



NCSEA Winter Institute - Wind Engineering

January 23 & 24, 2009

Friday, January 23, 2009 - 8 Professional Development Hours (approved for all 50 states)

7:00 a.m. - 8:00 a.m. - Registration and Continental Breakfast

8:00 a.m. - 9:00 a.m. - ASCE 7 Wind Provisions: Current Directions and Developments - Ronald A. Cook



The next edition of ASCE 7 "Minimum Design Loads for Buildings and Other Structures" will be published in 2010 and is planned to contain several editorial and technical changes regarding wind load requirements. An overview of these changes will be presented, followed by the panel discussion.

Ronald A. Cook, Ph.D., is Professor of Civil Engineering at the University of Florida and Chairman of the Subcommittee on Wind Loads for ASCE 7, "Minimum Design Loads for Buildings and Other Structures". He is a registered professional engineer whose work experience includes 3 years in construction, 11 years in engineering design, and the past 19 years in engineering education and research at UF.

9:00 a.m. - 10:00 a.m. - Panel Discussion with Ron Cook, Peter Irwin, and Marc Levitan

10:15 a.m. - 11:30 a.m. - Wind flow, Turbulence around Structures, and Simplified Code Provisions for Wind - Ed Huston

Being able to visualize what type of turbulence is introduced into the wind stream when it encounters a structure, and whether the wind can "reattach" to the structure, help in understanding the force levels that are induced. This understanding of wind flow and turbulence becomes even more important when using Simplified Code Provisions for Wind.

Ed Huston, P.E., S.E., is a principal in the firm of Smith & Huston, Inc., Consulting Engineers in Seattle, Washington. He chairs the General Engineering Subcommittee of the NCSEA Code Advisory Committee and is a co-author of the *Wind Commentary to the Uniform Building Code - 1991 Edition & 1994 Editions*, ATC-60, *SEAW Commentary on Wind Code Provisions*, the SEAW RSM-03, and *SEAW's Handbook of a Rapid Solution Methodology™ for Wind Design*.



11:30 a.m. - 12:30 p.m. - Components and Cladding Design Solutions - From Curtain Walls to Double Walls - Mark E. Dannettel



Façades and cladding systems contain elements which commonly rely on load sharing to resist wind loads and other live loads. In some cases, due to slender components with high deflections, the "load sharing" is unintentional. This presentation will review a wide variety of load sharing applications in façades and offer guidance for proper analysis.

Mark E. Dannettel, M.Arch., is a Senior Associate and façade specialist with Thornton Tomasetti. Mark is responsible for developing and managing façade-related services and has been working as a façade consultant and system designer since 1998.

12:30 p.m. - 1:30 p.m. - Lunch

1:30 p.m. - 2:30 p.m. - Discussions Enroute to RWDI Wind Tunnel Testing Lab - Peter Irwin / Mike Tylk

2:30 p.m. - 5:30 p.m. - Tour of RWDI Wind Tunnel Testing Lab

RWDI is a leading wind engineering and microclimate testing and consulting firm that works with designers to help design for the effects of wind, snow, ventilation, vibration and related microclimate environmental issues. At its different locations, RWDI has a total of four boundary layer wind tunnels, an open channel water flume, and advanced computer-modeling capabilities for studying structural dynamics problems, fluid flow problems and regional atmospheric effects. At RWDI's Miramar facility, attendees will be split into small groups, to view the Miramar wind tunnel, model shops, and a number of displays illustrating various types of wind study.

6:30 p.m. - 7:30 p.m. - Reception

Register on line at: www.ncsea.com

The Sofitel Miami Hotel

5800 Blue Lagoon Drive
Miami, Florida 33126

Reservations

Toll-free: 877-474-4888
(between 8 a.m. & 6:00 p.m. EST)
305-264-4888

Group name: NCSEA or
National Council of Structural
Engineers Associations

Mention NCSEA Winter Institute for a
special \$149 room rate until January 8.

American Airlines is offering discounts to Miami, Ft. Lauderdale, and West Palm Beach between January 18 & 30. Book your AA/AE ticket online (www.aa.com) or by calling 800-433-1790, and receive a 5% discount when you use authorization code **A2319AM**.

Registration fee: \$350 per day - Registration Fee for both days: \$595

Questions: Call Jan Diepstra at 312-649-4600, Ext. 202

7:30 a.m. - 8:30 a.m. - Registration and Continental Breakfast

8:30 a.m. - 9:30 a.m. - Applications of the Wind Tunnel Method - Peter Irwin

This presentation will describe the use of the wind tunnel method to establish design loads and to investigate the aerodynamic stability of various types of structures. The presentation will focus on how the wind tunnel program fits into typical design schedules, the type of information needed for the testing, and the information that can be obtained from the tests, as well as a cost benefit analysis of undertaking wind tunnel tests. Examples of recent projects will be used as illustrations during the presentation.



