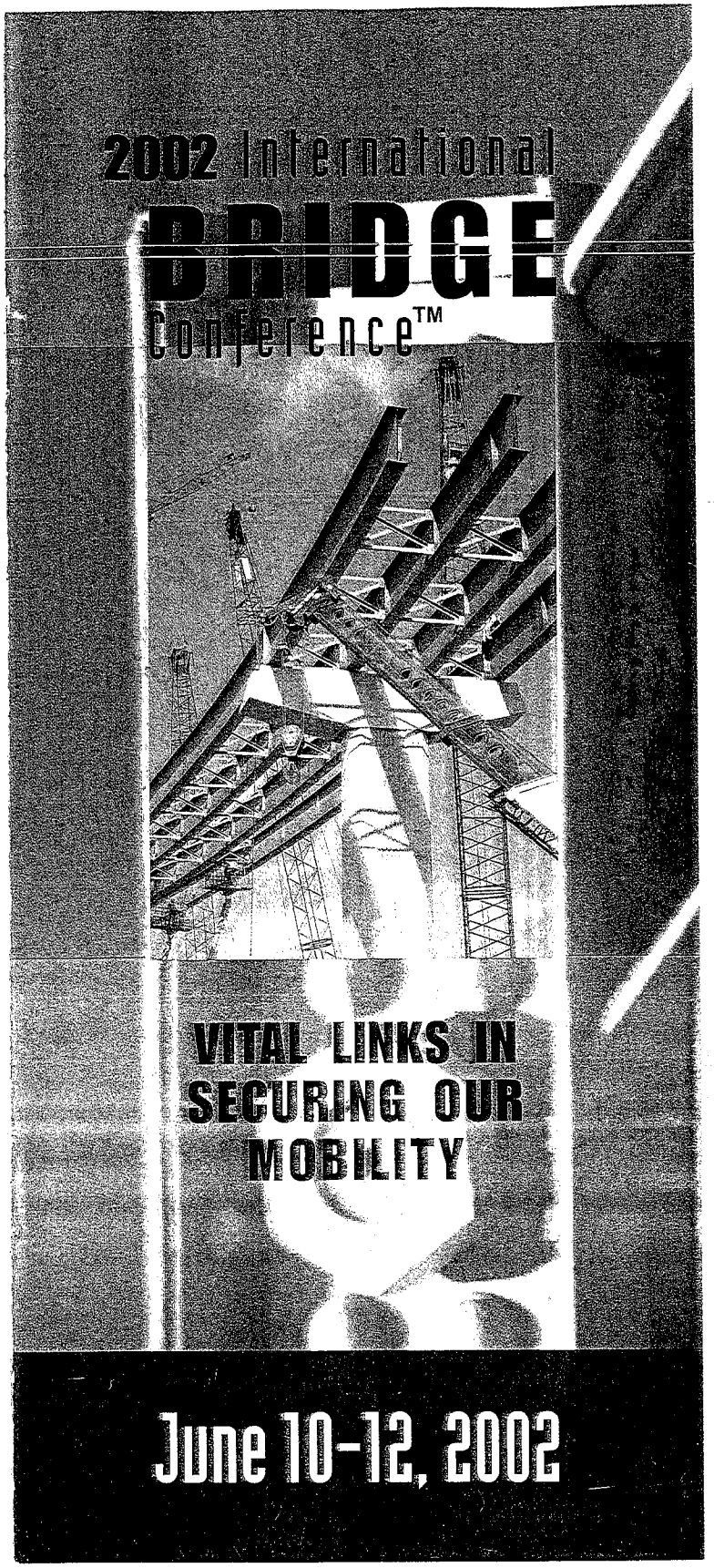
TABLE OF CONTENTS



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CHAIRMAN'S WELCOME

Welcome to Pittsburgh, the "City of Bridges", for the 19th annual International Bridge Conference™. We have assembled an outstanding program that should make this year's Conference truly memorable.

The IBC continues to be the preeminent arena for the bridge industry. Primarily sponsored by the Engineers' Society of Western Pennsylvania, the Conference is guided by the Executive Committee — a group of volunteers representing bridge owners, designers, constructors, suppliers, and educators. The Executive Committee, in conjunction with the ESWP Staff has put in many hours of preparation so that you can be assured of a Conference of the highest quality.

We are extremely pleased to be able kick-off this year's Conference by offering you an outstanding lineup of speakers for the Monday morning **Keynote Session**. The **Utah** contingent is excited about the opportunity to showcase their state and its bridges, and we are honored to have them as this year's Featured State. Please be sure to visit with them in the Brigade Room during the Conference.

The tragic events of September 11, 2001 have made us all much more aware of the security of the transportation infrastructure that we use and work with each day. Let this year's theme — **Vital Links in Securing our Mobility** — serve as a reminder of the critical role bridge professionals have on this infrastructure. In what is anticipated to be a highlight of this year's Conference, representatives of the **AASHTO Task Force on Transportation Security** will present an update on their activities. Be sure not to miss this important session on Tuesday morning.

We will also have the usual full slate of **Technical Sessions** and **Seminars** to keep you up-to-date with the latest technology and projects in the world of bridge engineering. We would also like to offer our congratulations to the authors whose papers have been selected for presentation at the Conference, as competition was very keen. Again, **over 100 Exhibitors** will be present to showcase the latest products and services. Take the time to mingle with them and see what they have to offer.

I hope you enjoy your stay and trust you will find the Conference an educational and enjoyable experience.

Donald W. Herbert, P.E.
2002 IBC General Chairman

IBC HISTORICAL PERSPECTIVE

John A. Roebling Medal Winners

Award for lifetime achievement in bridge engineering

2002 Jackson Durkee, C.E., P.E.
2001 James E. Roberts, California Department of Transportation
2000 Eugene C. Figg, Jr., P.E., Figg Engneering Group
1999 Abba G. Lichtenstein, P.E., Dr. Eng.
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/Retired from California DOT
1992 Frank L. Stahl, Amman & 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 & Bridsall

George S. Richardson Medal Winners

Award for a single, recent, outstanding achievement

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 Tsutumu 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

IBC HISTORICAL PERSPECTIVE

Gustav Lindenthal Medal Winners

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

2002 Figg Engineers, Linda Figg, for the Broadway Bridge, Daytona Beach, Florida
2001 Øresund Fixed Link Bridge Project, Henrik Christensen, for the Øresundskorsortiet, 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.

2002 Jiangsu Provincial Department of Communications for the Jiangyin Bridge, China

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

Sunday, June 9	5:30pm - 8:00pm
Monday, June 10	8:00am - 6:00pm
Tuesday, June 11	7:00am - 5:00pm
Wednesday, June 12	7:00am - 1:30pm

Registration Lists

Registrations received prior to May 31 have been compiled in the IBC PRE-REGISTRATION LIST. This popular service provides attendees with additional networking opportunities.

An addendum to the registration list will be available Wednesday morning. This list 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 on Wednesday.

ATTENDEE INFORMATION

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 from 8:00am - 5:00pm on June 10-12. Messages will be retained until the end of each day.

IBC Exhibition

One of the main attractions of the Conference is the IBC EXPO. As you stroll through over 100 exhibits, you will be able to explore the latest technologies, products and services the bridge industry has to offer.

The IBC EXPO is located in Ballroom 1, the Ballroom Foyer, Kings Garden and our newest area — Sterlings. You will be able to view the exhibits during the following hours:

Monday, June 10	11:00am - 8:00pm
Tuesday, June 11	7:00am - 5:00pm
Wednesday, June 12	7:00am - 1:30pm

Badge Identification

Please wear your IBC name badge at all times. 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.

Hotel Information

Hilton Pittsburgh
Gateway Center
Pittsburgh, PA 15222
Telephone: (412) 391-4600
Business Center fax: (412) 471-4485

Renaissance Pittsburgh
107 Sixth Street
Pittsburgh, PA 15222
Telephone: (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 T-shirts, Golf Shirts, Sweatshirts, and Golf 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 up until Wednesday at 2:00pm.

Pre-prints

Pre-prints for all technical presentations are available at the Pre-Print Booth located in the Ballroom 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 8:00pm
Monday:	8:00am to 6:00pm
Tuesday:	8:00am to 5:00pm
Wednesday:	8:00am to 1:30pm

ATTENDEE INFORMATION

Coffee Stand

Looking for some coffee to start your day or a shorter line during the afternoon breaks? Complimentary coffee and breakfast breads are available thoughout the Exhibit Hall hours in the **Sterlings area** on the Lobby Level.

Pittsburgh Recreational Highlights

The **Three Rivers Arts Festival** is an annual Pittsburgh tradition marking the beginning of the summer season. The Festival, which attracts artists from around the country, 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 at the food booths 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 you door.

The **Duquesne Incline**, utilizing two original 1877 cable cars, is a working museum. Visit the Upper Station's display of the Duquesne Incline's history and pictures of other cable and rail cars from around the world. A spectacular view of the "Golden Triangle" can be seen from the Duquesne Incline Observation Deck atop Mt. Washington. Hours of operation are: Monday - Saturday, 5:30am to 12:45am; Sunday, 7:00am to 12:45am.

Sunday Night IBC Dinner Trolley to Pittsburgh's fabled "Strip District" Originally a bustling "strip" of land along the Allegheny River where merchants would buy and sell fresh fruits and vegetables, it's grown into one of the regions best areas for dining and nightlife. Everything from sandwiches to jazz to brew pubs are open and waiting for you on Sunday evening. Simply jump on our complimentary trolley service and enjoy some of Pittsburgh's nightlife. Hours are from 5:00pm to 10:00pm — Sunday only.

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.

Sponsored by:
Engineers' Society of Western Pennsylvania
337 Fourth Avenue, Pittsburgh, PA 15222
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FAX: (412) 261-1606
E-MAIL: conf@eswp.com
WEB SITE: www.eswp.com

SUNDAY JUNE 9

11AM - 6PM	EXHIBIT SET-UP
5:30 - 8PM	REGISTRATION / PREPRINT OPEN
5 - 10PM	DINNER TOLLEY STOPS AT HILTON FRONT ENTRANCE

MONDAY JUNE 10

8AM - 6PM	REGISTRATION / PREPRINT OPEN
11AM - 8PM	EXHIBIT HALL OPEN

Keynote Session

Session Chair — Donald W. Herbert, PE
Pennsylvania DOT, Uniontown, PA

8:30AM-11AM | **BALLROOM 2, MEZZANINE**

The Honorable Bradley L. Mallory
President of AASHTO for 2002, Secretary of Transportation, Pennsylvania Department of Transportation
"Funding America's Future"

Frank Lombardi, PE
Director of Engineering, Port Authority of New York & New Jersey
"The George Washington Bridge: 70 Years of Innovation"

Charles H. Thornton, PhD, PE
Chairman, The Thornton-Tomasetti-Cutts Group, Inc.
"Responding to the World Trade Center Emergency"

The Honorable John Njord, PE
Executive Director, Utah Department of Transportation
"UDOT's Olympic Effort"

Bridge Awards Luncheon

11:15AM-12:45PM | **BALLROOMS 3 & 4, MEZZANINE**

George S. Richardson Award
Accepting: the British Columbia Ministry of Transportation for the Lions Gate Bridge, Vancouver, BC

John A. Roebling Award
Accepting: Jackson Durkee, C.E., P.E.

Gustav Lindenthal Award
Accepting: Linda Figg, Figg Engineers, for the Broadway Bridge, Daytona Beach, FL

Eugene C. Figg Jr. Award
Accepting: Jiangsu Provincial Department of Communications for the Jiangyin Bridge, China

Featured State Session: Utah

Session Moderator

Carlos Braceras
Utah Department of Transportation
Deputy Executive Director
Salt Lake City, UT

1PM-5PM	BALLROOM 2, MEZZANINE

1:00pm

Challenges of the I-15 Reconstruction Project — UDOT's First Design-Build Project

IBC-02-01

Raymond D. Cook, PE, Utah Dept. of Transportation, North Salt Lake, UT

The 17-mile, $1.59 billion I-15 Reconstruction Project in Salt Lake City, Utah was the largest highway design-build project ever awarded to a single contractor. The project included the design and construction of 142 bridges. This paper presents an overview of the project, UDOT's unique role on the project, how partnering was effectively used to ensure a successful project and the design-builder's solutions to engineering challenges.

