Facets of the Concrete Industry. A Proceedings will be published following the Conference and will be distributed at the conference.

This year’s CBC will be even bigger and better. 90 papers in 18 technical sessions will feature state-of-the-art bridge design and construction. The first CBC held last year in Nashville, Tennessee was a great success. Social events include receptions, breakfasts, luncheons, coffees, and guest activities. The conference provides a unique opportunity to interact with experts from around the country.

The Westin Hotel, Charlotte, North Carolina

May 17-18, 2004

8:30 am–5:20 pm Technical Sessions

8:30 am–5:20 pm Plenary Session

2004 Concrete Bridge Conference

The conference is being cosponsored by the Federal Highway Administration, the National Concrete Bridge Council, and the American Concrete Institute. The Concrete Bridge Conference (CBC) has quickly become the premier national venue for the exchange of ideas and information on all aspects of concrete bridge design and construction. The first CBC held last year in Nashville, Tennessee was a great success. The conference is cohosted by the National Concrete Bridge Conference (CBC) and the American Concrete Institute (ACI) and is cosponsored by the Federal Highway Administration.

The Concrete Corrosion Subcommittee of the ACI Committee on Bridge Reinforcing Bar Corrosion, ACI 222.4, is organizing this conference to provide a forum for the exchange of ideas and information on the state-of-the-art in corrosion science and technology. The conference will focus on corrosion mechanisms, modeling and testing of concrete and reinforcing bars, and the evaluation of current corrosion protection systems. The conference will also include sessions on the use of concrete as a corrosion-resistant material for infrastructure applications.

The conference will be held on May 17 and 18, 2004, at the Westin Hotel in Charlotte, North Carolina. The conference will be held in conjunction with the 2004 Post-Tensioning Institute (PTI) Technical Conference and Exhibition. Your registration will enable you to attend both conferences.

The conference is cosponsored by the Federal Highway Administration, the National Concrete Bridge Council, and the American Concrete Institute. The conference will provide a unique opportunity to interact with experts from around the country. The conference will include sessions on the state-of-the-art in corrosion science and technology, the evaluation of current corrosion protection systems, and the use of concrete as a corrosion-resistant material for infrastructure applications. The conference will be held in conjunction with the 2004 Post-Tensioning Institute (PTI) Technical Conference and Exhibition. Your registration will enable you to attend both conferences.

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The Pennsylvania Department of Transportation’s Performance Specification for High Performance Concrete (PENNDOT HPC) was developed during 1998 by the PENNDOT, in conjunction with the Federal Highway Administration (FHWA), the National Concrete Bridge Council (NCBC), the Concrete Reinforcing Steel Institute (AISI), the Precast/Prestressed Concrete Institute (PCI), the Concrete Institute of the South (CIS), and the Transportation Research Board (TRB). The specification was later revised in 2002 and 2003. The specification has been adopted for use by the American Association of State Highway and Transportation Officials (AASHTO), the Associated General Contractors of America (AGC), and the American Society for Testing and Materials (ASTM). It is now included in the AASHTO M206:98 Guide Specification for High Performance Concrete.

HPC projects were required. One such project was the Great Bend Bridge, which was part of the redevelopment of a large-scale cast-in-place bridge deck construction project that was responsible for developing a plan to monitor and continuously improve the finished concrete. The specification of the Great Bend Bridge, which included the construction of a multi-level, hurricane-resistant bridge, is one example of a successful application.

For further information, contact the Technical author at ken.bontius@hatchmott.com or call 847.972.9058.

GREAT BEND BRIDGE OVER THE SUGUEHANNA RIVER

Thomas Duff, Federal Highway Administration, Pennsylvania, Pennsylvania Department of Transportation

HPC Bridge Views 3 Issue No. 31, January/February 2004

The Great Bend Bridge is a 1750 ft (534 m) long, prestressed concrete H-beam bridge with two spans of 528.6 ft (161.4 m) and one of 628 ft (191.6 m). Each span consists of five 66 ft (20 m) span units. All units are post-tensioned and cantilevered in place. The bridge deck is comprised of 18 in. (0.45 m) thick, high-performance concrete, with a minimum compressive strength of 12 ksi (83 MPa). The deck was 7 days wet cured before the upper deck was cast in place with the same mix design, placing and curing requirements. Preceding the placement of the upper deck, the lower deck was fully cure and kept continuously wet with soaker cloth. The burlap was removed until covered with wet burlap, which had a minimum evaporation rate of 0.10 lb/ft²/hr (0.1 kg/m²/hr).