Peter Irwin, Ph.D., P.Eng., was the President of RWDI from 1999 to 2008 and is currently Chairman. His experience includes extensive research and consulting in wind loading, aeroelastic response, wind tunnel methods, and instrumentation; and he serves on several committees for codes and standards, including the Standing Committee on Structural Design for the Canadian Building Code and the wind committees of the ASCE 7 and ISO standards.

9:30 a.m. - 10:30 a.m. - Wind Design Considerations for Hurricane and Tornado Shelters - Marc Levitan

This presentation will highlight the unique wind design considerations for hurricane and tornado shelters, briefly review the historical development of shelter design guidelines, and then introduce the wind provisions of the new ICC/NSSA -500 Standard for the Design and Construction of Storm Shelters.

Marc Levitan, Ph.D., has been actively engaged in wind and hurricane engineering research, practice, and education for 20 years. He is the founding Director of the LSU Hurricane Center, co-founder of the LSU Wind Tunnel Laboratory, and chairs the national committee that is developing a consensus standard for the design and construction of hurricane and tornado shelters.



10:45 a.m. - 12:30 p.m. - Wind and Motion Control / Determinations of Snow Loads on Structures - Scott Gamble

This two-part presentation will first describe the issues surrounding motion perception criteria and control for high-rise buildings, including examples of supplementary damper concepts and real-world applications. The second part of the presentation will describe snow loading of large roofs and will provide insight into the physics of snow drifting and accumulation. Wind and snow load combinations will also be covered.

Scott L. Gamble, B.A.Sc., P.Eng., is Manager of Research and Development at RWDI and General Manager and VP of Motioneering, Inc., a sister company to RWDI. Scott is active in both companies, with project-related specialties of structural wind and snow loading, structural motion, and supplementary damping systems.



12:30 p.m. - 1:30 p.m. - Lunch

1:30 p.m. - 3:00 p.m. - Performance Evaluation of Tall Buildings Under Winds: Insights from the Chicago Full-Scale Monitoring Program - Tracy Kijewski-Correa

This presentation will provide an overview of the Chicago Full-Scale Monitoring Program, which is led by a multi-faceted, international team, including members from academia, design and consulting, who have been systematically correlating the in-situ response and dynamic characteristics of tall buildings against the predictions made in their design. The talk will detail the instrumentation and modeling used in the program and will present a comparison of the full-scale response of these tall buildings to the predicted response from wind tunnel tests used in their design. Also discussed will be the evaluation of the buildings' in-situ periods and damping ratios over a range of response amplitudes and their comparison to design values.

Tracy Kijewski-Correa, Ph.D., is the Philip B. Rooney Assistant Professor in the Department of Civil Engineering and Geological Sciences at the University of Notre Dame. Her *Structural DYNAMics & MONitoring (DYNAMO) Laboratory* is home to a number of projects, including the Chicago Full-Scale Monitoring Program, which was awarded ASCE's State-of-the-Art in Civil Engineering Award in 2007.



3:15 p.m. - 4:30 p.m. - Design of Roof Diaphragms and Shear Walls - Jeffrey B. Stone

The Design of Roof Diaphragms and Shear Walls will include a review of changes to the 2006 International Building Code for lateral design and an overview of AF&PA's Wind & Seismic Standard, with application to the design of lateral load resisting elements. New provisions of the 2008 Wind & Seismic standard for shear walls, resisting combined uplift and shear due to wind loads, will be addressed.

Jeffrey B. Stone, Ph.D., C.B.O., is the Southeast Regional Manager of the American Forest & Paper Association (AF&PA). He is a past member of ICC's International Performance Code Committee and ICC's Hurricane Resistive Construction Committee; and he is a current and active member of ASTM's Committee E06 on Performance of Buildings and four US Technical Advisory Groups (USTAGs) to International Standards Organization (ISO) Technical Committee 59 on Performance Standards for Buildings, with particular attention given to sustainable (green) building issues.



Upcoming Webinars

Thursday November 6th - Foundation Design Using IBC Chapter 18 - *Michael Valley*

Wednesday November 12th - Load Combinations/Wind Loads - *David Fanella*

Thursday November 20th - Reinforced Concrete Special Moment-Resisting Frame - *Jon Kiland*

For more information and to register online visit www.ncsea.com.

