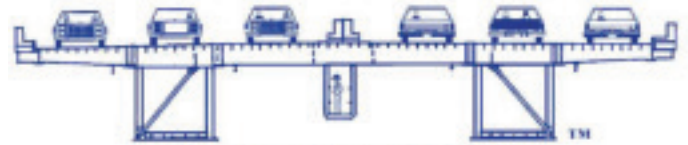


3RD ORTHOTROPIC BRIDGE CONFERENCE

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San Mateo-Hayward Bridge

Hayward/San Mateo OCEA 1968

http://www.asce.org/opal/past_ocea.cfm#1968

Program

WEDNESDAY, JUNE 26, 2013

OPENING COMMENTS (8:00 – 8:15)

Moderator: Alfred Mangus

8:00 - 8:15 AM

Welcome Remarks –

Spokesperson from Caltrans

Andrew Herrmann- Past President ASCE

INTERNATIONAL BRIDGES - 1 (8:15 – 9:30 AM)

Moderator: Niels Bitsch, *COWI*

3OBC-01 Evolution of Orthotropic Steel Bridges in Japan

Susumu Inokuchi, Teruo Ogasawara, Yoshihiro Natsuaki, Atsunori Kawabata, Japan Bridge Association; and Kentaro Yamada, Central Nippon Highway Engineering, Japan

3OBC-02 Structural Solutions and Construction Techniques for Steel Orthotropic Bridges Russia

Vadim Seliverstov, Giprottransmost J.S.Co, Russia

3OBC-03 Orthotropic Deck Design of Norwegian Suspension Bridges – Experience and New Practice

Kristian Berntsen, Norwegian Public Road Administration, Norway

INTERMISSION (9:30 – 10:00 AM) - VENDOR ROOMS OPEN

INTERNATIONAL BRIDGES - 2 (10:00 AM – 11:40 AM)

Moderator: Duncan Paterson, *HDR, USA*

3OBC-04 Construction Management of Long Span Bridges with Orthotropic Deck

Dekun Li, PE, MBEC 8th Engineering Co., Ltd. China

3OBC-05 The Port Mann Bridge: Canadian Icon & North American Orthotropic Bridge First

Michael J. Roberts, Bittner-Shen Consulting Engineers, Inc, USA.

3OBC-51 Izmit Bay Suspension Bridge - Deck Design

Chris Walker, Chris Murphy, Paul Sanders, Flint & Neill Limited, UK; Lars Jensen, COWI A/S, Denmark

LUNCHEON KEYNOTE (11:40 AM- 1:00 PM)

Moderator: Ray Zelinski

Luncheon Speaker – Dyab Khazem

REHABILITATION – 1 (1:00 - 2:40 PM)

Moderator: - Brian Leshko, USA

3OBC-07 Rehabilitation of the Congress Parkway Bascule Bridge Rehabilitation over the South Branch of the Chicago River

Ahmad M. Hammad, Jamal Grainawi, and Roger Haight, P.E., Parsons Brinckerhof, USA

3OBC-09 Impact of Pavement Systems to Performance of Orthotropic Deck on a Steel Box Girder Bridge

Shilei Wang, Qiang Hu, Yong Zhang, Yan Gao, and Jianlei Liu

China Academy of Railway Sciences, Haidian District, Beijing, China

3OBC-54 Fatigue Monitoring of Steel Deck of HZMB Jianghai Navigation Bridge

Gejun Zhang, Bin Hu, Center of Bridges Inspection, CCCC, China; and Su Hao, ACII, INC., USA

FATIGUE DESIGN – 1 (1:00 -2:40 PM)

Moderator: - Su Hao, ACII, INC., USA

3OBC-11 Fatigue Resistance of Cost-Effective Rib-to-Floor Beam Connection Details for Steel Orthotropic Bridge Decks

Sougata Roy, Xudong Zhao, Soham Mukherjee, Philipp Keller, John W. Fisher and Ben T. Yen, Lehigh University, USA

3OBC-12 Fatigue Durability Improvement of Welded Joint by Increasing Deck Plate Thickness in Orthotropic Steel Deck

S. Saito, Y. Kudo, N. Hayashi, D. Uchid, Japan Bridge Association; and T. Mori, Hosei University, Japan

3OBC-13 Additional Rules for The Fatigue Strength Of Welded Joints In Orthotropic Bridge Decks

M. H. Kolstein, Delft University of Technology, The Netherlands

3OBC-14 Fatigue Life Assessment of Orthotropic Bridge Decks Based on Fracture Mechanics

