides input on development projects around the river system in the Pittsburgh area with a focus on adding aesthetic value to these projects. Riverlife launched the West End Pedestrian Bridge Competition to seek solutions from engineers, designers and architects around the world that would improve pedestrian connectivity between the two ends of the West End Bridge by providing a signature structure that will compliment, rather than compete with, the existing West End Bridge. Of over 100 submissions, 6 finalists were chosen to develop detailed conceptual ideas for the pedestrian bridge. This presentation will provide an overview of the competition process. The selection criteria used to determine the chosen design team will be highlighted – including discussion of the relative importance of cost, functionality and aesthetics. Several of the bridge schemes proposed by the various design teams will also be shown in the presentation. The next steps expected in the process after selection of a design team will be discussed as well.
The Hickory Street Bridge refutes the misconception that bridge aesthetics must involve a high cost investment as well and preclude typical structures that can be easily rated. This bridge is an example of the possibilities of making a design truly sensitive to the context of its surroundings. With its unique features, this bridge was able to take the most common adjacent concrete box beam components and provide a spectacular focal point for the central business district in Warren, PA.

This project is a replacement of a deck truss bridge constructed in 1927. Simple-span steel girders made continuous similar to precast concrete beams. The final design includes an integral pier cap and diaphragm that is not fracture critical and does not require post-tensioning in the field.

Port Adelaide is an important trade gateway for South Australia. The Port River Expressway Design-Build Project will add a new four-lane expressway link and a new rail freight line to better access this port facility. This paper will discuss the designs for a new 57.8m, four-lane, single-leaf highway bascule bridge and a new 61.4m, single-track dual-gauge, single-leaf rail bascule bridge. Both bascule bridges will provide a 30m navigation channel in the Port River. The estimated construction cost for both movable bridges is $30 Million U.S. Dollars.
Load Testing
8:30AM–NOON
BALLROOMS 3 & 4
Session Chair: Gerald Pitzer, PE
GAI Consultants, Inc.

IBC 06-20
8:30AM Test Research of Wind Load on Long
Span Arch Bridge Section Models
Yunfang Wu, Xinyong Li, Zhongyi Li and
Liangliang Zhang, Chongqing University,
Chongqing, P.R. China

A new combined bridge, its section model tests, and an
effective nonlinear least-square identifying method of
flutter derivatives are introduced in this paper. Based on
the testing data, the galloping and flutter stabilities were
analyzed. These results can supply reference to the wind
resistant design of the homologous bridge.

IBC 06-21
8:55AM Instrumentation System for Load Test on
a Concrete Floating Bridge
Varsha Singh and Tom Weinmann,
CTL Group, Skokie, IL

A full scale load test on the I-90 Homer Hadley floating
bridge across Lake Washington in Seattle, WA was con-
ducted to facilitate a structural feasibility study for the
proposed light-rail transit. Eight heavily loaded flatbed
trucks each carrying 148,000 pounds simulated the
weight and movement of light-rail trains during the tests.
About 60 sensors and a wireless data acquisition system
were installed to measure bridge response under both
static and dynamic load conditions for the full scale load
test. The data from the tests will be used to confirm com-
puter modeling of bridge response and modifications to the
bridge to accommodate light rail transit in the future.
A fiber optic structural health monitoring system has been developed and deployed to detect the formation of fatigue cracks in fracture-critical bridges in Iowa. The system is trained with measured performance data and identifies deviations from the trained behavior as changes in structural performance.

Orthotropic plated bridge decks are sensitive to fatigue damage at various locations. Among these the rib to floorbeam joint is the most challenging, since it is subject to a variety of load and distortion induced stresses. In this paper, a parametric study, verified by full scale testing, investigates this connection.

Eight feet diameter, 130-foot long drilled shafts were utilized for a bridge over Salem River having high tides and thick marine deposits. Multi layered O-cell and cross-hole sonic logging tests were performed. The design considerations, testing results and the installation experience of drilled shaft construction are discussed in this paper.
Field Testing and Fatigue Evaluation of the I-39 Northbound Bridge over the Wisconsin River

Hussam Mahmoud, Lehigh University/ATLSS Research Center, Bethlehem, PA; Robert Connor, Purdue University/School of Civil Engineering, West Lafayette, IN; Phil Fish, Fish Inspection & Testing, LLC, Middleton, WI;

This paper will summarize the field study conducted to develop stress range histograms, which were used along with historical ADIT records to estimate the remaining life of fatigue prone details. A discussion on the recommended retrofit strategies for details with remaining fatigue life of 50 years or less will be included.

Long-Span Prestressed Concrete Bridges

M. Zoghi, University of Dayton, Dayton, OH; Dean Foster, AFRL/MLBCM Wright-Patterson AFB, Dayton, OH; Pat Plews, Wollpert, LLP; Jeff Schulz, BDI, Inc.;

The key to every successful rehabilitation/repair project is to identify the root cause and extent of deterioration. Accordingly, two severely deteriorated long-span bridges, located in Defiance, Ohio were thoroughly inspected visually and via full-scale field tests prior to repair and subsequently subjected to non-destructive load tests following repair. The repair method entailed post-tensioning method utilizing FRP composite strips via Stress Head System.
SPECIAL INTEREST SESSION

Coatings

8:00AM-NOON
BENEDUM ROOM - 1ST FLOOR

Moderated by: SSPC
The Society for Protective Coatings

8:00AM Overview of SSPC-QP3 shop coating facility
Alex W. Lowery, Pittsburgh Coatings Corporation

8:30AM Performance Evaluation of Bridge Overcoating Materials Using Electrochemical Impedance Spectroscopy
Seung-Kyoung Lee, Federal Highway Administration

9:00AM Straining at a Gnat and Swallowing a Camel: Safety and Performance Issues with 2-part Urethane Finish Coats
Dr. Mike O’Donoghue, ICI Devoe Coatings

10:00-10:15AM BREAK

10:15AM Overview of Slip Co-Efficient and Creep Resistance
Dan Griffin, International Paint LLC

10:45AM Single Coat of Paint for a Lifetime of Protection
Eric Kline and Bill Corbett, KTA-Tator

11:00AM Steel Bridge Coatings Inspection Training Course
Mike Kline, SSPC: The Society for Protective Coatings

11:15AM Open forum for questions

11:30 BREAK

1:00-3:30 Tour; 12:30 DEPARTURE

SSPC will take attendees on a tour of the Pittsburgh Zoo & PPG Aquarium. One of the stops during the Zoo Tour will take attendees to the newly renovated Education/Administration Complex that was built mixing existing and new construction, using environmentally friendly coatings, improving air quality and where feasible, using recycled materials.

The shuttle to this event will leave from the Hilton Lobby at 12:30.
SPECIAL INTEREST SESSION

FRP Composites - Advancements in Bridge Construction

9AM-NOON
DUQUESNE ROOM - 1ST FLOOR

FRP composites used in new bridge construction and rehabilitation provide bridge engineers with innovative solutions for today’s infrastructure problems. Composites benefits such as lightweight, high strength, and corrosion resistance contribute to easy transportation, offsite construction, modular assembly, rapid installation, and long-term durability. FRP composites are expanding into new applications that provide cost-effective solutions and value. Composites multiple strengths and wide ranging design possibilities will be illustrated through case histories showing that composites are cost-effective solutions for decks and structural rehabilitation in bridges. Session attendees will learn how to design and specify composites with examples from field applications, and learn of new products and applications, installation techniques, and research testing.

Traditional Design Approach for FRP Decks
   Mark P. Henderson, PE, LJB Inc.

Strengthening of Concrete Bridges Using FRP Composites - A Global Perspective
   David White, PE, Sika Corporation

Why Not Composite Decks - Financial, Market Perspective
   Grant Godwin, Martin Marietta Composites, Inc.

Fabricated Modular GFRP Reinforcement for Accelerated Construction of Bridge Deck and Rail System
   Fabio Matta, University of Missouri-Rolla

Chesapeake Bay Bridge: 20 Years of Concrete Pile Protection Using FRP Composites
   Carl W. Scheffel PE, Fox Industries Inc.

Testing and Design of a New FRP Deck Design,
   Dan Richards, PhD, PE, Zellcomp, Inc.
Bridge Inspection and Management Software

8AM-NOON
LIBERTY ROOM - 1ST FLOOR

InspectTech has worked with bridge owners and engineering firms in several states to develop a powerful and easy to use software package that benefits both inspectors and managers. We will be discussing experiences and observations on best practices for using computer technology in conducting inspections and managing bridge data.