1:25pm

In-Situ Tests of I-15 Bridge and FRP Strengthening of I-80 Bridge

IBC-02-02

Chris P. Pantelides, PhD, University of Utah

The 17-mile, $1.59 billion I-15 Reconstruction Project in Salt Lake City, Utah provided an opportunity to test two bents, one in the as-is condition and one rehabilitated with Carbon Fiber Reinforced Polymer composites. The experience from these tests was used in the strengthening and rehabilitation of I-80 bridges.

1:50pm

Emergency Replacement of I-80 Bridge Into Salt Lake International Airport

IBC-02-03

David Nazare, PE, Utah Dept. of Transportation, Salt Lake City, UT

Designed and constructed in the mid 1980's, the I-80 WB ramp into Salt Lake International Airport was a 300 foot single span bridge with a steel girder superstructure on a large radius curve. In September 2000, the Utah Department of Transportation (UDOT) became aware that some of the steel diaphragms were buckling; the bridge was closed

and a temporary shoring contract was let to place 2 intermediate supports. In April 2001, with the warming weather, other steel members started showing signs of distorting. The bridge was closed again, and since a feasibility study concluded that retrofit would cost about as much as a new bridge, the bridge was removed. Construction of the new bridge began in July 2001 and was opened to traffic in early November 2001.

2:15pm

Hurricane Arch Bridge Rehabilitation

IBC-02-04

Todd B. McMeans and Bradley J. Dillman, Modjeski and Masters, Inc

Constructed circa 1937, the Hurricane Arch Bridge was slated for rehabilitation to increase its roadway width and structural capacity. Sensitivity to the three-hinged steel deck arch's historic nature was key in the development of structural modification details. Fixing of the center arch hinge and a lightweight replacement deck system were essential elements in meeting the rehabilitation goals.

2:40-3:10PM COFFEE BREAK

3:10pm

Lateral Pile Load Testing for I-15 Design/Build Project

IBC-02-05

Kyle Rollins, BYU, Civil and Environmental Engineering Department

Lateral seismic forces played a major role in the design of the 140 pile-supported bridges and overpasses involved on the I-15 reconstruction project. To minimize the construction costs and refine the design assumptions, lateral load tests were performed on single pipe piles with several diameters at ten locations along the corridor prior to construction.

3:35pm

Cherry Hill Bridge Liquefaction and Lateral Spread Evaluation and Mitigation

IBC-02-06

Jon Bischoff, PE, Utah Dept. of Transportation

This case history summarizes the geology, analysis methods, mitigation requirements, and proposed quality control for the Cherry Hill Interchange project in Davis County, Utah.

Featured State Session: Utah, continued

4:00pm

UDOT Bridge Operations

IBC-02-07

David Eixenberger, PE, Utah Dept. of Transportation, Salt Lake City, UT

This presentation will discuss UDOT's increased emphasis on the "Operational Management" of its bridge system. Discussions will include how Utah's Bridge Division is expanding its operational role beyond routine inspections to also include: asset management, traffic operations, information technologies, emergency planning, and incident management. The operational role of Utah's Bridge Division during the recent 2002 Winter Olympics will be discussed as a case study.

4:25pm

George S. Eccles Legacy 2002 Winter Olympics Bridge

IBC-02-08

Mitchell Balle, PE, and Steve Haines, Parsons Transportation

The George S. Eccles Legacy 2002 Bridge is an innovative cable-stayed bridge at the University of Utah in Salt Lake City, Utah. The type selection process involved many stakeholders. The bridge was designed using state of the art 3-D analysis. The construction sequence simplified cable stressing. The bridge has many unique features.

Proprietary Session

Session Chair: Eric Kline
KTA-Tator, Inc., Pittsburgh, PA

4PM - 6PM	BALLROOMS 3 & 4, MEZZANINE

4:00pm

Two Weekends In November: The Design, Fabrication and Erection of a Permanent Replacement Bridge

IBC-02-09

Peter Smith, PE, The Fort Miller Co., Inc., Schuylerville, NY and Lisa Grebner, PE, Modern Continental Construction Co., Inc., Cambridge, MA

The Lower Level of the Long Island Expressway Bridge over 58th Street in Queens, NY was replaced in two weekend closures using the Inverset System. This paper shows how this complicated structure was replaced without significantly impacting the 87,000 vehicles using it each day by implementing innovative design, fabrication and construction techniques.

4:20pm

The Sandwich Plate System for Bridge Decks

IBC-02-10

D.J. Laurie Kennedy, Scott B.D. Alexander, PhD and Roger A. Dorton, PhD, Intelligent Engineering (Canada) Limited, Ottawa, Ontario, Canada

The Sandwich Plate System, comprising two steel flange plates bonded to a continuous elastomer web, much stiffer and stronger than a single steel plate, doesn't need stiffeners and is fatigue insensitive. An SPS deck is designed to replace the orthotropic deck of the stiffening box girder of a suspension bridge.

4:40pm

FRP Pre-Stressed & Post-Tensioned Bridge Deck System Used in Columbus, Ohio

IBC-02-11

Robert Thompson, Fiber Reinforced Systems, Ltd., Columbus, OH

Bridges in the United States are deteriorating at alarming rates. Corrosion of reinforcing steel in concrete decks has prompted researchers to investigate non-corrosive materials such as Glass Fiber Reinforced Polymers (GFRP) for bridge decks. This paper discusses a unique FRP deck system, which combines pre-stressed concrete and post-tensioning.

Proprietary Session continued

5:00pm

Mapping Concrete Deterioration: High-Speed Ground Penetrating Radar Surveys

IBC-02-12

Francisco A. Romero, GEOVision Geophysical Services, Corona, CA and Roger L. Roberts, Geophysical Survey Systems, Inc., North Salem, NH

Ground-penetrating radar (GPR) has been used for over a decade to identify deterioration in concrete bridge decks with a varioety of instruments, antennae and analysis methodologies. An analysis method, using these data to isolate the response from the upper mat of reinforcing steel, has been developed to exploit the advantage of air-coupled antennae for conducting surveys at higher speeds yet accurately locate the deteriorated portions of concrete bridge decks.

5:20pm

Windows-Based Computer Analysis of 3-D Sign Bridge Structures

IBC-02-13

Chung Fu, University of Maryland, College Park, MD

WIN-SABRE runs on Windows platform and includes preprocessor, analysis, and postprocessor modules. The preprocessor includes data entry/editing, mesh generation, and on-screen graphics, among other functions. The analysis module includes automatic load calculation (dead, wind, and ice), stress analysis, and code checking. The analysis is based upon the AASHTO Specifications 4th Edition (2001) to standardize the requirements for sign supports and, as a result, have made easier the design of sign supports.

5:40pm

Post Tensioning Modern Technology for Match Cast Joints of Concrete Segmental Bridges

IBC-02-14

Khalil Doghri and Andrew Micklus, Freyssinet LLC, Chantilly, VA

Corrosion of prestressing steel due to duct discontinuity at match cast joints in segmental bridges has been a major concern, especially in aggressive environments. FREYSSINET developed and recently introduced a product, the FREYSSINET LIASEAL, to address these concerns. This simple and effective device achieves complete duct continuity across match-cast joints.

6:00pm

New and Unique State of the Art Intumescent Fire Retardant Technology

IBC-02-67

Avi Aviner, Phillip Rhodes and Cy Fine, Cote-L Industries, Inc., Teaneck, NJ

Over the past two years there has been a tremendous improvement in the function and effect of intumescent technology by a pioneering company in the field. This technology allows very low load levels of a non-halogenated, time-released phosphate powder to be added to all types of coatings (epoxies, moisture-cured polyurethanes, latex or phenolics.) This results in much thinner coatings with superior performance to all other intumescent coatings on the market and provides for a highly effective passive fire-retardant system.

6PM-8PM **ATTENDEES COCKTAIL PARTY HOSTED BY THE IBC EXHIBITORS**

Be sure to visit the Exhibitors in

- **Ballroom 1**
- **Foyer**
- **Kings Garden**
- **Sterlings**

Precast/Prestressed Spliced-Girder Bridges

Chaired by: Ayaz Malik
New York State DOT, Albany, New York

4PM-6PM | **RIVERS ROOM, MEZZANINE**

Precast/Prestressed Spliced-Girder bridges provide additional options, solutions, and alternatives to the bridge industry. Benefits from an owner's perspective will be discussed along with the latest in-depth information related to; fabrication, construction, post-tensioning, analysis, design, and costs of spliced-girder bridges.

National Focus
David A. Tomley, LEAP Software, Inc.

Post-Tensioning Applications
Gary Pueschel, DSI USA, Inc.

Fabrication and Production
Jeff Piper, Tecspan Concrete Structures

Analysis and Design Considerations
Toorak Zokaie, LEAP Software, Inc.

Construction Aspects
Malcolm White, C.J. Mahan Construction Co.

7AM - 5PM	REGISTRATION / PREPRINT OPEN
7AM - 5PM	EXHIBIT HALL OPEN
7AM - 8AM	CONTINENTAL BREAKFAST IN EXHIBIT HALL

Design Session, Part 1

Session Chair: Herbert Mandel, PE
GAI Consultants, Inc., Monroeville, PA

8AM - 10AM | **BALLROOM 2, MEZZANINE**

8:00am

Mingo Creek Viaduct — Challenges of Topography and Geology

IBC-02-15

Thomas G. Leech, PE, Terry L. Downs, PE, and Glenn A. Smith, PE, Gannett Fleming, Inc., Pittsburgh, PA; and Bernie Zielinski, PE, Pennsylvania Turnpike Commission, Harrisburg, PA

This paper discusses the effects of alignment selection based on active mining operations and their effect on foundation selection, the integration of the new structure with the historic railroad trestle, topography effects resulting in the 300' spans and 250' tall piers, and the integration of esthetic principles into the design.

8:25am

Easley Bridge Replacement

IBC-02-16

Samuel N. Spear, GAI Consultants, Inc., Monroeville, PA

The Easley Bridge project involved several interesting challenges. Highly variable bedrock, a busy rail yard and city streets, and the urban setting required inventive solutions during design and construction. Drilled caisson foundations, tapered girders, aesthetic pier treatments, and partnering during construction were employed to meet the project requirements.

8:50am

LRFD Impacts on the Design of the Hathaway Bridge

IBC-02-17

Lex Collins, HNTB Corporation, Orlando, FL

The new Hathaway Bridge consists of two, precast segmental box girders with seven spans of 330 feet, and 200 foot approach spans. The AASHTO LRFD Code was used for the design. This paper compares the LRFD design to the Standard AASHTO Code and the AASHTO Segmental Bridge Guide Specifications.

Design Session, Part 1, continued

9:15am

Restoration and Widening of an Historic Truss Bridge

IBC-02-18

Brian R. Miller, PE, Bergmann Associates, Rochester, NY; Thomas C. Hack, PE, City of Rochester, Rochester, NY; and Richard J. Papaj, PE, New York State Dept. of Transportation, Rochester, NY

The $8.5 million Ford Street Bridge Rehabilitation project includes historic preservation and restoration along with reconstruction and widening of a truss bridge under staged construction. Constructed in 1918 and located in Rochester, NY, the historic Ford Street Bridge consists of a 390-foot long, 3-span pony-truss and associated 70-foot long approach span.

9:40am

Fort Pitt Boulevard Reconstruction: LRFD Retrofit of Existing Piers

IBC-02-19

Amy S. Barth, Edward A. Terhune IV, and David C. Tarasovic, SAI Consulting Engineers, Inc., Pittsburgh, PA

Innovative modification of existing concrete-pile-supported piers is vital to reconstruction of the 1900-foot Fort Pitt Boulevard structure. The LRFD design modifies the 34 piers with a new third column and cap beam supported on steel piles, and economically integrates new and existing elements without overloading existing foundations.

10AM-10:30AM — COFFEE BREAK

Segmental Session

Session Chair: Gerald Pitzer, PE
GAI Consultants, Inc., Monroeville, PA

8AM - 10AM	BALLROOMS 3 & 4, MEZZANINE

8:00am

Construction Highlights, Innovative Features, and Valuable Lessons Learned Constructing Precast Concrete Segmental Viaducts of CA/T, I-90/I-93 Project

IBC-02-20
Firooz Panah, DMJM+HARRIS, Boston, MA

At nearly $100 million, the project consists of over 10,000 ft of multi-level viaduct ramps in a congested site. In addition to discussing construction methods, the paper focuses on several unique and innovative features of the construction, as well as several valuable lessons learned during the past 5 years of construction.

