7TH INTERNATIONAL CONFERENCE ON SHORT & MEDIUM SPAN BRIDGES 2006

AUGUST 23-25, 2006
Le Centre Sheraton Montréal Hotel
Montréal, Québec, Canada

INVITATION AND PRELIMINARY PROGRAM

www.bridgeconference2006.com
CONFERENCE PARTNERS

PLATINUM

SILVER
Since 1982 the Short & Medium Span Bridges Conference has been held every four years in Canada. The purpose has been to provide a worldwide state-of-the-art forum on short and medium span bridges. Engineers, practitioners and researchers from around the world will find at the Montreal conference a unique opportunity to gather and discuss examples of current and future practice and research that will cover highway and railway bridges.

DATE AND PLACE
The Conference will be held in August 23-25, 2006, at Le Centre Sheraton, Montréal, Canada.

INVITATION AND
PRELIMINARY PROGRAM

Port is also the starting point for trips along the turbulent Lachine Rapids, at the western end of the island!

Pulsate to the rhythm of the city
Downtownboundswithdepartment stores, boutiques and cinemas, not to mention major museums, such as the Montréal Museum of Fine Arts, the Musée d’art contemporain, the McCord Museum of Canadian History and the Canadian Centre for Architecture.

Objective: Recreation!
Île Notre-Dame and Île Sainte-Hélène are synonymous with vacationing fun. At Parc Jean-
Montréal, the metropolis, has everything a big city can offer. But Montréal is also one-of-a-kind, a multicultural city that blends its French accent with those of over 80 other ethnic communities and charms visitors with its Euro-American ambiance. Montréal is also innovative and invigorating, offering a whirlwind of cultural creations, both traditional and modern. Its downtown bustles with life at the foot of its mountain, while history is rooted in the old quarters near the river. With its year-round party atmosphere, Montréal beats to the rhythm of its festivals: jazz, comedy, cinema, fireworks and more! The city beckons you to discover its fashionable boutiques and famed cuisine, over 30 km (18 mi.) of indoor pedestrian walkways, and its lively casino.

Explore the old city
Riding in a horse-drawn carriage around the 18th and 19th-century residences of Old Montréal, you will discover the imposing neo-gothic Notre-Dame Basilica, as well as museums that recount the past, such as the Pointe-à-Callière museum and the Centre d’histoire de Montréal. The Old Port invites you to relax all year round. Among its attractions, you will find the Montréal Science Centre, a vast complex dedicated to scientific culture that also includes an IMAX theatre. The Old Drapeau, you’ll have a ball at Québec’s largest amusement park, La Ronde, and at the beach. At the Biosphère, in the former U.S. pavilion from Expo 67, you’ll discover the secrets of water, while at the Stewart Museum, located inside an authentic fort, you’ll learn about the history of the New World. In the east end of the city, in the Hochelaga-Maisonneuve neighbourhood, you will find irresistible attractions, such as the Olympic Park, host to the 1976 Olympic Games, which boasts the tallest inclined tower in the world. On the same site, you can also visit the Biodôme, a magical place that is home to four ecosystems. Nearby, the Montréal Botanical Garden, one of the world’s largest, introduces you to a host of horticultural universes, including a Chinese garden and a Japanese garden, and at the Insectarium you can observe up close insects from around the world!

For more touristic information, visit Tourism Montréal or Tourisme Québec at www.tourisme-montreal.org and www.bonjourquebec.com.
derstanding of the behavior of bridge structures under earthquake loading. Major code changes have had a dramatic influence on the analysis and design earthquake-resistant bridges throughout the world.

4 Management of Bridge Asset
Bridge Management Systems (BMS) are decision-support tools developed to assist bridge authorities in determining how and when to make bridge investments that will improve safety and preserve existing infrastructure.

5 Rehabilitation and Retrofitting
In the face of ageing and deterioration of bridges, authorities are relying on bridge rehabilitation and retrofitting to extend service life. Increasing activity has brought about greater knowledge of deterioration mechanisms, and innovative rehabilitation and retrofit techniques.

6 Analysis
Bridge structural analysis consists essentially of mathematical modeling of the response of a structure to the applied loads. The possibility to discuss advancements in structural modeling and use of soft computer techniques are offered here.

7 Advanced Materials in Bridges
New breeds of advanced materials developed in the last few years are making headway into bridge structures. Structural components for hybrid construction such as FRP reinforced elements, cable and tendon systems have been successfully used in highway, railway and footbridges.

8 Instrumentation, Testing and Monitoring
In spite of their relatively simple structural systems, bridges suffer heavily from the effects of age, climate and especially traffic that often exceeds codified limits. The measurement and documentation will permit evaluation of the changing condition of a bridge over its lifetime.

PRELIMINARY PROGRAM

<table>
<thead>
<tr>
<th>TIME</th>
<th>TUESDAY, AUGUST 22, 2006</th>
<th>DAY 1</th>
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<tr>
<td>11:00</td>
<td>Session 1</td>
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<td>Session 7</td>
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SOCIAL PROGRAM

1. Opening Welcome Reception
August 22, 2006 (6:00 PM)

The Opening Welcome Reception will provide an ideal opportunity for convention delegates to meet and familiarize with the conference premises, in a casual and laid back atmosphere.

2. Supper tour on board the Cavalier Maxim
August 23, 2006 (evening)

A supper tour on board the Cavalier Maxim with its windowed panoramic rooms will offer unexcelled views of the city. The tour, on the Saint Lawrence River, will cover a distance of 25 history- and attraction-filled kilometers such as the Old Port, Nun’s Island, the Boucherville Islands, and more. A guide will accompany the guests and offer a commentary on the different facets and attractions of Montreal.

A choice of two fixed, four-course menus will be offered along with two complimentary beverages. The occasion offers a unique opportunity to experience fine dining in a special ambiance where the décor changes as the tour progresses. The supper is served inside and guests are welcome to visit the deck when they wish.

Depart: 7:00 PM (we leave the hotel no later than 6:00 PM)
Return: 11:00 PM

3. Banquet
August 24, 2006 (evening)

To give you a sense of the Montreal spirit, the banquet and the evening will provide animation, a pleasant meal, an opportunity to meet new colleagues and fun guaranteed. In other words, an outstanding occasion for friendly business networking.

The tour, on the Saint Lawrence River, will cover a distance of 25 history- and attraction-filled kilometers such as the Old Port, Nun’s Island, the Boucherville Islands, and more. A guide will accompany the guests and offer a commentary on the different facets and attractions of Montreal.

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Depart: 7:00 PM (we leave the hotel no later than 6:00 PM)
Return: 11:00 PM
business networking.

4. Technical tour
August 25, 2006 (afternoon)

A tour of the different bridges of Montreal Island will take place as a closing activity for the 2006 Conference on Short and Medium Span Bridges. This technical tour will allow participants an opportunity for on-site appreciation of selected transportation infrastructure.

ACTIVITIES FOR ACCOMPANYING PERSONS
1. Tour of Montreal
August 23, 2006 (morning)

A coach tour of a variety of Montreal sites including: downtown Montréal, Notre-Dame and Nun’s Island, the site of the 1967 Montreal World Fair, the Gilles-Villeneuve race course (used for the Canadian Grand Prix), the Montreal Casino, the Old Fort, built in the XVIIIth century to protect Montreal, the University of Montreal, McGill University, the financial district, Saint-Joseph Oratory, the Latin Quarter, etc. The coach will stop at Notre-Dame Basilica and at Mount Royal Park. Guests will also be invited to experience a Montreal classic for lunch.

2. Visit to the Botanical Gardens and the Olympic Park
August 23, 2006 (afternoon)

This tour will visit several of Montreal’s other attractions: the Montreal Botanical Gardens (ranked second in the world), the Insectarium, and the Olympic Stadium (constructed for the 1976 Olympic Summer Games) and including the funicular climb up the highest inclined tower in the world.

3. Guided walking tour of Old Montreal including a visit to the Pointe-à-Callière Montreal Museum of Archaeology and History
August 24, 2006 (morning)

This guided walking tour offers guests the opportunity to observe: the Old Port of Montreal and its restaurants; City Hall; the markets and public buildings; the original financial district; historic homes; churches; Place Jacques Cartier; the Pointe-à-Callière Montreal Museum of Archaeology and History; etc.

Note: The walking tour will take place in all weather conditions. Please wear comfortable walking shoes and bring appropriate clothing in case of rain. Transportation to the Old Port of Montreal and return will be by metro (subway).

Dinner
The tour will end with dinner in a restaurant in the Old Port of Montreal area known for its seafood and steaks.

*The description of guest activities is for guidance and is subject to change without notice.

PARTNERSHIP

The International Conference on Short and Medium Span Bridges will offer a varied and high quality technical, social, and cultural program to satisfy the needs of both conference-goers and sponsor organizations.

Four partnership options are available to meet your needs for visibility and the degree of involvement and participation you wish in the success of the conference.
EXHIBITS
The International Conference on Short & Medium Span Bridges will feature more than 250 technical presentations in three days. More than 400 congressmen are expected. During this event about thirty exhibit booths for products and services related to short and medium span bridges will be accessible near the conference room.

ACCOMMODATIONS
The Conference Hotel is Le Centre Sheraton Montreal Hotel, conveniently located downtown Montreal, make your reservation soon.

Blocks of rooms at a special group rate of $205 CAN/night (single or double occupancy) have been set aside for attendees and their accompanying guests. The deadline to take advantage of this rate reduction is July 21, 2006.

The simplest way to reserve is through the Web site at www.bridgeconference2006.com under “Accommodation” in the “Registration” unfolding menu.

Reservations can also be made by phone at (514) 878-2000 or by fax at (514) 878-3958. Please make sure to specify that you are attending the 7th International Conference on Short & Medium Span Bridges.
PHOTO CREDITS

Page 1: Jacques Cartier Bridge

Page 2: 1 Champlain Bridge, Montréal (The Federal Bridge Corporation Limited) 2 Nautical activities in front of the Casino de Montréal, © Parc Jean-Drapeau, Bernard Brault 3 Terrasse on Place Jacques-Cartier in Old Montréal, © Tourisme Montréal, Stéphan Poulin 4 Montréal as seen from parc Jean-Drapeau, © Tourisme Montréal

Page 3: Pavillon Desmarais at the Musée des Beaux-Arts de Montréal, © Musée des Beaux-Arts de Montréal, Timothy Hursley

Page 4: 1 Place-des-Arts, © Tourisme Montréal, Stéphan Poulin

Page 5: 1 Victoria Bridge in Montréal (The Federal Bridge Corporation Limited) 2 Jardin botanique de Montréal, © Tourisme Montréal 3 Olympic Stadium tower at Parc olympique, © Régie des installations olympiques

Page 6: Québec Bridge, (Ministère des Transports du Québec)

Page 7: Old Port of Montréal’s Port d’Escale, © Tourisme Montréal, Stéphan Poulin
Sponsored by the

CANDIAN SOCIETY FOR CIVIL ENGINEERING

REGISTRATION

Please print or type:

Name:

Organization:

Mailing Address:

Telephone:  Fax:  E-mail:

Accompanying Person (if registered):

Registration Fees

(accepted abstract presenters must register by June 1, 2006).

