

2013 SEA-WI Fall Technical Conference

Friday, November 15, 2013



**Wildwood Lodge Pewaukee
N14 W24121 Tower Place
Pewaukee, WI 53072**

4.0 Professional Development Hours

WELCOME

The Structural Engineers Association of Wisconsin invites you to our 1st Fall Technical Conference. This exciting event will be held at the Wildwood Lodge in Pewaukee, Wisconsin on November 15, 2013.

We owe special thanks to our Conference Planning Committee for its efforts in organizing a variety of technical presentations and moderating the sessions. We are confident these presentations will appeal to everyone.

REGISTRATION/CONTINENTAL BREAKFAST

9:00 – 9:25 AM

WELCOME AND INTRODUCTIONS

9:25 – 9:30 AM

Greetings and Remarks: Sarah Frecska, SEA-WI Continuing Education Chair

INNOVATION IN RESEARCH

Performance-based Engineering – Dr. Ting Lin, Marquette University
Application of FRP in Structures – Dr. Baolin Wan, Marquette University

9:30 – 11:00 AM

EXCELLENCE IN WISCONSIN ENGINEERING

St. Marcus Phase II – Patrick Reynolds, Pierce Engineers, Inc.
Rolling Mill #2 “White Lightning” – Craig Buechel, Computerized Structural Design, S.C.

11:10 – 12:00 PM

LUNCH

12:10 – 1:10 PM

INNOVATION IN DESIGN

Design of the Supertall - John Peronto - Thornton Tomasetti

1:15 – 2:45 PM

INNOVATION IN RESEARCH – PART 1

9:30 – 10:15 AM

Speaker: Ting Lin, Ph.D.

Assistant Professor

Department of Civil, Construction and Environmental Engineering

Marquette University

Topic: Performance-Based Engineering

Abstract:

Science is curiosity driven; engineering, solution seeking; policy, action oriented. Performance-based engineering is a probabilistic framework that connects the complexity of science to the practicality of engineering and policy via hazard, risk and uncertainty quantification. It estimates site- and system-specific hazard and response to aid decision making. Successfully implemented in earthquake engineering and adopted in other fields, performance-based engineering has demonstrated a growing influence in research and practice. This talk will present recent progress in hazard-consistent earthquake ground motion selection methodology, ongoing efforts in performance-based engineering of systems, and a vision for multi-hazard sustainability.

Presenter Biography:

Ting Lin started at Marquette University as an assistant professor in the Department of Civil, Construction and Environmental Engineering this fall. Her research interests include resilient and sustainable infrastructure, earthquake engineering, and climate change. She completed her Ph.D. and M.S. in Structural Engineering from Stanford University, and B.S. (Hons.) in Civil Engineering and a concentration in Architecture from Cornell University. Her research and teaching at Stanford focused on performance-based earthquake engineering. Prior to joining Stanford, she worked on lifeline research at Cornell, and structural design at Leslie E. Robertson Associates. She is a member of the Ground Motion Simulation Validation (GMSV) Technical Activity Group (TAG) in the Southern California Earthquake Center (SCEC).

INNOVATION IN RESEARCH – PART 2

10:15 – 11:00 AM

Presenter: Baolin Wan, Ph.D.
Associate Professor
Department of Civil, Construction and Environmental Engineering
Marquette University

Topic: FRP Applications in Structural Engineering

Abstract:

Because of their high strength, low density and non-corrosive properties, fiber reinforced polymer (FRP) composite materials have rapidly expanded their applications as construction materials in structural engineering in the last two decades. This presentation will briefly introduce the raw materials, manufacturing methods, and material properties of FRP. This will be followed by a discussion on their various applications in structural engineering, including FRP reinforcements in concrete, FRP repair and retrofit of deteriorated structures, and FRP profiles used as various structural members. Two Wisconsin bridges constructed using FRP reinforced concrete decks will be introduced in this presentation. A few barriers, which impede engineers' acceptance of FRP, will also be discussed.