8:25am

Double Decking in the Median for Economic Expansion of Existing Highway

IBC-02-21
José Rodriguez, PE, Figg Bridge Engineers, Tallahassee, FL

Due to limited availability of economically feasible right-of-way, the Tampa-Hillsborough County Expressway Authority is expanding with an elevated structure, designed to be financially and aesthetically attractive. With three reversible lanes, capacity will be significantly increased. Span-by-span erection will be from the top of the newly completed bridge in order to minimize disruption to current traffic flow.

8:50am

Broadway Bridge — Creating Art in the Community's Vision

IBC-02-22
Linda Figg, Figg Bridge Engineers, Tallahassee, FL

The Orlando Sentinel has called Broadway Bridge "Daytona Beach's newest permanent art exhibit." When this unique bridge was dedicated on July 20, 2001 the community realized its dream of a structure that reflected their vision. This presentation will describe how the bridge designers brought the hands-on participation of the community into the design process.

Segmental Session, continued

9:15am

Rafael Mendoza Aviles Bridge — Ecuador

IBC-02-23

Roupen Donikian, Man-Chung Tang, Rafael Manzanarez and Hohsing Lee, TY Lin International, San Francisco, CA; and R. Nivela and Otton Lara, Sismica Consultores, Guayaquil, Ecuador

The paper presents the findings of a multi-disciplinary bridge design project, with the dual objective of widening and seismically rehabilitating an existing 1960's vintage, 3-km long, concrete multi-span river crossing in Ecuador. The optimal solution entailed the addition of a parallel segmental concrete bridge and retrofitting the existing bridge.

9:40am

Design Recommendations for Seismic Retrofit of Reinforced Concrete Bridge Columns by Advanced Composite Jackets

IBC-02-24

Ayman E. Salama, Ph.D., PE, CH2M HILL, Santa Ana, CA and Medhat A. Haroun, Ph.D., PE, University of California, Irvine, CA

A proposed design methodology for the seismic retrofit of R/C bridge columns by composite jackets. Design formulae are based on the results of an extensive structural qualification testing program on 32 half-scale columns. Cyclic flexural and shear tests were conducted on typical circular, rectangular, and square column samples. A comparison is made between the existing design methodology, per Caltrans guidelines for the pre-qualification requirements for alternative column casings for seismic retrofit, and the proposed design methodology, in light of the experimentally-observed and the theoretically-predicted performance of the tested samples.

10AM-10:30AM COFFEE BREAK

Seminars at the Intenational Bridge Conference™ are intensive, four (4) hour, single-topic focused sessions. Each seminar requires an additional fee of $95. Please see the Registration personel at the Registration desk to sign up. Seating for each Seminar is limited.

Mainstream Design: Using LRFD to Design Steel Bridges

Presented by: Dr. Stuart Chen, University of Buffalo
Dr. Dennis Mertz, University of Delaware

8AM-NOON | **RIVERS ROOM, MEZZANINE**

A practical seminar intended to familiarize designers with the latest AASHTO LRFD Bridge Design Specifications. Utilizing a typical highway overpass for a sample design, the requirements for steel design will be presented and discussed.

Design issues which had been previously dictated by code and are now left to the designer's judgment will be explored. Rationale will be presented that will enable the designer to evaluate these situations and determine a cost effective solution that meets code requirements.

Bridge Tour

12:45PM-5PM | **MEETS AT HILTON FRONT ENTRANCE**

For the past 8 years, this Tuesday Bridge Tour has been a sell-out event at the IBC. Due to popular demand, we are pleased once again to offer the tour of unique Pittsburgh area bridges and ongoing construction projects. The tour will be hosted by the Port Authority of Allegheny County. All ticket holders should be at the front of the Hilton wearing proper footwear, no later than 12:45pm. After 12:45pm, individuals from the waiting list will be placed on the tour. Maximum is 40 people — no exceptions.

Coatings Part 1

Chaired by: William L. Shoup
SSPC, Pittsburgh, PA

8AM-NOON | BENEDUM ROOM, LOBBY LEVEL

Fireproofing of Steel Bridges
Paul Greigger, PPG
Art Parker, Hughes Associates

Features of the New ASTM Standard Practice for Determination of Graffiti Resistance
Renee Bynum, Bayer Corporation

Fast Cure Polyurea
Gary Gardner, Sherwin Williams

Containment Platform Load Requirements
Mark Gozion, Containment Design, Inc.

Innovative Systems for the Repair, Protection, Strengthening and Monitoring in Bridge Design and Construction

Presented by: David White, PE
and Jim Chilinski, Sika Corporation
Graeme Jones, C-Probe Technologies, Ltd.

8AM-NOON | DUQUESNE ROOM, LOBBY LEVEL

This session will highlight the latest innovations for repairing and protecting bridge decks, piers, beams and other structural elements. Material technologies and case studies will be presented on topics including:

- FRP Strengthening
- Post-tensioning Grouts
- Segmental Bridge Construction
- Thin-bonded Polymer Overlays
- Penetrating Corrosion Inhibitors
- Rapid Strength Gain Concrete
- Remote Monitoring Capabilities

Methods and examples of state-of-the-art Remote Monitoring techniques will include corrosion rates, chloride content, P/T strand stress/strain, and structural impact.

AASHTO TASK FORCE REPORT

America's Plan to Secure Bridges in The Future

10:30AM-12:30PM **BALLROOM 2, MEZZANINE**

The AASHTO Task Force on Land Transportation Security began its work shortly after the attacks on September 11. The Group has selected IBC 2002 as the site for this special Plenary Session report on their mission and progress. Several state bridge engineers will present individual updates and then participate in a panel discussion. Topics will include an update on the formation and mission of the Task Force, it's plan of action, and, to the extent that it can be revealed, it's progress to date.

Prominent members of AASHTO and the Task Force have come to Pittsburgh to present this update. Topics to be addressed during the Session will include: identifying critical bridges, designating the level of security necessary consistent with the criticality of the structure, ways by which structures can be secured in so that both the National Defense and the population are protected or minimally impacted.

Introduction
Gary L. Hoffman, PE, Chief Engineer, PennDOT

Summary of Task Force Activity
Dr. Tony Kane, AASHTO Director for Technical Services

Highway Assessment Vulnerability Guide
Dr. Michael Smith, Senior Scientist/Assistant Vice President, SAIC Corporation

Panel Presentation:
States' Approach to Bridge Security
Mary Lou Ralls, PE, Texas DOT, State Bridge Engineer
Richard D. Land, PE, CalTrans Deputy Division Chief, Structure Design
James M. O'Connell, PE, NYS DOT, Deputy Chief Engineer, Structures Division

Open Discussion:
Addressing Critical Infrastructure Security

Design Session, Part 2

Session Chair: Carl Angeloff, PE
Bayer Corporation, Pittsburgh, PA

1:30PM-5PM	BALLROOM 2, MEZZANINE

1:30pm

Three Bridges at I-64/Mercury Boulevard Interchange in Hampton, VA

IBC-02-25

Irfan A. Alvi, PE, Alvi Assocaties, Inc., Towson, MD

This paper describes three innovative steel bridges recently designed by Alvi Associates for the Virginia DOT. Magruder Boulevard over I-64 features challenging geometry and high-performance steel box girders. I-64 over Mercury Boulevard features high-performance steel and counterweight abutments. Flyover J over Ramp B features fully-integral construction with curved steel girders.

1:55pm

Illinois Building a Unique Elevated Single Point Urban Diamond Interchange Using Cast-In-Place Post-Tensioned High Performance Concrete Structure

IBC-02-26

Tony F. Shkurti, PhD, Vinod C. Patel, SE, PE, and Hubert Janssen, SE, PE, Teng & Associates, Inc., Chicago, IL

A few elevated Single Point Urban Diamond Interchange (SPUDI) structures have been built in recent years. Illinois is building one using a combination of curved and straight solid box, post-tensioned, High-Performance-Concrete (HPC) girders cast-in-place monolithically with the deck. The intent is to achieve a 75 years projected service life with minimal maintenance. This will be accomplished by using HPC, a latex modified concrete overlay, and by minimizing the amount of tensile stresses in the deck concrete.

2:20pm

A Comparison of Load Rating Methods for Steel Truss Bridges

IBC-02-27

Thomas French, Hoyle and Matthew J. Low, PE, Tanner & Associates, Manchester, NH

General Claims have been made that 10% to 20% live load capacity increases can be gained when evaluating stringer bridges using LFD over ASD or LRFD over LFD when the live to dead load ratio is relatively low. This paper compares all three rating methods on two historic truss bridges.

2:45pm

Design of the Wintergreen Gorge Bridge

IBC-02-28

Robert W. Bondi, Michael Baker Jr., Inc., Coraopolis, PA

Several bridge types were evaluated to cross the environmentally sensitive Wintergreen Gorge. The 334.0-meter (1095.80 feet) long, Girder Bridge, with a main span of 142.0 meters (465.88 feet), best met the EIS objectives and is currently under construction. This paper describes the preliminary bridge type evaluation process and final design incorporating HPS 485W (70W) steel and LRFD design.

3:10PM-3:45PM COFFEE BREAK

3:45pm

Midfield Terminal Curbfront Bridge

IBC-02-29

Thomas Jenkins and Steven Matty, URS Corporation, Hunt Valley, MD

A double-deck, steel-concrete composite bridge was developed to solve multiple challenges. Steel floorbeam and edge-girder gridworks were erected on falsework between concrete columns. The deck for each level was cast with concrete brackets that frame the gridworks with the columns. Elastomeric bearings and falsework positions minimized column bending moments.

Design Session, Part 2, continued

4:10pm

Seismic Evaluation of the Brooklyn-Queens Expressway Cantilever-Retaining Wall Structures

IBC-02-30

Steven W. Bennett, Parsons Transportation Group, New York, NY; Serafim G. Arzoumanidis, PE, Parsons, Bridge & Tunnel Division, New York, NY; and Robert A. Dameron, PE, ANATECH Corporation, San Diego, CA, USA

The evaluation included a unique rigid frame retaining wall structure with three large roadway supporting cantilevers. The analysis accounted for the effects of ground motion variation along the height of the wall, the effect of soil retained by the structure, soil-structure interaction and the effect of adjacent structures.

The study concluded that the structure was vulnerable to excessive displacement in a seismic event which would result in unacceptable levels of concrete damage, therefore retrofit with soil anchor tiebacks was recommended to reduce the displacement of the structure.

4:35pm

Comparative Study of Effective Flange Width Specifications for Composite Steel Bridges

IBC-02-31

Stuart S. Chen, Ph.D., PE, M. Chiewanichakorn, I-S Ahn, and Amjad J. Aref, Ph.D., SUNY at Buffalo, Buffalo, NY

Effective slab width provisions for composite steel bridge members are compared via review of AASHTO, British, Japanese, Canadian and EU specifications. The review brings to light several distinct underlying philosophies and numerical comparisons between the various effective width code formulations. Current research that may lead to revised effective width criteria is presented.

Rehabilitation & Strengthening

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

1:30PM-5PM	BALLROOM 3 & 4, MEZZANINE

1:30pm

Retrofit of the Hoan Bridge to Prevent Brittle Fracture

IBC-02-32

Bala Sivakumar, Lichtenstein Consulting Engineers, Paramus, NJ; William Edberg, Ph.D. and Eli Khoury, PE, Lichtenstein Consulting Engineers, New York, NY

On December 13, 2000, two of the three girders of the Hoan Bridge in Milwaukee developed full depth brittle fractures, leaving the span near collapse. Lichtenstein Consulting Engineers, in conjunction with Lehigh University and FHWA, performed a forensic investigation of the failed span. The forensic investigation concluded that the cracking was due to brittle fracture and not related to fatigue. Lichtenstein performed a long-term retrofit design for the Hoan bridge that addressed the identified causes for the sudden brittle fracture and eliminated all fracture-prone details.

