

MINTUES OF SEI/ASCE TECHNICAL COMMITTEE ON TALL BUILDINGS

2009 Structures Congress, Austin, TX
Annual Meeting, Saturday, May 2, 2009, 10:30 am-12:30 pm
Renaissance Austin Hotel: Frio Room

Attendees: Ahmad Abdelrazaq, Abbas Aminmansour, Bo Bienkiewicz, Daryl Boggs, Steven Camposano, Xinzhong Chen, Leighton Cochran, Elizabeth English, Jon Galsworthy, Ahsan Kareem, Tracy Kijewski-Correa, Peter King, Ioannis Kourakis, Mustafa Mahamid, Kyoung Sun Moon, Buhar Morava, Jamieson Robinson, Ted Stathopoulos, Dorian Tung, Vikas Verma, Jiming Xie

Apologies: Joe Burns, Roy Denoon, Robert McNamara, John Tessem, Neil Wexler

- 1) Meeting called to order 10:40 am. Welcome Remarks by Committee Chair, A. Abdelrazaq.
- 2) Introduction of members and visitors.
- 3) Approval of the minutes from 2008 meeting.
- 4) Update on the Sub-Committee status and activities:
 - a) **Full-Scale Monitoring for Tall Buildings:** Presentation by Tracy Kijewski-Correa on the report that has been prepared with some subset of efforts by ASCE Structural Identification of Constructed Facilities Committee and submitted to A. Abdelrazaq; discussion opened regarding how this committee could better promote the use of full-scale monitoring as part of the design/construction/validation process; Leighton commented on the evolving role of Charlie Thornton's company STRAAM (partnership with Alan Jeary) in promoting monitoring for buildings even during the construction process; seems the committee should be aware of these developments and invite Alan and Charlie to join a session in Orlando and attend the tall buildings committee meeting
 - b) **Designing for Wind-Induced Motion for Tall Buildings:** There has been a lack of activity in this committee and J. Galsworthy will be coordinator of this effort. There has been good work coming out of groups in Hong Kong (P. Hitchcock) and Motioneering (RWDI). Ahsan recommended Kenny Kwok (W. Sydney, Australia) as someone who may be able to contribute to this effort, particularly with respect to perception. CPP indicated that G. Wood could possibly contribute (database of 50 buildings in Australia); efforts at Notre Dame and RWDI could also be included.

A. Abdelrazaq indicated that recently, the use of supplemental damping as part of the lateral load resisting system is seeing increasing usage due to increasing slenderness, flexibility, irregular geometry, etc. Is a minimum design guideline needed for these buildings? Documentation of the behavioral aspects of these buildings may be necessary. A subcommittee on the structural control of tall buildings may be necessary to track these developments.
 - c) **State-of-the-Art-Technologies For Tall Buildings:** Proposal for New Subcommittee with leadership by A. Aminmansour and Y.S. Moon, who organized sessions at this conference. Committee was newly formed and brief was presented by A. Aminmansour; tentative outline was established and shared with A. Abdelrazaq and efforts will be split by Aminmansour and Moon. Subjects being overviewed – historical overview, issues of egress and evacuation, and sustainable design. AA emphasized that the subcommittee must also document some of the recent trends in tall building designs, especially as it

related to sculpted and free form tall buildings. Issues related to efficiency, structural challenges, construction challenges, unique behavioral issues, etc. must be addressed. The Committee anticipates four year time frame for developing manuscript. Practitioners will be particularly important for input to the process and will be engaged, CTBUH has already been engaged.

- d) Chair then presented topics that should receive continued attention by the committee:
 - i) Advances in Materials
 - ii) Advances in Computational Tools
 - iii) Damping and Motion Control (Secretary will initiate contact with the Structural Control Committee to determine interest in these issues for tall buildings)
 - iv) Performance Based Design for Multiple Hazards (should be coordinated with CTBUH and CA Tall Building's Initiative, Chair will contact R. Klemencic to engage those groups, D. Boggs also mentioned an ACI Committee 375 Called Performance Based Design of Tall Concrete Buildings for Wind that should be engaged, D. Boggs to initiate contact A. Rahimian that chairs that committee)
 - v) Special Design Issues for Free-Form Architecture
 - vi) Sustainable Design of Tall Buildings (Optimization, Construction Sequence Analysis)
- 5) Coordination with other ASCE members/committees on special issues related to Tall Buildings (such as those underscored in item 4): Bo suggested organizing sessions jointly with these committees to generate more natural interactions between these committees
- 6) Sponsored sessions
 - a) Chair recapped the Sessions presented at 2009 Structures Congress:
 - i) Discussions particularly focused on trends toward very flexible structures (like Chicago Spire) whose fundamental frequencies are approaching the dominant energy bands of wind spectrum; discussion of need to engage engineers earlier in the design process or perhaps better educate on the fundamentals of wind engineering
 - ii) "Advances in Wind Engineering & Impact on Design of Tall Buildings" in affiliation with Council on Wind Engineering
 - iii) "Challenges of Designing Super Tall Buildings with Current Technologies"
 - iv) "Integrated Design of Tall Buildings: Recent Trends and Perspectives (Session I)"
 - v) "Integrated Design of Tall Buildings: Recent Trends and Perspectives (Session II)"
 - vi) "Structural Design Performance and Serviceability" (unofficially sponsored session)
 - b) Discussion of Possible Sessions for 2010 Structures Congress¹:
 - i) "Impact of Recent Trends in Architectural and Structural Engineering on Wind Engineering for Tall Buildings" – Bo and J. Xie to coordinate jointly with Structural Wind Engineering Committee
 - ii) "Tall Buildings in Seismic Regions: Design Philosophies and Global Perspective" – to be coordinated with the CTBUH and Tall Building's Initiative
 - iii) "Recent Trends in Health Monitoring of Tall Buildings" – coordinated by T. Kijewski-Correa with possible coordination with Structural Control Committee