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Optional Tours Program

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<td>Conference lunches at the Hotel</td>
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Total: $

**Payment Method**

Please check: Visa, MasterCard, American Express (Only these Credit Cards are accepted)

Credit Card Number: ____________________________ Expiry Date: ____________________________

Name of Cardholder: ____________________________ Signature: ____________________________

**NOTE:** If sending your forms by fax, DO NOT MAIL ORIGINALS

**BRIDGE CONFERENCE 2006 (REGISTRATION)**

Gérard Desgagné
Ministère des Transports du Québec
930 ch. Ste-Foy, 7ème étage, Québec, Québec CANADA G1S 4X9
Fax: (418) 646-5415

Optional Tours: $

Grand Total: $

Direct Bank Transfers to: BRIDGE CONFERENCE 2006

RBC Royal Bank (Diane Coderre)
728 Plaza Level, 1 Place Ville-Marie, Montréal, Québec CANADA H3C 3B5
Swift code: ROYCCAT2 / Royal Bank: 003 / Transit: 00001 / Account#: 1152149

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**General Conditions of Registration**

1. It is expressly agreed that the Canadian Society for Civil Engineering, its co-sponsors, members of the Organizing Committee and the Conference Secretariat for the 7th International Conference on Short & Medium Span Bridges (SMSB VII), their legal representatives, directors and employees, and their agents, officers and services, shall not be liable for any loss, injury or damage of any kind whatsoever suffered directly or indirectly by the person, possession or property of any Conference participant or other person during or in connection with the events on the program or any other activities related to the SMSB VII for any reason whatsoever no matter howsoever caused.

2. It is agreed that the Organizing Committee and the Secretariat for the SMSB VII, and their agents and officers, reserve the right to cancel at any time any or all of the programmed or other activities if this should appear necessary as a result of events which are beyond their control or which they cannot reasonably be expected to influence or for which they are not responsible. Without limiting the generality of the foregoing, such events shall include force majeure, government or other official regulations, natural disasters, strikes or any kind of industrial action whatsoever, civil, international or other crises, or any other unforeseen occurrence. Decisions regarding the necessity for such cancellation shall be taken by the Organizing Committee, or their agents, at their sole discretion and shall be final.

**Cancellation Policy**

Refunds of Conference registration fees paid, less a $100.00 Cdn administration fee, will be granted until June 15, 2006. Cancellation must be received in writing to the Registration address before this date.

A 50% REFUND WILL BE ISSUED AFTER THIS DATE. No refund after August 1, 2006.

Payment made for optional tours is non-refundable if cancelled after July 1, 2006.
Applicable taxes are included (GST: 10759 9276 RT0038 / QST: 1006467420).

Registration includes:
- Admission to all Technical sessions
- Proceedings on CD-Rom
- Conference lunches on August 23 and 24, 2006
- Coffee breaks
- Welcome reception on August 22 and formal banquet on August 24, 2006.

Prices include CSCE Membership fees from May 1st to December 31st, 2006.

Student Registration includes admission to all Technical sessions and proceedings on CD-Rom.

A two-days program with lunch included during the days of August 23 and 24, 2006.

A copy of your bank transfer form with your name on it MUST be submitted with your registration form. Bank charges are at Registrant’s expense.
WEDNESDAY, AUGUST 23RD, 2006

OPENING SESSION
8:30 - 10:00
KEYNOTE LECTURES
Ballroom

8:30 - 9:15  THE ART OF RAILWAY BRIDGE ENGINEERING - TODAY
Robert A.P. Sweeney
Consultant to Modjeski & Masters
Canada

9:15 - 10:00  BRIDGE MANAGEMENT IN THE PROVINCE OF QUEBEC: NOW AND TOMORROW
Guy Richard
Ministère des Transports du Québec
Canada
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Room</th>
<th>Details</th>
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<tbody>
<tr>
<td>10:20 - 12:00</td>
<td>THEME 1: INNOVATIVE DESIGN</td>
<td>Room A</td>
<td>DESIGN OF THE CANADA LINE EXTRADOSED TRANSIT BRIDGE</td>
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<td></td>
<td></td>
<td></td>
<td>Don W. Bergman, Andrew Griezic, and Christopher R. Scollard</td>
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<td>Buckland &amp; Taylor Ltd.</td>
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<td>Canada</td>
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<tr>
<td>10:20 - 10:40</td>
<td>PEDESTRIAN COMFORT OF COLUMBUS MAIN STREET BRIDGE UNDER VIBRATIONS INDUCED BY HEAVY VEHICLES</td>
<td>Room B</td>
<td>Stoyan Stoyanoff, David D. Byers, and Steve Hague</td>
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<td>RowanWilliams Davies &amp; Irwin Inc.</td>
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<tr>
<td>10:40 - 11:00</td>
<td>WIND LOADS ON PEDESTRIAN BRIDGES</td>
<td>Room B</td>
<td>J. Peter C. King, U.-Y. Jeong, L. Z. Kong</td>
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<td>University of Western Ontario</td>
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<tr>
<td>11:00 - 11:20</td>
<td>ADVANCED ANALYSIS AND TECHNICAL INNOVATIONS OF LIGHTWEIGHT PEDESTRIAN BRIDGES</td>
<td>Room B</td>
<td>Stanislav Kmet and Jan Kanocz</td>
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<td>Technical University of Kosice</td>
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<tr>
<td>11:20 - 11:40</td>
<td>DYNAMIC ANALYSIS OF BRIDGES UNDER MOVING LOADS</td>
<td>Room B</td>
<td>Sanjay Gurav</td>
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<td>University of North Dakota</td>
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<tr>
<td>11:40 - 12:00</td>
<td>APPLICATION OF OVERLOAD FATIGUE DAMAGE IN PERMIT LOAD BRIDGE RATING</td>
<td>Room A</td>
<td>Inmar Badwan and Robert Y. Liang</td>
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<td>University of Akron</td>
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**THEME 1: INNOVATIVE DESIGN**

**Room A**

**10:20 - 10:40**

**DESIGN OF THE CANADA LINE EXTRADOSED TRANSIT BRIDGE**

Don W. Bergman, Andrew Griezic, and Christopher R. Scollard
Buckland & Taylor Ltd.
Canada

**10:40 - 11:00**

**REPLACEMENT OF A DOUBLE TRACK RAILWAY CARRYING SWING SPAN OVER THE RICHELIEU RIVER**

George Nowak
Canadian National
Canada

**11:00 - 11:20**

**LESSONS LEARNED DURING THE DESIGN AND CONSTRUCTION OF THE NORTH SASKATCHEWAN RIVER BRIDGE IN EDMONTON, AB.**

C. P. Rebel and David John Middleton
CH2M HILL
Canada

**11:20 - 11:40**

**REPLACEMENT OF THE BELT PARKWAY BRIDGE OVER OCEAN PARKWAY**

Charles Norrish, III, Chris Sklavounakis, Russell A. Pratt
Gannett Fleming, Inc.
USA

**11:40 - 12:00**

**THREE SPANS IN ONE BRIDGE IN BENICARLO**

Salvador Monleón Cremades, Carlos Lázaro Fernández, Alberto Domingo Cabo
CMD Ingenieros
Spain

**THEME 6: ANALYSIS**

**Room B**

**10:20 - 10:40**

**PEDESTRIAN COMFORT OF COLUMBUS MAIN STREET BRIDGE UNDER VIBRATIONS INDUCED BY HEAVY VEHICLES**

Stoyan Stoyanoff, David D. Byers, and Steve Hague
RowanWilliams Davies & Irwin Inc.
Canada

**10:40 - 11:00**

**WIND LOADS ON PEDESTRIAN BRIDGES**

J. Peter C. King, U.-Y. Jeong, L. Z. Kong
University of Western Ontario
Canada

**11:00 - 11:20**

**ADVANCED ANALYSIS AND TECHNICAL INNOVATIONS OF LIGHTWEIGHT PEDESTRIAN BRIDGES**

Stanislav Kmet and Jan Kanocz
Technical University of Kosice
Slovakia

**11:20 - 11:40**

**DYNAMIC ANALYSIS OF BRIDGES UNDER MOVING LOADS**

Sanjay Gurav
University of North Dakota
USA

**11:40 - 12:00**

**APPLICATION OF OVERLOAD FATIGUE DAMAGE IN PERMIT LOAD BRIDGE RATING**

Inmar Badwan and Robert Y. Liang
University of Akron
USA
<table>
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<th>Time</th>
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<th>Speakers/Institutions</th>
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<tr>
<td>10:20 - 10:40</td>
<td><strong>MANITOBA FLOODWAY EXPANSION PROJECT - BRIDGE REPLACEMENT</strong> Norm Ulyatt, Dillon Consulting Limited, Canada</td>
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<td>10:40 - 11:00</td>
<td><strong>COMPLETE BRIDGE SPAN INSTALLATIONS</strong> Bill Halsband, Mammoet, Canada</td>
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<td>11:00 - 11:20</td>
<td><strong>INCORPORATING ART INTO BRIDGE DESIGN - SINGLE AND MULTIPLE SPAN PRECAST CONCRETEARCHAPPLICATIONS</strong> Paul Proctor, John Shall, Reinforced Earth Company Ltd., Canada</td>
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<td>11:20 - 11:40</td>
<td><strong>HOW TO BUILD A 700 FT. $20M CONCRETE BRIDGE IN ONE YEAR</strong> James M. Barker, Richard H. Walters, James A. O’Leary, HNTB Corporation, USA</td>
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<td>11:40 - 12:00</td>
<td><strong>STUDY AND DESIGN OF AN ADAPTIVE TUNED MASS DAMPER FOR SELF-CLIMBING FORMWORK IN THE CONSTRUCTION OF CONCRETE PIERS</strong> Carlos Casado Sánchez, Alfonso Poncela Méndez, Antolín Lorenzana Ibán, CARTIF, Spain</td>
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<td>10:40 - 11:00</td>
<td><strong>STABILITY ANALYSIS OF HIGHWAY 11 BRIDGES OVER P3 TRIBUTARY</strong> Brent I. Archibald, Jonathan J. Werner, Delcan Corporation, Canada</td>
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<td>11:00 - 11:20</td>
<td><strong>NUMERICAL STUDY ON THE DYNAMIC EFFECTS CAUSED BY VEHICULAR TRAFFIC ON A FERRY BOARDING RAMP</strong> Marc Savard, Ministère des Transports du Québec, Canada</td>
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<td>11:20 - 11:40</td>
<td><strong>COMPUTER AIDED GEOMETRIC DESIGN OF HIGHWAY BRIDGES</strong> Adel Fam, George Morcous and Mourad Bakhoun, Pro/Bridge Engineering, Canada</td>
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<td>11:40 - 12:00</td>
<td><strong>I-GIRDER WARPING STRESS CALCULATION IN 2D FE MODEL</strong> Yong Yang, Jianyuan Sun, HDR Engineering Inc., USA</td>
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<td><strong>TORSIONAL BEHAVIOUR IN BEAMS AND SLAB DECKS</strong> Marco Petrangeli, Alberto Viskovic, Università G.D’Annunzio, Italy</td>
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PARALLEL SESSION 1

10:20 - 12:00

THEME 1: INNOVATIVE DESIGN
Room E

10:20 - 10:40
INVESTIGATING A CHANGE OF STRUCTURAL SYSTEM FROM INTERNAL TO EXTERNAL POST-TENSIONING
Michael W. Paulsen, David M. Rogowsky, Scott D. B. Alexander
Associated Engineering Ltd.
Canada