1:55pm

In-Depth Inspection and Investigation of Cable Stays And Post Tensioning of The C&D Canal Bridge

IBC-02-33

Neil A. Shemo, PE, DMJM+Harris, Inc., Philadelphia, PA and Muhammad Chaudhri, PE, Delaware Dept of Transportation, Dover, DE

The SR-1 Bridge crossing the Chesapeake and Delaware Canal near St. Georges, Delaware is a post-tensioned segmental concrete cable stayed bridge. This paper presents the methods utilized and results of the 2001 inspection to investigate the current conditions of the external post tensioning and cable stay systems of this structure.

2:20pm

"Changing Times" — New Suspenders For the Triborough Bridge

IBC-02-34

James Valenti, PE, Greenman-Pedersen, Inc., Astoria, NY

As part of a $142 million rehabilitation project, 184 of the 186 original 2 1/8" diameter suspender rope pairs (368 ropes total) supporting the suspension bridge were removed and replaced under live load conditions using multiple methodologies during a 6 month period.

Rehabilitation & Strengthening continued

2:45pm

Market Street Elevated Reconstruction: Project Challenges and Design Solutions

IBC-02-35

Samuel A. Pickard, PE, DMJM+Harris, Inc., Philadelphia, PA; Emad Krayyem, PE and Jack Tepper, PE SEPTA, Philadelphia, PA

SEPTA has embarked on replacing the 95 year old 9700 foot long double track Market Street Elevated line in Philadelphia with only limited night-time and weekend shutdowns. It includes five elevated stations plus an at grade station outside the city limits. Daily ridership averages over 80,000. The new structure will be a composite steel girder concrete deck structure supported on steel single column bents. The structure will carry a double track direct fixation rail system built using "top-down" construction methods and other innovative construction.

3:10PM-3:45PM COFFEE BREAK

3:45pm

Design and Construction Challenges in Seismic Retrofit of a 2.3 km long Viaduct Structure Crossing an Active Fault in Turkey

IBC-02-36

Anoop Mokha and Victor A. Zayas, Earthquake Protection Systems, Inc., Richmond, CA; Gian Calvi, Universita degli Studi di Pavia, Via Ferrata, Pavia, Italy; and Gaetano Germani, Astaldi S.p.A., Rome, Italy

This paper describes the design challenges encountered in retrofitting the 2.3 km long Trans-European Motorway viaduct that was damaged during the 1999 magnitude 7.2 Duzce Earthquake in Turkey. The existing capacity of the viaduct, level of desired performance, design earthquakes, fault movement and the retrofit scheme utilizing Friction Pendulum seismic isolation will be discussed.

4:10pm

Nondestructive Evaluation of Pre- and Post-Tensioned Tendons: Void Detection and Corrosion Monitoring

IBC-02-37

Michael Chajes and Robert Hunsperger, University of Delaware, Newark, DE

Recent inspection of a precast segmental post-tensioned bridge in Florida indicated that voids are a leading cause of corrosion. A novel nondestructive evaluation technique using time domain reflectometry (TDR) to detect, locate, and identify voids and the extent of defects has been developed and demonstrated. Experimental results from both small-scale laboratory tests and field implementation will be reported.

4:35pm

The Rehabilitation, Survey & Monitoring of the Bear Mountain Bridge Main Cables

IBC-02-38

Jamey A. Barbas, Parsons Transportation Group, New York, NY and William J. Moreau, PE, New York State Bridge Authority, Highland, NY

The rehabilitation of the Bear Mountain Bride cables included opening the existing cables for inspection. During the rehabilitation, observations were made which led to further investigation of the structural health of the southwest cable. The paper discusses the observations, survey, monitoring and the recommendation measures that are being implemented.

Seminars at the Intenational Bridge Conference™ are intensive, four (4) hour, single-topic focused sessions. Each seminar requires an additional fee of $95. Please see the Registration personel at the Registration desk to sign up. Seating for each Seminar is limited.

Advanced Composite Materials — Theory, Design and Practice for Use on Bridges

Presented by: Sarah Cruickshank
Fyfe Co., LLC, San Diego, CA

1PM-5PM | **RIVERS ROOM, MEZZANINE**

This seminar begins with an introduction to composite materials, including the wide variety of fibers and matrix materials available. Advantages and disadvantages of different materials are presented in the context of use for bridge rehabilitation. Design aspects of composite materials will be presented, along with specific design examples. Installation, inspection and testing of composite materials will also be presented.

Coatings Part 2

Chaired by: William L. Shoup
SSPC, Pittsburgh, PA

1PM-5PM | BENEDUM ROOM, LOBBY LEVEL

Electrochemical Impedence Spectroscopy for Evaluating Bridge Coatings
Linda Gray, KTA-Tator, Inc.

Connecticut Painting Cost Update
L. Brian Castler, Connecticut DOT

Program Updates
National Bridge and Painting Programs
Robert Kogler, FHWA

Midwest DOT Maintenance Painting Group
Ted Hopwood, Kentucky Transportation Center

New Shop and Field VOC Regulations
Bernie Appleman, KTA-Tator, Inc.

SSPC Update
Bill Shoup, SSPC

Waterborne Coatings
William Medford, InSpec

Automated LRFD Cast-In-Place Concrete Post-Tensioned Box Girder Design

Chaired by: Lee D. Tanase and Toorak Zokaie,
LEAP Software, Inc.

1PM-5PM | BOARD ROOM, LOBBY LEVEL

For the first time in a public forum, attendees will be exposed to the first and only automated analysis and design for Cast-In-Place Concrete Post-Tensioned Box Girders according to the AASHTO LRFD Specifications. A single span design comparison between the AASHTO Standard and LRFD specifications will provide insight into the similarities and differences between both sets of specifications specific to Cast-In-Place Concrete Post-Tensioned Box Girders.

Key design features include:

- Full-width vs. single web analysis
- Skew effects
- Load distribution
- Loss models

In addition, LEAP Software will showcase a new software product, Conbox, the first dedicated program for the analysis and design of cast-in-place concrete post-tensioned box girders, in both AASHTO Standard and LRFD Specifications.

3D Live Loading for AASHTO LRFD Made Easy

Chaired by: Chris Austin
Bestech Systems, New York, NY

1PM-5PM | FORBES ROOM, LOBBY LEVEL

Determining the optimum place to locate live loads such that they maximize moment and/or shear at all points of interest on a deck is not easy, as anyone who has tried it will testify. This need not be the case if suitable software is employed.

Bestech Systems have recently announced a 3D Live Load Optimizer as part of SAM (the bridge design program) and they will be showing how fast and easy it is to generate optimum loads for AASHTO LRFD.

During each of two identical sessions a multi-span curved bridge deck will be modeled. A particular longitudinal girder will be selected and all of the relevant influence surfaces will be created. Then all of the optimum load cases will be automatically generated, and the structure will be analyzed. Finally, the envelopes of maximum moment and shear will be used for code checking.

The process takes minutes and is very thorough, in stark contrast to the extensive use of time and engineering judgement which otherwise is required.

The software is available free of capital costs from Bestech Systems on Booth #77.

7AM - 1:30PM	REGISTRATION / PREPRINT OPEN
7AM -1:30PM	EXHIBIT HALL OPEN

Construction Session

Session Chair: Victor Bertolina, PE
SAI Consulting Engineers, Pittsburgh, PA

8AM-12:30PM | **BALLROOM 2, MEZZANINE**

8:00am

High Tech Wings — The JFK Light Rail Structure

IBC-02-39
Tony Taddeo, Koch Skanska, Carteret, NJ

The primary objective of the technical document is to cogitate on the structural guide way's innovative features, which have played an essential role in the successful realization of the project. Among such features are the Seismic Isolation of the Guideway structure utilizing seismic isolator bearings, the Pre-Cast Segmental Construction Method of the Guideway, the Continuous Welded Direct Fixation Track, the Stray Current Isolation of the Track, and the Elastic Restraining Devices, which were used to mitigate the Rail-Structure Interactive forces.

8:25am

Demolition of US Grant Suspension Bridge

IBC-02-40
Andreas Felber and David Queen, Buckland & Taylor Ltd., North Vancouver, BC, Canada

The US Grant suspension bridge, across the Ohio River at Portsmouth, Ohio was built in 1927. The bridge superstructure was systematically removed in August 2001 as the first step in making way for a new cable-stayed bridge. This paper describes the bridge, the demolition constraints and the engineering required to safely de-construct the bridge.

8:50am

The Emergency Reconstruction of Goose Creek Bridge

IBC-02-41
Myrosia Dragan, PE, TAMS Consultants, Inc., New York, NY

Only a single, winter construction season was allowed for reconstruction of the side spans of the Goose Creek Bridge over a tidal waterway. Construction proceeded directly adjacent to the existing bascule span, kept operational. Typical construction time was reduced by use of precast concrete elements and a non-conventional abutment.

Construction Session continued

9:15am

Examination of the Response of Curved and Skewed Steel Bridges During Construction

IBC-02-42

Daniel Linzell, Elizabeth K. Norton, Bradley J. Bell, and Jeffrey Laman, Penn State University, University Park, PA

Ongoing projects investigating the behavior of curved and skewed steel bridges during construction are summarized. Two projects are discussed, one involving monitoring a single span, skewed steel plate girder bridge during deck placement and a second examining a three-span continuous, moderately curved steel plate girder bridge during steel erection.

9:40am

Evaluation of Construction Issues and Inconsistent Detailing of Cross-Frame Members in Horizontally Curved Steel I-Girder Bridges

IBC-02-43

Brandon Chavel and Christopher J. Earls, Ph.D., University of Pittsburgh, Pittsburgh, PA

Construction difficulties in horizontally curved steel I-girder bridges can result from unpredicted displacements and stresses during erection, and from inconsistent detailing of cross-frame members. Results obtained from the finite element modeling of a recently constructed curved I-girder bridge shows that close attention must be given to these construction issues.

10AM-10:30AM COFFEE BREAK

10:30am

Construction of US 29 Bridges Over the James River, Lynchburg Virginia

IBC-02-44

E. Alan Saunders, PE, DMJM+HARRIS, Glen Allen, VA and Danny Torrence, Virginia Department of Transportation, Lynchburg, VA, USA

DMJM+HARRIS's Richmond, Virginia office designed the $21-million US29 bridges over the James River, Lynchburg, Virginia for the Virginia Department of Transportation (VDOT). The technical presentation focuses on the construction of the 2400' long, 40' wide and 100' high, parallel structures. Key features include grade 50W steel girders, seven-span 1,200' expansion joint units, special seismic connections, and 120 rocksocketed drilled shafts.

10:55am

Structural Rehabilitation / Deck Replacement Cross Bronx Expressway / Bruckner Expressway Interchange

IBC-02-45

Daniel Y. Wan, PE and Jean P. Lum, PE,, Hardesty & Hanover, LLP, New York, NY

The project interchange carries a 250,000 daily vehicle traffic and serves as a major link between Interstates I-95, I-278, I-678 and I-295. In 111 spans (80% of total), replacement of the bearings and the concrete deck was performed during four different stages. Staging included building a temporary structure to carry two traffic lanes from westbound I-95 to southbound I-278. The reconstruction work started in July 1999 and was completed and open to traffic in December 2001, approximately 17 months ahead of schedule.

11:20am

Overnight Replacement of the I-95 James River Bridge, Richmond, Virginia

IBC-02-46

Michael Zicko and Robert Lofling, Archer-Western Contractors, Ltd., Richmond, VA

Superstructure replacement of two parallel three-lane bridges occurred during nightly closures between 7:00 pm and 6:00 am. Each evening entire spans were replaced with precast composite units (PCU) spanning from pier to pier. Typical PCU's were 22'-6" wide, 88 feet long and weighed to 150 tons.

11:45am

Emergency Bridge Replacement — A Case Study in Cooperative Fast Tracking SEPTA R-5 Fort Washington Bridge

IBC-02-47

Samuel A. Pickard, PE, DMJM+Harris, Inc., Philadelphia, PA and Edward La Guardia, PE, SEPTA, Philadelphia, PA

Tropical storm Allison caused widespread flooding which resulted in the collapse a two span reinforced concrete arch bridge carrying two main line tracks of SEPTA's R-5 commuter rail line. Within hours of the collapse, preliminary superstructure designs were developed, initiating the fast track design. Preliminary plans were made available to prospective bidders within three days, with final design documents provided two days later. From award of contracts to bridge completion, including track and electric traction systems, took 30 days, for a total of five weeks between disruption and restoration of commuter rail service.