Presenter Biography:

Dr. Baolin Wan is an associate professor of structural engineering at Marquette University. He obtained his M.S. and Ph.D. degrees from University of South Carolina. He joined Marquette University as a faculty member since 2004. His research interests include use of Fiber Reinforce Polymer (FRP) composite materials in structural members, numerical and experimental modeling of repaired and retrofitted structures, field testing and nondestructive evaluation of bridges, behavior of reinforced and prestressed concrete structural elements, and finite element analysis. He is a council member of the International Institute for FRP in Construction (IIFC), a member of China Civil Engineering Society (CCES) FRP Committee, and an associate member of ACI Committee 440 - Fiber-Reinforced Polymer Reinforcement.

INNOVATION IN DESIGN

1:15 – 2:45PM

Speaker: John Peronto, PE, SE, SECB, LEEP AP
Senior Associate
Thornton Tomasetti

Topic: Design of the Supertall

Abstract:

Tall buildings have presented structural engineers design challenges since the birth of the modern skyscraper. Today's supertall (300+m) skyscrapers present challenges not only to the structural design of these tall/slender buildings, but also push the limits on construction methods and materials. Case studies of tall and supertall building designs will be covered, discussing topics such as structural systems, wind tunnel testing programs, seismic design, finite element modeling, long-term vertical shortening, constructability, and more. Structural design topics for the 1000+m tall Kingdom Tower project will also be discussed.

Presenter Biography:

Mr. Peronto is experienced in the design of a variety of building types, including commercial, residential, cultural, and aviation; with specialized expertise in the design of tall to supertall towers. Among Mr. Peronto's portfolio of projects are the +1,000-meter-tall Kingdom Tower, Jeddah, Saudi Arabia; the 600-meter-tall Chicago Spire, Illinois; the Federation of Korean Industries New Headquarters Tower, Seoul, South Korea; King Abdullah Financial District, Parcels 3.10 and 5.03, Riyadh, Saudi Arabia; and one of the largest aviation hangars in the world at Memphis International Airport.

Active in the design community, Mr. Peronto is a member of the Council on Tall Buildings and Urban Habitat (CTBUH), American Concrete Institute (ACI), American Institute of Steel Construction (AISC), Structural Engineering Institute (SEI), American Society of Civil Engineering (ASCE), and The Institution of Structural Engineers (IStructE).

Mr. Peronto received his Bachelor of Science in Mechanical Engineering, a Bachelor of Science in Civil Engineering, and a Master of Science in Civil Engineering all from Marquette University. He also received a Master of Engineering in Structural Engineering from Cornell University. He is a licensed Professional Engineer in the state of California, a licensed Structural Engineer in the state of Illinois and a LEED Accredited Professional.

Mr. Peronto is also certified in the practice of structural engineering by the Structural Engineering Certification Board and is a state of California Disaster Service Worker. In 2010, the American Council of Engineering Companies (ACEC) honored Mr. Peronto with its Young Professional of the Year Award.

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For more information, please contact mail@seawi.org or
a current SEA-WI Board Member

ANNOUNCEMENTS

CALL FOR VOLUNTEERS

As a volunteer organization, there are plenty of opportunities to assist with committees or openings for current and future leadership positions. Please contact Chad O'Donnell at codonnell@hga.com or (414) 278-8200.

SPRING TECHNICAL CONFERENCE

Planning is under way for our 4th Technical Conference in April 2014. If you are interested in presenting, please contact Eric Fink at efink@erdman.com or (608) 410-8000. We are also interested in hearing what topics that might help you and your office.

SEA-WI BOARD ELECTIONS

Our upcoming 2014-2015 board elections will take place during the month of June. Being a board member is a great way to get leadership experience, build up your resume, and take full advantage of all of the great networking opportunities that will become available to you. In the Spring, we will be seeking interested individuals and nominates for the following board positions:

- President Elect
- Treasurer
- Southwest Director
- Southeast Director