Two sessions will be presented; the first will address problems and solutions for organizations performing inspections. The second covers challenges that bridge managers and owners face. A demonstration of relevant components of InspectTech’s BridgeInspectTM software suite will be given in both sessions.

8:30-9:30AM: Bridge Inspection Software

Learn how inspectors are using computer software to improve report quality and achieve significant time savings in data collection and report generation. The software has been used on several thousand structures ranging from 3000’ bridges to simple spans to culverts to mass transit supports.

9:30-10:00AM BREAK

10:00-11:00AM: Bridge Management Software

This presentation describes a popular new bridge management system that places all bridge information (pictures, sketches, inspection data, etc.) just a click away via a powerful web-accessible interface. Owners and managers can now easily generate standard and custom reports, search across all fields, automatically flag problem areas, and compare data and trends from past inspection years.

Marty Neaman, Michael Schellhase, Jeremy Shaffer from InspectTech, Pittsburgh, PA
SEMINAR

Seminars at the International Bridge Conference® are intensive, four (4) hour, single-topic focused sessions. Each seminar requires a $95/$125 fee in addition to your Conference Registration. Please see the Registration personnel at the Registration desk to sign up. Seating for each Seminar is limited, so please register early. Professional Development Hours (PDHs) will be provided upon request.

FHWA Accelerated Bridge Construction Workshop

8:00AM-NOON,
STERLING’S ROOM - 1ST FLOOR

The highway community has been moving toward a new way of doing business as construction has intensified in recent years. This new way of doing business is an attempt to confront a two-fold problem. First, our highway infrastructure is aging. Much of it was built in the 1950s and 1960s and is in need of rehabilitation and replacement. Second, highway capacity has increased little during the last two decades, but traffic demand has grown tremendously. This has caused a high level of congestion. Large construction projects designed to improve worn-out and outdated roads and bridges compound traffic problems during lengthy construction periods. Today’s motorists want high quality, longer-lasting highways and bridges, but they want any construction-related activity completed as quickly as possible.

This workshop will provide information on state of the art practices of Accelerated Bridge Construction Technology. Innovative prefabricated bridge technologies, innovative equipment, and innovative contracting strategies and techniques will be covered. This seminar will demonstrate how these innovations will achieve the goals of rapid onsite construction with minimized traffic disruption. Accelerated Bridge Construction provides the benefits of improved safety, improved constructability, improved durability, and competitive construction costs while allowing for completion ahead of schedule.

8:00AM Welcome and Introduction

8:15AM Living in the Fast Lane, US Efforts on Accelerated Bridge Construction, By Vasant Mistry, FHWA Office of Bridge Technology
Vasant Mistry, FHWA Office of Bridge Technology
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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:45AM</td>
<td>Highways for Life and Innovative Bridge Research and Development Program</td>
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<td></td>
<td>Byron Nelson Lord, FHWA</td>
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<td>9:15AM</td>
<td>Decision-Making Framework for Effective Use of Prefabricated Bridge System</td>
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<td>Mary Lou Ralls, Ralls Newman, LLC</td>
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<td>9:45AM</td>
<td>Break</td>
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<td>10:15 – 10:45</td>
<td>Complete Bridge Span Installation</td>
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<td>Bill Halsband, Mammoet USA</td>
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<td>10:45AM</td>
<td>Roll-in Replacement of NE 8th Street Bridge to Eliminate Traffic Impacts</td>
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<td>Larry Kyle, HDR Engineering, Inc.</td>
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<td>11:15AM</td>
<td>Launching of Tied Arch Bridge</td>
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<td>Michael Culmo, CME Engineering</td>
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<td>11:45 – Noon</td>
<td>Q &amp; A, and Closing Remarks</td>
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SEMINAR

Seismic Design and Retrofit of Bridges

1:00-5:00PM
STERLING’S ROOM-1ST FLOOR

Sponsored by MCEER, Multidisciplinary Center for Earthquake Engineering Research

The Multidisciplinary Center for Earthquake Engineering Research (MCEER) in Buffalo, NY has organized this workshop to address the needs of practicing engineers. While most engineers rely on the current AASHTO specification for bridge design guidance, recent research in the field of earthquake engineering indicates that better methods of design, analysis and detailing have yet to be embodied in the code. The lag in adopting new standards, coupled with the fact that many existing bridges were built to older codes, creates a need for this seminar.

Participating engineers can expect to be updated on what is considered state-of-the-art in new bridge design, seismic retrofitting, response modification, and geotechnical considerations. Dr. Roy Imbsen, Imbsen Associates, a TRC Company will share his progress in producing a consensus document for the LRFD Design of new bridges. AASHTO is expected to vote on its adoption as a guide specification spec in 2007. Dr. Phil Yen, FHWA will give an overview of FHWA’s new Seismic Retrofitting Manual which greatly expands on the current 1995 edition, and moves toward a performance-based philosophy. Dr. Andrew Whittaker, University at Buffalo will explain the concepts of seismic isolation and touch on recent developments in response modification. Dr. Ken Fishman, McMahon and Mann Consulting Engineers, P.C will discuss geotechnical earthquake engineering issues including seismic design and analysis of bridge foundations, abutments and appurtenant earth retaining walls. The emphasis will be on simplified methods to estimate site response, the potential for liquefaction and seismic performance.

The team will emphasize the implications of adopting performance based design/retrofit objectives and the inherent need for deformation-based, rather than the traditional force-based, methods of analysis. Advantages and limitations of simplified methods will be described as well as alternative approaches involving more rigorous methods and corresponding requirements in terms of computational effort, site characterization, and soil modeling.
Development of new AASHTO Guidelines for the Design of New Bridges
Dr. Roy Imbsen, Imbsen Associates

FHWA's New Retrofitting Manual
Dr. Phil Yen, Federal Highway Administration

Seismic Isolation of Bridges
Dr. Andrew Whittaker, University at Buffalo

Geotechnical Considerations for Seismic Design and Retrofit
Dr. Ken Fishman, McMahon and Mann Consulting Engineers, P.C.
Design, Part 2

1:30-5:00PM
BALL ROOM 2

Session Chair: Lisle E. Williams, PE, PLS
DMJM Harris, Pittsburgh, PA

**IBC 06-27**
1:30PM
**Design of the Bagley Avenue Pedestrian Bridge**
Eddie He and Paul Wisney, PE, HTNB Corporation, Chicago, IL; Bill Lambdin, Ken Price, Roger Till, Michael Xin and Pamela Yuen, Michigan DOT, Lansing, MI

This paper presents an overview of the design of a signature cable stay pedestrian bridge over the I-75 and I-96 corridors in Detroit. The bridge has one plane of asymmetrical stay supported by an incline pylon offset from an irregular deck plan. This structure has created many ongoing engineering challenges during its design stage.

**IBC 06-28**
1:55PM
**Innovative Design Solutions for Milwaukee’s Marquette Interchange Bridges**
Patrick Cashin and Tony Shkurti, HNTB Corporation, Milwaukee, WI

The Marquette Interchange, located in the midst of Downtown Milwaukee, is currently being reconstructed to replace an obsolete interchange. Construction began in early 2005 and is on schedule for completion in December of 2008. The Interchange program cost is $810 million and the structures account for over $300 million. Nine high-level system ramps, curved steel box girder bridges, will become the focal point of the Interchange. The scope of the overall bridge construction will be presented with an emphasis on unique features.

**IBC 06-29**
2:20PM
**Design of the I-64 / I-295 Interchange Ramp F Bridge**
Daniel G. Davis, PE and Kenneth V. Butler, DMJM Harris, Glen Allen, VA

The I-64/I-295 Interchange Ramp features steel integral straddle bents and curved steel plate girder design. The presentation will focus on the connection details for the girders to the straddle bent cap beam and a comparison of the results from the design and rating analyses performed using BSDI and DESCUS.
While steel composite box girder bridges possess considerable torsional stiffness in their final completed stage, the absence of the deck slab during construction can make them vulnerable to large torsional deformations and instability during certain temporary stages. Providing for stability during initial construction as well as future re-decking is a key issue in the design and detailing of steel-composite box girder bridges. Top lateral bracing is the typical solution for providing necessary torsional stiffness, but there is no basis for establishing minimum design requirements or sizing of these top lateral bracing required for stability.

The effects on horizontally-curved steel I-girder bridge performance of various degrees of web out-of-plumbness are discussed within the context of construction serviceability. Consequences in terms of flange tip stresses, deflections, and cross-frame forces are discussed for a typical bridge subject to differing degrees of out-of-plumbness. These effects are discussed with respect to current erection practices.

