

ACI-ASCE Committee 447

Finite Element Analysis of Reinforced Concrete Structures

Meeting at Room Columbia 3, Washington DC

10/27/2014 11:00 am - 1:30 pm

ACI Fall 2014 Convention

1. Call to Order and Introduction of Members and Guests

Meeting called to order at 11:00 am.

Members present: Abbas Mokhtar-Zadeh, Kyle Marshall, Ioannis Koutromanos, Mohammad Sharafbayani, Zhibin Lin, Jian Zhao, Trevor Hrynyk, Allan Bommer, Mukti L. Das, Brian (BJ) Siljenberg, Dan Palermo, Robert Esplin, James Deaton, Marios Panagiotou, Song Jan, John Jakovich, Ganesh Thiagarajan (Chair), Gianluca Cusatis, Cris Moen, Jason Draper, Jeffrey Dragovich, Larlos Coronado, Laura Lowes, Zdenek Bazant, Guillermo Alberto Riveros, and Sri Sritharan.

Members absent: Riadh Al-Mahaidi, Gangolu Appa Rao, Ashraf Ayoub, Sarah Billington, Chris Conley, Serhan Guner, Anthony Ingraffea, Feng-Bao Lin, Yong Lu, Christian Meyer, Yi-Lung Mo, Wassim Naguib, Syed Rahman, Guillermo Alberto Riveros.

Guests: Andy Taylor (TAC Rep.), Tham Herrier, Taha Al-Shawaf, Sevgi Kelci, Bernd Lasvevitz, Rahc El Helov, and Matt Senecal (ACI staff).

2. Excused absences

none

3. Review and approve minutes from previous meeting: ACI Spring 2014 Reno convention.

Motion to approve the minutes for ACI Spring 2014 Reno convention. (Bommer, Deaton)
The motion passed unanimously.

4. Membership update

Voting members: 26; Associate members: 38; Consulting members: 16.

Associate members who are intended to be promoted, please send an email to the chair.

5. Report on possible technical sessions/Special Publications to be sponsored by the committee:

- a. **Cusatis:** "Development of guidelines for the calibration and validation of concrete models," Session in collaboration with ACI-446 on Calibration of Concrete Models.

Cusatis discussed the session planned on how to use finite element tools. The committee provided feedback.

A task force was re-confirmed. The objective of the joint task force is to produce a short committee document to guide engineers and researchers to make choices on analysis tools depending upon their applications. (Koutromanos, Deaton and previous members will join the special task force)

One additional idea proposed by the committee members is to create a series of education modules for engineers. Webinars may be produced targeting practicing

engineers. Andy Taylor (TAC contact) will investigate the logistics. The committee chair will coordinate the effort, and Das and Lowes will contribute to the short educational web-based courses.

- b. **Special Publication** –Fall 2014 Session based on ‘Blast Blind Prediction Contest cosponsored by ACI-370 (Thiagarajan).

Thiagarajan reported the progress of the special publication. Nine draft papers have been collected. All submitted papers have been reviewed, and comments sent to the authors. The committee members are asked to review draft papers.

- c. **Future sessions to be organized**

- Joint session on "Advancement in Modeling Bond of Deformed Bars." (Zhao and Chen from ACI-408)
Zhao reported on the preparation of the session in Spring 2015 in Kansas City.
- Session on "Design of shear walls in nuclear structures." (Das)
Das reported on the intention of this planned session. The committee discussed the session plan.
- Session on the outcome of NESCC-concrete Task Group report on Post-processing Finite Element Analysis Results for the design of Nuclear Concrete Structures (447.YT) (O'Leary and Coronado)

6. Update on State-of-the-Art Reports

- a. **Sritharan and Zhao:** State-of-the-art report on modeling bond in reinforced concrete (447.YR)

Zhao and Sritharan reported the progress on the report.

- b. **Al-Mahaidi:** Modeling for the Repair and Rehabilitation of Modern Concrete Structures for Performance Based Design (447.ZR)

The committee discuss the progress of the document. Laura will update on the document in the next meeting.

- c. **NESCC – Concrete Task Group (CTG) Report:** Post-Processing Finite Element Analysis Results for the Design of Nuclear Concrete Structures (447.YT)

Colonado updated the committee on the document. A complete draft is likely ready by Fall 2015.

- d. Modeling of modern Concrete Structures for Performance-Based Earthquake (447.XR)
Serhan reported on the progress of the document.

Committee 374 (Jeff Drako) will provide more examples on performance-based design for earthquakes.

7. Twisting Moments in Finite Element Based Design of Reinforced Concrete Slabs (Bommer, Siljenberg, and Deaton)

Allan updated the committee on the document. The document was converted into to a design guide (from the original tech note). The concept has been approved by TAC. A complete draft is likely ready by Spring 2015 convention.

Ganesh will acquire a document number from the TAC.

8. Dr. Mukti Das: "Correct Interpretation of Design Stress Resultants from Software"

9. New Business/ Adjourn

- Laura (now a member of ACI 318C) reported about the intention of ACI committee 318 to include finite element analyses in the future document. The committee may need to draft a document to support the ACI 318 document.

The committee provided suggestion o the design aspects that needs finite element analyses. Esplin, Mokhtar-Zadeh, Song, Thiagarajan and Bommer volunteered to join the task force.

- Joint session with ACI 341 on modeling of reinforced concrete bridges.
- Kyle Marshall presented "ANACAP concrete constitutive model."

Meeting adjourned at 1:30 pm.