



American Society of Civil Engineers

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# Columbia Section

Since October 10, 1950

## Newsletter

January, 2006

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### Columbia Section Meeting – January 18<sup>th</sup>, 2006

**Date:** Wednesday January 18<sup>th</sup>, 2006, 2005 from 11:30 am – 1:00 pm

**Place:** Shilo Inn, George Washington Way, Richland

**Meal:** Buffet (Chef's choice) \$15 per person.  
Please pay cash or check to treasurer at the meeting.

**Topic:** **Port of Kennewick Master Plan** and Current Projects for Clover Island, Kennewick, Washington

**Speaker:** Larry Peterson, Director of Planning, Port of Kennewick

Topics and Projects that will be covered in the lunch meeting:

- Brief History of Clover Island
- Overview of Master Plan for Clover Island
- Construction of Office/Retail Building and Boardwalk
- Rebuilding of the Clover Island Marina
- Roadway and Utility Reconstruction Challenges with the high water table on the island
- Boat Haul Out Yard

Lunch will start at 11:30, and the presentation will begin at Noon.

RSVP to: Darral Moore, [dsm@jub.com](mailto:dsm@jub.com) or 509-783-2144 by November 15, 2005.

### President's Message

Welcome to 2006! Hope everyone had a great holiday with family and friends. 2006 should be an exciting year. We will begin having monthly presentations for the Columbia Section beginning this January 18th. We will try to schedule monthly meetings the third week of the month. So, please mark your calendars for the next few months. The Structural Technical Group will also be having regular meetings, separate from our regular meetings.

Engineer's week is coming in February. We will be looking for Nominations for Engineer of the Year. Please send nomination requests to any of the Columbia Section Board Members.

Finally, if you know of a particular topic of interest for discussion or know of someone who would like to give a presentation to the Columbia Section, please contact any of the Columbia Section Board Members. Meetings can include but not be limited to existing, current or future projects, existing and future technologies, educational presentations and governmental policies. We are always looking for speakers.

Sincerely,

Darral

**Columbia Section Structural Technical Group Meeting  
February 16, 2006 (TENTATIVE)**

**Date:** Thursday, February 16, 2006, 6:00 PM – 8:30 PM (TENTATIVE)

**Place:** Shilo Inn, George Washington Way, Richland

**Meal:** Chicken Parmesan, vegetarian Lasagna, Rigatoni Alfredo Prima Vera, Fresh Seasonal Sauteed Vegetables, Focaccia Bread, Tossed Caesar Salad, Italian Pasta Salad, Greek Salad, Fresh Fruit Tray, Assorted Desserts (Chef's Choice), Coffee, decaf and tea service.

**Fee:** **\$20 per person.** *Please pay cash or check to treasurer at the meeting.*

**Topic:** **Seismic Retrofit Using Fiber Reinforced Polymers**

**Speaker:** Dr. Hamid Saadatmanesh,  
Co-Founder of HJ3 Composite Technologies, LLC, Tucson, AZ

**RSVP to:** Indra Ghosh, ighosh2000@msn.com or  
(509) 372-9058 by November 15, 12:00 noon.

**About the Speaker:** HJ3 offers the most comprehensive line of high strength composite materials for reinforcing and protecting structures against earthquakes, blasts, and environmental damage. Through its line of Composite Wraps & Laminates, HJ3 integrates the advancements made in material science from the aerospace industry to product solutions for the construction industry. The unique characteristics of their materials, lightweight, high strength, high durability in aggressive environments and flexibility, lend them to a wide variety of infrastructure repairs.

Over the past 30 years, Dr. Saadatmanesh has established himself as the world's leading expert in the field of composites for infrastructure.

While a researcher at the University of Arizona, Dr. Saadatmanesh published over 150 technical articles on the use of high strength composites and managed over 23 funded National Science Foundation Grants. ASCE awarded Dr. Saadatmanesh Best Application paper and Best Research paper for his work published in its journal of Composites for Construction in 1998 and 1999.