Wim Nagy, Hans De Backer, and Philippe Van Bogaert, Ghent University, Belgium

INTERMISSION (2:40 – 3:10 PM) - VENDOR ROOMS OPEN

WEARING SURFACE – 1 (3:10 – 4:50 PM)

Moderator: - Ken Brown, Caltrans, USA

3OBC-15 Influence of Wearing Courses on Fatigue Life of Orthotropic Bridge Decks

Hans De Backer, Amelie Outtier, Wim Nagy, and Philippe Van Bogaert, Ghent University, Belgium

3OBC-16 Studies for Selecting a Wearing Surfacing for Re-Surfacing the Orthotropic Steel Deck of the Fremont Bridge in Portland, Oregon

John Hinman, Donald Wagner and Charles Seim, USA

3OBC-17 Orthotropic Deck Wear Surface System Selection for the Lions Gate Bridge North Approach Viaduct

John Laxdal, AMEC, Canada

3OBC-18 Wearing Surface Performance on Orthotropic Steel Decks

-- Implications of Composite Action

Vellore S. Gopalaratnam, and Ravi S. Chamarthi, University of Missouri-Columbia; and Richard Maggenti, California Department of Transportation, USA

FATIGUE TESTING (3:10 – 4:50 PM)

Moderator: - *Sougata Roy, Lehigh University, USA*

3OBC-19 Full-Scale Fatigue Test of Steel Orthotropic Decks

Liang Tang, Gao Liu, CCCC Highway Consultants Co., Ltd. China; Chunsheng Wang and Bingning Fu, Chang'an University, China

3OBC-28 A Review of Fatigue Design and Evaluation Codes in Major Developed Countries and an Issue in Orthotropic Bridge Decks

Su Hao, ACII, INC., USA

3OBC-21 Investigation of Detection Limit of Through-Deck Type Fatigue Cracks in Steel Deck by Self-reference Lock-in Thermography

Yui IZUMI, University of Shiga Prefecture; Takahide SAKAGAMI, Kobe University; Shiro KUBO, Osaka University; and Takashi TAMAKOSHI, Bridge Division, Japan

3OBC-22 Experimental Investigation on Composite Orthotropic Bridge Deck

Kaili Chen and Shangmeng Zhou, China Zhongtie Major Bridge Engineering Group, China

THURSDAY, JUNE 27, 2012

FABRICATION - 1 (8:00 – 9:55 AM)

Moderator: - *Y. Edward Zhou, URS Corporation, USA.*

Announcements

3OBC-23 Cost-Effective Fabrication of Orthotropic Bridge Decks

Sougata Roy, Lehigh University; Ronald D. Medlock, High Steel Structures Inc., Xudong Zhao, Soham Mukherjee, Philipp Keller, John W. Fisher and Ben T. Yen, Lehigh University, USA

3OBC-24 Fabrication of Orthotropic Box Girder Segment of HZM Bridge

Guangrui Hu, Chinarailway Shanhaiguan Bridge Group Co, Lt, China

3OBC-25 Codifying Orthotropic Closed Rib Fabrication

Douglas E. Williams, USA

3OBC-26 Welding Quality Control for HZM Orthotropic Box Girders

Zhihu Cheng, CCSI, China

FATIGUE DESIGN – 2 (8:00 – 9:55 AM)

Moderator: - *Henk Kolstein, Delft University of Technology, Netherlands*

Announcements

3OBC-27 Fatigue Life Evaluation for Welded Joints between Deck Plate and Trough Rib using Reference Strain

S. Hirayama, S. Inokuchi, D. Uchida, and A. Kawabata, Japan Bridge Association, Japan

3OBC-20 Fatigue Performance Evaluation of Replacement Orthotropic Deck for a Signature Bridge by Full-Scale Laboratory Testing

Sougata Roy, Nirab Manandhar, Michael A. Molina, R.S. Deo Alapati, John W. Fisher, Lehigh University, USA

3OBC-29 Stress Intensity Factors for Fatigue Loaded Details between Crossbeams and Trapezoidal

Richard Pijpers, TNO, The Netherlands

3OBC-30 Fatigue Strength of Typical Welded Joints in Orthotropic Steel Bridge Decks

Chun-Sheng Wang, Lei Tian and Bing-Ning Fu, Chang'an University, China

INTERMISSION (9:55– 10:20 AM) - VENDOR ROOMS OPEN

WEARING SURFACE – 2 (10:20 AM - 12:00 PM)

Moderator: - *Ric Maggenti*

3OBC-31 Lightweight Reinforcement Systems for Orthotropic Bridge Decks

Sofia Teixeira de Freitas, Henk Kolstein, Frans Bijlaard, Delft University of Technology, Netherlands