The Hungry Hollow Bridge is a three span structure comprised of a 170 ft solid rib tied arch main span and two 46.5 ft approach spans on a 30 degree skew. The arch ribs are a parabolic shape with a rise to a span ratio of 1:5. I shaped tie-girders were utilized in order to avoid the torsional stiffness characteristics of closed box tie girders that typically result in fatigue problems in tied arch bridges.
Route 52 Causeway Bridge spans two miles between Somers Point and Cape May in New Jersey. This paper demonstrates that both strict budgetary requirements and complex key design requirements can be met while maintaining a simple and repetitive structural form, allowing the bridge to safely and efficiently fulfill its intended function for future generations.

Bridge Bus Tour  1:00 – 5:00pm

We are pleased to once again offer the afternoon Bus Tour of unique Pittsburgh area bridges and specifically the Southern Beltway Transportation Project PA 60 to US 22, also known as the Findlay Connector, in Allegheny and Washington Counties. (www.sb6022.com/)

We will depart the Hilton Pittsburgh at 1PM and provide a brief tour of the Pittsburgh area bridges. Please wear proper footwear as you will be able to leave the Bus at the Findlay Connector. The Tour will conclude atop Mt. Washington. Additional fee is $40. Pre-registration is required. Seating is limited.
Rating, Practice and Technology

1:30-5:00PM
BALL ROOM 3 & 4

Session Chair: Matthew P. McTish
McTish, Kunkle & Associates, Allentown, PA

IBC 06-34
1:30PM
New AASHTO Load Models For Load Rating & Posting
Bala Sivakumar, Lichtenstein Consulting Engineers, Paramus, NJ

The trucking industry has in recent years introduced specialized hauling trucks with closely-spaced multiple axles that make it possible for these short wheelbase trucks to carry the maximum load of up to 80,000 lbs and still meet the federal Bridge Formula. The current AASHTO legal loads selected at the time to closely match the Formula B do not represent these newer axle configurations. It is therefore considered likely that these specialized vehicles may be severely overstressing some non-posted bridges.

IBC 06-35
1:55PM
Arch Bridges Disease and Research on Reinforcing Technology
Liangliang Zhang, Chengqiag Liu and Yunfang Wu, Chongqing University, Chongqing, P.R. China

Lidian Bridge is a stone arch bridge built in 1979. By the research in which the bridge was detected, estimated and strengthened, we have put forward a strengthening technology and method which is credible, economical, reasonable and easy to construct. The technology can provide reference for homologous bridges.
A Comparative Study of Load Rating using AASHTO Load Factor (LFD) and Load and Resistance Factor Rating (LRFR)
Toorak Zokaie and Sri Kanneganti, LEAP Software, Inc., Tampa, FL

This paper compares the requirements of LFD, LRFR, and special Florida provisions. It provides a comprehensive comparison in rating factors for a number of prestressed girder bridges in various span configurations to provide an understanding of the level of differences that can be expected from using different specifications.

NEW DEVELOPMENTS WITH CORRUGATED WEBS
Roger Wildt, RW Consulting Group, Bethlehem, PA; Hans Spelten, Spelten Consulting, Nettetal, Germany

During the past two years the technology of producing a corrugated web girder has advanced. Prime among these is the capability of creating a continuous web from either long plate or coil and cambering the web. This paper will describe these advances and recent applications worldwide.

Success of the NCDOT Mobile Bridge Inspection Program
Mike Pritzlaff and Walt Tallman, EDO Professional Services, Inc., Morrisville, NC

The NCDOT Bridge Maintenance Unit has successfully implemented an enterprise mobile solution to streamline the inspection process, improve productivity and reduce costs. This paper presents the challenges, process improvements, integration results and feedback on the technology solution from the BMU management, state inspection team and private engineering firm perspective.
A research project was undertaken to evaluate the use of post-tensioned FRP for bridge-deck construction. The type of structure selected for this project is a four-span continuous concrete slab having GFRP bars for top and bottom mats and CFRP reinforcement for internal post-tensioning of the bridge deck. This bridge is located in Rolla, Missouri. One lane of the bridge was already built using a conventional four-cell steel reinforced concrete box culvert. One lane and sidewalk needed to be added. This additional lane was constructed using FRP bars as internal reinforcement.

Wire rope and strand fabrication procedures for socketed assemblies in use on pedestrian and vehicular bridges. Material strengths, corrosion inhibitors, fabrication and the properties available for wire rope, strand and sockets will be covered including the applicable tolerances for these items. Socket selection and assembly installation will also be covered.
WEDNESDAY, JUNE 14

Construction, Part 1

8:00AM-12:30PM
BALL ROOM 2

Session Chair: Louis J. Ruzzi, PE
Pennsylvania Department of Transportation, Bridgeville, PA

IBC 06-41
8AM
Construction of the Pennsylvania Turnpike Susquehanna River Bridge Replacement
Brian Ranck, Pennsylvania Turnpike Commission, Harrisburg, PA; William J. Rohleder, Jr., PE, SE, Figg Bridge Engineers, Inc., Philadelphia, PA

Construction is underway to replace the Pennsylvania Turnpike’s longest bridge, crossing the Susquehanna River near Harrisburg, PA. The new crossing has dual superstructures consisting of precast segmental concrete box girders constructed by the span-by-span method. Bridge substructure units consist of cast-in-place reinforced concrete piers constructed on drilled shaft foundations.

IBC 06-42
8:25AM
In-Kind Replacement of the Historic Rainbow Arch Bridge
Wade Frank, PE, Kadrmas, Lee & Jackson, Inc., Moorhead, Mn; Michael Marks, Kadrmas, Lee & Jackson, Inc., Fairfield, NJ

This project will detail a bridge design not utilized for 60 years and will describe how this was reconciled with modern standards. This can provide a reference for projects that desire to maintain the aesthetic appeal and structural function of a historic bridge while meeting current safety standards.

SPECIAL INTEREST SESSION

9:00AM
Accelerated Bridge Construction - Accelerated Bridge Painting: A Perfect Design Option -Duquesne Room

Learn how fasttracking bridge projects involving paint operations can achieve productivity gains and money savings using three and two coat systems.

Doni Riddle and Dee Mcneill, The Sherwin Williams Company
The erection of the Prospect Street Bridge replacement in Rockport, NY exemplifies the need to consider how site limitations and design configurations affect the construction operations. Erection required the fully assembled 268-foot long, 600-ton structural steel bridge frame to be floated into place. The pontoons supported the bridge more than 30 feet above the water during the erection operations.

The $500 Million Benicia-Martinez Bridge is a cast-in-place segmentally constructed concrete structure with many unique features including: high-strength / modulus lightweight concrete, pre-compressed bearings, super-flat steel box beams, mandatory deck grinding, health monitoring, difficult foundations, 150 year design life, hazardous soils and groundwater, pile load testing, mass concrete and precast footing forms.

The Victory Bridge Replacement was schedule driven. After a D/B contract was terminated, the new design team met an expedited schedule. The subsurface conditions below the new bridge, a high-level 4000 lf long structure, required the use of varying deep foundations and ground improvement to save time and money.
The Design Of High Performance Steel Girders For New Bridge I-87NB Over I-287EB
Steven Smith, Philippe Bousader, and Walid Najjar, Chas. H. Sells, Inc., Briarcliff Manor, NY

The subject bridge is one of the longest single-span welded-plate girder bridges in the country. Special design techniques were used to accommodate the unique construction of this 82m long bridge with 3.1m deep girders fabricated from high performance steel (Grade 485W) and sharp skews of 65 and 61 degrees.

Design and Construction of Hangzhou Bay Bridge
Beile Yin, Hardesty & Hanover, LLP, New York, NY; Zhong Da Lu, Engineering Headquarters of Hangzhou Bay Bridge, Cixi, Zhejiang, P.R. China

Since the ground breaking in 2003, this 36 km long sea crossing bridge has progressed significantly in construction. Consisting of two cable-stayed bridges for navigation and 500 non-navigable spans with each span length of 50 and 70m, this bridge has 32.2 km of its total length over water body, a longest sea crossing bridge in the world. The approach is made of two concrete boxes carrying 3-lanes each direction. Located in a typhoon prone area in the east coast of China, construction equipment and methods have to sustain possible storms. This paper will introduce our first experiences in the design, fabrication, and installation of the foundations and superstructure of this project.
Stainless Steel has been used for structural components, such as box girders and beams, in several pedestrian bridges and in one short span bridge. Stainless steels allow designers to build visually appealing structures that provide exceptional durability, even in hostile environments. The corrosion resistance and clean appearance of stainless steels will help to reduce future maintenance costs. This paper reviews a combined road and pedestrian bridge in Menorea, Spain and pedestrian bridges in Sweden, Italy, and the UK.