Innovative Design Session

Session Chair: Charles Schubert, PE
Michael Baker Jr., Inc., Coraopolis, PA

8AM-12:30PM	BALLROOM 3 & 4, MEZZANINE

8:00am

Aesthetic Opportunities for Extradosed Bridges

IBC-02-48

Thomas Piotrowski and James Fox, H2L2 Architects / Planners, LLP, New York, NY

The extradosed bridge structure type is the next generation technology. Less than one dozen exist. This presentation will discuss findings relevant to aesthetic opportunities of this structure type with respect to cable arrangements, deck types, shapes of towers and piers, lighting, color, and materials.

8:25am

Howell's Mill, West Virginia's Longest Two-Span Continuous Bridge with a Fiber Reinforced Polymer Deck

IBC-02-49

David Deitz, Palmer Engineering Company, Winchester, KY

When Howells Mill Bridge is completed in the Fall of 2002 it will be the longest bridge in the state with an FRP deck. The steel plate girder bridge consists of two 120-foot continuous spans and will be the first bridge with an FRP deck in West Virginia utilizing a reinforced concrete barrier wall.

8:50am

Wichita Riverfront Pedestrian Bridges

IBC-02-50

David D. Byers, PE, Ph.D., HNTB Corporation, Kansas City, MO and Stoyan Stoyanoff, PhD, Rowan Williams Davies & Irwin Inc., Guelph, Ontario, Canada

As part of Wichita's four-phase riverfront development program, two pedestrian bridges have been designed. The two bridges cross over the Arkansas River and Little Arkansas River with spans of 320 feet and 240 feet respectively.

The focus of this paper will be to present the very unique aspects of pedestrian bridge design including lateral and vertical pedestrian induced excitation, theoretical response assessment and comfort criteria for pedestrian use. Stability and dynamic response of the bridge under strong winds will also be discussed.

9:15am

Genesis of a Hybrid-Composite Beam

IBC-02-51

John R. Hillman, PE, SE, Teng & Associates, Inc., Chicago, IL and John W. Gillespie, Jr., Ph.D, University of Delaware, Newark, DE

This paper will address the evolution of a structural member comprised of several building materials, each with unique performance characteristics. The conventional materials are combined in an embodiment of a beam that exploits the inherent benefits of each material in such a manner to optimize the overall structural performance.

9:40am

Field Monitoring of the Boyer Bridge Fiber Reinforced Polymer Deck Installation

IBC-02-52

D. Christian Keelor, Christopher J. Earls, Ph.D., Joe Yulismana, and Vivian Luo, University of Pittsburgh, Pittsburgh, PA

The Boyer bridge, in PennDOT District 10-0, has recently received a fiber reinforced polymer (FRP) deck system that the University of Pittsburgh is currently field monitoring. The field monitoring, and subsequent analysis of results, will yield recommendations for the compression flange effective width that should be used when designing FRP deck/steel stringer composite bridges.

10:10-10:30AM COFFEE BREAK

10:30am

Innovative Design Concepts and Seismic Design for the Marshall Creek Channel Flume

IBC-02-53

Hans Strandgaard and Nader Tamannaie, CH2M HILL, Sacramento, CA

Design and construction of a large concrete flume spanning over a wide freeway in a high seismic zone are discussed. Challenges included heavy service loads, supercritical flows, 7.5 MCE, prevention of leakage through concrete and joints, channel flow during construction and an economical and aesthetic design. Construction feedback is included.

	Ballroom 2 (Mezzanine)	Ballrooms 3 & 4 (Mezzanine)	Rivers Room (Mezzanine)	Benedum (Lobby Level)	Boardroom (Lobby Level)	Forbes (Lobby Level)	Duquesne (Lobby Level)
MONDAY							
8:30-11am	Keynote Session						
11:15am-12:45pm BRIDGE AWARDS LUNCHEON		**Ballrooms 3 & 4**	**Ticket Required**				
1-5pm	Featured State: Utah						
4-6pm		Proprietary Session	Special Interest: Precast/Prestressed Spliced-Girder Bridges				
6-8pm	**ATTENDEES COCKTAIL PARTY — HOSTED BY THE IBC EXHIBITORS**		**Exhibit Hall**				

	Ballroom 2 (Mezzanine)	Ballrooms 3 & 4 (Mezzanine)	Rivers Room (Mezzanine)	Benedum (Lobby Level)	Boardroom (Lobby Level)	Forbes (Lobby Level)	Duquesne (Lobby Level)
TUESDAY							
7-8am	**ATTENDEE'S CONTINENTAL BREAKFAST**		**Exhibit Hall**				
8am-Noon	Design Session Part 1 (ends at 10am)	Segmental Session (ends at 10am)	Seminar: Mainsteam Design Using LRFD to Design Steel Bridges	Special Interest: Coatings (Part 1)			Special Interest: Innovative Systems for Bridge Design and Construction
10:30am-12:30pm	AASHTO Task Force Report						

	Ballroom 2 (Mezzanine)	Ballrooms 3 & 4 (Mezzanine)	Rivers Room (Mezzanine)	Benedum (Lobby Level)	Boardroom (Lobby Level)	Forbes (Lobby Level)	Duquesne (Lobby Level)
TUESDAY							
Noon-1:00pm	**LUNCH BREAK**	**PITTSBURGH BRIDGE TOUR (departs 12:45pm)**		**Advance Ticket Purchase Required**			
1-5pm	Design Session, Part 2 (starts at 1:30pm)	Rehabilitation & Strengthening (starts at 1:30pm)	Seminar: Advanced Composite Materials	Special Interest: Coatings (Part 2)	Special Interest: Automated LRFD for Box Girder Design	Special Interest: 3D Live Loading for AASHTO LRFD	

	Ballroom 2 (Mezzanine)	Ballrooms 3 & 4 (Mezzanine)	Rivers Room (Mezzanine)	Benedum (Lobby Level)	Boardroom (Lobby Level)	Forbes (Lobby Level)	Duquesne (Lobby Level)
WEDNESDAY							
8am - Noon	Construction Session (ends at 12:30pm)	Innovative Design Session (ends at 12:30pm)	Seminar: Wind Engineering for Bridges	Special Interest: FRP Composites for Bridge Construction	Special Interest: Use of Prefabricated Bridge Elements and Systems		Seminar: High Performance Steel Bridges
12:30 - 1:30pm	ATTENDEE'S BUFFET LUNCHEON		Exhibit Hall				
1:30pm - 3:45pm	Long Span Bridges Session	Movable Session					

Innovative Design Session, continued

10:55am

Six Northern State Parkway Bridges

IBC-02-54

Roxanne Bebee Blatz and Robert H. Smith, Jr., PE, Goodkind & O'Dea, Inc., New York, NY; Michael Geiger, PE, New York State Dept. of Transportation, Hauppauge, NY; and Steven Hubbard, PE, New York State Department of Transportation, Albany, NY

The reconstruction of the Northern State Parkway in Nassau County New York presented challenges in the areas of aesthetics, M&PT, structural design and community relations. The use of innovative concepts, most notably in the bridge design, addressed these concerns on this unique and challenging highway / bridge project.

11:20am

Conductive Concrete for Bridge Deck Deicing

IBC-02-55

Sherif Yehia and Christopher Tuan, University of Nebraska, Omaha, NE

Conductive concrete is a cementitious admixture containing electrically conductive components to attain stable and high electrical conductivity. Due to its electrical resistance and impedance, a thin conductive concrete overlay can generate enough heat to prevent ice formation on a bridge deck when connected to a power source.

11:45am

Deck Replacement for the Skewed Truss Bridge on MD 24 Over Deer Creek in Harford County, Maryland Utilizing a Fiber-Reinforced Polymer (FRP) Deck

IBC-02-56

Jeffrey Robert, Maryland State Highway Administration, Baltimore, MD; Chung C. Fu, PhD, PE and Hamed Alayed, University of Maryland, College Park, MD

A thorough discussion is presented on Maryland State Highway Administration's first bridge rehabilitation project utilizing a fiber reinforced polymer (FRP) deck. The discussion includes design details, installation procedure, construction methods and in-situ load testing with a wireless monitoring system. Recommendations are also offered on improving the design details based on this experience.

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Wind Engineering For Bridges

Presented by: Peter Irwin, Ph.D.
President, RWDI

8AM-NOON | **RIVERS ROOM, MEZZANINE**

The seminar will describe the wind issues that are important for large bridges, including wind design criteria, wind statistics, aerodynamic stability, wind loading, wind issues during construction, cable vibrations and wind tunnel testing. The way that each of these issues is addressed will be described beginning with some general background on wind engineering. Aerodynamic instabilities such as vortex excitation, flutter and galloping will be examined and theoretical methods of predicting the bridge dynamic response to turbulence buffeting will be reviewed. Problems and solutions will be illustrated using examples of specific projects.

High Performance Steel Bridges

Presented by AISI
Moderated by: Alex Wilson
Chairman, AISI High Performance Steel Steering Committee and Customer Technical Services Manager, Bethlehem Steel Corp.

8AM-NOON | **DUQUESNE ROOM, MEZZANINE**

The Steel Bridge Forum will focus on the design, cost-effectiveness and fabrication of High Performance Steel bridges. This forum will benefit experienced and junior bridge engineers, owners, contractors and educators.

Cost Comparison of HPS Bridges
Ed Power, P.E., HDR Engineering

How Can Designers and Owners Take Advantage of HPS Properties?
M. Myint Lwin, P.E., Federal Highway Administration

Design Issues with HPS
Dr. Richard Sause, P.E., Lehigh University

Fabrication of HPS-70W Bridges
Scott Kopp, High Steel Structures

FRP Composites for Bridge Construction — Advances, Installations and Emerging Trends

Chaired by: John P. Busel
Executive Director
Market Development Alliance
of the FRP Composites Industry
Harrison, NY

8AM-NOON	BENEDUM ROOM, LOBBY LEVEL

This session showcases how FRP composites are no longer the "new kid on the block" in bridge design and installation. Producers and owners will share their practical experiences of recent bridge installations covering design, installation procedures, government collaboration and will present the exciting future that FRP composites technology provides the bridge industry. New bridge construction and rehabilitation using FRP materials have demonstrated many benefits beyond initial cost. Presentations will focus on unique applications, experience in installation techniques, and cost-effective rehabilitation solutions that demonstrate the many advantages of FRP composites. Attendees will gain a fundamental working knowledge about the broad family of FRP composites as well as exposure to detailed application information and case histories.

Use of Prefabricated Bridge Elements and Systems

Chaired by: Michael Hyzak, Bridge Designer
Texas Department of Transportation

8AM-NOON	BOARD ROOM, LOBBY LEVEL

Recent innovations in prefabricated bridge elements and systems have helped 1) minimize traffic disruptions during construction; 2) provided constructability solutions; 3) lessened the impact on the environment; and 4) improved safety. In this session, learn about these innovations and find out how the AASHTO Technology Implementation Group (TIG) is promoting and supporting implementation of prefabrication technology.

12:30-1:30PM	ATTENDEES BUFFET IN THE EXHIBIT HALL HOSTED BY THE IBC EXHIBITORS

Long Span Bridges Session

Session Chair: Arthur W. Hedgren, Jr, PhD, PE
Consultant, Pittsburgh, PA

1:30-3:45PM	BALLROOM 2, MEZZANINE

1:30pm

Design and Testing of Innovative Cradle System for Cable Stays

IBC-02-57

W. Denney Pate, PE, Figg Bridge Engineers, Tallahassee, FL

A new cradle system allowed for flexibility in the pylon aesthetics of the Maumee River Bridge, the system's initial application. The bridge will have a single 404' pylon; the top 196' faced in back-lit glass. The cradle system has many features, including 40 reference strands to determine the stay conditions in the future.

1:55pm

A State-of-the-Art Bridge Over the Ohio River: The William Natcher Bridge at Owensboro, KY

IBC-02-58

Vijay Chandra, PE, Parsons Brinckerhoff Inc., New York, NY, Ruchu Hsu, PE, Parsons Brinckerhoff Quade & Douglas, New York, NY, and Steve Goodpastor, PE, Kentucky Transportation Cabinet, Frankfort, KY

Construction of a major steel cable stayed bridge over the Ohio River near the town of Owensboro in Kentucky is almost complete. The bridge has a main span of 1200 feet and accommodates 4 lanes of traffic. This paper deals with the design challenges and construction of the bridge.

