

SEI/ASCE TECHNICAL COMMITTEE ON TALL BUILDINGS

2008 Structures Congress, Vancouver, BC
Annual Meeting, Friday, April 25, 2008, 1:30 pm
Hyatt Regency Vancouver: Lord Byron Room

Attendees: Ahmad Abdelrazaq, Leighton Cochran (Guest), Donald Dusenberry (Guest), Elizabeth English, Ron Hamburger (Guest), Peter Irwin, Ahsan Kareem, Tracy Kijewski-Correa, Stephen Mahin (Guest, UC Berkeley Tall Building Initiative), Jamieson Robinson (Guest), John Tessem, Brad Young

1. Meeting called to order at 1:35 pm by Ahmad Abdelrazaq, Chair and introduction of members and guests
2. Unanimous approval of minutes from Structures Congress 2007
3. **Unresolved Issues from 2007:** Abdelrazaq began meeting with summary of his views on the following issues with invitation to membership to establish subcommittees to address these:
 - a. Performance Based Design for Tall Buildings – wind and seismic
 - b. New Trends on Free Form Architecture for Tall Building Design
 - c. Utilization of New Materials (Steel, Concrete, Composites)
 - d. Role of new computational capabilities in tall building design
 - e. Utilization of Building Control (including supplemental damping and control devices) and their Impacts on Tall Building System Selection
 - f. Discussion on Construction Sequence Analysis in Tall Building Design for Complex Structures
 - g. Use of monitoring to observe building behavior throughout construction and service life
 - h. Structural Sustainability – what does it mean for the structural engineer?
4. **Wind Design Considerations for Tall Buildings:**
 - a. Subcommittees were included in the new ASCE Technical Council on Wind Engineering. Wind Engineering Committee and Tall Buildings Committee Chairs agreed to have leadership of these subcommittees reside with the Tall Buildings Committee, but continuing collaboration with the Wind Engineering Committee.
 - b. **Full-Scale Monitoring Subcommittee:** It was determined that Tracy Kijewski-Correa should take a greater leadership role in this committee's activities, leveraging what has been assembled already through the State-of-the-Art in System Identification Report. This would be kept open to monitoring for either hazard. Should include simple protocol for monitoring, minimum requirements, maintenance, data management; this would make it easy to mandate and suitable for submission to officials and owners to speed approval. Should include "benefits of monitoring."
 - c. **Design of Tall Buildings Under Winds:** Committee charge is to collate and review current best practice in designing for wind-induced motion in tall-buildings; publish a booklet outlining current best international practices with review of recent research and make clear design

recommendations for practicing engineers. Original basis is CTBUH document. Roy has been in contact with a number of individuals and his role in this should be maintained, with delegation to others to get the subcommittee moving:

- i. **Damping:** extensive full-scale databases (AIJ, Korean, G. Wood in Australia) can be leveraged, analytical studies on structural systems (Univ. of Toronto) can be included, can include sensitivity studies for wind tunnel, multiple sources must be accounted for ATC-72 has recommendations for tall building modeling and damping values (seismic) [*Brad Young to begin organization of this*]
- ii. **Perception:** recent work with simulators and development of guidelines [*Roy Denoon to lead the organization of this*]

5. **Seismic Design Considerations for Tall Buildings:**

- a. Update on Tall Buildings Initiative (PEER) by Ron Hamburger and Stephen Mahin on behalf of Jack Moehle with approx. \$1 million funding (CA, Pancow, San Francisco) to develop guidance documents for PBD of tall buildings in seismic zones. 20+ buildings have been permitted using PBD based on ASCE 41. Document will focus on concrete and steel modeling and general guidelines, with invitation to this committee to join in this effort. Document will be ready in 18 months. This will synthesize available research data regarding components used in these structures. This document can be extended to encompass other issues, including sustainability. Ground motions recorded to date often filter out long period components, thus the lack of suitable records is an issue. Also encountering components that had never been analyzed/tested for seismic effects. It was recommended to also tap into the efforts related to these issues in Asia. Information on this effort will be advertised to Tall Buildings Committee Members and members of this committee are invited to contribute to the guidelines. Mahin to report back to Jack the willingness of this committee to collaborate in these efforts. Abdelrazaq to begin coordination with PEER group.
- b. CTBUH Recommendations for the Seismic Design of High-Rise Buildings (Draft for Comment Issued Feb. 2008) and has the same general theme but lacks technical content. Would like to see a greater consensus between what is being done in CTBUH and the Tall Building Initiative. This should be shared with the committee and their feedback should be offered.
- c. USGS will be putting out a scenario in about two weeks for LA that depicts the collapse of 4-5 tall buildings with massive casualties. This will lead to some bad press for tall buildings in seismic zones.

6. **CTBUH Conference** in Dubai 2008 focused largely on sustainability and other issues related to green architecture, fire engineering, session dedicated to Burj; this committee should continue its relationship with CTBUH and serve as its

- technical arm. ASCE Sustainability Committee is trying to get their document out in time for the next Structures Congress to demonstrate the role of structural engineers in creating sustainable infrastructure. Abdelrazaq to contact the chair of the Sustainability Committee (Dirk Kestner) for a draft to see the role this committee can play in these efforts, particularly unique issues for tall buildings such as wind generators (this would have to be done quickly given their timeline).
7. **Structures Congress Sessions:** several sessions on tall buildings without the role of this committee. This may be rectified by having a scientific committee instead of a local organizing committee; this will be tested in Austin through a broader review process and members of this committee should have say in any sessions within the domain of this committee.
- a. **Sponsored Sessions**
 - i. Peter Irwin proposed *Wind and Other Issues for Tall Buildings of Extreme Height and Geometry*. Could not get all the abstracts in time for a full session, so two papers still presented in High Rise Buildings II
 - ii. Ahsan Kareem and Finley Charney proposed *Damping in Buildings: Measurements, Uncertainty, and Application* which will be Sat. 4/26/08 at 8:30 am in Georgia B (A&C Track)
 - b. **Related Tall Buildings Sessions**
 - i. Thursday, 4/24/08: *High Rise Buildings Session I* (2:15-3:45 pm) in Plaza B [unsponsored]
 - ii. Thursday, 4/24/08: *High Rise Buildings Session II* (4:00-5:00 pm) in Plaza B [unsponsored]
 - iii. Friday, 4/25/08: *Pushing the Envelope in Material and Structural System Choice in High-Rise Building* (8:30-10:00 am) in Plaza B [Sponsored by Optimal Structural Design]
 - c. **Proposals for 2009 Congress**
 - i. Conference Dates: April 30-May 2, 2009 in Austin, TX
 - ii. Session Proposal Deadline: June 10, 2008 (Papers Due Jan. 12, 2009)
 - iii. Seismic Design Considerations for Tall Buildings (session jointly with the Tall Buildings Initiative) [To be coordinated with Moehle]
 - iv. Showcase session on new tall buildings around the world [To be coordinated by Abdelrazaq]
8. Meeting adjourned at 3:15 pm.