A robust pier protection system constructed of sacrificial steel, concrete, and timber elements supported by several foundation types was designed to protect the moveable bridge from vessel collision, which, if left unprotected, could cause significant damage to both structural and sensitive mechanical systems and disrupt both highway and river traffic.
WEDNESDAY, JUNE 14

Long Span Bridges
8:00AM-12:30PM
BALL ROOMS 3 & 4

Session Chair: James D. Dw. STV, Inc., Pittsburgh, PA

IBC 06-50
8AM
The Third Nanjing Yangtze River Crossing Bridge
Dennis Jang, Man-Chung Tang, Lou Xue-Quan, Austin Pan, Dai Yong-Ning and Chuck Seim, T.Y. Lin International, San Francisco, CA

The paper addresses planning, financing, design and construction of the third longest cable-stayed bridge in the world. The authors will share their experiences working in an international/multi-national team environment and special technical challenges faced on the project.

IBC 06-51
8:25AM
The New Tacoma Narrows Suspension Bridge: A Look to Opening Day
Joseph Viola, PE, Karen Mielich, PE, and Thomas Spoth, PE, Parsons Corporation, New York, NY

Opening Day for the New Tacoma Narrows Bridge approaches. Deep-water caissons, concrete towers, and cable anchorages are complete. The main cables now span the Narrows, supporting superstructure segments. This presentation discusses the design and construction aspects of this 5,400 ft suspension bridge. The state of fabrication and erection is featured.

IBC 06-52
8:50AM
Foundation Analyses of New Tacoma Narrows Bridge
Gerard Buechel, Hollie Ellis and Monique Nykamp, Shannon & Wilson, Seattle, WA; Kimo Okamitsa, Parsons, Gig Harbor, WA

The new Tacoma Narrows Bridge, set to open in 2007, is the second suspension bridge to be built in the United States in the last 40 years. Each tower is located in about 150 feet of water and is surrounded by caissons consisting of 130 by 80 foot reinforced concrete cellular structures embedded 75 feet below the mudline into very dense glacial soils. The design of the caissons included performing finite difference analyses to evaluate lateral pressures on the caisson walls under seismic loading conditions.
This case study describes a context sensitive bridge design. The subject structure carries 100,000 vehicles per day on Interstate 490 over the Genesee River and several city streets in Rochester, NY. The paper will illustrate how community involvement can positively contribute and describe the engineering challenges that were overcome.

In 1992, NYCDOT demolished the original East 153rd Street Bridge that had spanned Metro-North’s Mott Haven Yard since the 1800’s. Since then, the surrounding area has seen a revitalization that has increased traffic volumes on the adjacent crossings at East 149th and 161st Streets, making the replacement of this bridge necessary. The existing site is conducive to the construction of a cable stayed bridge due to its accessibility, available staging area and the minimal MPT that would be required due to the absence of an existing structure. The design and construction present several distinctive issues.

Driven by a booming economy, big bridges have been mushrooming on its land and on the seas of China in the past 10 years. Many of these bridges have record-breaking spans or scales. The paper provides an overview on recent major bridge projects in China, and presents some detailed information for several key bridges.
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<th>Time</th>
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<tr>
<td>8:30-11:00AM</td>
<td>Opening Session</td>
<td>Ballroom 2</td>
<td>(Mezzanine)</td>
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<td>Ballrooms 3 &amp; 4</td>
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<td>Sterlings Room</td>
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<td>11:15AM-12:45PM</td>
<td>BRIDGE AWARDS LUNCHEON</td>
<td>Ballrooms 3 &amp; 4</td>
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<td>1:30-5:00PM</td>
<td>Featured State: Delaware</td>
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<td>4:00-6:00PM</td>
<td>Proprietary Session</td>
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<td>5:00PM-7:00PM</td>
<td>ATTENDEES COCKTAIL PARTY — HOSTED BY THE IBC EXHIBITORS</td>
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<td><strong>TUESDAY AM</strong></td>
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<td>7:00-8:00AM</td>
<td>ATTENDEE’S CONTINENTAL BREAKFAST</td>
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<td>8:30-NOON</td>
<td>Design, Part 1</td>
<td>Load Testing</td>
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<td>Special Interest Session: Coatings, (8:00AM-Noon) Tour of Pittsburgh Zoo at 1:00PM</td>
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<td>Special Interest Session: FRP Composites (8AM-Noon)</td>
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<td>Seminar: Accelerated Bridge Construction (8AM-Noon)</td>
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<td>Special Interest Session: (Liberty Room): Inspection &amp; Mgmnt. (8AM-NOON)</td>
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<tr>
<td>8:00AM-12:30PM</td>
<td>Ballroom 2 (Mezzanine)</td>
<td>Construction, Part 1 Long Span Bridges</td>
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<td>12:30-1:30PM</td>
<td>Ballrooms 3 &amp; 4 (Mezzanine)</td>
<td>Lunch Buffet Luncheon Exhibit Hall</td>
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<td>1:30-3:45PM</td>
<td>Benedum Room (First Floor)</td>
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<td>Sterlings Room (First Floor)</td>
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<td>NOON-1:00PM</td>
<td>LUNCH BREAK</td>
<td>Pittsburgh Bridge Tour (departs 1:00PM) Advance Ticket Purchase Required</td>
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<td>1:30-5:00PM</td>
<td>Design, Part 2 (Ballroom 2)</td>
<td>Rehabilitation</td>
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<td>Rating, Practice &amp; Technology</td>
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<td>Semin: Seismic Design and Retrofit (1:00-5:00PM)</td>
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### WEDNESDAY

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<tr>
<th>Time</th>
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<tr>
<td>8:00AM-12:30PM</td>
<td>Ballroom 2 (Mezzanine)</td>
<td>Construction, Part 1 Long Span Bridges</td>
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<td>Ballrooms 3 &amp; 4 (Mezzanine)</td>
<td>Seminar: FRP Composite Repair (8AM-12:30PM)</td>
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<td>12:30-1:30PM</td>
<td>Benedum Room (First Floor)</td>
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<td>1:30-3:45PM</td>
<td>Duquesne Room (First Floor)</td>
<td>Rehabilitation</td>
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<td>Sterlings Room (First Floor)</td>
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WEDNESDAY, JUNE 14

IBC 06-56
10:45AM Design of Canada Line Extradosed Transit Bridge
Andrew Griezic and Don Bergman, Buckland & Taylor Ltd., North Vancouver, BC

A 562m long precast segmental box girder bridge, with a 180m extradosed main span, 139m side spans and 52m transition spans was designed for the longest span on a 19km long light rail transit line, and will be the first extradosed transit bridge in North America.

IBC 06-57
11:10AM Innovative Design and Key Technology Research of Sutong Bridge
Xigang Zhang, Lin Xu, Minshan Pei, and Hong Yuan, China Highway Planning & Design Institute Consultants, Inc., Beijing, P.R.China

This paper tells about the main information of the Sutong Yangtze River crossing project, including technical criteria, characteristics and challenges, brief of overall design, key technical research and innovative design. Main bridge of Sutong Project, a 1088 m mid span cable-stayed bridge, is the largest of this type under construction in the world.

IBC 06-58
11:35AM Curved Steel Box Girders Answer the Challenge at Raccoon Creek
Brad Robson, Palmer Engineering, Winchester, KY

A four-lane expressway slices through rugged hillsides and crosses more than 200 feet above Raccoon Creek. The curved alignment combined with the 380-foot long spans made steel box girders the ideal choice. To facilitate the complex bridge erection, temporary “angel wing” supports were used as an economical solution to the challenge.
Seminars at the International Bridge Conference® are intensive, four (4) hour, single-topic focused sessions. Each seminar requires a $95/$125 fee in addition to your Conference Registration. Please see the Registration personnel at the Registration desk to sign up. Seating for each Seminar is limited, so please register early. Professional Development Hours (PDHs) will be provided upon request.