2:20pm

Lehigh River Bridge Load Testing and Instrumentation

IBC-02-59

Thomas Macioce, PE, Pennsylvania Dept of Transportation, Harrisburg, PA; John Tarquinio, PE, URS Corporation; and Robert Connor, Lehigh University, Bethlehem, PA

The Lehigh River Bridge is a 4 span continuous steel deck truss with a total length of 1782 ft. and a main span of 594 ft. To validate design assumptions and verify quality construction of the bridge, several testing and instrumentation requirements were conducted. The basis for performing the testing and instrumentation, costs and benefits will be discussed.

Long Span Bridges Session continued

2:45pm

Engineering the Lions Gate Bridge Suspended Structure Reconstruction

IBC-02-60

John Clenance and Seth Condell, Parsons - Bridge and Tunnel Division, New York, NY

The Lions' Gate Bridge suspended structure replacement presents the analysis and execution for complete suspended structure replacement of a suspension bridge that maintains full traffic capacity during reconstruction. The analysis was used for the successful direction of erection operations, which also provided verification for the computer models and their application.

3:10pm

Reconstruction of Lions Gate Bridge Construction Engineering and Methods

IBC-02-61

Joseph Tse, John Bryson and Michael J. Abrahams Parsons Brinckerhoff Quade & Douglas, New York, NY

This paper discusses the many challenges in developing the deck replacement method and procedures, and the design of the erection equipment. Deck Replacement is to be conducted in segments, typically, during night closures of 8 to 10 hours; traffic is maintained at all other times. This paper also discusses seismic retrofit strategy, which would ensure that the structure could remain open to traffic following a design-level (47-year) event.

3:45PM CONFERENCE CONCLUDES

Movable Bridges Session

Session Chair: Gary Runco, PE
Wilbur Smith Associates, Pittsburgh, PA

1:30-3:45PM | **BALLROOM 3 & 4, MEZZANINE**

1:30pm

Woodrow Wilson Bascule Span

IBC-02-62

Nicholas J. Altebrando, Paul M. Skelton and Robert S. Moses, Hardesty & Hanover, LLP, New York, NY

The new Woodrow Wilson Bascule Bridge in Washington DC will be a 270' trunnion-to-trunnion span 250' in width with eight leaves, 12 traffic lanes and two rail lines. Numerous unique and innovative structural, mechanical and electrical movable bridge engineering solutions that this project required will be presented.

1:55pm

Unique Aspects of a Signature Bascule Bridge Project

IBC-02-63

David A. Thurnherr, PE, Bergmann Associates, Rochester, NY; Bo Mansouri, PE, Monroe County Dept. of Transportation, Rochester, NY; and Karen M. Brown, PE, New York State Dept. of Transportation, Rochester, NY

The $64M Colonel Patrick O'Rorke Project includes the construction of a new double-leaf Scherzer rolling lift bascule bridge over the Genesee River in Rochester, NY. The bridge consists of a 74m bascule span flanked by 45m and 280m approach spans. The presentation will focus on unique aspects of the design of this signature structure.

2:20pm

Fiber Reinforced Polymer Composite Deck Panels on a Vertical Lift Bridge

IBC-02-64

Ravi Mathur, Parsons Transportation Group, San Francisco, CA; Grant Godwin, Martin Marietta Composites, Raleigh, NC; Michael J. Lee, California Dept of Transportation, Sacramento, CA; and Chris Dumlao, Dumlao Consulting, Pleasanton, CA, USA

Caltrans is replacing some panels of open steel grating on Schuyler Heim Bridge with FRP composite panels developed by Martin Marietta Composites. These panels comprise of 4-inch pultruded fiberglass tube cores with top and bottom carbon face sheets. This paper discusses the design of the deck panels for HS25 loading and stringent deflection limits. Also discussed are results from a testing program carried out on the panels.

Movable Bridges Session, continued

2:45pm

Design Innovations Benefit New Jersey's First Major Bridge Design/ Build Project

IBC-02-65

Ernest Hutchins, DMJM+Harris, Iselin, NJ; Ahmad Abdel-Karim and Neil Harris, DMJM+Harris, Sacramento, CA

The 4,385 ft. long Edison Bridge is the first major design/build bridge constructed for the NJDOT. The approach spans of the bridge used precast/prestressed concrete spliced girders with integral piers in spans up to 170-ft long. The main river crossing unit is comprised of 9-span, 3-girder steel superstructure.

3:10pm

Tomlinson Vertical-Lift Bridge

IBC-02-66

Nicholas J. Altebrando, Paul M. Skelton and Robert S. Moses, Hardesty & Hanover, LLP, New York, NY

The new and complex Tomlinson Bridge Lift Span is 2/3 the size of a football field and weighs 6-1/2 million lbs. The bridge carries 4 lanes of highway traffic as well as a single freight rail line over the New Haven Harbor. This presentation will cover the design of the bridge and the use of a temporary lift bridge during construction.

3:45PM CONFERENCE CONCLUDES

ACI / PENNSYLVANIA CONCRETE PROMOTION COUNCIL — BOOTH: 95

Contact: James I. Turici, Jr.
Phone: 800-942-8078
Fax: 724-535-3259
Email: jturici@cemexusa.com

American Concrete Institute: highlights include membership; publications; concrete testing; finishing classes; and certification.

Concrete Pomotion Council of Pittsburgh: highlights include current flowable fill; rapid repairs; and underwater placement technologies.

ACROW CORPORATION — BOOTH: 82

Contact: Eugene Sobecki
Phone: 201-933-0450
Fax: 201-933-3461
Email: esobecki@acrowusa.com

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ACT-MARTCO (ACRYLTECH, INC.) — BOOTH: 9

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AMERICAN BRIDGE MANUFACTURING — BOOTH: 23

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Email: djurkovic@americanbridge.net

American Bridge Company's Manufacturing Division fabricates the American Grid brand of steel grid bridge deck, miscellaneous structural steel for rail and roadway bridge repair and seismic retrofit, special equipment for the erection of bridges and other structures, the American Precast brand of precast concrete products, and composite steel grid/precast concrete bridge deck panels for nightime bridge deck replacement.

AMERICAN GALVANIZERS ASSOCIATION — BOOTH: 33 & 34

Contact: Kimberlie Dunham
Phone: 720-554-0900
Fax: 720-554-0909
Email: kdunham@galvanizeit.org

The AGA provides technical information regarding after-fabrication hot-dip galvanizing including specification and design assistance, inspection procedures, performance data, costing statistics and duplex system information.

AUTOCON COMPOSITES, INC. — BOOTH: K

Contact: John Crimi
Phone: 416-746-5002
Fax: 416-743-6383
Email: exsen@rogers.com

Manufacturer of a fibre reinforced plastic grid (NEFMAC) which is used as a primary reinforcement for concrete structures in corrosive environments.

B&B ELECTROMATIC, INC. — BOOTH: H

Contact: David Collier
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Fax: 813-707-0574
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BAILEY BRIDGES — BOOTH: 93

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Fax: 256-845-7775
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BAR SPLICE PRODUCTS, INC. — BOOTH: 18

Contact: Gary R. Foster
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Fax: 937-427-6470

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BENTLEY SYSTEMS, INCORPORATED — BOOTH: 104

Contact: Jackie Cissell
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Fax: 256-536-9791
Email: Jackie@geopak.com

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BESTECH SYSTEMS LIMITED — BOOTH: 77

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BETTER ROADS MAGAZINE — BOOTH: 85

Contact: Michael J. Porcaro
Phone: 847-391-9067
Fax: 847-391-9058
Email: mike@betterroads.com

The most authoritative source of information for bridge and highway construction/maintenance, Better Roads serves the government/contractor project team of highway/bridge professionals with 39,000 subscribers, including project owners in federal, state, provincial, county, township/municipal governments, and the contractors and consulting engineers managers who are pre-qualified to perform government project work.

BRIDGE BUILDER MAGAZINE — BOOTH: 15

Contact: Michael Scheibach
Phone: 816-254-8735
Fax: 816-254-2128
Email: michael@bridgebuildermagazine.com

Bridge Builder serves bridge designers, engineers, and contractors, as well as county, state, and federal departments of transportation. Each issue focuses on new construction, repair, inspection, and maintenance. From small, prefabricated bridges to the largest vehicular bridges on the nation's roadways, the magazine covers the full range of bridge equipment, components, and services.

BRIDGE DESIGN & ENGINEERING — BOOTH: 69

Contact: Peter Plaistowe
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Fax: 44 20 7233 5052
Email: p.plaistowe@hemming-group.co.uk

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

BRIDGE PRESERVATION, LLC — BOOTH: 6

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Fax: 905-560-8715
Email: bridgepreserve@aol.com

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BURGESS & NIPLE, LTD. — BOOTH: 49

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CAPITAL SERVICES — BOOTH: 4

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CAROLINA STALITE COMPANY — BOOTH: 66

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Fax: 704-642-1572
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Fax: 650-261-3799
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COLLINS ENGINEERING PC — BOOTH: 51

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COMPUTERS & STRUCTURES, INC. — BOOTH: 50

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CON/SPAN BRIDGE SYSTEMS — BOOTH: 59

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CONCRETE REINFORCING STEEL INSTITUTE (CRSI) — BOOTH: 60

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Phone: 847-517-1200
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Email: mplei@crsi.org

CRSI's purpose is to increase the use of reinforced concrete construction through research, education, and promotion. CRSI represents reinforcing steel producers and fabricators, epoxy coating applications and power manufactures, and suppliers of other products used in concrete construction and fabricating equipment manufacturing.

CONSOLIDATED SYSTEMS — BOOTH: 35

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CONSTRUCTION TECHNOLOGY LABORATORIES, INC. — BOOTH: 78

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Construction Technology Laboratories, Inc., specializes in structural/architectural engineering, consulting, and materials technology. We have extensive experience in inspection, instrumentation, evaluation, testing, and retrofit of all types of bridge structures. We solve structural behavior, construction, and materials problems via laboratory testing and analysis, structural system development, and construction/structural forensic techniques.

CONTECH CONSTRUCTION PRODUCTS, INC. — BOOTH: 76

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DOW CORNING / SSI — BOOTH: 11

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EARTHQUAKE PROTECTION SYSTEMS — BOOTH: 99

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ERIKSSON TECHNOLOGIES, INC. — BOOTH: 54

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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.

EXODERMIC BRIDGE DECK, INC. — BOOTH: 64

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FIGG ENGINEERING GROUP — BOOTH: 2

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THE FORT MILLER COMPANY, INC. — BOOTH: 44

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FREESPAN SYSTEMS, INC. — BOOTH: 108

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FreeSpan Systems, Inc. provides design/build services for construction of ultra long span light duty bridges throughout North America.

FREYSSINET, LLC — BOOTH: 19

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GEOTECHNICS, INC. — BOOTH: 22

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HARCON CORPORATION — BOOTH: 105

Contact: Harry Stoltzfus
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Fax: 717-687-9296
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HARDESTY & HANOVER, LLP — BOOTH: 109

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Email: jzuccerella@hardesty-hanover.com

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 115 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.

HAYES, SEAY, MATTERN & MATTERN, INC. — BOOTH: 52

Contact: Steven J. Chapin
Phone: 540-857-3201
Fax: 540-857-3296
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HIGH STEEL STRUCTURES, INC. — BOOTH: 25

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HILMAN ROLLERS — BOOTH: 32

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Fax: 732-462-6355
Email: sales@hilmanrollers.com

Hilman Rollers and rolling systems are used to roll-in bridge spans, trusses, prestressed segments, box girders, and large bridge components weighing up to 1000 tons and more. Hilman rolling systems are designed in launching systems, traveling forms, concrete forming and casting equipment. The ability to perform entire bridge roll-in results in huge savings in time and expenses for many contractors.

HOUSTON STRUCTURES, INC. — BOOTH: 106

Contact: Jerry V. Clodfelter
Phone: 713-678-7998
Fax: 713-678-7610
Email: houstl@subiu.net

Houston Structures, Inc. has been responsible for engineering design of cast / forged structural strand sockets, engineering fabrication of specialized materials, and project construction / management.

