2nd International Conference on Timber Bridges

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To bring together academia, government, and industry to efficiently complete research, demonstration, and education that result in durable, cost effective wood transportation structures to improve the transportation infrastructure of America and the world.

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2nd INTERNATIONAL CONFERENCE
TIMBER BRIDGES
LAS VEGAS 2013
ICTB 2013
Las Vegas, Nevada

Inspection of Timber Bridges in the Pacific West

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Introduction

- Concrete cracking reduces concrete stiffness
- Reduced concrete stiffness increases deformations and timber stresses
- Concrete cracking must be considered in the design
- Design recommendations vary from neglecting the effect to a stiffness reduction of 60%
Outline

- Introduction – Iowa Timber Bridges
- Bridge Cluster Overview
- Case Study 1: Blackhawk 5
- Case Study 2: Clarke 1
- Wrap-up
Cosumnes River Bridge – Rancho Murieta, California
Context for Rehabilitation

- Principal timber truss elements had been periodically replaced due to degradation / poor detailing & inadequate maintenance
Hansabron, Kalmar

Location
- 400 km south of Stockholm
- 330 km east of Copenhagen
- Approx 20m minimum span
- Permanent bridge
- No load limit (63,700 kg)
- Timber structure desired
- One traffic lane, but wide
- Improved flood clearance
- Roadway not to be raised
driveways
- Available depth for structure
- Minimize disruption to site

Solution: glulam timber structure
WHAT HAS BEEN BUILT?

CABLE STAYED BRIDGE IN TIMBER
- Distance between pylons, span length: 130 m, total length 182 m.
- Free width of decking: 4 m
- Height of pylons: 24 m
- Amount of timber: Approximately 200 ton, 400 m³
- Amount of steel: Approximately 70 ton, 9 m³

- PERFORMED ACCORDING TO THE SWEDISH BRIDGE CODE “BRO 2004”
- DESIGN WORK COWI & MARTINSONS
Vehicle Characterization

- Evaluate the efficacy of a soft elastomeric capacitor
  - Large scale surface strain gauge
  - Based on capacity sensing.
  - Sensitivity depends upon permittivity of medium and thickness of elastomer.
Pre-Conference Tour:

Covered Bridges of Madison County (Iowa)
Post-Conference Tour:

The Grand Canyon – West Rim
(Arizona)
EAGLE POINT

At 4,000 feet above the Colorado River, this Majestic View has been a special point of interest for the Hualapai People. With its beautiful panoramic views of the canyon walls where the Heavens and Earth meet with such magnificence this point of the Grand Canyon can be enjoyed by all.
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