NOTE:

***Columbia Section Structural Group organizes technical meetings on subjects related to Structural Engineering every other month. If you would like to share a topic in Structural Engineering with the group, please contact, Indra Ghosh, 509-371-9058 or [ighosh2000@msn.com](mailto:ighosh2000@msn.com).***

# Report from the Structural Engineering Technical Group (Columbia Section) Chair, Indra Ghosh

The annual two-day meeting organized and hosted by the Structural Engineering Institute (SEI) of the American Society of Civil Engineers was held on December 2 (11:00 am – 4:00 pm), and December 3 (8:00 am – 4:00 pm), 2005 at the Double Tree Guest Suites, Phoenix, Arizona. Some 30 structural group chairpersons from all over the country attended the meeting.

## □ The main purpose of the meeting is to:

- (a) Discuss the mission of the SEI
- (b) Main activities throughout the year
- (c) Suggestions for improvements of the organization of SEI
- (d) Organizing structural engineers nationally to assist in disaster recovery
- (e) Publications by the SEI, such as the new
  - ASCE/SEI 7-05, *Minimum Design Loads for Buildings and Other Structures*
  - ASCE/SEI 24-05, *Flood Resistant Design and Construction*
  - ASCE/SEI 43-05, *Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities*
- (f) Future conferences such as 2006 Structures Congress to be held May 18-21, St. Louis, Missouri
- (g) Special workshops at the May 18-21, 2006 Structures Congress such as *Structural Design for Blast Effects*
- (h) Activities by the local Structural Technical Groups (presented by the local chairpersons)
- (i) How to form a local chapter of SEI, and how to amend the ASCE Section and local Structural Technical Group By-laws. Currently, Pittsburg and Delaware have formed local STG Chapters
- (j) ASCE's low-cost continuing education opportunities
- (k) Strategies to increase number of attendees in the Structural Engineering Technical Group meetings
- (l) How the profits from the meetings are utilized, such scholarships, etc.

## □ Special Features in this Meeting:

- (A) A tour to the Arizona Cardinals Stadium Project (with Retractable Roof Design) at Glendale hosted by the Arizona Section. The Cardinal Stadium is under construction now, and scheduled to complete the main structural construction by August, 2006. Construction began on July 30, 2003. The stadium covers 28 acres. It has 700-ft span steel trusses, retractable fabric roof traveling at 15 ft per minute, traveling distance 180 ft, moving 800 tons. Concrete is 4 ksi to 7ksi. Steel is 50 ksi and 65 ksi. It will have 63,000 permanent seats, and the capacity can be expanded to 73,000 seats. Architect is HOK with Peter Eisenman. Design Builder: Hunt Construction Group. Roof Structural Engineer: Walter P. Moore. Total cost \$355.3 million.



(B) Hoover Dam Bypass Bridge presented by Rob Turton, HDR Engineering, Inc.



The new bridge has a span of 2,000 ft. Design Engineers: HDR Engineering, Sverdrup Civil, Inc, and several other subcontractors. Construction began January 2005. 900 ft above the Colorado River. *Composite Concrete Deck Arch Bridge*. The entire Hoover Dam Bypass Project is expected to be complete in June 2007 at a cost of \$234 million.

□ **Presentation by David Swanson**, Chair, Emergency Preparedness Committee, Structural Engineers Association of WA (SEAW). David gave short talk on how the engineers in Washington State helped in the emergency during hurricane Katrina. He handed out a list of activities and presentations by the SEAW.

David participated in the writing of a report *Scenario for a Magnitude 6.7 Earthquake on the Seattle Fault*. Contributing societies were: ASCE, Seattle, WA; SEAW; Earthquake Engineering Research Institute, Oakland, CA, USGS; University of WA, Seattle, WA; WA Military Department's Emergency Management Division, Camp Murray, WA; Cascadia Region Earthquake Workgroup, Seattle, WA; and FEMA. The report states that Losses will be similar in magnitude to those of the 1994 M6.7 Northridge earthquake in California, at \$40 billion, the nation's most costly disaster until hurricane Katrina struck a few months ago. Scenario earthquake losses include: Property damage about \$33 billion; deaths more than 1,600; injuries more than 24,000; buildings destroyed – 29,000; fire – 130. The Nisqually earthquake in 2001 caused \$2-4 billion in damages primarily from Olympia north through Seattle.. A 2001 study by FEMA found that Washington has the 2<sup>nd</sup> highest risk of economic loss caused by earthquake in the nation, behind only California. Seattle ranks 7<sup>th</sup> among cities nationwide at economic risk to earthquakes; Tacoma ranks 22<sup>nd</sup>.