**FRP Composite Materials for Repair of Reinforced Concrete Structures**

8 AM–NOON
STERLING’S ROOM -1ST FLOOR

An American Concrete Institute Educational Seminar

This intensive seminar introduces the use and practical application of fiber reinforced polymer (FRP) materials for the repair and retrofit of reinforced concrete structural systems.

Developed by ACI Committee 440, this seminar introduces participants to the nature of reinforced concrete structural repairs using FRP composite systems. The strengthening systems and their physical and mechanical properties will be reviewed following the ACI publication 440.2R-02 Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures. The seminar covers the following:

- substrate preparation and FRP application including installation methods and quality control issues.
- design principles for flexural, shear and axial strengthening applications including limits to strengthening
- detailing of repair methods to mitigate debonding and to develop splices

The seminar is illustrated throughout with case studies demonstrating the use of FRP repair systems.

The seminar is intended for engineers, designers, contractors, owners, and building officials. Participants will receive information on the specification, design, and construction of FRP repair systems as well as a copy of the ACI 440.2R-02 (a $79.50 value).

The seminar presenter will be Mr. William J. Gold, member and former co-chair of the ACI 440 subcommittee that prepared the 440.2R-02 document.

This seminar was developed by ACI and is presented with their permission.
WEDNESDAY, JUNE 14

Construction, Part 2

1:30-3:45PM
BALL ROOM 2

Session Chair: Victor E. Bertolino, PE
SAI Consulting Engineers, Pittsburgh, PA

IBC 06-59

1:30PM  Design and Construction of a Curved Precast Concrete Spliced U Girder Bridge
Gregg Reese, Summit Engineering Group, Inc., Littleton, CO

The paper will discuss the design, fabrication and construction of a horizontally curved precast concrete bridge in Denver, Colorado. The bridge has spans up to 200' and is longitudinally spliced and post tensioned. The project had numerous design and construction challenges and difficult site conditions.

IBC 06-60

1:55PM  Construction Stage and Service Analysis of a Segmental Concrete Arch Bridge Supported by Cables During Construction
Daniel Baxter, Michael Baker Jr. Inc., Cleveland, OH; Toader Balan, Michael Baker Jr. Inc., Moon Township, PA

This paper describes the post-tensioning layout, arch moment magnification method, and cable length control techniques used for the design of the Fulton Road Bridge segmental concrete arches. Cables will support several of the arch spans during construction to avoid disturbing the historic stone arch bridge and railroad below the structure.
**WEDNESDAY, JUNE 14**

**IBC 06-61**  
2:20PM  
Raymond Schnell, Talley Metals Technology, Inc., Hartsville, SC; John Magee, Carpenter Technology Corp., Reading, PA

In 1937, Mexico constructed a bridge using 304 stainless rebar. Seventy years later, this bridge is still used daily. DOT’s throughout America need bridges that will last over 100 years! Stainless steel rebar has a proven record, when used in applications, where the damaging effects of corrosion, weather and seismic conditions are critical, and where strength and ductility are of extreme concern.

**IBC 06-62**  
2:45PM  
Design and Lessons Learned from the Construction of a Soldier Pile and Tied-back Wall  
Ray Henney, PE and Ahmad Ahmadi, SAI Consulting Engineers, Pittsburgh, PA

The Etna Interchange, S.R. 0028, is located along the north shore of the Allegheny River in Allegheny County, Pennsylvania. It consists of a north and south bound two-lane roadway and is a major artery to and from downtown Pittsburgh. As part of the improvement of this corridor, a lane was added to the Southbound portion of this road. The existing roadway is built on fill embankment with a slope of approximately 1v to 1.5h. The roadway was widened as much as 24 feet. Approximately 1400 feet of soldier pile wall with tie-backs and concrete cast-in-place lagging, constructed bottom-up, was built to accommodate this widening. This wall was as high as 35 feet in some locations.

**IBC 06-63**  
3:10PM  
Emergency Scour Repairs on the Tuolumne River Bridge  
Hans Strandgaard, CH2M HILL, Sacramento, CA

The Tuolumne River Bridge, a 7-span 40-year-old structure, is scour critical and qualifies for seismic replacement. CH2M HILL designed a temporary scour repair project utilizing precast concrete tetrahedrons banded together and anchored with duck-bill anchors and stainless steel cabling. This was the first such application in California for bridge pier scour protection.
WEDNESDAY, JUNE 14

Rehabilitation
1:30-3:45PM
BALL ROOMS 3 & 4
Session Chair: Thomas G. Leech, PE, SE
Gannett Fleming, Inc., Pittsburgh, PA

IBC 06-64
1:30PM The New Seismic Retrofitting Manual For US Highway Bridges
Phillip Yen and John O’Fallon, FHWA, McLean, VA; Jerry O’Connor, MCEER, Buffalo, NY

Federal Highway Administration recently completed a comprehensive study to revise the existing Seismic Retrofitting Manual for Highway Bridges, published in 1995. This paper will present the main revisions of this newly being published manual for bridges. While retaining the basic format of the retrofitting process: screening, evaluation and retrofitting, the major changes have been made in this revision include current advances in earthquake engineering, field experience with retrofitting highway bridges, and the performance of bridges in recent earthquakes in California and elsewhere.

IBC 06-65
1:55PM King’s Covered Bridge Restoration
Samer Petro, Gannett Fleming, Inc., Morgantown, WV

This paper presents the rehabilitation design of the King’s covered bridge over Laurel Creek in Somerset County, PA. This covered bridge spans about 120 feet and was built, ca. 1845. The preservation techniques included bulk epoxy adhesives and Glass Fiber Reinforced Polymer (GFRP) rebar and plates to restore and strengthen chord and vertical truss members.
WEDNESDAY, JUNE 14

IBC 06-66
2:20PM  Innovative Design Concepts used to Widen the Notoriously Congested Route 139, 14th Street Viaduct
Manuj Ray and Stewart Willis, DMJM HARRIS, Iselin, NJ

The overall purpose of the project was to seismically retrofit, repair and redeck both the 12th and 14th Street Viaducts while maintaining traffic at all times. Both viaducts, notoriously congested, are located in Hudson County, New Jersey and carry upwards of 50,000 vehicles per day from Jersey City and New York City to points west. Building a new parallel bridge just north of the existing 14th Street Viaduct was essential to avoid extremely costly traffic delays, since the viaduct is located immediately west of the Holland Tunnel approach to New York City.

IBC 06-67
2:45PM  Rehabilitation & Relocation of the Belgium Bridge
Thomas Siwula and Tom Horth, C&S Engineers, Inc., Syracuse, NY; Kurt Bower, NYSDOT, Syracuse, NY

A two lane, 310' long truss bridge on a principal arterial in Belgium, NY was replaced with a five lane bridge. The truss was dismantled, shop rehabilitated, and re-erected on a rural road in Plainville, NY replacing a one lane historic truss. The presentation covers alternatives investigated, erection processes, shop rehabilitation, quality, and cost.

IBC 06-68
3:10PM  SEISMIC PERFORMANCE OF MULTISIMPLE-SPAN SKEW BRIDGES RETROFITTED WITH LINK SLABS
Alp Caner and Gizem Sevgili, Middle East Technical University, Ankara, Turkey

Investigation of more than 100 highway bridges reveal that multi-simple span skew bridges are widely used in Turkey. This paper focuses on evaluating the seismic behavior of multi-simple span skew bridges retro fitted with link slabs. Link slabs provide continuity at deck level by eliminating expansion joints.
**EXHIBITORS**

**Acrow Corporation of America**  
Booth: 84

Contact: Eugene Sobecki  
Phone: 201-933-0450  
Fax: 201-933-3961  
E-Mail: esobecki@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

**American Bridge Manufacturing**  
Booth: 23

Contact: Darko R. Jurkovic, PE  
Phone: 412-631-3000  
Fax: 412-631-4001  
E-Mail: djurkovic@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 Composites Manufacturers Association**  
Booth: 97 & 98

Contact: John P. Busel, Director, Composites Growth Initiative  
Phone: 914-961-8007  
Fax: 914-961-8004  
E-Mail: jbusel@acmanet.org

ACMA is the world's largest trade association representing the composites industry and hosts the largest composites trade show in North America. The ACMA Transportation Structures Council operates to 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
American Galvanizers Association

Contact: John Krzywicki
Phone: 720-554-0900
Fax: 720-554-0909
E-Mail: marketing@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.