Concrete环境保护

Concrete is a composite material that is composed of water, cement, aggregates and admixtures. It is a material that is commonly used in construction, and is known for its strength and durability. The Great Bend Bridge, which was part of the Redevelopment of a large-scale cast-in-place bridge deck construction project that was responsible for developing a plan to monitor and continuously improve the finished concrete, is one example of a successful application.

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The Great Bend Bridge, which included the construction of a multi-level, hurricane-resistant bridge, is one example of a successful application.

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Further Information

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Innovations in the use of HPC on bridge decks holds promise for a successful future and are expected to reduce the life-cycle costs of bridge construction. The specification of the Great Bend Bridge, which included the construction of a multi-level, hurricane-resistant bridge, is one example of a successful application.

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A great bend over the Susquehanna river

Thomas Dale, Federal Highway Administration, PA Life Sciences Institute, Pennsylvania Department of Transportation

The Pennsylvania Department of Transportation (PennDOT) in Harrisburg, PA, has implemented a high performance concrete (HPC) program for several years. As the concrete industry becomes more aware of the advantages of using HPC, PennDOT has continued to develop and record bridge deck histories demonstrating the use of HPC in the construction of bridges. This case study presents evidence that, by following PennDOT’s requirements, HPC can be used to achieve chloride permeability results specified for 100 year exposure conditions. The conference is cosponsored by the Federal Highway Administration, Millennium Minerals Corporation, the American Concrete Institute, the National Ready Mixed Concrete Association, the Portland Cement Association, and the Precast/Prestressed Concrete Institute.

In the beginning of the placement of the hot, dry, region, the contractor met to discuss the problems that occurred. In the future, the high performance concrete (HPC) can be used to achieve chloride permeability results specified for 100 year exposure conditions. The conference is cosponsored by the Federal Highway Administration, Millennium Minerals Corporation, the American Concrete Institute, the National Ready Mixed Concrete Association, the Portland Cement Association, and the Precast/Prestressed Concrete Institute.

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The conference was attended by over 300 bridge engineers including 100 DOT and highway agency officials.

The conference is being cosponsored by the Federal Highway Administration, the National Concrete Bridge Council, and the American Concrete Institute. The Concrete Bridge Conference (CBC) has quickly become the premier national venue for the exchange of ideas and information on all aspects of concrete bridge design and construction. The first CBC held last year in Nashville, Tennessee was a great success.

Up to 600 attendees are expected.

The 2004 Concrete Bridge Conference is being held in conjunction with the 2004 Post-Tensioning Institute National Conference at the Peabody Hotel and Conference Center in Little Rock, Arkansas. The conference is being cosponsored by the Federal Highway Administration, the National Concrete Bridge Council, and the American Concrete Institute.

The conference will be held May 16-18, 2004. For further information on the conference, contact FHWA Headquarters: 1200 New Jersey Avenue, S.W., Room 6111, Washington, D.C. 20590-0001; 202-493-4698; toll-free, 1-800-424-9365; info@fhwa.dot.gov. For information on the Post-Tensioning Institute National Conference, contact Tony Morelli, 2233 11th St., NW, 2nd Floor, Washington, D.C. 20009; 202-464-1010; morelli@pti.org. Telephone and fax numbers for the Post-Tensioning Institute are 202-464-1010 and 202-464-1011, respectively.

The conference is co-hosted by the Post-Tensioning Institute, the National Concrete Bridge Council, the American Concrete Institute, the Federal Highway Administration, the U.S. Department of Transportation, FHWA, and the New York City Department of Design and Construction.

The conference offers 1.5 continuing education units (CEUs) for professional engineers. Pre-registration is strongly encouraged. Registration fees for the conference are $200 for state DOT employees and $250 for all other individuals.