- Design of cast socket
- Specialized product engineering - castings / forgings
- Tooling / pattern design
- Materials testing / specifications
- Fabrication of cable components
- Construction and erection of cable structures

INTERLOCKING DECK SYSTEMS INTERNATIONAL — BOOTH: BLACK DIAMOND

Contact: Ed Coholich
Phone: 412-682-3041
Fax: 412-682-3560
Email: ecoholich@idsi.org

IDSI is dedicated to the manufacturing and distribution of metal decking systems for new bridge construction and bridge rehabilitation projects. While continuing to offer traditional welded decking projects, IDSI features weldless bridge decking systems that provide advantages over traditional technology. IDSI also provides in-plant precision machining and steel fabrication capabilities.

IVS HYDRODEMOLITION — BOOTH: 91

Contact: Joe Romine
Phone: 800-448-1917
Fax: 912-443-0446
Email: joe.romine@ivsgroup.com

Providing the best hydrodemolition operation in the United States for the removal of concrete from bridge decks.

KTA-TATOR, INC. BOOTH: 61

Contact: Eric Kline
Phone: 412-788-1300
Fax: 412-788-1306
Email: ekline@kta.com

KTA-Tator, Inc. is a full-service consulting engineering firm specializing in protective coatings, lead paint abatement services, and welding inspection. KTA has extensive experience with dozens of transportation agencies throughout the entire United States. Services include field and shop inspection (surface preparation, coatings application, welding), hazardous paint management services, laboratory testing, failure analysis, expert witness services, training, specification preparation/review, project management, project planning, and support services.

L B. FOSTER BOOTH: 71

Contact: David C. Seybert
Phone: 412 928 3425
Fax: 412 928 7891
Email: dseybert@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, INC. BOOTH: 70

Contact: Edward F. Pierson
Phone: 631-206-3616
Fax: 631-206-3610
Email: Epierson@LARSAUSA.com

Integrated linear and nonlinear finite element analysis and design software for structural and earthquake engineering. Analysis from basic linear static to advanced nonlinear progressive collapse. Other advanced analyses include influence line based moving load, restart nonlinear, and time dependent construction analysis with 3-D time dependent effects of concrete creep/shrinkage and prestress tendon losses/relaxation.

LEAP SOFTWARE, INC. BOOTH: 65

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

LEAP Software, the nation's leading developer of precast/prestressed concrete bridge design tools, showcases its latest developments in LRFD and metric design software.

LEHIGH UNIVERSITY — ATLSS RESEARCH CENTER — BOOTH: 30

Contact: Frank E. Stokes
Phone: 610-758-5498
Fax: 610-158-5553
Email: fes2@lehigh.edu

The Lehigh University ATLSS Research Center has extensive experience in laboratory and field instrumentation, testing, and fatigue and strength evaluation of bridges.

LONG SPAN BRIDGE & CULVERT, LLC — BOOTH: A

Contact: James Clayton
Phone: 240-379-7750
Fax: 240-379-7752
Email: jclayton@longspanbridge.com

Long Span Bridge & Culvert, LLC specializes in the design, supply and assembly of long-span bridges for engineered applications including: wetlands and stream crossings; overpasses/underpasses; pedestrian walkways; bike paths; railroad grade separations; golf course tunnels; utility protection and underground stormwater detention. Contact us at 1-888-949-LSBC for more information or visit our website at www.longspanbridge.com.

MAB PAINTS & COATINGS — BOOTH: J

MARKET DEVELOPMENT ALLIANCE OF THE FRP COMPOSITE INDUSTRY — BOOTH: 96 & 97

Contact: John P. Busel
Phone: 914-381-3572
Fax: 914-381-1253
Email: jbusel@mdacomposites.org

MDA is a specialized non-profit trade organization representing the FRP composites industry with products for civil engineering applications. Products on display include bridge decks, rebar, fender pile, and concrete repair/strengthening systems. The MDA reference guide on FRP Composite Products for Bridge Applications is available for review by attendees.

MARTIN MARIETTA COMPOSITES — BOOTH: 90

Contact: Greg Solomon
Phone: 919-788-4367
Fax: 919-788-4399
Email: greg.solomon@martinmarietta.com

MMC, a subsidiary of Martin Marietta Materials, produces a fiberglass-reinforced polymer highway bridge deck called DuraSpan™. Infrastructure and construction applications are the main focus.

MCCLAIN & CO., INC. — BOOTH: 55

Contact: Daniel McClain
Phone: 540-423-1110
Fax: 540-423-1066
Email: sales@mcclainandcompany.com

The nation's largest total bridge inspection equipment supplier. Bucket trucks with horizontal reach up to 75', work platforms up to 65'. Safety boats, pontoon boats, manlifts, rail mounted units and certified traffic control. Multiple offices.

MDX SOFTWARE — BOOTH: 67

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

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

MICHAEL BAKER JR., INC. — BOOTH: 63

Contact: Jeffrey J. Campbell
Phone: 412-269-4600
Fax: 412-269-7915
Email: jcampbell@mbakercorp.com

Since 1940, Michael Baker Jr., Inc. has provided services to thousands of clients, including numerous state highway and transportation departments, toll authorities, airport authorities and local governments. The Transportation segment of Michael Baker Jr., Inc. specializes in bridge design, bridge inspection/training, software development/training, highway design, airport planning, transit planning, NEPA services, construction management and inspection, and GIS applications.

MICHAEL LATAS & ASSOCIATES, INC. — BOOTH: C

Contact: Rodney Robinson
Phone: 314-993-6500
Fax: 314-993-0632
Email: RLRobinson@latas.com

Executive search and professional recruiting services. Serving the construction and A/E/P industrial exclusively nationally and internationally since 1975. Your premier source for executive, managerial, and difficult-to-fill professional-level needs.

MMFX STEEL CORPORATION OF AMERICA — BOOTH: 48

Contact: Tim Knaus
Phone: 704-752-9155
Fax: 704-752-9077
Email: tim.knaus@mmfxsteel.com

MMFX Steel Corporation of America produces highly corrosion resistant and cost effective steel products that exhibit many superior mechanical properties to that of conventional carbon steel. MMFX currently produces #4 thru #11 reinforcing steel with other products in development or awaiting production. MMFX looks forward to helping rebuild America's infrastructure with longer life cycle materials. Please visit us at www.mmfxsteel.com to learn more about our cutting edge technology.

MONOTUBE PILE CORPORATION — BOOTH: 27

Contact: Scott Udelhoven
Phone: 330-454-6111
Fax: 330-454-1572
Email: 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 — BOOTH: 26

Contact: Dale Thomas
Phone: 763-591-9099
Fax: 769-591-9499
Email: thomas@aiscmail.com

The NSBA is a unified industry organization serving those who are interested in enhancing the state-of-the-art of steel bridge design and construction.

NON-DESTRUCTIVE TESTING GROUP — BOOTH: 56

Contact: Mike Forbes
Phone: 616-891-3570
Fax: 616-891-3565
Email: ndtg@iserv.net

Non Destructive Testing Group provides Bridge Fabrication inspections for steel and Prestressed Bridges, existing bridge maintenance NDT inspections for evaluations/recomendations and bridge paint inspections.

NORTHEAST SOLITE CORPORATION — BOOTH: 79

Contact: Barbara Budik
Phone: 845-246-2646
Fax: 845-246-3356
Email: info@nesolite.com

Manufacturer of premium lightweight aggregate for use in new construction, rehabilitation and historic restoration projects. Our expanded shale is inert, durable and consistent in quality and characteristics. Available for pickup or shipment via rail, truck or barge. Offering solutions to architects, engineers and designers worldwide, Northeast Solite® really means "This Rock Works Wonders!"

NUCOR FASTENER — BOOTH: M

Contact: Jim Witucki
Phone: 260-337-1627
Fax: 260-337-1726
Email: jwitucki@nucor-fastener.com

Nucor Fastener's line of structural fasteners includes grades A325, A325 Type 3, A325-T, A325M, A490 & A490 Type 3 heavy hex bolts. The A325's are offered in several finishes including black (plain), HDG, and MG. Nucor also offers an entire line of F1852 (A325) & A490 Tru-Tension™assemblies. Standard structural bolts are offered in 1/2" through 1-1/4" diameters up to 10" in length. Nucor's line of Tru-Tension™(TC) assemblies are available in 3/4" through 1-1/8" diameters. We stock structural nuts from 5/8" through 1-1/4". We offer ASTM grades C, C3, DH, DH3 & 2H.

OLDCASTLE PRECAST, INC. — BOOTH: 42

Contact: Pat Holleran
Phone: 215-257-8081
Fax: 215-453-1671
Email: pat.holleran@oldcastleprecast.com

Precast box culverts, BEBO arch bridges & utility products.

PALMER ENGINEERING — BOOTH: 53

Contact: Jim Gallt
Phone: 859-744-1218
Fax: 859-744-1266
Email: 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
Fax: 402-345-6772
Email: 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.

PITTSBURGH RIGGING COMPANY — BOOTH: 28

Contact: Dean R. Peryea
Phone: 724-899-3060
Fax: 724-899-2676
Email: deanp@atc-pa.com

Providing full support and access services for bridge inspection projects for nearly a decade. Offering the finest equipment, highly trained personnel, and excellent safety record. Serving the eastern United States.

PRECAST / PRESTRESSED CONCRETE INSTITUTE (PCI) — BOOTH: 17

Contact: John S. Dick
Phone: 312-360-3205
Fax: 312-786-0353
Email: j.dick@pcinst.com

A dynamic association devoted to promoting the applications of precast concrete. At the booth, staff is available to discuss issues and answer questions. Free literature is displayed.

PRESTRESSED CONCRETE ASSOCIATION OF PENNSYLVANIA — BOOTH: 14

Contact: Heinrich O. Bonstedt
Phone: 610-395-2338
Fax: 610-395-8478
Email: hobon@consult-intex.com

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.

R.J. WATSON, INC. — BOOTH: 40 & 41

Contact: Ron Watson
Phone: 716-691-3301
Fax: 716-691-3305
Email: tron@rjwatson.com

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

RADCRETE PACIFIC P/L — BOOTH: D

Contact: Adam Everett
Phone: 61 2 9362 3511
Fax: 61 2 9362 3244
Email: sales@radcrete.com.au

Radcrete Pacific is RADCON #7 global distributor — an advanced, biochemical liquid which forms continuous permanent sub-surface hydrophilic barriers within concrete sealing existing cracks and long-term shrinkage cracks (to 2.00 mm) as form.

This US invention suits new construction and remedial for LIFETIME waterproofing and protection solutions backed by 26-year track record.

RAMPART HYDRO SERVICES — BOOTH: I

Contact: Patrick M. Winkler
Phone: 412-262-4511
Fax: 412-262-6188

Rampart is thw world leader in ultra-high pressure (UHP) hydrodemolition and hydrocleaning. Ultra high perssure, low volume hydrodemolition uses less water; is environmentally friendly; provides a superior bond; and fast and cost effective. Rampart has used Hydrodemolition on bridges surfaces and substructures, dams, tunnels, and parking garages. We look forward to helping you with your demanding projects.

THE REINFORCED EARTH COMPANY — BOOTH: 19

Contact: Dion Gray
Phone: 703-821-1175
Fax: 703-821-1815
Email: info@reinforcedearth.com

The Reinforced Earth Company (RECo) MSE system is a coherent gravity mass that is engineered to resist the applied loads. Applications include retaining walls, bridge abutments, and structures supporting railway, sea walls and many other applications.

RESEARCH ENGINEERS INTERNATIONAL — BOOTH: 84

Contact: Andy Yang
Phone: 714-974-2500
Fax: 714-974-4771
Email: andy@ca.reiusa.com

REI has been a leading worldwide developer of high-quality PC-based engineering software solutions since 1981. The STAAD.Pro family of products is a powerful interoperable suite of structural engineering products and services including:

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RJD INDUSTRIES, INC. — BOOTH: 74

Contact: Randall E. Decker
Phone: 949-582-0191
Fax: 949-582-0995
Email: 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: Sabrina M. Garcia
Phone: 847-391-1038
Fax: 847-390-0408
Email: sgarcia@sgcmail.com

As the leading monthly trade publication for the transportation construction market, Roads & Bridges Magazine reaches over 68,000 engineers, contractors, DOT's and other public officials (local, county, state & federal). Our readers design, build and maintain roads, highways, bridges, tunnels and viaducts across the U.S. and Canada.