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Fax: 904-284-1339
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Fax: 937-275-9566
E-Mail: gary@barsplice.com

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Fax: 518-381-4613
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BendTec, Inc.  Booth: 12
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Fax: 218-722-6598
E-Mail: wendy@bendtec.com
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BID-WELL  Booth: 102
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Bridge design & engineering magazine  Booth: 71
Contact: Lisa Bentley
Phone: +44 (0)20 7973 6698
Fax: +44 (0)20 7973 4797
E-Mail: l.bentley@hgluck.com
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.

**Bridges Magazine**

Contact: Jessica Harper  
Phone: 816-254-8735  
Fax: 816-254-2128  
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A new name, a new look and a whole new market reach! We have redesigned the former Bridge Builder magazine to better reflect the informational needs of the decision makers in the important bridge marketplace, while tripling our market reach!

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Contact: Barrie Mordue  
Phone: 01302 344 010  
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**Burgess & Niple, Inc.**

Contact: Karen Anderson  
Phone: 614-459-2050  
Fax: 614-451-1385  
E-Mail: kanderson@burnip.com
EXHIBITORS

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E-Mail: kstevens@campbellsci.com
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Fax: 717-755-3336
E-Mail: bob_persichetti@cargill.com
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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.

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Fax: 650-261-3799  
E-Mail: bors@chemcosystems.com  
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Phone: 510-845-2177  
Fax: 510-845-4096  
E-Mail: info@csiberkeley.com  

**CONTECH Bridge Solutions, Inc.**  
**Booth: 59**  
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Phone: 937-254-2233  
Fax: 937-254-8365  
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DIS, Inc is a leader in Base Isolation and has provided isolators for over 210 bridges and buildings throughout the world. Notable Bridge Projects include Woodrow Wilson, JFK Light Rail, Golden Gate, Coronado, Richmond San Rafael and the I40 Bridge in Memphis. For more information visit www.dis-inc.com.
# EXHIBITORS

## DMJM Harris
Booth: 38

| Contact: | Norma E. Rowley |
| Phone: | 412-395-8888 |
| Fax: | 412-395-8897 |
| E-Mail: | norma.rowley@dmjmharris.com |


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.

## Dow Corning / SSI
Booth: 11

| Contact: | Marvin Ollar |
| Phone: | 918-587-5567 |
| Fax: | 918-582-7510 |
| E-Mail: | mc.ollar@ssicm.com |

Dow Corning / SSI manufactures and supplies silicone joint sealants, the ‘XJS’ Expansion Joint System and repair products for bridges, highways, airports and parking structures.

## Dynamic Surface Applications
Booth: 103

| Contact: | Ed Shrimp |
| Phone: | 570-546-6041 |
| Fax: | 570-546-2415 |
| E-Mail: | eshrimp@dsa-ltd.com |

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## Dyson Corporation, The
Booth: 109

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Fax: 707-644-5995
E-Mail: eps@earthquakeprotection.com
Earthquake Protection Systems (www.earthquakeprotection.com) is one of the world’s leading manufacturers of seismic isolation bearings. We offer complete seismic isolation services, including bearing design, structural design support, testing, and installation support. Our highly qualified and experienced engineers can provide bearings that have performance and economic benefits for your project.

Enerpac                                Booth: 200 & 201
Contact: Paul hohensee
Phone: 262-781-6600
Fax: 262-783-9562
E-Mail: paul.hohensee@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.

Engineering Methods, Inc.            Booth: 115
Contact: Jerry McFeeters
Phone: 513-563-0400
Fax: 513-563-0422
E-Mail: jerrymcfeeters@engmeth.com
Since 1976, Engineering Methods has provided Finite Element Analysis solutions to hundreds of companies. We represent ANSYS/CivilFEM, the most advanced, comprehensive and reputable analysis and design software package available for bridge, geotechnical, reinforced concrete and other Civil Engineering projects. We can meet all your Civil Engineering structural needs inter/nationally.
ERICO

Contact: Lou Colarusso
Phone: 440-248-0100
Fax: 440-248-0723
E-Mail: www.erico.com
ERICO® was incorporated in Cleveland, Ohio USA in 1903 and, over the past century, has established a reputation for providing engineering excellence and innovative product solutions. ERICO manufactures LENTON® mechanical rebar splices, the most widely used mechanical rebar splices in the world today.

ERICO® Inc. Call 1-800-248-2677 or visit erico.com

Eriksson Technologies, Inc.

Contact: Sarah Carleton
Phone: 813-989-3317
Fax: 813-989-0617
E-Mail: scarleton@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.

Figg Engineering Group

Contact: Cheryl Maze
Phone: 850-224-7400
Fax: 850-224-5428
E-Mail: cmaze@figgbridge.com
The Figg Team is exclusively focused on the design, construction engineering and inspection of major bridges across America to create landmarks and enhance the communities in which the bridges are located. Figg-designed bridges have been honored with more than 225 awards for aesthetics, innovation and efficiency.

Fort Miller Company, Inc., The
Contact: Peter J. Smith
Phone: 518-695-5000
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 lightweight bolt-down Effideck units.

**FreeSpan Systems, Inc.**  
**Contact:** Michael Swalling  
**Phone:** 907-272-3461  
**Fax:** 907-274-6002  
**E-Mail:** msawlling@swalling.com  
FreeSpan Systems, Inc. provides design/build services for construction of ultra long span light duty bridges throughout North America.

**Geotechnics, Inc.**  
**Contact:** Randy O’Rourke  
**Phone:** 412-823-7600  
**Fax:** 412-823-8999  
**E-Mail:** rorourke@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 Geosynthetics Accreditation Institute-Laboratory Accreditation Program (GAI-LAP). The American Association of State Highway and Transportation Officials (AASHTO) and The United States Army Corps of Engineers (COE). Geotechnics has operations in Pittsburgh, Pennsylvania and Raleigh, North Carolina.

**Gerdau Ameristeel**  
**Contact:** Andrew Marquardt  
**Phone:** 888-637-9950
**EXHIBITORS**

Fax: 865-637-9991  
E-Mail: amarquardt@gerdauameristeel.com  
Major steel producer in the United States. Also major fabricator and coating operations for concrete reinforcing steel in North America.

**Greenman-Pedersen, Inc./SG Pinney Instrument Sales, Inc.**  
Contact: Pat Marazzi  
Phone: 772-337-3080  
Fax: 772-337-0294  
E-Mail: pmarazzi@sgpinney.com  
Greenman-Pedersen, Inc. is a top national engineering/architectural design and construction firm involved on major projects throughout the US and overseas since 1966. Provides many multi-discipline services to the building, industrial/commercial, transportation, telecommunications, and power/energy industries. SGP Instrument Sales, Inc., specializes in corrosion instruments including air monitoring equipment and our new line of Safety, GPS equipment and software.

**H2L2 Architects / Planners**  
Contact: Carol Picard  
Phone: 212-688-9800, ext. 20  
Fax: 212-688-9899  
E-Mail: cpicard@h2L2.com  
H2L2 - 99 Years of Infrastructure. Since the design of the Benjamin Franklin Bridge in the early 1900's by our founder Paul Phillipe Cret, H2L2 ARCHITECTS/PLANNERS, LLP has provided architectural design services for a comprehensive range of infrastructure and public works projects including signature spans, river crossings, highway, pedestrian, and railroad bridges.

**Harcon Corporation**  
Contact: Harry Stoltzfus  
Phone: 717-687-9294  
Fax: 717-687-9296  
E-Mail: harry@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**  
Contact: John G. Zuccherella
Hardesty & Hanover, founded in 1887 by noted designer, Dr. J.A.I. Waddell, is one of the nation’s most respected, privately owned consulting engineering firms. With over 117 years of experience in the field of bridge engineering, H&H has been responsible for the planning, designing, and engineering of numerous bridges, highways and expressways throughout the nation.

Hatch Mott MacDonald ................................. Booth: 92
Contact: Tom Jaworski
Phone: 973-912-7512
Fax: 973-379-8970
E-Mail: thomas.jaworski@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. Visit our web site at www.hatchmott.com.

Hilman Rollers ................................. Booth: 32
Contact: Jeff Hill
Phone: 732-462-6277
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

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

InspectTech

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

InspectTech provides easy to use software solutions that streamline the inspection process from onsite to back-office. The BridgeInspect 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.

Interlocking Deck Systems International

Contact: Chris Davis  
Phone: 412-682-3041  
Fax: 412-682-3560
EXHIBITORS

IDS I is dedicated to the design and manufacturing of open and concrete-filled Steel Grid deck systems and structural components for new bridge construction and bridge rehabilitation projects. IDSI offers traditional welded decking systems, as well as the latest in weldless technology. Additionally, IDSI provides in-plant precision machining, steel fabrication, and heavy stamping die fabrication capabilities for general industry.