10:40 - 11:00
DESIGN OF MISSISSIPPI RIVER BRIDGE OVERCOMES ENVIRONMENTAL, FOUNDATION AND STRUCTURAL CHALLENGES
Iqbal Husain, Nicolas Theodor, Tony Sangiuliano and Dave McAvoy
Ministry of Transportation of Ontario
Canada

11:00 - 11:20
DEVELOPMENT OF A BRIDGE EXPANSION JOINT WITH INFLATABLE SEAL SYSTEM
Jim Au, Clifford Lam and Bala Tharmabala
Ministry of Transportation of Ontario
Canada

11:20 - 11:40
JOINTLESS ABUTMENT DETAILING FOR AN ORTHOGONAL-ENDED STRUCTURE
Kelvin L. Fields
Neill and Gunter Ltd.
Canada

PARALLEL SESSION 1

10:20 - 12:00

THEME 7: ADVANCED MATERIALS IN BRIDGES
Room F

10:20 - 10:40
USING REACTIVE POWDER CONCRETE IN AN INNOVATIVE SLAB SYSTEM
Ammar Hassan and Makoto Kawakami
Taisei Corporation
Japan

10:40 - 11:00
STAINLESS STEEL USE IN PEDESTRIAN BRIDGES
Frank N. Smith, Kirk D. Wilson
Consultant
Canada

11:00 - 11:20
DUCTAL® PRESTRESSED GIRDERS FOR A TRAFFIC BRIDGE IN MAYENNE, FRANCE
Mouloud Behloul, Jacques Resplendino and Olivier Bayard
Lafarge
France

11:20 - 11:40
STAINLESS STEEL REBAR: A LONG-LASTING REINFORCEMENT FOR BRIDGES.
Frank N. Smith & Kevin Cornell
Consultant
Canada

11:40 - 12:00
HIGH PERFORMANCE STEEL FOR HIGHWAY BRIDGES IN THE USA

WEDNESDAY, AUGUST 23, 2006
### Parallel Session 1

**Theme 5: Rehabilitation and Retrofitting**

**Room G**

10:20 - 10:40  
**Rehabilitation of the Lennoxville Bridge Incorporating the SPS (Sandwich Plate System/Technology)**  
Sylvain Lapierre  
CIMA+  
Canada

10:40 - 11:00  
**Prefabricated Bridge Deck Panels - Twenty Years of History**  
Mark Kaczinski  
D.S. Brown Company  
USA

11:00 - 11:20  
**Strengthening of RC Inverted T-Bentcap Girders Using Anchored CFRP Sheets**  
Khaled Galal and Mukesh Sekar  
Concordia University  
Canada

**Theme 9: Repair, Maintenance and Evaluation**

**Room H**

10:20 - 10:40  
**Failure Investigation of Steel Arch Bridge in Latchford, Ontario**  
Bagnariol, Dino and Kenedi, Walter  
Ministry of Transportation of Ontario  
Canada

10:40 - 11:00  
**Mechanical and Health Monitoring Performance of RC Concrete Bridge Externally Reinforced by CFRP Bonding**  
E. Ferrier, A. Si-Larbi, P. Hamelin  
Université LYON 1  
France

11:00 - 11:20  
**Performance and Design Considerations of Sliding Plate-Strip Seal Expansion Joints**  
David Lai, Naran Patel  
Ministry of Transportation of Ontario  
Canada

11:20 - 11:40  
**Experimental Study on Various Types**
HIGH PERFORMANCE CONCRETE
OVERLAY FOR REHABILITATION
AND STRENGTHENING OF ORTHOTROPIC
STEEL BRIDGE DECKS
Peter Buitelaar, René Braam, Niek Kaptijn
and Henk Sliedrecht
Contec ApS
Denmark

EFFECT OF DESIGN VARIABLES ON THE
FAILURE MECHANISMS OF FRP-REHABILITATED
RC INVERTED T-BEAM BRIDGE BENTCAPS
Khaled Galal and Mukesh Sekar
Concordia University
Canada

PARALLEL SESSION 1
THEME 8: INSTRUMENTATION, TESTING
AND MONITORING
Room J

RESPONSE OF HELICAL STEEL CULVERTS
DURING BACKFILLING IN FULL SCALE
TEST PROGRAM
RW Pritchard, RA Day, PF Dux, KYWong
University of Queensland
Australia

DAMAGE IDENTIFICATION OF GIRDER BRIDGE’S
FLEXURAL STIFFNESS
LIU Hua; YE Jianshu
Southeast University
China

RECONSTRUCTION OF LOAD TRANSFER
TRAJECTORIES ON A REINFORCED CONCRETE
BRIDGE WITH A LARGE SKEW FROM THE
RESULTS OF A STATIC LOAD TEST
Michel Kuntz
CORAXIS
Canada

FIELDTESTS OF SOIL-STEEL BRIDGE STRUCTURE
Damian Beben, Manko Zbigniew
Opole University of Technology
Poland

APPLICATION OF LONG GAGE-LENGTH FIBER OPTIC SENSORS TO MONITOR BRIDGE STRUCTURES
R.C. Tennyson, N. Banthia, A. Mufti, A. Rivera
FOX-TEK
Canada

PARALLEL SESSION 2

13:30 - 15:10
THEME 1: INNOVATIVE DESIGN
Room A

INNOVATIONS IN OPEN SPANDREL ARCH BRIDGE DESIGN
Samanaidu Balakrishnan
Associated Engineering Group Ltd.
Canada

GREENWAY BRIDGE
Joost Meyboom, Anna Lisa Meyboom, M. Sutton
Delcan Corporation
Canada

13:30 - 15:10
THEME 6: ANALYSIS
Room B

PRINCIPLE OF DESIGN OF PILETRESTLE BRIDGES
Anthony Ikpong
Highways and Public Works Yukon
Canada

ELASTIC VERSUS ULTIMATE PERFORMANCE OF PRESTRESSED CONCRETE BRIDGES
Marcio Araujo and C. S. Cai
Louisiana State University
USA
14:10 - 14:30  TONGNAN BRIDGE INTIANJIN, CHINA  
Joost Meyboom, W. Victor Anderson  
Delcan Corporation  
Canada

14:30 - 14:50  DESIGN OF THE MAIN SPANS OF SECOND HIGHWAY BRIDGE OVER YELLOW RIVER IN ZHENGZHOU, CHINA  
Bao-chun Chen, Gui-han Peng  
Fuzhou University  
China

14:50 - 15:10  DESIGN PHILOSOPHY AND SUMMARY REPORT: THE PALM JUMEIRAH GATEWAY BRIDGE, DUBAI, UAE  
Thomas Piotrowski and James Fox  
H2L2 Architects / Planners  
USA

14:10 - 14:30  ULTIMATE STRENGTH OF COMPOSITE I-GIRDER IN PURE POSITIVE BENDING  
Masatsugu Nagai, Yoshiaki Okui, Naofumi Inaba and Eiji Iwasaki  
Nagaoka University of Technology  
Japan

14:30 - 14:50  SLAB CRACKING DURING COMPOSITE BRIDGE CONSTRUCTION: EFFECTIVENESS OF FRACTIONATED CASTINGS IN CONTROLLING THE PHENOMENON  
Luigino Dezi, Fabrizio Gara, Gianluca Ranzi and Graziano Leoni  
Marche Polytechnic University  
Italy

14:50 - 15:10  CONTROL OF CRACKING FOR CONCRETE BRIDGES - THE PERFORMANCE OF CALCULATION MODELS  
Lars Eckfeldt  
Dresden University of Technology  
Germany

PARALLEL SESSION 2

13:30 - 15:10  THEME 2: NEW CONSTRUCTION  
Room C

13:30 - 15:10  THEME 6: ANALYSIS  
Room D

13:30 - 13:50  REPLACEMENT OF RAINY RIVER BRIDGE  
PC Lim, Steve DelVecchio  
Canadian National Railway  
Canada

13:30 - 13:50  COMPARISON OF DESIGN EFFECTIVE BRIDGE TEMPERATURE RANGES USING DIFFERENT BRIDGE DESIGN CODES  
Alexander Au, Clifford Lam and Bala Tharmabala
13:50 - 14:10  
**DESIGN OF SHORT AND MEDIUM SPAN STEEL RAILWAY BRIDGES - MODERN PRACTICE ON NORTH AMERICAN FREIGHT RAILROADS**  
John F. Unsworth  
Canadian Pacific Railway  
Canada  

14:10 - 14:30  
**INNOVATIVE CONCEPTS FOR SEGMENTAL CONCRETE INTERCHANGE**  
Vijay Chandra  
Parsons Brinckerhoff  
USA  

14:30 - 14:50  
**CN RAILWAY NEW MEMPHIS SUPER TERMINAL (MST) INTERMODAL DESIGN AND CONSTRUCTION OF A RAILROAD BRIDGE OVER HORN LAKE CUT-OFF DITCH**  
Fernando Moreu  
ESCA Consultants  
USA  

14:50 - 15:10  
**SIMULATION OF THE RE-DECKING OF JACQUES CARTIER BRIDGE CONSIDERING SPATIAL CONSTRAINTS**  
Cheng Zhang, Amin Hammad, G. Wainer and Tarek M. Zayed  
Concordia University  
Canada  

13:50 - 14:10  
**PREDICTIONS ON FLEXURAL BEHAVIOUR OF REINFORCED CONCRETE BEAMS: APPLICATION OF A FRACTURE MECHANICS APPROACH**  
Yail J. Kim, R. Gordon Wight and Mark F. Green  
Queen’s University  
Canada  

14:10 - 14:30  
**SPAN STRETCHING AND OPTIMAL DESIGN OF PRESTRESSED I-GIRDER BRIDGES USING HIGH STRENGTH CONCRETE AND LRFD METHOD**  
Kamal Mirtalaei, Jean Nehme  
Arizona Department of Transportation  
USA  

14:30 - 14:50  
**LIVE LOAD DISTRIBUTION FOR CONCRETE BRIDGES WITH AASHTO/PCI GIRDER**  
Z.G. Yousif and R.A. Hindi  
Bradley University  
Canada  

14:50 - 15:10  
**EFFECTIVE SLAB WIDTH IN COMPOSITE DECKS: NEW FORMULAS FOR DIFFERENT LOADING CONDITIONS**  
Luigino Dezi, Fabrizio Gara and Graziano Leoni  
Marche Polytechnic University  
Italy
13:30 - 13:50  BRIDGE DECKS HIGH SPEED WATERPROOFING SYSTEMS - SUMMARY OF ACHIEVEMENT IN CANADA
Sabine Le Bec, Yvan Paquin
Construction DJL inc.
Canada

13:50 - 14:10  VANCOUVER CONVENTION CENTRE VIADUCT
Craig Schaper, Don H. McCulloch
EarthTech Inc.
Canada

14:10 - 14:30  DESIGN AND CONSTRUCTION OF THE SR 836 FLYOVER BRIDGES
Scott W. Dean
HNTB Corporation
USA

14:30 - 14:50  EXPERIENCE OF INNOVATIVE INTEGRAL BRIDGES IN CHINA
Xiaoqin Jin, Xudong Shao
Hunan University
China

14:50 - 15:10  AL ENANIA BOWSTRING BRIDGE - EGYPT
Hussein Abbas
Al Azhar University
Egypt