□ **A Summary of activities in 2005 by the local chairpersons.** Indra Ghosh presented Columbia Section Structural Technical Group as follows:

- **January 20, 2005, 6:00 PM – 8:30 PM**

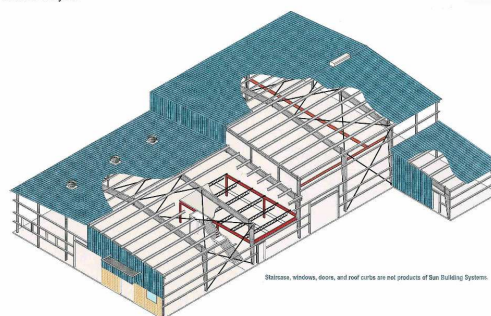
Presentation: Preliminary Design and Layout of Highway Structures  
Speaker: Anthony Mizumori, Washington State Department of Transportation.

Description: Mr. Mizumori presented the entire scenario of conceptual to final design of highways in a 1½ hour session. He also covered permitting, DOT regulations, and specifications.

- **May 13 and 20, 2005**

Two Field trips to Sun Building Systems Plant,  
2002 Morgan Road, Sunnyside, WA

Description: Since 1974 Sun Building Systems has been designing and fabricating pre-engineered metal buildings, open joists, steel decks, and other components. The Sunnyside plant cover 250,000 sq. ft.





- **May 25, 2005, 6:00 PM – 8:30 PM**

Presentation: Vibrations and Trends in Steel Joist Floors

Speaker: Tim Holtermann, Corporate Engineering Manager, Canam Steel.

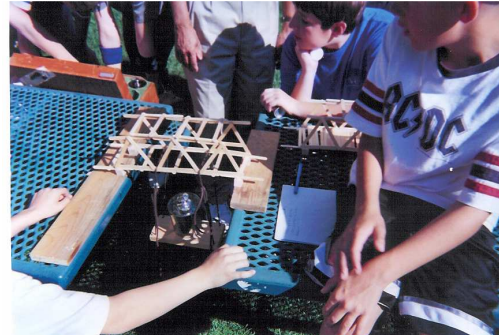
Description: Mr. Holtermann discussed the vibration of steel joist/metal deck flooring systems – how to predict and how to avoid floor vibrations. He also covered the trend and developments within the industry for both non-composite and composite floor joist systems.

- **August 2, 2005**

Bridge Building camp for 6<sup>th</sup> and 7<sup>th</sup> graders, hosted by Columbia River Exhibition of History, Science and Technology (CREHST), Richland, WA

Thirteen six and seven grade students participated in a 4-hour bridge building camp on August 2 at the Howard Amon Park. They built a 13-in. long Warren Truss out of popsicle sticks. Indra Ghosh was the instructor. Indra explained the purpose of building bridges, principles, and how to make a “strong” connection. He showed pictures of many bridges from an ASCE published book, *Landmark*

*American Bridges* by Eric DeLony. Nine children nearly completed the bridges, and took them home to give the finishing touches. After two days they brought the bridges back, and they were load-tested. The winner was Isaac, a sixth grader, whose bridge withstood 11.5 kg, and still it did not break. On behalf of ASCE Columbia Section Indra presented him with the same book that he used for showing pictures of bridges, *Landmark American Bridges*.



Load Testing of a Bridge Model

- **September 15, 2005, 6:00 – 8:30 PM**

Presentation: Fiberglass – The Structural Alternative

Speaker: Russ Cox, Strongwell, Tigard, OR

Description: Extraction process of fiber-reinforced pipes, and structural sections were discussed. Also discussed was application of FRP structural sections in the industry.



- **October 19, 2005, 6:00 PM – 8:30 PM**

Presentation: THORP Nuclear Reprocessing Plant Tank Leakage

Speaker: David Houghton, BNG America, Richland, WA

Description: On April 20, 2005 a serious leak in the pipe work to a vessel holding dissolved plutonium and uranium fuel in nitric acid solution was discovered in an enormous stainless steel-lined chamber in the THORP reprocessing plant at Sellafield, UK. The leak was estimated at 83 cubic meters.

The cause of leak and consequences were discussed.