The conference will feature a comprehensive program of technical sessions, panel discussions, exhibits, and social events.

Sunday, May 16, 2004 12:00-5:00 pm Registration, Reception

Monday, May 17, 2004 8:30 am-5:20 pm Technical Sessions

Tuesday, May 18, 2004 8:30 am-5:20 pm Technical Sessions

CBC '04  –  Conference Program Overview

• Case Studies—Girder Bridges
• Bridge Rehab. Retrofit, Research & Development
• Bridge Decks
• Design & Analysis II
• Innovative Technologies
• Corrosion Resistant Reinforcement
• R&D–Structural Testing
• Bridge Aesthetics
• Cast-In-Place PT Bridges
• Repair & Replacement
• Performance Specifications
• Cast-in-Place Concrete Bridges
• Segmental Concrete Bridges
• Concrete Rebar
• Bridge Design
• Innovative Technologies
• Design & Analysis
• Rapid Bridge Construction
• Continuous Bridge Construction
• Bridge Rehab. Retrofit
• Research & Development
• Repair & Replacement
• Performance Specifications

The first phase of the conference will feature a comprehensive program of technical sessions, panel discussions, exhibits, and social events.

The second phase of the conference will be held May 17-18, 2004. The second phase of the conference will feature a comprehensive program of technical sessions, panel discussions, exhibits, and social events.

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The CBC will highlight exhibits showcasing the latest industry products and services. This premier conference is an excellent opportunity for companies to reach the largest audience of bridge engineers in the country. Up to 600 attendees are expected.

The conference will be held at The Westin Hotel, Charlotte, North Carolina on Sunday, May 16, 2004 through Tuesday, May 18, 2004.

**Technical Sessions**

- **8:30 am–5:20 pm Technical Sessions**
- **8:30 am–5:20 pm Plenary Session**
- **12:00 pm–5:00 pm Registration**

**2004 Concrete Bridge Conference**

The 2004 Concrete Bridge Conference is being held in conjunction with the 2004 Post-Tensioning Institute (PTI) Technical Conference and Exhibition. Your registration will enable you to attend both conferences.

**HPC Bridge Views**

The HPC Bridge Views newsletter is published jointly by the Federal Highway Administration and the National Concrete Bridge Council. Previous issues can be viewed and downloaded at http://www.concrete.org/bridgeviews. Subscriptions to HPC Bridge Views are available to nonmembers on an ad hoc basis for $84 per year. For more information on subscribing to HPC Bridge Views, please contact NCHRP at 301-573-6400.

**References**


A portion of the redevelopment of PennDOT’s International Airways Terminal accesseto three levels of a new terminal building requires the construction of a concrete structure encased within the following:

- A 95 ft (29 m) thick concrete deck in two separate placements
- A 20 ft (6 m) thick concrete slab
- A 70 ft (21 m) thick concrete enclosure

The Great Bend Bridge is a 537-ft (164-m) long, prestressed concrete I-beam bridge over the Susquehanna River in the state of Pennsylvania. The bridge was constructed using high-performance concrete (HPC) for several reasons:

- The Pennsylvania Department of Transportation (PennDOT) specified that the concrete used must meet the performance requirements, the temperature differential across the concrete, and the mixture proportions as specified by HPC. PennDOT also specified the use of pre-blended silica cement.
- The contractor’s initial mix design was developed through a series of w/c, air content, and slump tests using the results of shrinkage and creep testing. The mix design was refined based on the results of these tests.
- The mix design was further refined through additional testing, including the use of pre-blended silica cement.
- The contractor also used the results of shrinkage and creep testing to refine the mix design.

HPC features:

- The concrete mix design was developed to ensure that the mix design satisfied both the fresh and hardened concrete properties required by the specifications. Pre-placement meetings were held before each placing and curing requirements to review previous results and placement meetings were held to ensure that the mix design satisfied both the fresh and hardened concrete properties required by the specifications.
- Preplacement meeting minutes and follow-up testing were performed to review project results and ensure the requirements were met.

Further Information:

For further information, contact the second author at bspangler@state.pa.us or the first author at ken.bontius@hatchmott.com.