13:30 - 13:50  PERFORMANCE OF ALBERTA INFRASTRUCTURE AND TRANSPORTATION FIBRE REINFORCED OVERLAYS
Paul D. Carter, David J. Besuyen
CH2M HILL
Canada

13:50 - 14:10  DUCTILITY AND DEFORMABILITY OF PARTIALLY PRESTRESSED CONCRETE BEAMS WITH UNBONDED TENDONS
Karmen Tso, Francis T. K. Au and Ray K. L. Su
University of Hong Kong
China

14:10 - 14:30  PROPOSED SHEAR PROVISIONS FOR FRP REINFORCED BRIDGE BEAMS AND GIRDERs
John P. Newhook, Brahim Benmokrane and Gamil Tadros
Dalhousie University
Canada

14:30 - 14:50  THE FIRST HIGHWAY BRIDGE APPLYING ULTRA HIGH STRENGTH FIBER REINFORCED CONCRETE IN JAPAN
Hikari Okuma, Ikuo Iwasaki, Koichi Nishikawa, Tadatoshi Morita
Taisei Corporation
Japan

14:50 - 15:10  DEVELOPMENT OF LIGHTWEIGHT HIGH PERFORMANCE CONCRETE MIXES FOR BRIDGE DECK RECONSTRUCTION – STRENGTH, WEIGHT, AND DURABILITY CHARACTERISTICS
Guy Mailhot, Glen P. Carlin
The Jacques Cartier and Champlain Bridges Inc.
Canada
PARALLEL SESSION 2
THEME 5: REHABILITATION AND RETROFITTING
Room G

13:30 - 13:50
CN RAILWAY CONSTRUCTION OF A NEW 80' – 0" STEEL GIRDER SPAN MILE U5.6 EDGEWOOD SUBDIVISION, CRUSE, IL
Fernando Moreu
ESCA Consultants, Inc.
USA

13:50 - 14:10
LIFE-CYCLE ANALYSIS FOR THE GULLWING RIVER BRIDGE REPLACEMENT
P.A. Scalzo, K.W. Simbeya
Cook Engineering
Canada

14:10 - 14:30
ANALYSIS ON THE STRENGTHENING EFFICIENCY OF NEAR SURFACE MOUNTED CFRP LAMINATES
Jae-Yoon Kang, Young-Hwan Park, Jong-Sup Park, Young-JunYou, Woo-Tai Jung
Korea Institute of Construction Technology
South Korea

14:30 - 14:50
REVISITING REPLACEMENT RATIONALE FOR THE CLARKE ROAD BRIDGE: "REHABILITATION OF A BRIDGE WITH ONE FOOT IN THE GRAVE"
John Pucchio, Matthew Murphy, Ian Blevins, Tony Fediw, John Lucas
EarthTech Canada Inc.
Canada

14:50 - 15:10
SMALL AND MEDIUM SPAN BRIDGES: CASE STUDIES FOR STANDARD SOLUTIONS WITH REDUCED MAINTENANCE REQUIREMENTS
Enzo Siviero, Bruno Briseghella, Tobia Zordan
University of Architecture in Venice (IUAV)
Italy

PARALLEL SESSION 2
THEME 9: REPAIR, MAINTENANCE AND EVALUATION
Room H

13:30 - 13:50
RELIABILITY-BASED DETERIORATION MODEL FOR DEFLECTION LIMIT STATE OF STEEL GIRDER BRIDGES
Pascal Laumet, Andrzej S. Nowak
University of Michigan
USA

13:50 - 14:10
LIVE LOAD DISTRIBUTIONS ON IMPACT DAMAGED PRESTRESSED CONCRETE GIRDER BRIDGE
Yail J. Kim, Mark F. Green, and R. Gordon Wight
Queen's University
Canada

14:10 - 14:30
PRELIMINARY SEISMIC PERFORMANCE EVALUATION OF HIGHWAY BRIDGES
Ozgur Avsar, Ahmet Yakut, Gizem Sevgili and Alp Caner
Middle East Technical University
Turkey

14:30 - 14:50
GARDEN CITY SKYWAY SUBSTRUCTURE REHABILITATION
Issam El Khatib, Dennis Baxter
Totten Sims Hubicki Associates
Canada

14:50 - 15:10
ASSESSMENT AND MAINTENANCE OF A 15 YEAR OLD STRESS-LAMINATED TIMBER BRIDGE
T. Russell Gentry, Karl N. Brohammer, John Wells, James P. Wacker
Georgia Institute of Technology
USA
PARALLEL SESSION 2

THEME 8: INSTRUMENTATION, TESTING
AND MONITORING
Room J

13:30 - 13:50

COMPARING MONITORING AND POST
DICTION RESULTS OF A HSC CANTILEVER BRIDGE
Cornelis van der Veen and Ane de Boer
Delft University of Technology
Netherlands

13:50 - 14:10

APPLICATION OF LONG RANGE 3D LASER
SCANNING FOR REMOTE SENSING AND
MONITORING OF COMPLEX BRIDGE STRUCTURES
Guy Mailhot, Sorin Busuioc
The Jacques Cartier and Champlain Bridges Inc.
Canada

14:10 - 14:30

FATIGUE TESTS ON FULL-SCALE REINFORCED
CONCRETE SLABS: A CASE STUDY
M.P. Natali Sora, G. Rosati
Politecnico di Milano
Italy

14:30 - 14:50

COMPARISON OF TWO IDENTICAL TWIN
HIGHWAY BRIDGES
Jean-François Laflamme, Marc Savard, Martin Talbot
Ministère des Transports du Québec
Canada

14:50 - 15:10

STRUCTURAL EVALUATION OF BRIDGE DREZNIK
Damir Tkalcic, Davor Banic, Igor Dzajic
Civil Engineering Institute of Croatia
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<th>Theme 1: Innovative Design</th>
<th>Theme 6: Analysis</th>
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<td>15:30 - 16:50</td>
<td>PARALLEL SESSION 3</td>
<td>INNOVATIVE BRIDGE DESIGN FOR THE SEA-TO-SKY HIGHWAY IMPROVEMENT PROJECT, DESIGN-BUILD WORK PACKAGE NO. 2, SUNSET BEACH TO LIONS BAY Jianping Jiang, Keith Holmes, Monty Knaus ND LEA Inc. Canada</td>
<td>SOME IMPLICATIONS OF USING EUROCODE 2 IN THE DESIGN OF MEDIUM SPAN BRIDGES José Turmo, Gonzalo Ramos and Angel Carlos Aparicio ETS de Ingenieros de Caminos Spain</td>
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<td>15:30 - 16:10</td>
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<td>DESIGN OF HIGHLY CURVED CONCRETE RAMP BRIDGES Adel Fam, Derk Meyer and Hank Huitema Pro/Bridge Engineering Canada</td>
<td>FATIGUE OF TUBULAR BRIDGE JOINTS USING WELDED OR CAST STEEL NODE SOLUTIONS Ann Schumacher, Alain Nussbaumer, Senta Haldimann-Sturm Swiss Federal Laboratories for Materials Testing and Research Switzerland</td>
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<td>16:10 - 16:30</td>
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<td>CONTINUOUS STEEL-CONCRETE COMPOSITE CONSTRUCTION FOR BRIDGES - AN ECONOMICAL SOLUTION Pydi Lakshmana Rao INSDAG India</td>
<td>FATIGUE DESIGN OF STEEL-CONCRETE COMPOSITE BEAMS USING F.E.M. Samy GUEZOUILI INSA de Rennes France</td>
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<tr>
<td>16:30 - 16:50</td>
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<td>CONSTRUCTION OF SHAIKH ZAYED ARCH BRIDGE IN ABU DHABI Parviz Djahani and Jamal AL-Hosani Department of Municipalities and Agriculture University of Balamand Lebanon</td>
<td>STRUCTURAL ANALYSIS OF COLD CURVED STEEL PLATE GIRDERS Antoine N. Gergess, Rajan Sen University of Balamand Lebanon</td>
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PARALLEL SESSION 3
THREE: NEW CONSTRUCTION
Room C
15:30 - 16:50

MINISTRY OF TRANSPORTATION ONTARIO
EXPERIENCE IN BRIDGE PLANNING
Quazi M. Islam and Iqbal Husain
Ministry of Transportation of Ontario
Canada
15:30 - 15:50

THE WUPPER RIVER VALLEY BRIDGE: A STATE-OF-THE-ART COMPOSITE BRIDGE
Gero Marzahn, M. Hamm, W. Prehn, J. Swadlo
Northrhine-Westfalia Dept. of Transportation
Germany
15:50 - 16:10

A MODERN CONCEPT OF MOVABLE SCAFFOLDING SYSTEMS
António Póvoas
Bridge Construction Systems - Portugal
Portugal
16:10 - 16:30

PARALLEL SESSION 3
THEME: ANALYSIS
Room D
15:30 - 16:50

SURPRISES INSIDE POST-TENSIONED STRUCTURES AND REMEDIES
Vijay Chandra, Keith Donington
Parsons Brinckerhoff Inc.
USA
15:30 - 15:50

NEW DEVELOPMENT TO CALCULATE FRICTION LOSS BY 3D FINITE ELEMENT METHOD (3DFEM)
F. Danesh, M. Ziaei, M. Ansari
Iran University of Science & Technology
Iran
15:50 - 16:10

PREDICTION OF LOADING-INDUCED TENDON SLIP AT DEVIATORS IN BEAMS PRESTRESSED WITH EXTERNAL TENDONS
Bui Khac Diep, Niwa Junichiro
Tokyo Institute of Technology
Japan
16:10 - 16:30
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<td>15:30 - 16:50</td>
<td><strong>THEME 1: INNOVATIVE DESIGN</strong></td>
<td>Khaled Sennah, Bijal Shah, Reza Kianoush, Siyin Tu, Clifford Lam</td>
<td>Ryerson University, Canada</td>
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<tr>
<td>16:30 - 16:50</td>
<td><strong>THEME 7 - ADVANCED MATERIALS IN BRIDGES</strong></td>
<td>A. Deifalla, A. Ghobarah</td>
<td>McMaster University, Canada</td>
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<td>15:30 - 15:50</td>
<td><strong>TIME-DEPENDENT EFFECTS IN CONTINUOUS COMPOSITE NU-GIRDER BRIDGES</strong></td>
<td>Walter H. Dilger and Gerd Birkle</td>
<td>University of Calgary, Canada</td>
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<tr>
<td>15:50 - 16:10</td>
<td><strong>PRECAST PRESTRESSED CONCRETE DECK BULB TEE BRIDGES</strong></td>
<td>Mantu C. Baishya, Steven D. Kneip, Joel B. Rossman, Kirkham Michael</td>
<td>USA</td>
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<tr>
<td>16:10 - 16:30</td>
<td><strong>PRETENSIONED PRESTRESSED CONCRETE BEAM</strong></td>
<td></td>
<td>USA</td>
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15:30 - 16:50  PARALLEL SESSION 3

THEME 5 – REHABILITATION AND RETROFITTING
Room G

Glen P. Carlin, Guy Mailhot
The Jacques Cartier and Champlain Bridges Inc.
Canada