3OBC-32 Composite Bridge Deck System with Orthotropic Steel Deck and Compact Reinforced Reactive Powder Concrete Layer

Zhe Zhang, Xudong Shao, and Jia Li, Prof., Hunan University, China

3OBC-33 Challenges in Designing Wearing Surfaces for Orthotropic Bridge Decks

Vellore S. Gopalaratnam, Ravi S. Chamarthi, University of Missouri-Columbia, USA

3OBC-48 Application of an Innovative Composite Bridge Deck System

Junhui Cao, Xudong Shao, Zhe Zhang; Lijing Xiao; Zhengyu Huang, Hunan University, China

FATIGUE DESIGN- 3 (10:20 AM - 12:00 PM)

Moderator: - *Robert Conner, Purdue University, USA*

3OBC-35 Influence of Remaining Lifting Piece on Fatigue Strength of Orthotropic Steel Decks

M.Yamauchi, M.Fujii and Japan Bridge Association; S.Kainuma and H. Hirai, Kyushu University, Japan

3OBC-36 Recent Developments in AASHTO Fatigue Specifications for Evaluation of Steel Bridges

Y. Edward Zhou, URS Corporation; Mark D. Bowman, Purdue University, USA

3OBC-37 Study on Mechanism of Bead-Through Cracks Initiated from Weld Root between Deck Plate and Trough Rib

T. Ogasawara, S. Saito, H. Matsushita, M. Yamauchi, Japan Bridge Association; Y. Izumi, University of Shiga Prefecture; T. Sakagami, Kobe University, Japan

3OBC-38 Evaluation of Local Stress Based Fatigue Design Guidelines for Orthotropic Bridge Decks

Sougata Roy, Yeun-Chul Park, Nirab Manandhar, John W. Fisher, Lehigh University, USA

LUNCHEON KEYNOTE (12:00 PM- 1:00 PM)

Moderator: **Craig Copelan**

Luncheon Speaker – Andrew Herrmann - The ASCE Infrastructure Report Card Presentation of Lifetime Achievement Award – Roman Wolchuk



Andrew W. Herrmann P.E., F.SEI, F.ASCE, principal with Hardesty & Hanover Consulting Engineers, served as President of the American Society of Civil Engineers (ASCE) for 2012. He was the first Chairman and now Chairman Emeritus of Heavy Movable Structures, Inc. an industry group dedicated to movable bridges. During his 39 years at Hardesty & Hanover, Herrmann has held many positions including structural detailer, structural engineer, project engineer, and associate engineer before becoming managing partner and then a principal. Herrmann's experience includes design, inspection, rehabilitation, and construction along with managing some of the firm's major movable bridge projects.



Roman Wolchuk, acting as practicing engineer, researcher, author of papers and handbooks and lecturer, made significant contributions to engineering progress in the field of steel bridges. His basic “**Design Manual for Orthotropic Steel Plate Deck Bridges**” (1963) introduced steel orthotropic decks in the U.S. and became a standard handbook for this type of bridges. Since 1964 R. Wolchuk attended over 50 national and international engineering conferences and seminars and was a featured speaker at 27 of them. The major publications authored by R. Wolchuk are the Bridge Design Manuals for the AISC and the FHWA, and the “Steel-Plate-Deck Bridges and Steel Box Girder Bridges” sections of the McGraw-Hill’s “Structural Engineering Handbook,” the 1968, 1977, 1990 and 1997 Editions.

REHABILITATION - 2 (1:00 – 2:40 PM)

Moderator: - *Thomas Murphy, M&M, USA*

3OBC-39 Retrofitting Fatigue Cracks in OSD by ICR Treatment

Kentaro Yamada, Central Nippon Highway Engineering, Toshiyuki Ishikawa, Assist. Prof., Kyoto University, and Takumi Kakiich, JFE Engineering Co., Japan

3OBC-40 Fatigue Damage Assessment of the Lions Gate Bridge North Viaduct Deck

David I Harvey, Saeed J. Niroumand, Associated Engineering, Canada

3OBC-41 Detection of Through-Deck-Type Fatigue Cracks in Highway Steel bridges by Self-reference Lock-in Thermography

Takahide SAKAGAMI, Kobe University; Yui IZUMI, University of Shiga Prefecture; Takuyo KONISHI, Technology Center of Metropolitan Expressway; and Yohei MATSUOKA, Kobe University, Japan

3OBC-42 Re-Surfacing the Orthotropic Steel Deck of the Fremont Bridge in Portland, Oregon