IVS Hydrodemolition Services ................. Booth: 91
Contact: Ron Ferdig
Phone: 724-335-2829
Fax: 724-335-4756
E-Mail: ron.ferdig@ivsgroup.com
Providing the best hydrodemolition services in the nation.

Jarret Structures, Inc. ......................... Booth: 95
Contact: Jim Hatch
Phone: 413-637-9795
Fax: 413-637-1121
E-Mail: jim@jarretstructures.com
Jarret has been making energy absorbing devices for the protection of structures for over twenty years. With the 2005 acquisition of the seismic business of Enidine Structures, including its E-Structures subsidiary, Jarret is continuing all civil engineering and seismic activities globally under the name JARRET STRUCTURES. More information can be found at www.jarretstructures.com and www.e-structures.com.

KTA-Tator, Inc. ......................... Booth: 61
Contact: Eric Kline
Phone: 412-788-1300
Fax: 412-788-1306
E-Mail: info@kta.com
KTA-Tator, Inc. along with Proceq USA, Inc. will feature the latest instrumentation for the non-destructive testing of concrete structures. This equipment will also be demonstrated in a half-day Special Interest Session on Tuesday afternoon titled “Non-Destructive Testing of Aged Concrete.” KTA-Tator, Inc. is a full-service con-
sulting engineering firm specializing in protective coatings, lead paint abatement services, and welding inspection. Proceq USA, Inc. manufactures the highest quality testing instruments for the metal and concrete industries.

**L.B. Foster**  
*Booth: 73*

Contact: Mike Riley  
Phone: 412-928-3452  
Fax: 412-928-3514  
E-Mail: mriley@lbfosterco.com

L.B. Foster manufactures, fabricates, and distributes products to serve the nation’s surface transportation infrastructure. The company provides a full line of new and used rail, trackwork, and accessories to railroads, mines and industry; it supplies bridge decking, expansion joints, mechanically stabilized earth wall systems, precast concrete products and other products for highway construction and repair; and pipe coatings for natural gas pipelines and utilities.

**LARSA with STAAD.Pro**  
*Booth: 72*

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

LARSA’s flagship product, LARSA 2000/4th Dimension, brings two decades of experience in the structural analysis of bridges and 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 world-wide to provide unbeatable support services.

**LEAP Software, Inc.**  
*Booth: 65*

Contact: Lee Tanase  
Phone: 813-985-9170  
Fax: 813-980-3642  
E-Mail: lee.tanase@leapsoft.com

LEAP Software is the Nation’s leading developer of bridge analysis and design software solutions. Our new LEAP Bridge Suite with Integrated Bridge Software
Technology eliminates repetitive data entry, reduces errors, and allows users to retrieve bridge components as often as needed.

LEAP Bridge is available in many configurations including precast/prestressed concrete beam, precast spliced/post-tensioned girders, and CIP concrete post-tensioned box girders or slabs.

**Lehigh University - ATLSS Research Center Booth: 30**

Contact: R.P. Alpago  
Phone: 610-758-6107  
Fax: 610-758-5902  
E-Mail: rpa2@lehigh.edu  
The Lehigh University ATLSS Research Center has extensive experience in laboratory and field instrumentation, testing, and fatigue and strength evaluation of bridges.

**Lichtenstein Consulting Engineers, Inc. Booth: 86**

Contact: Frank Danberg  
Phone: 215-752-2206  
Fax: 215-752-1539  
E-Mail: fdanberg@lce.us  
Lichtenstein Consulting Engineers (LCE) is a transportation engineering firm that is headquartered in Paramus, NJ and provides design services from ten regional offices on the East Coast. LCE specializes in bridges. Specifically, the firm’s services include design of new bridges and roadways; rehabilitation of historic bridges; bridge inspections; evaluations and load ratings of highway, railroad, and movable bridges; cultural resource investigations including historic bridge surveys; and construction support engineering.

**LUSAS Bridge Analysis Software Booth: 82**

Contact: Terry Cakebread  
Phone: 44 (0) 20 8541 1999  
Fax: 44 (0) 20 8549 9399  
E-Mail: terry.cakebread@lusas.com  
LUSAS develops, supports and markets LUSAS Bridge - finite element software for the analysis, design and assessment of all types of bridge structures. Used on major structures worldwide, LUSAS Bridge solves all types of
linear and nonlinear stress, dynamics, composite, fatigue, buckling, thermal, or soil structure interaction analysis problem.

**McClain & Co., Inc.**  
Booth: 55

Contact: Valerie Ellington-Mills  
Phone: 540-423-1110  
Fax: 540-423-1066  
E-Mail: vmills@mcclainandcompany.com


**MDX Software**  
Booth: 68

Contact: Chris Douty  
Phone: 573-446-3221  
Fax: 573-446-3278  
E-Mail: support@mdxsoftware.com

Developer of curved and straight steel bridge design and rating software for AASHTO ASD, LFD, and LRFD.

**Michael Baker Jr, Inc.**  
Booth: 63

Contact: Jeffrey J. Campbell  
Phone: 412-269-7948  
Fax: 412-375-3998  
E-Mail: jcampbell@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.

**MMFX Steel Corporation of America**  
Booth: 99 & 100

Contact: Salem Faza  
Phone: 949-476-7600  
Fax: 949-474-1130
MMFX Technologies continues to invent world-changing breakthroughs in materials sciences. The technology that makes MMFX steel five times as corrosion resistant and up to three times as strong as conventional steel is today's reality. MMFX steel products are used in bridges, highways, parking structures, and residential and commercial real estate projects.

Moffatt & Nichol

Contact: John Menge, Vice President
Phone: 562-590-6500
Fax: 562-590-6512
E-Mail: Jmenge@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

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

National Steel Bridge Alliance

Contact: Conn Abnee
Phone: 606-724-2347
Fax: 606-724-2504
E-Mail: abnee@nsbaweb.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.

Non-Destructive Testing Group

Contact: 
Phone: 
Fax: 
E-Mail: 
The Non-Destructive Testing Group is committed to providing reliable and accurate non-destructive testing services to ensure the integrity and safety of various structures.
EXHIBITORS

Contact: Mike Forbes
Phone: 616-891-3570
Fax: 616-891-3565
E-Mail: mforbes@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.

Palmer Engineering  
Booth: 53
Contact: Jim Gallt
Phone: 859-744-1218
Fax: 859-744-1266
E-Mail: palmer@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: 21
Contact: Mark Pfeffer
Phone: 402-345-6767 x128
Fax: 402-345-6772
E-Mail: mpfeffer@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: 09
Contact: John Bogue, PE
Phone: 215-345-4591
Fax: 215-345-7853
E-Mail: jbogue@pennoni.com
Pennoni Associates Inc., an ENR top 150 Engineering firm, provides transportation engineering, bridge inspection and design, marine and underwater engineering, materials testing, construction inspection, civil engineering, water/wastewater engineering, building systems, structural engineering, geotechnical engineering, surveying and site design/landscape architecture services. Pennoni employs more than 600 personnel in 17 domes-
Peoples Republic of China  
Booth 203-205
The Peoples Republic of China will be the “Featured Country” at the 2007 International Bridge Conference. You may view a sample of the bridge programs currently underway and recently completed at the 2006 IBC.

Power Team  
Booth: 6
Contact: Beth Waelti  
Phone: 815-873-3720  
Fax: 815-873-3391  
E-Mail: beth.waelti@fluidpower.spx.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: 17
Contact: John S. Dick  
Phone: 312-360-3205  
Fax: 312-786-0353  
E-Mail: j.dick@pcinst.com
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: 14
Contact: Heinrich O. Bonstedt  
Phone: 610-395-2338  
Fax: 610-395-8478  
E-Mail: bonstedt@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.

**Q.B. Associates, Inc.**

Booth: 28

<table>
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<tr>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
<th>E-Mail</th>
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<tbody>
<tr>
<td>Neil Brown</td>
<td>207-743-8885</td>
<td>207-743-0598</td>
<td><a href="mailto:neil@spg-antirock.com">neil@spg-antirock.com</a></td>
</tr>
</tbody>
</table>

Antirock has been protecting bridge decks worldwide since 1976 with its first installation still in place 29 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: 40 & 41

<table>
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<tr>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
<th>E-Mail</th>
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<tbody>
<tr>
<td>Marc D. Stafford</td>
<td>716-691-3301</td>
<td>716-691-3305</td>
<td><a href="mailto:mstafford@rjwatson.com">mstafford@rjwatson.com</a></td>
</tr>
</tbody>
</table>

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.