16:10 - 16:30  NEW CBDC PROVISIONS FOR DESIGN OF FIBRE REINFORCED STRUCTURES

JMBT Structures Research Inc.
Canada

16:30 - 16:50  HIGH STRENGTH CONCRETE FOR FLEXURAL DESIGN OF BRIDGE GIRDERS

Halit Cenan Mertol, Sami Rizkalla, Paul Zia, Amir Mirmiran
North Carolina State University
USA
15:50 - 16:10  REPAIR OF HONORÉ MERCIER BRIDGE PIERS BY ENCAPSULATION WITH TERNARY CONCRETE
Pierre Pilotte, François Charbonneau
The Jacques Cartier and Champlain Bridges Inc.
Canada

16:10 - 16:30  DESIGN GUIDELINES FOR STRENGTHENING OF STEEL-CONCRETE COMPOSITE BEAMS WITH HIGH MODULUS CFRP MATERIALS
David Schnerch, Mina Dawood, Emmett Sumner and Sami Rizkalla
North Carolina State University
USA

16:30 - 16:50  SEISMIC EVALUATION AND RETROFIT STRATEGY FOR AN OVERPASS CROSSING RAILWAY LINES
De la Puente, Alejandro; Mitchell, Denis; Chouinard, Luc
McGill University
Canada

15:50 - 16:10  INSPECTION OF TIMBER BRIDGES
Anna Pousette, Per-Anders Fjellström
SP Swedish National Testing and Research Institute
Sweden

16:10 - 16:30  FATIGUE BEHAVIOR OF IMPACT DAMAGED PRESTRESSED CONCRETE BRIDGE GIRDER REPAIRED WITH CFRP SHEETS
Owen Rosenboom, Anthony Miller and Sami Rizkalla
North Carolina State University
USA

16:30 - 16:50  FATIGUE AND REMAINING LIFE ASSESSMENT OF STEEL BRIDGES MORE THAN 50 YEARS OLD
Dominique Bauer and Miguel Morales
École de technologie supérieure
Canada

PARALLEL SESSION 3
THEME 8 – INSTRUMENTATION, TESTING AND MONITORING
Room J

15:30 - 16:50
15:50 - 16:10  WAVELET ANALYSIS FOR DAMAGE ASSESSMENT OF AN EXISTING CONCRETE BRIDGE
Alireza Alvandi, Josée Bastien, Étienne Grégoire, Marc Jolin
Université Laval
Canada

16:10 - 16:30  TESTING OF PRECAST Prestressed CONCRETE RAILROAD BRIDGES
Duane Otter, Brian Doe and Muhammad Akhtar
Transportation Technology Center, Inc.
USA

16:30 - 16:50  RELAXATION OF PRESTRESSING STEEL USED IN CONSTRUCTION OF THE CONFEDERATION BRIDGE
Abu Dabous, S. and El-Badry, M.
Concordia University
Canada
OPENING SESSION

8:30 - 10:00

KEYNOTE LECTURES

Ballroom

8:30 - 9:15

BRIDGES ON THE CENTRAL ARTERY/TUNNEL PROJECT, BOSTON MASSACHUSETTS

Vijay Chandra

Parsons Brinckerhoff Inc.

USA

9:15 - 10:00

USE OF PREFABRICATED PANELS IN DECK REPLACEMENT: RECENT EXPERIENCE IN QUEBEC

Bernard Breault, Adel R. Zaki

SNC-Lavalin inc.

Canada
PARALLEL SESSION 4

10:20 - 12:00

THEME 1: INNOVATIVE DESIGN
Room A

10:20 - 10:40
BRIDGES THAT COMBINE FUNCTION, ECONOMY AND AESTHETICS
Yuhe Yang
Parsons Brinckerhoff Inc.
USA

10:40 - 11:00
ORLANDO INTERMODAL TRANSIT SYSTEM
GUIDEWAY “THE ORLANDO EXPERIENCE” - INNOVATIVE DESIGN
Victor Ryzhikov, Antonio Ledesma, Joseph Mitchell
Parsons Brinckerhoff Inc.
USA

11:00 - 11:20
INNOVATIVE DESIGN OF SHORT SPAN STEEL CONCRETE COMPOSITE BRIDGES WITH ROLLED BEAMS SOME EXAMPLES FROM FRANCE AND GERMANY
Wasoodev Hoorpah
MIO
France

11:20 - 11:40
DISCOVERING THE POSSIBILITIES OF TWO RECENT TYPES OF UNCONVENTIONAL CABLE-STAYED BRIDGES
Ana M. Ruiz-Teran, Angel C. Aparicio
University of Castilla-La Mancha
Spain

11:40 - 12:00
THE NEW MAIN STREET BRIDGE
Hans R. Hutton, Jon K. Lindsey, Steven T. Hague
HNTB Corporation
USA

PARALLEL SESSION 4

10:20 - 12:00

THEME 6: ANALYSIS
Room B

10:20 - 10:40
RAILWAY LOADINGS AND REALITY
Robert A.P. Sweeney
Modjeski & Masters
Canada

10:40 - 11:00
AREMA LONGITUDINAL FORCE REQUIREMENTS
Robert A.P. Sweeney
Modjeski & Masters
Canada

11:00 - 11:20
NUMERICAL ANALYSIS OF RAIL – STRUCTURE INTERACTION AND RESONANCE IN RAILWAY BRIDGES
Marco Petrangeli, Cristiano Tamagno
University of Pescara
Italy

11:20 - 11:40
APPROACH TO THE DESIGN OF MODERN RAILWAY BRIDGES
J. Turno and A. Meher Prasad
University of Castilla-La Mancha
Spain

11:40 - 12:00
DYNAMIC ANALYSIS OF CONCRETE RAILWAY BRIDGE FOR HIGH SPEED TRAINS
M.A. Shayanfar, M. Ansari, M. Ziaei
Iran University of Science & Technology
Iran
### PARALLEL SESSION 4

**THEME 2: NEW CONSTRUCTION**  
Room C

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| 10:20 – 10:40 | **TRANS CANADA HIGHWAY SAINT-LEONARD / LONGS CREEK, NEW BRUNSWICK DESIGN, CONSTRUCTION AND REHABILITATION OF STRUCTURES**  
Brian Donald, Mitchell Smith, Hani Keira and Hany Varjabedian  
Canada | | |
| 10:40 – 11:00 | **EAST PASCAGOULA RIVER POST-TENSIONED SPICED GIRDER BRIDGE, MISSISSIPPI, USA**  
Teddy Theryo  
Parsons Brinckerhoff Quade and Douglas, Inc.  
USA | | |
| 11:00 – 11:20 | **SPANNING MISSISQUIO BAY, SIMPLE YET COMPLEX**  
Steve W. Johnson  
Vanasse Hangen Brustlin, Inc.  
USA | | |
| 11:20 – 11:40 | **EXPERIMENTAL STUDIES OF PREFABRICATED BRIDGE DECK MODELS AND CLOSURE STRIP CONNECTIONS**  
Alexander Au, Clifford Lam and BalaTharmabala  
Ministry of Transportation of Ontario  
Canada | | |

### PARALLEL SESSION 4

**THEME 3: SEISMIC DESIGN**  
Room D

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| 10:20 – 10:40 | **COMPARATIVE STUDY OF THE SEISMIC PERFORMANCE OF RETROFITTED MULTI-SPAN STEEL BRIDGES**  
Jamie Ellen Padgett, Reginald DesRoches  
Georgia Institute of Technology  
USA | | |
| 10:40 – 11:00 | **SEISMIC DESIGN AND CONSTRUCTION OF TWO HIGH PROFILE CONCRETE BRIDGES IN A COLD WEATHER ENVIRONMENT**  
Sylvain Montminy, Abdol Noureayan, Ronald J. Watson  
Delcan Corporation  
Canada | | |
| 11:00 – 11:20 | **BRIDGE SEISMIC EXPANSION JOINTS**  
Paul Bradford  
Watson Bowman Acme  
USA | | |
| 11:20 – 11:40 | **PERFORMANCE-BASED SEISMIC DESIGN OF BRIDGE WITH ENERGY DISSIPATION DEVICES**  
A. Iqbal  
Bangladesh Consultants Ltd.  
Bangladesh | | |
| 11:40 – 12:00 | **SEISMIC BEHAVIOUR OF CABLE-STAYED BRIDGES AND DISSIPATION OF ADDITIONAL ENERGY: A STATE-OF-THE-ART REVIEW** | | |
PARALLEL SESSION 4

10:20 - 12:00

THEME 1: INNOVATIVE DESIGN
Room E

10:20 - 10:40

DEVELOPMENT OF CORRUGATED STEEL WEB T-SHAPED PRESTRESSED CONCRETE GIRDER BRIDGES
Takahiro Kakuta, Atsushi Fujioka
PSM Construction USA, Inc.
USA

10:40 - 11:00

THE ILSUN BRIDGE: SPECIAL ISSUES FACED IN THE DESIGN AND ANALYSIS OF PRESTRESSED CONCRETE BOX GIRDER BRIDGE WITH CORRUGATED STEEL WEB
Kwang Soo Kim, Kwang Hoe Jung, Chungwook Sim
Hyundai Institute of Construction Technology
South Korea

11:00 - 11:20

DESIGN OF A TRIANGULAR PRECAST POST TENSIONED BOX GIRDER
Takahiko Kimura, Thomas R. Cooper
Parsons Brinckerhoff Inc.
USA

PARALLEL SESSION 4

10:20 - 12:00

THEME 7: ADVANCED MATERIALS IN BRIDGES
Room F

10:20 - 10:40

CHBDC DESIGN PROVISIONS FOR REHABILITATION OF BRIDGES WITH FRPS
Mufti, Bakht, Banthia, Benmokrane, Desgagné, Eden, Erki, Karbhari, Kroman, Lai, Machida, Neale, Tadros, Täljsten
JMBT Structures Research Inc.
Canada

10:40 - 11:00

IMPROVING THE DURABILITY AND ECONOMY OF SHORT AND MEDIUM SPAN BRIDGES THROUGH INTERNAL CURING
John W. Roberts, Bruce Jones, Jessica Hulsman
Northeast Solite Corporation
USA

11:00 - 11:20

BUILDING A BRIDGE WITH AN ANTICIPATED SERVICE LIFE OF 150 YEARS
Sylvain Goulet
Ministère des Transports du Québec
Canada
11:20 - 11:40  EFFECT OF INITIAL BENDING MOMENT IN COMPOSITE GIRDER UNDER FLEXURE FOR UNSHORED CONSTRUCTION
V.K. Gupta, Y. Okui, M. Nagai
Saitama University
Japan

11:40 - 12:00  LAUNCHING ON SUPPLE SKATES
Marco Petrangeli, Marcello Petrangeli
Università "G. D'Annunzio"
Italy

11:20 - 11:40  ADHESIVELY BONDED FRP COMPOSITE SYSTEM FOR REHABILITATION OF BRIDGE DECK
Zihong Liu, Parsun K. Majumdar, Tommy Cousins & Jack Lesko
Virginia Tech
USA

11:40 - 12:00  FATIGUE BEHAVIOUR OF MMFX CORROSION-RESISTANT REINFORCING STEEL
Siebren J. DeJong, Patrick Heffernan, Colin MacDougall
Queen's University
Canada

PARALLEL SESSION 4
THEME 5: REHABILITATION AND RETROFITTING
Room G

10:20 - 10:40  EVALUATION OF NEW SACRIFICIAL ANODE CATHODIC PROTECTION SYSTEMS FOR HIGHWAY BRIDGE DECKS AND SUBSTRUCTURE COMPONENTS
David Lai, Frank Pianca
Ministry of Transportation of Ontario
Canada