Adam V. Markell, Charles Seim, USA

FATIGUE DESIGN - 4 AND ANALYSIS (1:00 – 2:40 PM)

Moderator: - *Dennis Mertz, University of Delaware, USA*

3OBC-43 - How Finite Element Modelling Choices Influence the Assessment of Stress Concentrations at the Rib to Floor Beam Connections

Wouter De Corte, University College Ghent, Belgium

3OBC-44 Stress States at Intersection between Crossbeam and Longitudinal Stiffener

Eiki Yamaguchi and Hidenori Fujii, Kyushu Institute of Technology, Japan

3OBC-45 Study on the New Steel Bridge Deck Under Multi-Axial Fatigue Loading

Weizhen Chen, Shunyao Cai, Tongji University, China

3OBC-46 Local Stress Characteristics at Cross-Beam Web Cutout in Closed Rib Orthotropic Deck

Takeshi HANJI, Keito KATO, Kazuo TATESHI, and Sung-Min CHOI, Nagoya University; Shigeyuki HIRAYAMA, Japan Bridge Association, Japan

INTERMISSION (2:40 – 3:10 PM) - VENDOR ROOMS OPEN

DESIGN (3:10 -4:30 PM)

Moderator: - *Vellore S. Gopalaratnam, University of Missouri-Columbia, USA*

3OBC-49 Compressive Strength of Orthotropic Deck Panels

Sougata Roy, WanChun Jen, Jacobs Engineering Group, USA; Ben T. Yen, Lehigh University, USA

3OBC-50 Influence of Load Position Versus Rib Location on the Wheel Print Characteristics and the Consequences for Orthotropic Bridge Calculations

Wouter De Corte, University College Ghent, Belgium

3OBC-56 In-Situ Fatigue Stress Measurement and Analysis of Orthotropic Steel Bridge Decks

Chun-Sheng Wang, Bing-Ning Fu, Mu-Sai Zhai, Lei Tian, Yu-Jia Sun, Chang'an University, China

FABRICATION - 2 AND MORNITORING (3:10 -4:45 PM)

Moderator: - *David McQuaid, USA*

3OBC-52 Fatigue Cracking Monitoring and Evaluation Using AE Sensors for Orthotropic Steel Bridge Decks

Chun-Sheng Wang, Mu-Sai Zhai, Lei Tian, Yu-Jia Sun, Chang'an University, China

3OBC-53 Ultrasonic Determination of Closed-Rib Partial Joint Penetration Weld Size Using Area Amplitude Technique

David McClary, AECOM, USA

3OBC-55 - Structural Health Monitoring for Fatigue Life Prediction of Orthotropic Bridge Decks

Richard Pijpers, Lotfollah Pahlavan, Joep Paulissen, Henk Hakkesteegt and Rob Jansen, TNO, The Netherlands

3OBC-10 Shop and Field Welding Inspection for the Golden Gate Bridge Orthotropic Panel Redecking – A 27-Year Retrospective

Paul Hartbower, California Department of Transportation, USA

FRIDAY, JUNE 28, 2013

SFOBB-SAS -1 (8:00 – 9:45 AM)

Moderator: - *Ray Zelinski*

3OBC-57 The New San Francisco - Oakland Bay Bridge

Marwan Nader, TY Lin International; Brian Maroney, California Department of Transportation, USA.

3OBC-58 Design of Orthotropic Decks for the San Francisco-Oakland Bay Bridge Self-Anchored Suspension Bridge

George Baker, Marwan Nader, TY Lin International, USA

3OBC-59 Controlling Fabrication to Achieve the Orthotropic Design - San Francisco Oakland Bay Bridge

Pat Lowry, Hatch Mott MacDonald, USA

INTERMISSION (9:45– 10:15 AM) - VENDOR ROOMS OPEN

SFOBB-SAS -2 (10:15 – 11:15 AM)

Moderator: - *Ajay Sehgal*

3OBC-60 Integration of Fabrication Tolerances, Geometric fit and Design: San Francisco-Oakland Bay Self-Anchored Suspension Bridge

Hayat Tazir, George Baker, James Duxbury, TY Lin International; Wenyi Long, California Department of Transportation, USA

3OBC-61 San Francisco – Oakland Bay Bridge Fabrication Quality Control and Quality Assurance

Aaron Prchlik, Yiannis Kourakis, Mazen Wahbeh

OPEN PANEL DISCUSSION (11:15 – 11:45 AM) CONFERENCE CLOSING

REMARKS (11:45 AM – 12:00 PM)