ROBERT W. HUNT COMPANY — BOOTH: 43

Contact: Robert Stachel
Phone: 412-921-8833
Fax: 412-921-8836
Email: east@il.robhunt.com

Founded in 1888, the Robert W. Hunt Co. is an ISO 9000 Registered provider of International Quality Assurance services associated with the fabrication and erection of structural steel, pre-stressed concrete and timber bridges.

ROCTEST — BOOTH: N

Contact: Pierre Gouvin
Phone: 877-762-8378
Fax: 401-633-6021
Email: pgouvin@roctest.com

World leader in the field of geotechnical and structural instrumentation, Roctest offers a vast range of fiber-optic, vibrating wire and induction-with-frequency output instruments as well as data acquisition systems.

ROYSTON LABORATORIES DIVISION / CHASE CORPORATION — BOOTH: 12

Contact: John Tortorete
Phone: 412-828-1500
Fax: 412-828-4826
Email: jtortorete@chasecorp.com

Since 1940 Royston Laboratories has been a leader in the development, testing and manufacturing of bridge deck waterproofing systems.

Their product line offers proven solutions to the problems related to bridge deck waterproofing and the limitations of current asphalt mix designs to survive under the weight and flow of today's traffic.

S.G. PINNEY & ASSOCIATES INSTRUMENT SALES INC. / GREENMAN-PEDERSEN, INC. — BOOTH: 58

Contact: Pat Marazzi
Phone: 772-337-3080
Fax: 772-337-0294
Email: p_marazzi@sgpinney.com

S.G. Pinney & Associates Instrument Sales, Inc., specializes in corrosion instruments including air monitoring equipment and our new line of Safety, GPS equipment and software. 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 multi-discipline services to the building, industrial/commercial, transportation, telecommunications, and power/energy industries.

SALTECH — BOOTH: E

Contact: Don Salzsauler
Phone: 519-853-0096
Fax: 519-853-5962
Email: saltech@interhop.net

Innovators in fiberglass bridge deck fabrication.

SCOUGAL RUBBER CORP — BOOTH: 5

Contact: Rob Anderson
Phone: 206-763-2650
Fax: 206-764-4984
Email: roba@scougalrubber.com

Manufacturer of Steel Reinforced Elastomeric Bearings, Plain Elastomeric Bearings, PTFE Slide Bearings, and Vibration Isolators. In business since 1916, we have been supplying to the bridge industry since the 1960's. Our reputation as a quality bearing manufacturer is well known amongst the Transportation departments in fifty states and Canada.

SEISMIC ENERGY PRODUCTS, L.P. — BOOTH: 83

Contact: Steve Bowman
Phone: 903-675-8571
Fax: 903-677-4980
Email: steve.bowman@sepbearings.com

Nation's largest manufacturer of seismic isolation bridge bearings, elastomeric bridge bearings, and Fluorogold® Teflon® slide bearings.

SHERADEN PUBLISHING — BOOTH: B

Contact: Paul Adomites
Phone: 412-331-2206
Fax: 412-331-2206
Email: padomites@aol.com

"The Bridges of Pittsburgh: Downtown" — a dramatic color poster, photographed by Jack Wolf (see his work in the Ramada Renaissance). Also sets of bridge notecards. Stop by Booth B for a chance to win a unique facsimile edition of the 1928 classic tome — The Bridges of Pittsburgh.

SHERWIN-WILLIAMS COMPANY — BOOTH: 101

Contact: Skip Pendry
Phone: 803-418-0960
Email: sbpendry@sherwin.com

Sherwin-Williams is a world leader in the manufacturing of high performance coatings for the DOT market. From Acrylic to Zinc Rich coating, Epoxies and Urethanes, Sherwin-Williams has product offerings with proven performance and long term histories. The Sherwin-Williams Company booth will feature high performance coatings for new bridge construction, as well as state of the art maintenance products. Information on the Sherwin-Williams Trade Marked "Rapid Deployment" process will be available. Sherwin-Williams Corrosion Engineers and Specification Specialist will be on hand to answer your questions and address your requirements.

SIKA CORPORATION — BOOTH: 7

Contact: Rosa Romualdo, Marketing Services Manager
Phone: 201-933-8800
Fax: 201-933-6225
Email: romualdo.rosa@sika-corp.com

Sika Corporation is a worldwide leader in the construction industry specializing in systems for concrete repair, protection and structural strengthening. Sika offers products such as carbon and glass fiber fabrics and plates for external reinforcement, epoxies, concrete admixtures, corrosion inhibitors, repair mortars, grouts, sealants, adhesives, coatings, and segmental bridge adhesives.

SOFIS COMPANY, INC. — BOOTH: 20

Contact: William J. Sofis, Jr.
Phone: 724-378-2670
Fax: 724-378-3719
Email: wsofis@sgi.net

Sofis Co., Inc. has been a DOT prequalified General Contractor for over 41 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.

SOLITE CORPORATION — BOOTH: 45

Contact: Doug Clarke
Phone: 804-673-8635
Fax: 804-673-0748
Email: dcsolite@aol.com

Over 55 years of proven durability. Leader in manufacture and promotion of high performance, structural lightweight aggregates. Expanded slate and expanded shale. Notable projects include: Chesapeake Bay Bridge, Annapolis, MD; Hampton Roads Bay Bridge-Tunnel, Hampton, VA; Sebastian Inlet, FL; Whitehurst Freeway, Washington, DC; I-95 James River Bridge, Richmond, VA. Website: www.solitecorp.com

SPECIALTY DIVING — BOOTH: 46

Contact: Liz Kaske
Phone: 985-542-8770
Fax: 985-345-7602
Email: sdila@i-ss.com

Speciality Diving Inc. is a full service marine construction contractor. We are corps of engineer qualifed. SDI offers many services that are unique in the diving underwater bridge repair industry. Providing engineer-designed repairs and inspections meeting DOT and FHWA standards. Corps of engineers certified hubzone contractor has performed NDT Level I, II, III inspections for 9 states.

STAFFORD BANDLOW ENGINEERING INC. — BOOTH: 94

Contact: Paul Bandlow
Phone: 215-340-5830
Fax: 215-340-5815
Email: SBEngineers@aol.com

Mechanical and electrical engineering services specializing in movable bridge machinery. Providing design, rehabilitation, construction and emergency services. Emphasis on achieving practical solutions to real problems.

STEADFAST BRIDGES — BOOTH: 92

Contact: May Toole
Phone: 800-749-7515
Fax: 256-845-9750
Email: mdtoole@steadfastbridge.com

Manufacture of prefabricated steel bridges — Steadfast Pedestrian, Bicycle, Equestrian, Golf Cart & 2 Lane Vehicle Bridges. Prefabricated bridge components for — Emergency, Construction Haul Roads, Detours & Other Applications

STIRLING LLOYD PRODUCTS, INC. — BOOTH: 03

Contact: Simon Greensted
Phone: 203-230-9448
Fax: 203-230-1025
Email: slpus@aol.com

The Eliminator® Bridgedeck waterproofing membrane is a sprayed two-coat fast-cure system, providing outstanding waterproofing, adhesion, durability and service life across a wide temperature range.

Eliminator® has an unparalleled record both for highways, utilizing a proprietary tack coat to provide a tenacious bond to asphalt, and for railroads without protection.

TAMMS INDUSTRIES — BOOTH: 62

Contact: Stephen Scarpinato
Phone: 815-522-3394
Fax: 815-522-2323

Tamms Industries is the leading bridge overlay manufacturer/supplier. A complete line of DOT approved patching, sealing and protective coatings products is available.

TERMARUST TECHNOLOGIES — BOOTH: 89

Contact: Wayne Senick
Phone: 888-279-5497
Fax: 514-354-2799
Email: wsenick@termarust.com

Termarust Technologies manufactures high performance anti-corrosive coatings for steel/metal structures. We warranty our field proven performance. Our innovative technology completely stops crevice corrosion and pack rust in joints and connections on structures. Termarust Technologies provides a cost-effective system for overcoating existing steel/metal structures by minimizing the need to completely remove tightly adhered existing paint and rust.

TRANSPO INDUSTRIES INC. — BOOTH: 100

Contact: John B. Karlson
Phone: 914-636-1000
Fax: 914-636-1282
Email: jkarlson@transpo.com

Transpo manufactures Polymer Concrete for repairing concrete structures and HMWM for sealing cracked concrete. Our Thin Polymer Concrete Overlay Systems have been used on Concrete, Steel and FRP bridge decks throughout the US. Transpo's Castek Division precasts Polymer Concrete Safety Barrier Panels that are available in Jersey and F shapes, Flat single slope, and custom designs.

TXI CHAPARRAL STEEL — BOOTH: 102

Contact: David Usry
Phone: 972-729-1025
Fax: 972-779-1271
Email: dusry@txi.com

TXI Chaparral Steel produces a wide range of WFB sections along with H-Pile, Sheet Pile and Bar Products at facilities located in Midlothian, Texas and Petersburg, Virginia.

UNITED STATES STEEL CORPORATION — BOOTH: 8

Contact: Mance Parks
Phone: 219-888-1822
Fax: 219-888-2241
Email: mhparks@uss.com

Products include the manufacture and sale of Carbon High-Strength Low-Alloy, Alloy Armor, and Strip Mill Plate Products.

VECTOR CORROSION TECHNOLOGIES — BOOTH: 98

Contact: Sean Abbott
Phone: 204-489-6300
Fax: 204-489-6033
Email: seana@vector-corrosion.com

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.

VERMONT FASTENERS MANUFACTURING — BOOTH: 103

Contact: Peter Kasper
Phone: 802-863-3663
Fax: 802-868-2089
Email: kasper@vfm.com

Vermont Fasteners Manufacturing produces fully certified domestic structural fasteners out of steel that is melted and manufactured in the USA. VFM's fasteners meet the most demanding applications including bridge construction. Products produced include A325 Type 1, in plain, mechanical and hot dip galvanized finishes, Type 3 weathering steel, A325 Tension Control Bolts and A490 structural bolts.

W.R. GRACE & CO. — BOOTH: 57

WATSON BOWMAN ACME CORP. — BOOTH: 75

Contact: Virginia Foreman
Phone: 716-691-7566
Fax: 716-564-0361
Email: virginia.foreman@wbacorp.com

Watson Bowman Acme has been an industry leader in expansion control for more than 50 years. The Wabo® name has earned its reputation for quality, innovation and cutting edge technology. Watson Bowman Acme provides and manufactures a variety of engineered solutions for expansion control, concrete repair and protection and composite strengthening systems. Visit us on the web at www.wbacorp.com or call 1-800-677-4WBA.

WESTFALL COMPANY, INC. — BOOTH: 24

Contact: Garland R. Westfall
Phone: 636-343-5855
Fax: 636-343-6956
Email: westfallsales@msn.com

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

WHEELING CORRUGATING COMPANY — BOOTH: 72

Contact: Mike Benson
Phone: 304-234-2326
Fax: 304-234-2378
Email: bensonmw@wpsc.com

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

WILLIAMS FORM ENGINEERING CORP. — BOOTH: 31

Contact: Ryan Williams
Phone: 616-365-9220
Fax: 616-365-2668
Email: ryan@williamsform.com

Williams Form Engineering is one of the world's leading manufactures of high capacity anchorage systems. Our products include bonded and mechanical rock and soil anchors utilizing steel All-Thread and hollow bars, (steel grades as high as 150 KSI) with ultimate strengths as high as 778,000 lbs. These systems are often used for slope stability, tiebacks, tunnel bolting and foundation repair. Williams also manufactures high capacity concrete anchors including mechanical, chemical and cast-in place systems. In addition to our anchoring product line, Williams also supplies pot-tensioning systems and has been manufacturing and supplying concrete forming hardware throughout the world for the past 70 years.

WILLIAMSPORT WIREROPE WORK — BOOTH: 107

Contact: Claude Caroway
Phone: 570-326-5146
Fax: 570-327-4274
Email: ccaroway@wwwrope.com

Williamsport Wirerope Works, Inc. (WWW) manufactures wire rope and strand products under the name Bethlehem Wire Rope®. The Bethlehem brand represents the most complete facilities and experienced personnel in the US, particularly in the fabrication of structural strand and wire rope assemblies, and has long been recognized world wide for superior quality and craftsmanship.