10:40 - 11:00  CEILING REPAIR OF A RIGID FRAME STRUCTURE USING SELF COMPACTING CONCRETE (SCC)
Bernard Pilon
Ministère des Transports du Québec
Canada

11:00 - 11:20  FLEXURAL BEHAVIOR OF RC BEAMS STRENGTHENED WITH EXTERNALLY PRESTRESSED

PARALLEL SESSION 4
THEME 9: REPAIR, MAINTENANCE AND EVALUATION
Room H

10:20 - 10:40  EVALUATING THE FATIGUE LIFE OF REINFORCED CONCRETE BRIDGES
Artur Felipe Eckert, Luiz Carlos Pinto da Silva Filho, Francisco de Paula Simões Lopes Gastal
Federal University of Brazil
Brazil

10:40 - 11:00  SYSTEM RELIABILITY MODELS FOR STEEL GIRDER BRIDGES
Artur A. Czarnecki and Andrzej S. Nowak
University of Nebraska
USA

11:00 - 11:20  FATIGUE OF HIGH STRENGTH BOLTED CONNECTIONS IN TENSION
STRENGTHENED WITH EXTERNALLY PRESTRESSED CFRP LAMINATES
Park, Jong-Sup; Park, Young-Hwan; Kang, Jae-Yoon; You, Young-Jun; Jung, Woo-Tai
Korea Institute of Construction Technology
South Korea
11:20 - 11:40

REHABILITATION OF DAMAGED STEEL-CONCRETE COMPOSITE BEAMS USING ULTRA-HIGH MODULUS CFRP SHEETS
Amr Shaat and Amir Fam
Queen’s University
Canada
11:20 - 11:40

11:40 - 12:00
REHABILITATION, STRENGTHENING AND ONGOING MONITORING OF ONTARIO’S LAST REMAINING COVERED WOODEN BRIDGE
Ted Brumfitt, Don Moore, John Stephenson
Regional Municipality of Waterloo
Canada
11:40 - 12:00

LEARNING-BASED BRIDGE INSPECTION DECISION-SUPPORT SYSTEM
Yongxin Hu, Amin Hammad
Concordia University
Canada
11:40 - 12:00

ANALYSIS AND DESIGN OF REHABILITATED BUILT-UP HYBRID COMPRESSION MEMBERS
Katherine K.W. Shek and F. Michael Bartlett
University of Western Ontario
Canada
11:40 - 12:00

PARALLEL SESSION 4
THEME 8: INSTRUMENTATION, TESTING AND MONITORING
Room J

10:20 - 12:00

10:20 - 10:40
EXPERIMENTAL AND THEORETICAL NATURAL FREQUENCIES OF VIBRATION FOR FATIGUED CONCRETE BEAMS WITH FRPS
Catalin Gheorghiu, Daniel Bockstael, Jamal E. Rhazi and Pierre Labossière
University of Manitoba
Canada
10:20 - 10:40

10:40 - 11:00
DYNAMIC LOAD RATING OF SINGLE-SPAN COUNTY BRIDGES
PARALLEL SESSION 5

13:30 - 15:10

THEME 1: INNOVATIVE DESIGN
Room A

- STRUCTURALLY SUPPORTED SINGLE POINT URBAN INTERCHANGES (SPUI)
  Manas Asthana, Craig Smart
  HDR

13:30 - 13:50

PARALLEL SESSION 5

11:00 - 11:20

EXPERIMENTAL INVESTIGATION OF ULTIMATE STRENGTH OF CONCRETE FILLED STEEL TUBE GIRDER
Chin, Won-Jong; Kang, Jae-Yoon; Choi, Eun-Suk; Lee, Jung-Woo
Korea Institute of Construction Technology
South Korea

11:20 - 11:40

REAL-TIME SEISMIC MONITORING OF THE INTEGRATED CAPE GIRARDEAU BRIDGE ARRAY AND RECORDED EARTHQUAKE RESPONSE
Mehmet Çelebi
USGS
USA

11:40 - 12:00

ASSESSMENT OF BRIDGE DECK SLABS BY RADAR, POTENTIAL OF CORROSION AND ELECTRIC RESISTIVITY
O. Dous, J. Rhazi, G. Ballivy
Université de Sherbrooke
Canada

THURSDAY, AUGUST 24TH, 2006

THREE CONCEPTS
BOSTON’S CENTRAL ARTERY AND ITS INTERCHANGES
Vijay Chandra, Keith Donington
Parsons Brinckerhoff Inc.
USA

APPROACHING THE BIG DIG: USE OF PRECAST TRANSITION STRUCTURES
Jennifer Hill, Ruchu Hsu, Vijay Chandra
Parsons Brinckerhoff Inc.
USA

CONTEXT SENSITIVITY IN PRACTICE THE DESIGN AND CONSTRUCTION OF THE HILLSBOROUGH STREET BRIDGE RALEIGH, NORTH CAROLINA
Christian Todd Ray
Parsons Brinckerhoff Quade and Douglas
USA

DOCKLAND LIGHT RAILWAY CITY AIRPORT EXTENSION
Andrew Alder, Alan Sharpe and James Best
Halcrow Group Ltd
UK

SOME CONSIDERATIONS IN DESIGN OF BRIDGES FOR DURABILITY AND SUSTAINABILITY - PART II
Saeed Mirza
McGill University
Canada

RELIABILITY BASED BRIDGE RATING SOFTWARE
Michael H. Scott, Christopher C. Higgins and Gregory Esch
Oregon State University
USA

PROBABILISTIC METHODS IN THE SAFETY ASSESSMENT OF EXISTING BRIDGES: A STEP-BY-STEP PROCESS
D.F. Wisniewski; J.R. Casas
University of Minho
Portugal

A THREE DIMENSIONAL NONLINEAR FINITE ELEMENT MODEL FOR ANALYSIS OF MASONRY ARCH BRIDGES
M.A. Shayanfar, A. Sadeghian
Iran University of Science & Technology
Iran
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<td>CONSTRUCTION ENGINEERING ON THE BENICIA-MARTINEZ BRIDGE REPLACEMENT</td>
<td>Jean-Guy Deschamps and Thomas Stelmack</td>
<td>Parsons</td>
<td>USA</td>
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<td>14:30-14:50</td>
<td>MECHANICAL BEHAVIOR OF A BONDED STEEL-CONCRETE COMPOSITE GIRDER</td>
<td>A. Si Larbi, E. Ferrier, B. Jurkiewiez, P. Hamelin</td>
<td>Université LYON 1</td>
<td>France</td>
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<td>14:50-15:10</td>
<td>THERMAL CRACK RISK ANALYSIS AND APPROPRIATE MEASURES FOR PREVENTING THERMAL CRACKS AT EARLY-AGE IN CONCRETE BRIDGES</td>
<td>Ali A. Farhang, Kjell Wallin</td>
<td>Swedish Cement and Concrete Research Institute</td>
<td>Sweden</td>
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<td>13:30 - 13:50</td>
<td>ASSESSING THE ADEQUACY OF THE 36% COMBINATION RULE IN ESTIMATING THE CRITICAL RESPONSE OF BRIDGE PIERS UNDER MULTI-DIRECTIONAL EARTHQUAKE COMPONENTS</td>
<td>Amar Khaled, Robert Tremblay, Bruno Massicotte</td>
<td>École Polytechnique de Montréal</td>
<td>Canada</td>
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<td>13:50 - 14:10</td>
<td>BI-DIRECTIONAL SEISMIC ANALYSIS AND DESIGN OF BRIDGE STEEL TRUSS PIERS ALLOWING A CONTROLLED ROCKING RESPONSE</td>
<td>Michael Pollino, Michel Bruneau</td>
<td>State University of New York at Buffalo</td>
<td>USA</td>
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<td>SEISMIC DESIGN OF THE ST-LAURENT BOULEVARD BRIDGE</td>
<td>Sylvain Bédard, Ghislain Dionne, Christian Lemay, Pascal Beauséjour, Patrick Lamontagne</td>
<td>Dessau-Soprin</td>
<td>USA</td>
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<td>14:30-14:50</td>
<td>IMPORTANCE OF ACCURATE SHEAR WAVE VELOCITY IN SEISMIC EVALUATION OF BRIDGES</td>
<td>Yegian, M. K.; Patel, J.; Kishore, K. and Jain, S. K.</td>
<td>Northeastern University</td>
<td>USA</td>
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<td>14:50-15:10</td>
<td>RAILWAY BRIDGE PERFORMANCE IN EARTHQUAKES THAT DAMAGED RAILROADS</td>
<td>William G. Byers</td>
<td>BNSF Railway</td>
<td>USA</td>
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<td>INCREASING SERVICEABILITY OF BRIDGES – WIND ASPECTS</td>
<td>Petar Sesar, Ana Krecak</td>
<td>Civil Engineering Institute of Croatia</td>
<td>Croatia</td>
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<td>WIND ENGINEERING STUDIES FOR PROVENCHER PEDESTRIAN BRIDGE</td>
<td>Jiming Xie &amp; Dezi Yang</td>
<td>Rowan Williams Davies &amp; Irwin Inc.</td>
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<td>13:50-14:10</td>
<td>UNIQUE DESIGN FOR BP PEDESTRIAN BRIDGE, CHICAGO</td>
<td>Hal Iyengar, Christopher Rockey, Robert Sinn and John Zils</td>
<td>Skidmore, Owings and Merrill LLP</td>
<td>USA</td>
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<td>STUDY ON RIGID AND FLEXIBLE STRUCTURE SYSTEM OF GIANT WHEEL IN CHAI BRIDGE</td>
<td>Wang Xiaodun, Chen Zhihua, Shi Yongju, Wang Yuanqing, Yan Xiangyu</td>
<td>Tsinghua University</td>
<td>China</td>
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<td>ROTATION BRIDGE ON WATERWAY STRUCTURE BASED ON FINGER TOUCH SIMULATION USING MULTI-POINTS REACTION AT JOINT SUPPORT SHELL</td>
<td>Afshin Turk, Shabnam Ghanavatizadeh</td>
<td>KWPA</td>
<td>Iran</td>
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<td>INNOVATIVE BRIDGE SYSTEM OF ULTRA HIGH PERFORMANCE FIBRE REINFORCED CONCRETE: EXPERIMENTS, MODELLING AND DESIGN</td>
<td>L. G. Sorelli, P. Fanning, F. Toutlemonde</td>
<td>University College of Dublin</td>
<td>Ireland</td>
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<td>CFRP PRESTRESSED CONCRETE PRISMS AS REINFORCEMENT IN CONTINUOUS CONCRETE T-BEAMS</td>
<td>Shahryar Davoudi, Catalin Gheorghiu, Dagmar Svecova</td>
<td>University of Manitoba</td>
<td>Canada</td>
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<td>13:30-14:50</td>
<td>A NEW CONCEPT FOR LIGHTWEIGHT HYBRID-FRP BRIDGE DECK</td>
<td>Erika Schaumann, Till Vallée and Thomas Keller</td>
<td>Swiss Federal Institute of Technology Lausanne (EPFL)</td>
<td>Switzerland</td>
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<td>WEAR OF POLYETHYLENE SHEATHINGS OF EXTERNAL TENDONS AT DEVIATION POINTS IN POST TENSIONED BOX GIRDER BRIDGES</td>
<td>Hermann Weiher, Konrad Zilch</td>
<td>Technical University Munich</td>
<td>Germany</td>
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THEME 5 – REHABILITATION AND RETROFITTING
Room G