**RADCON Formula #7**

Booth: 39

<table>
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<tr>
<th>Contact</th>
<th>Phone</th>
<th>Fax</th>
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<tbody>
<tr>
<td>Edward L Byrne</td>
<td>612 9362 3511</td>
<td>612 9362 3244</td>
<td><a href="mailto:sales@radcrete.com.au">sales@radcrete.com.au</a></td>
</tr>
</tbody>
</table>

Radcrete Pacific is global distributor for RADCON #7 - an advanced biochemical technology that waterproofs concrete for life by penetrating concrete and creating a gel within cracks, pores, and capillaries - sealing cracks
to 0.08" and resealing hairline cracks 0.012" that develop after treatment.

This US-invention, with a proven 30-year track record, suits new and existing structures.

**Rampart Hydro Services**  
Booth: 106

Contact: Beth W. Newbold  
Phone: 412-262-4511  
Fax: 412-262-1556  
E-Mail: bnewbold@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.

**Reinforced Earth Company, The**  
Booth: 19

Contact: Alicia Olson  
Phone: 703-821-1175  
Fax: 703-821-1815  
E-Mail: info@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: 76

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

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: 36
Contact: Rick Schwer
Phone: 847-391-1048
Fax: 847-390-0408
E-Mail: rschwer@sgcmail.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.

Ropelink, Inc. Booth: 5
Contact: Hamid Vossoughi
Phone: 212-295-2122
Fax: 212-295-2121
E-Mail: hvossoughi@ropelink.com
Specialty access, inspection, maintenance and repair of structures at high and difficult access locations.

Salit Specialty Rebar Booth: 52
Contact: Kevin R. Cornell
Phone: 716-299-1990
Fax: 716-299-1993
E-Mail: kcornell@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: 51
Contact: Lubin Gao
Phone: 443-280-3155
Fax: 703-644-9360
E-Mail: lgao@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. www.sassuite.com

Seismic Energy Products, L.P. .................. Booth: 85
Contact: Steve Bowman
Phone: 903-675-8571
Fax: 903-677-4980
E-Mail: steve.bowman@sepbearings.com
Nation's largest manufacturer of seismic isolation bridge bearings, elastomeric bridge bearings, and Fluorogold® Teflon® slide bearings.

Sherwin-Williams Company .................... Booth: 66
Contact: Terri Lassa
Phone: 216-566-1580
Fax: 216-566-1832
E-Mail: terri.k.lassa@sherwin.com
Developing the smartest industrial and marine coatings takes a lot of experience. Delivering them as complete, unique solutions in your industry takes even more. At Sherwin-Williams, we've worked hard to become the leader. We're more than a coatings manufacturer. We're a strategic source helping you stay on top of your industry.

SIKA Corporation ............................. Booth: 07
Contact: David White, PE
Phone: 201-933-8800
Fax: 201-933-6225
E-Mail: white.dave@sika-corp.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. Visit the Sika Corporation Construction Products Division website at www.sikaconstruction.com.

Silica Fume Association .................... Booth: 114
Contact: Tony Kojundic
Phone: 412-299-7229
Fax: 412-299-7238
E-Mail: tony@silicafume.org
EXHIBITORS

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: 20
Contact: William J. Sofis, Jr.
Phone: 724-378-2670
Fax: 724-378-3719
E-Mail: wsofis@sofiscompany.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.

SSPC Booth: 31
Contact: Lorena Walker
Phone: 412-281-2331, ext. 215
Fax: 412-281-9993
E-Mail: walker@sspc.org
Founded in 1950, SSPC is the only non-profit association focused entirely on the protection and preservation of concrete, steel and other industrial and marine structures and surfaces through the use of high-performance coatings. SSPC is the leading source of information on surface preparation, coating selection, coating application, environmental regulations, and health and safety issues that affect the protective coatings industry. SSPC’s many industry-specific products and services include standards development, technical publications, training courses, certification programs, conferences, an expanding range of online resources, and more. Learn more about SSPC at http://www.sspc.org

Stirling Lloyd Products, Inc. Booth: 03
Contact: Simon Greensted
Phone: 860-666-5008
EXHIBITORS

Fax: 860-666-5106
E-Mail: northamerica@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.

Structal Bridges
Contact: Dominique Tetreault
Phone: 418-683-2561
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Structal-bridges is the most important bridge fabricator in Canada. We are known for the quality of our products and the reliability of our service. Structal has been specialized in the design and the fabrication of various types of bridges. Whether they are road, logging or railway, our team will make sure that the products we deliver meet your standards and expectations.

For more information, visit our website:
www.structalbridges.ws

Structural Integrity Systems, LLC
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SISllc applies patented wireless, sensor, and computer technologies to help engineers determine how a structure is reacting to its dynamic loading. Projects have ranged from an arena to a laminated glass deck cable stayed pedestrian bridge to a filled concrete arch to a rolling lift bascule railroad bridge.

TY Lin International
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T.Y. Lin International (TYLI) is the world leader in the design of major bridges and transportation infrastructure projects. Our firm is recognized for award-winning, innovative, cost-effective, and constructible designs around
the world. TYLI offers clients a full spectrum of consulting services from site analysis and conceptual design to the development of final plans, specifications, and cost estimates. We offer complete inspection services, structural investigations, feasibility and constructability reviews, value engineering studies, and engineering for the rehabilitation, repair, and seismic retrofit of existing structures.

**Tamms Industries**

**Booth: 62**

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E-Mail: sscarp@tamms.com  

Tamms is a leading manufacturer of polymer concrete bridge deck overlays. Flexolith overlays have been in service for over 30 years. The Flexolith Polymer Concrete System combines a strong, flexible epoxy polymer binder with a special grade aggregate providing high fracture and polish resistance.

**Termarust Technologies**

**Booth: 89**

Contact: Wayne A. Senick  
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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.

**TNO DIANA North America**

**Booth: 8**

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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.

**MIDAS/Civil Ver 7** incorporates Forward Stage large displacement analysis for cable stay bridges, which can concurrently include post-tensioning segmental spans in comprehensive construction stages. Analysis of post-tensioning segmental bridges, which reflect creep, shrinkage and all tension losses, has become even easier to use. Nonlinear fiber models and bridge rating capabilities are also added. Graphic user interface has been completely renewed to provide even easier interface.

**Transpo Industries Inc.**

- **Booth:** 101
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- **E-Mail:** jkarlson@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.

**TRC Imbsen**

- **Booth:** 34
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IMBSEN & Associates, Inc., A TRC Company, provides
engineering services in support of the transportation and bridge industries with proven excellence in federal, state and local agency projects. Another service IMBSEN provides is the selling, supporting and maintaining of multiple engineering design programs through IMBSEN Software Systems.

**USL / Geocel Holdings Corporation**  
Booth: 206

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With over twenty years of experience, Universal Sealants (USL) offers complete solutions for bridge deck protection. USL is one of the world’s leading specialists in the manufacture, supply and installation of bridge expansion joints and waterproofing membranes. USL is able to undertake contracts worldwide.

**Vector Corrosion Technologies**  
Booth: 94

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Vector Corrosion Technologies specializes in products and services for extending the life of concrete structures experiencing corrosion of the reinforcing steel. Vector’s expertise includes corrosion investigation, and design and installation of corrosion mitigation systems such as embedded galvanic anodes, electrochemical chloride extraction, and both galvanic and impressed-current cathodic protection.

**Watson Bowman Acme Corp.**  
Booth: 75

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Westfall Company, Inc.        Booth: 24
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Wheeling Corrugating Company  Booth: 74
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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".

Whitman Requardt & Associates, LLP Booth: 104
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WR&A, a multi-discipline top ENR 200 engineering firm, serves federal, state, and local governments throughout the Mid-Atlantic region. The firm’s engineers create innovative, cost-effective, award winning bridge designs and provide bridge inspection, structural evaluation and analysis services. WR&A is headquartered in Baltimore, Maryland with offices in Delaware, Pennsylvania, and Virginia. Web site: www.wrallp.com

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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.

Wire Rope Corp. of America, Inc.  Booth: 110
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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: 70
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WW, manufacturer of Bethlehem Wire Rope is one of the largest and most experienced maker of rope and strand in the America's. Our world class engineering staff can assist you in resolving your problems. When you think of rope and strand think Wirerope Works.