¹ Session/Abstract Deadlines: June 10, 2009

To submit a proposal http://content.asce.org/conferences/Structures_2010/index.html

- iv) “Challenges of Designing Super Tall Buildings with Current Technologies” (High Strength Steel/Concrete, Passive Damping & Dynamic Control) -- coordinated with Special Structures committee; A. Aminmansour to organize
 - v) “Challenges in the design and construction planning of Sculptured Tall Buildings” – coordination with Aesthetics Committee, E. English to organize but requests assistance in identifying projects, particularly those with regional ties
 - vi) Secretary to send reminders to those organizing sessions in time for June 10 deadline.
- 7) Call for new business: discussion of issues associated with fatigue of spires and the interest in this subject by designers was noted
 - 8) Announcement of CTBUH 2009 Conference in Chicago October 22-23.
 - 9) Meeting adjourned at 1:15 pm.

POST MEETING ACTION ITEMS FOR SUBCOMMITTEES

| Subcommittee | Chair(s) | Contributors | Actions |
|--|---------------------------|---|--|
| State-of-the-Art-Technologies For Tall Buildings (historical overview, issues of egress and evacuation, and sustainable design) | A. Aminmansour, Y.S. Moon | CTBUH, practitioners | Chairs to solicit involvement ; submit formal outline for website |
| Full-Scale Monitoring for Tall Buildings | T. Kijewski-Correa | J. Galsworthy, others? | J. Galsworthy to provide write up on pressure sensors, T. Kijewski-Correa to circulate draft for feedback |
| Designing for Wind-Induced Motion for Tall Buildings | K. Kwok and J. Galsworthy | P. Irwin, N. Isyumov, A. Kareem, T. Kijewski-Correa, R. Bashor, R. Denoon, J. Robinson, B. Morava, Others from RWDI/Motioneering, CPP, BLWTL? | T. Kijewski-Correa to contact Structural Control Committee to collaborate; Chair and task group heads to begin coordinating sections, provide outlines for website |
| Task Group: Damping Guidelines (T. Kijewski-Correa) | | | |
| Task Group: Human Perception Criteria (M. Burton) | | | |
| Task Group: State-of-the-Art in Control (J. Robinson) | | | |

POST-MEETING ACTION ITEMS FOR SPONSORED SESSIONS

Deadline: June 10, 2009

Requirements: Session abstract, titles, authors and abstracts of all papers in session all uploaded into online system

PROCEDURE

1. Coordinate with chair of co-sponsoring committee, if applicable, to identify list of invitees and formulate session abstract
2. Invite participants
3. Once participation is confirmed, notify committee chair and secretary of all proposed sessions and speakers
4. Submit your session proposal at http://content.asce.org/conferences/Structures_2010/index.html
5. Invite presenters to upload abstracts to your session. (Provide link to submission interface and name of your session)
6. By June 10, 2009 verify that all abstracts have been uploaded by invited authors

| Session Title | Co-Sponsoring Committee | Organizers | Participants |
|--|---------------------------------------|--------------------------------------|---|
| Impact of Recent Trends in Architectural and Structural Engineering on Wind Engineering for Tall Buildings | Structural Wind Engineering Committee | B. Bienkiewicz, J. Xie | TBD |
| Tall Buildings in Seismic Regions: Design Philosophies and Global Perspective | CTBUH and CA Tall Building Initiative | Ahmad Abdelrazaq R. Klemencic (?) | Neville Mathias Chuck Besjak ? ? |
| Recent Trends in Health Monitoring of Tall Buildings | Structural Control Committee | T. Kijewski-Correa | C. Thornton, A. Jeary T. Kijewski-Correa Brownjohn BLWTL RWDI |
| Challenges of Designing Tall Buildings with Current Technologies; to organize | Special Structures committee | A. Aminmansour Y.S. Moon | Neil Wexler (BIM) Ahmad Abdelrazaq |
| Challenges in the design and construction planning of Sculptured Tall Buildings | Aesthetics Committee | E. English Ahmad Abdelrazaq | TBD: should be projects with regional ties Infinet Tower Al Hamra Tower Trump Tower (WS Atkins) Dubai Tower in Istanbul Several Tower in Doha, Qatar |