13:30 - 13:50
EXPERIMENT ON STRENGTHENING EFFICIENCY OF RC BEAMS STRENGTHENED WITH NSM CFRP REINFORCEMENTS
Jung, Woo-Tai; Park, Young-Hwan; Park, Jong-Sup; Kang, Jae-Yoon; You, Young-Jun
Korea Institute of Construction Technology
South Korea

13:50 - 14:10
WIND TUNNEL TESTING AND STABILITY ANALYSIS OF THE ILE D’ORLEANS SUSPENSION BRIDGE
Brad A. Pridham, Stoyan Stoyanoff, Martin Talbot, Alain Brassard,
Rowan Williams Davies & Irwin Inc.
Canada

14:10 - 14:30
RECONSTRUCTION OF THE TURCOTTE BRIDGE IN SOREL-TRACY
Gaetan Couture, Michaela Aldea, Bernard Filon
Teknika HBA
Canada

14:30 - 14:50
DECK REHABILITATION OF THE PEACE RIVER BRIDGE AT DUNVEGAN
Bob Ramsay
UMA Engineering Ltd.
Canada

PARALLEL SESSION 5
THEME 9: REPAIR, MAINTENANCE AND EVALUATION
Room H

13:30 - 13:50
CONTAINMENT DESIGN FOR THE PATTULLO BRIDGE STEEL COATING OPERATIONS
P.A. Scalzo, K.W. Simbeya, J.G. Hartviksen
Cook Engineering
Canada

13:50 - 14:10
CLEANING AND PAINTING OF THE JACQUES CARTIER BRIDGE – COMPLETING THE CHALLENGE AFTER 15 YEARS OF WORK AND MORE THAN $45M OF INVESTMENT
Glen P. Carlin, Guy Mailhot
The Jacques Cartier and Champlain Bridges Inc.
Canada

14:10 - 14:30
SEISMIC EVALUATION OF LEMIEUX ISLAND PIPELINE BRIDGES - A LIFELINE FOR THE CITY OF OTTAWA FRESH WATER NEEDS
Jack Ajrab, Sylvain Montminy, Bruce Mason
Delcan Corporation
Canada

14:30 - 14:50
EVALUATION AND REPAIRS STRATEGIES FOR NALUBAALE DAM BRIDGE
Anthony G Kerali
Makerere University
Uganda

14:50 - 15:10
BRIDGE INSPECTION AND EVALUATION ON CROATIAN HIGHWAYS
PARALLEL SESSION 5

13:30 - 15:10  THEME 10: HISTORICAL BRIDGES

Room J

13:30 - 13:50  RAISING OF THE JACQUES CARTIER BRIDGE – AN HISTORICAL ACCOUNT OF A DARING ENGINEERING FEAT
Guy Mailhot, Peter Dozzi, Glen P. Carlin
The Jacques Cartier and Champlain Bridges Inc.
Canada

13:50 - 14:10  REPAIR OF A STEEL BRIDGE WITH HIGH HERITAGE VALUE
Christian Mercier
Ministère des Transports du Québec
Canada

14:10 - 14:30  APPLICATION OF CONTEXT SENSITIVE DESIGN PRINCIPLES AND PROCESSES TO REPLACE A HERITAGE BRIDGE IN ONTARIO
Tanya Cross, Susan Wagter, Edward Li
Morrison Hershfield Limited
Canada

14:30 - 14:50  THE RESTORATION OF THE PONT TRENÇAT
Xavier Font
MLM Consulting Engineers
Spain
14:50 - 15:10  REHABILITATION OF THE HISTORIC BRIDGE OF LIONS, ST. AUGUSTINE, FLORIDA
Joseph J. Pullaro, David T. Sweeney
Lichtenstein Consulting Engineers
USA

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15:30 - 16:50  THE HISTORIC BRIDGE OF LIONS, ST. AUGUSTINE, FLORIDA
Joseph J. Pullaro, David T. Sweeney
Lichtenstein Consulting Engineers
USA

PARALLEL SESSION 6
15:30 - 16:50  THEME 1: INNOVATIVE DESIGN
Room A

15:30 - 15:50  SHORT AND MEDIUM SPAN BRIDGES IN ONTARIO UTILIZING SLIDING ISOLATION BEARINGS
Ronald J. Watson
R.J. Watson, Inc.
USA

15:50 - 16:10  AUTOMATED WELDLESS GRATING FOR BRIDGE DECKS AND THE LIKE
Dennis M. Imm
Stargrate Systems, Inc.
USA

16:10 - 16:30  PROBABILISTIC FATIGUE ASSESSMENT OF POST-WELD TREATED TUBULAR TRUSS BRIDGES
Scott Walbridge, Alain Nussbaumer
Ecole Polytechnique Féderale de Lausanne (EPFL)
Switzerland

15:30 - 16:50  THEME 6: ANALYSIS
Room B

15:30 - 15:50  IMPACT OF HYDRATION HEAT ON THE DIAPHRAGM ZONE OF A RIGID FRAME BRIDGE - A CASE STUDY
Zhao Liu, Hua Zang, Wusong Wen, Xinya Zhou
Southeast University
China

15:50 - 16:10  FE ANALYSIS WITH SMEAED CRACK MODEL FOR CRACK WIDTH EVALUATION IN CONTINUOUS COMPOSITE GIRDER
Okui, Y., Honda, T., Khan, Q., Nagai, M
Saitama University
Japan

16:10 - 16:30  DETECTION AND LOCALISATION OF DAMAGE IN BRIDGE MODEL BY SPATIAL WAVELET BASED APPROACH
Mallikarjuna Reddy, D. Jaya Prakash, G and Swarnamani, S.
Indian Institute of Technology Madras
16:30-16:50  DESIGN OF PRESTRESSED CONCRETE BRIDGE GIRDERS MADE WITH HIGH TO ULTRA HIGH PERFORMANCE FIBRE REINFORCED CONCRETE
S. Braike, B. Massicotte and J.-P. Charron
École Polytechnique de Montréal
Canada

16:30 - 16:50  DESIGN AND CONSTRUCTION OF HECHANG BRIDGE, QUANZHOU, CHINA
Gui-han Peng, Bao-chun Chen
Fuzhou University
China

15:30 - 15:50  ANALYSIS AND PREVENTION OF IN-CONSTRUCTION CRACKS OF PRESTRESSED CONCRETE BRIDGES USING SPAN-BY-SPAN TECHNIQUE
Zhao Liu, Cao Sanpeng, Qingzhong You, Shouchan Wu, Jianlin Zhou
Southeast University
China

15:30 - 15:50  CONFINEMENT REINFORCEMENT FOR BRIDGES IN MEDIUM TO HIGH SEISMICITY ZONE BASED ON NEW CSA A23.3-04 APPROACH
Frédéric Legeron, Aurélie Vivier, Md. Neaz Sheikh and Patrick Paultre
Université de Sherbrooke
Canada

15:50 - 16:10  LARGE CONCRETE PRECAST BOX GIRDERS ALONG THE NEW ITALIAN HIGH SPEED RAILWAY LINES
Marco Petrangeli, Camillo Andreocci, Francesco Magnorfi,

15:50 - 16:10  PERFORMANCE BASED RETROFIT OF BRIDGES PIERs WITH CFRP: TEST DESIGN, MODEL UPDATING, PSEUDO-DYNAMIC TESTING
Nathalie Roy, Patrick Paultre, Jean Proulx, Thien Phu Le, Benedikt Weber

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PARALLEL SESSION 6
16:10 - 16:30  UP-TO-DATE CONCEPTS OF OVERPASSES ON MOTORWAYS
Milenko Pržulj
DDC Consulting & Engineering Ltd.
Slovenia

16:30 - 16:50  CONSTRUCTION OF MIDORI-BRIDGE
Hirayoshi Imai, Koji Ukai, Shinji Yamanobe, Fujio Yokota
Kawada Construction Co., Ltd.
Japan

16:10 - 16:30  FOUNDATION MODELING FOR SEISMIC DESIGNS OF MAJOR TOLL BRIDGES IN CALIFORNIA
Hubert K. Law and Ignatius P. Lam
Earth Mechanics, Inc.
USA

16:30 - 16:50  —

PARALLEL SESSION 6
16:30 - 16:50  INVESTIGATION OF AN INNOVATIVE FRP-REINFORCED BRIDGE DECK SYSTEM
D. Tardif, K.W. Neale, M. Demers, A.R. Zaki and G. Tadros
Université de Sherbrooke
Canada

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PARALLEL SESSION 6
15:30 - 16:50  THEME 1: INNOVATIVE DESIGN
Room E

15:30 - 16:50  THEME 7: ADVANCED MATERIALS IN BRIDGES
Room F

15:30 - 16:50  DESIGN OF CONTINUOUS DOUBLE COMPOSITE HIGH-SPEED RAILWAY BRIDGES
Chang-Su Shim, Hyun-Ho Kim, Pil-Goo Lee
Chung-Ang University
South Korea

THURSDAY, AUGUST 24, 2006
NEW TYPE OF COMPOSITE BRIDGE STRUCTURE WITH CONCRETE FILLED STEEL TUBE GIRDER
Jae-Yoon Kang, Eun-Suk Choi, Won-Jong Chin, Jung-Woo Lee, Byung-Suk Kim
Korea Institute of Construction Technology
South Korea

A STUDY ON MULTI-STEPWISE THERMAL PRESTRESSING METHOD FOR STEEL-CONCRETE COMPOSITE BRIDGES
Sang-Hyo Kim, Jin-Hee Ahn, Jun-Hwan Kim, Hyung-Ju Kim
Yonsei University
South Korea

STANDARDIZATION OF BRIDGE DETAILING
Jure Radic, Zlatko Savor, Alex Kindij
University of Zagreb
Croatia

ENERGY EFFICIENT INTEGRATED HEATING SYSTEM FOR BRIDGE DE-ICING
Pal S. Mangat; David G Catley
Sheffield Hallam University
UK

GLASS FRP JACKETING OF PRESTRESSED CONCRETE BEAMS
M. Demers, P. Labossière and C. Mercier
Université de Sherbrooke
Canada

UTILIZATION OF GFRP-REINFORCED CONCRETE PANELS FOR BOX GIRDER BRIDGES
T. Sabrah, H. Marzouk and A. Hussein
Memorial University of Newfoundland
Canada
15:30 - 15:50  EFFECTIVENESS OF VARIOUS REPAIR SYSTEMS FOR FLEXURAL STRENGTHENING OF STEEL-CONCRETE COMPOSITE GIRDERS
Nora Ragab and Raafat El-Hacha
University of Calgary
Canada

15:50 - 16:10  THE ART AND SCIENCE OF RETROFITTING HISTORIC ARCH BRIDGES
Dr. Sherif S. Morcos, and Mr. Boris Reznikov
HDR Engineering, Inc.
USA

16:10 - 16:30  THE USE OF GLASS FIBRE-REINFORCED POLYMER FOR RETROFITTING SPLIT TIMBER STRINGERS
Sara M. Gómez and Dagmar Svecova
University of Manitoba
Canada

16:30 - 16:50  STRENGTHENING FULL-SCALE DAMAGED PRECAST/PRESTRESSED CONCRETE DOUBLE-TEE GIRDERS USING CFRP SHEETS
Khaled Sennah, Antonio Cofini, Mohamed Attalla, Ayman M. Okeil
Ryerson University
Canada

15:30 - 15:50  4D MODELING IN BRIDGE LIFECYCLE MANAGEMENT SYSTEMS
Cheng Zhang and Amin Hammad
Concordia University
Canada

15:50 - 16:10  LOCATION-BASED MOBILE BRIDGE INSPECTION SYSTEM
Yongxin Hu, Amin Hammad
Concordia University
Canada

16:10 - 16:30  BRIDGE MANAGEMENT FOR MUNICIPALITIES: A COMMON SENSE APPROACH
John Stephenson
Regional Municipality of Waterloo
Canada

16:30 - 16:50  DESIGN AND CONSTRUCTION OF A FULL-WIDTH, FULL-DEPTH PRECAST CONCRETE DECK SLAB ON STEEL GIRDER BRIDGE
N. David LeBlanc
Totten Sims Hubicki Associates
Canada
15:30 - 16:50  THEME 11: AESTHETICS
Room J

15:30 - 15:50  THE EAST 153RD STREET BRIDGE – NEW YORK CITY’S FIRST VEHICULAR CABLE STAYED BRIDGE
Roly Parroco, Alim Baycora, Jeffrey Han
DMJM Harris
USA

15:50 - 16:10  PORT MOODY CABLE-STAYED PEDESTRIAN OVERPASS
Leslie Mihalik, Dejan Erdevicki
Associated Engineering Ltd.
Canada

16:10 - 16:30  BRIDGE DESIGN AND AESTHETICS IN FAST CONSTRUCTION IMPLEMENTED ON MOTORWAYS IN CROATIA
Petar Sesar, Ana Krecak
Civil Engineering Institute of Croatia
Croatia

16:30 - 16:50  COMPARATIVE ANALYSIS OF COMPOSITE OVERPASSES
Jure Radic, Zlatko Savor, Gordana Hrelja, Nijaz Mujkanovic, Andjelko Vlasic
Civil Engineering Institute of Croatia
Croatia
FRIDAY, AUGUST 25TH, 2006

OPENING SESSION

8:30 - 10:00  KEYNOTE LECTURES
  Ballroom

8:30 - 9:15  DEVELOPMENT OF COMPOSITE TRUSS BRIDGE USING SUSPENSION STRUCTURE
  Akio Kasuga
  Sumitomo Mitsui Construction
  Japan

9:15 - 10:00  EXTREME BRIDGE OPERATING CONDITIONS
  Glen P. Carlin
  The Jacques Cartier and Champlain Bridges Inc.
  Canada
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Room</th>
<th>Topic</th>
<th>Presenters/Institutions</th>
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<tbody>
<tr>
<td>10:20</td>
<td>Room A</td>
<td>A HISTORICAL REVIEW OF BRIDGE AESTHETICS IN ONTARIO</td>
<td>Roger Dorton, Mark Langridge, Edward Li, Buckland &amp; Taylor Ltd, Canada</td>
</tr>
<tr>
<td>10:40</td>
<td>Room A</td>
<td>DEVELOPMENT OF THE “AESTHETIC GUIDELINES FOR BRIDGES” FOR THE PROVINCE OF ONTARIO</td>
<td>Edward Li, Iqbal Husain, Morrison Hershfield Limited, Canada</td>
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<tr>
<td>11:00</td>
<td>Room A</td>
<td>REHABILITATION OF THE HISTORIC WOODROW WILSON MEMORIAL BRIDGE</td>
<td>Evan C. Lowell, Richard C. Ferguson, Lichtenstein Consulting Engineers, Inc, USA</td>
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<tr>
<td>11:20</td>
<td>Room A</td>
<td>IMPROVING INFRASTRUCTURE WHILE PRESERVING HISTORY: WASHINGTON BRIDGE NO. 200 REPLACEMENT</td>
<td>Bharat Patel, Vanasse Hangen Brustlin, Inc, USA</td>
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<td>11:40</td>
<td>Room A</td>
<td>WROUGHT-IRON BOWSTRING ARCH-TRUSS BRIDGES: THE ONE-HIT WONDER OF THE 1870S</td>
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<td>10:20</td>
<td>Room B</td>
<td>DESIGN OF CONTINUOUS BRIDGES WITH NU-GIRDERS</td>
<td>Gerd Birkle, Walter H. Dilger and James Hanley, Stantec Consulting Ltd, Canada</td>
</tr>
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<td>10:40</td>
<td>Room B</td>
<td>STRUCTURAL EVALUATION OF A TWO-CELL CAST-IN-PLACE CONCRETE BOX GIRDER BRIDGE</td>
<td>Brad R. Craig, F. Michael Bartlett, University of Western Ontario, Canada</td>
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<tr>
<td>11:00</td>
<td>Room B</td>
<td>BEHAVIOR AND LOAD-CARRYING MECHANISM OF RC HIGHWAY BRIDGE DECK SLABS WITH STRAP</td>
<td>Tomio Yasuoka, Atsuhiko Machida, Samitha Jayakody, Kajikawa Civil Engineering Consultant Co., Ltd, Japan</td>
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<td>11:20</td>
<td>Room B</td>
<td>MODELING OF EXISTING MULTI-SPAN SIMPLY SUPPORTED STEEL GIRDER BRIDGES UNDER SEISMIC LOADS</td>
<td>Bryant G. Nielson and Reginald DesRoches, Georgia Institute of Technology, USA</td>
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<td>11:40</td>
<td>Room B</td>
<td>THE SOIL PRESSURE BEHIND INTEGRAL BRIDGE ABUTMENTS</td>
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<td>10:20 - 10:40</td>
<td>NEW PARAPET WALL ON EXISTING DECK USING GFRP FOR THE REHABILITATION OF GLENDALE AVENUE BRIDGE REGIONAL ROAD 89 OVER TWELVE MILE CREEK IN THE CITY OF ST. CATHARINES IN ONTARIO, CANADA</td>
<td>Brian Ellis, Duane VanGeest and Ralph Scholz</td>
<td>ELLIS Engineering Inc., Canada</td>
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<td>10:40 - 11:00</td>
<td>PEDESTRIAN BRIDGES USING RECTANGULAR FRP BOX SECTIONS ACTING COMPOSITELY WITH CONCRETE SLABS</td>
<td>Amir Fam</td>
<td>Queen’s University at Kingston, Canada</td>
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<td>11:00 - 11:20</td>
<td>DYNAMIC RESPONSE OF FRP SANDWICH BRIDGES UNDER VEHICLE LOADING</td>
<td>Yin Zhang, C. S. Cai and Xiaomin Shi</td>
<td>Louisiana State University, USA</td>
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<td>10:20 - 10:40</td>
<td>MULTI-CRITERIA AND STOCHASTIC MANAGEMENT OF BRIDGE DECKS</td>
<td>G. Morcous and Z. Lounis</td>
<td>University of Nebraska - Lincoln, USA</td>
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<td>10:40 - 11:00</td>
<td>DETERMINATION OF OPTIMAL INTERVENTION STRATEGIES FOR MULTIPLE BRIDGES DURING CATCH-UP PERIODS</td>
<td>Bryan T. Adey, Rade Hajdin, Eugen Brühwiler</td>
<td>Infrastructure Management Consultants, Switzerland</td>
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<td>11:00 - 11:20</td>
<td>OPTIMAL SINGLE STAGE STRATEGIES FOR BRIDGES</td>
<td>Bryan T. Adey, Rade Hajdin, Eugen Brühwiler</td>
<td>Infrastructure Management Consultants, Switzerland</td>
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<td>11:20 - 11:40</td>
<td>RELIABILITY-BASED ASSESSMENT OF SAFETY FOR EXISTING BRIDGES</td>
<td>Stuart G. Reid</td>
<td>Louisiana State University, USA</td>
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11:20 - 11:40  STATIC AND FATIGUE PERFORMANCE OF CONCRETE BRIDGE DECK SLABS REINFORCED WITH GLASS FRP BARS
Brahim Benmokrane, Ehab El-Salakawy, Amr El Ragaby, and Sherif El Gamal
Université de Sherbrooke
Canada

11:40 - 12:00  MECHANICALLY-FASTENED FRP DECKING SYSTEM
Dan Richards
ZellComp, Inc.
USA

PARALLEL SESSION 7
10:20 - 12:00  THEME 11: AESTHETICS
Room E

10:20 - 10:40  NEW CROTON DAM SPILLWAY BRIDGE
Ronald T. Roman
Hardesty & Hanover, LLP
USA

10:40 - 11:00  AESTHETIC ENHANCEMENTS OF THE PETITCODIAC RIVER BRIDGE NO. 1
Bruce Boyd & Krista MacDonald
New Brunswick Department of Transportation
Canada

11:00 - 11:20  THE MERGING OF FORM AND FUNCTION PITS AND HIGHPOINTS IN AESTHETIC DESIGN OF THE GUADALUPE COUNTY BRIDGES
Joan D. Bowser and Morris Muskett

10:20 - 10:40  SHEAR DESIGN AND BEHAVIOR OF HIGH-STRENGTH CONCRETE BRIDGE GIRDERs
Daniel A. Kuchma, Shaoyun Sun, and Neil M. Hawkins
University of Illinois
USA

10:40 - 11:00  SHEAR BEHAVIOR OF CONCRETE BRIDGE GIRDERs REINFORCED WITH NEW CARBON FRP STIRRUPS
B. Benmokrane, E. El-Salakawy, E. Abdul Mageed, A. El Sayed, and G. Desgagné
Université de Sherbrooke
Canada

11:00 - 11:20  LIVE LOAD TEST OF A SPS DECK BRIDGE
Devin K. Harris, Tommy Cousins, Thomas M. Murray & Angelo Ferro
Virginia Tech
USA

11:40 - 12:00

EFFECT OF LOW AND HIGH TEMPERATURE ON THE TRANSVERSE THERMAL EXPANSION OF FRP BARS EMBEDDED IN CONCRETE
Radhouane Masmoudi, Ali Zaidi
Université de Sherbrooke
Canada

11:40 - 12:00 —
# IMPACT BEHAVIOUR OF CONCRETE BRIDGE DECK SLABS WITH COMPOSITE ULTRA-HIGH PERFORMANCE FIBER REINFORCED CONCRETE (UHPFRC) OVERLAY

Katrin Habel, Paul Gauvreau

University of Toronto, Canada

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PARALLEL SESSION 7

THEME 8: INSTRUMENTATION, TESTING AND MONITORING

Room J

10:20 - 12:00

REMOTE SECURITY MONITORING OF HISTORIC COVERED BRIDGES

Michael D. LaViolette, Brent Phares, James Vis, Terry Wipf, Todd Hagen, Joe Murphy
10:40 - 11:00  RESPONSE OF AN INTEGRAL ABUTMENT BRIDGE TO TEMPERATURE VARIATIONS
Samir N. Shoukry, Gergis W. William and Mourad Y. Riad
West Virginia University
USA

11:00 - 11:20  NON-DESTRUCTIVE TESTING OF REINFORCED CONCRETE BRIDGE DECKS BY THE GPR TECHNIQUE
Jamal Rhazi, S. Laurens, O. Dous
Université de Sherbrooke
Canada

11:40 - 12:00  —