1. **Call to Order and Introductions**

   Committee 224 Chair Jeff West called the meeting to order at 2:30 PM and welcomed members and guests.

2. **Introduction of Members and Guests**

   The chair asked members and guests to introduce themselves. There were 15 members and 9 visitors in attendance.

   **Members in attendance:**

   Jacob Bice, Peter Bischoff, Dave Darwin, Robert Frosch, Will Hansen, Harvey Haynes, Paul Hedli, Mohammad Iqbal, Heather McLeod, Edward Nawy, Kamran Nemati, Randy Poston, Farshad Rajabipour, Ernie Rogalla, and Jeff West.

   **Visitors in attendance:**

   Hishem Belarbi, Neal Berke, Oan Chul Choi, Christopher Ferraro, Hilary Kuehn, Tony Kojundic, Khaled Nahlawi, Jan Olek, David Scott, Chungwook Sim, and Ron Vaughn.

   Regrets were received from:

   John Duntemann, Fouad Fouad, Ralf Leistikow, Ernie Schrader, and John Roberts

3. **Update on Membership Status**
Secretary Bice reported that Mohammad Iqbal was elevated from Associate Member to Voting Member. The committee membership now stands at 22 Voting Members, 3 Consulting Members, and 13 Associate Members.

4. **Approval of Meeting Minutes from San Antonio Convention**

Harvey Haynes motioned to approve the Fall 2010 minutes, seconded by Randy Poston. The meeting minutes were approved by a unanimous voice vote.

5. **Design Detailing to Mitigate Cracking (224.4)**

Chair West discussed the comments that were provided by TAC related to the draft of 224.4 wherein TAC stated that the document was “lacking in specific details” even after the most recent revisions. The chair stated that the matter was still unresolved and that he had met with the committee TAC contact Bondy. Bondy was positive about the document and recommended that the committee should submit the document should be submitted as a stand-alone document. The chair then opened the floor to discussion by the committee on this topic.

Poston agreed that the document should be submitted as a stand-alone document and the committee should only consider integrating the document as a chapter in the 224 main document if TAC rejects the submission.

Haynes asked whether or not the document should be resubmitted in its present form or if additional work needs to be done. The chair answered that TAC negative comments need to be addressed prior to resubmitting the document.

Poston questioned what TAC meant by asking for “more details” and how the committee could address that response. The chair stated that the committee would be enhancing the current details. Frosch added that particular details can be improved by referring to the applicable sections of 318 and that specific guidance needs to be given on how to design and develop the details.

Haynes noted that the intent of the document was to be conceptual in nature and Bice cautioned the committee against the document being too specific to avoid designers not performing the design but rather simply prescribing details shown in the document.

**Action Items:** The chair proposed the following action items to address TAC comments:
a. Chapter authors will address the negative TAC comments in their respective chapters. Chapter authors will also review their chapters to ensure that consistency with 318 is maintained. If the chapter deviates from 318 then explanation on why the document deviates from 318 needs to be added.
b. The chair will address the consistency of figures in the document.
c. The chair will revise the document scope to state that the document is not intended to be an exhaustive reference for designing details to control cracking.
d. TAC negatives will be addressed in web ballots to be issued over the summer.

6. **Revision of 224R-01 “Control of Cracking in Concrete Structures”**

Task Leader Frosch and Chapter authors provided an update on the remaining chapters under revision.

**Chp 1 Introduction – Frosch**
Frosch reported that the task group needed some assistance to finish the revision process.

**Chp 2 Crack Mechanisms – Darwin and Hansen**
Darwin reported that Committee 446 will assist with revising the fracture section of the document. The chair will contact the 446 chair to determine who is willing to assist in this effort. Darwin also noted that compression cracking is considered to be state-of-the-art and that references on this topic may be added.

**Chp 3 Control of Cracking Due to Drying Shrinkage - Haynes**
Haynes reported that Darwin plans to contribute new research for the chapter. Once the new information is added, the chapter will be re-balloted.

**Chp 4 Direct Tension – Scanlon and Bischoff**
Bischoff reported that the chapter has been balloted once. Comments on the chapter by Frosch are being incorporated and the chapter should be re-balloted ahead of the Fall conference.

**Chp 5 Control of Cracking in Flexural Members – Frosch**
Frosch reported that the chapter has been reorganized by structural element type. In addition, Nawy provided updates to the chapter based on provisions in the Eurocode and Ospina will contribute crack control by FRP paragraph for the
chapter. Poston recommended that crack control provisions for epoxy-coated steel also be provided in the chapter.

**Chp 6 Long term Effects on Cracking – Leistikow**

No information on the chapter was provided by Leistikow. The committee discussed balloting the document in its current state to get comments. Bischoff reported that recent publication revisions should be incorporated into the document. Ian Gilbert was mentioned as a possible reviewer of the chapter.

**Chp 7 Control of cracking in overlays – Hansen**

Hansen reported that the discussion on silica fume overlays will be removed from the document.

**Chp 8 Control of Cracking in Mass Concrete – Schokker and Ferraro**

Chair West requested that a representative of Committee 207 assist with the chapter revisions. Ferraro (member on 224 and 207) plans to take over as chapter author from Schokker and assist with these revisions. Chair will provide Ferraro with the previous documents and associated notes to Ferraro.

**Chp 9 Control of Cracking by Proper Construction Practices – Duntemann**

Revisions to the chapter are to be provided in the next 30 – 60 days. No specific changes have been made to the chapter at present. Darwin felt that the chapter needs to be rewritten because it would be easier to rewrite the chapter than try to edit it.

Task leader Frosch summarized by stating that several chapters will be coming up for ballot this summer in two rounds of balloting; Chapters 4, 5, 6, and possibly 2 would be balloted in the first round and Chapters 8 and 9 in the last round. The goal is to complete revisions by the end of this year.

### 7. Revision of 224.3R-95 “Joints in Concrete Construction”

Task leader Bice and chapter authors reported on the progress chapters under revision.

**Chp 2 Joint Sealants – Iqbal and Bice**
Iqbal and Bice have made initial revisions to the chapter. Bice is combining the respective revisions into a single document.

Chp 3 Buildings – Iqbal
Iqbal has made initial revisions to the chapter, to be finalized by mid-summer.

Chp 4 Bridges – Bice
No progress was reported on the chapter

Chp 5 Slabs-on-Ground – Haynes
Haynes stated that he was willing to assist with editing this chapter. Bice will forward chapter materials to Haynes.

Chp 6 Pavements – Hansen
Hansen reported that chapter in its present form is too general – he believes it is too brief and general with respect to commenting on the causes of cracks in pavements. Hansen recommended that the chapter needs to be updated and rewritten. Hansen suggested that Committee 325 be given a chance to review the chapter and comment on what needs to be done to update the chapter. Chair West will contact the chair of 325 and request a liaison from that committee to assist with the chapter.

Chp 7 Walls – Iqbal
Covarrubias had indicated an interest in assisting with revisions to this chapter at the previous meeting. However, as Covarrubias did not subsequently apply for committee membership and was not in attendance, task leader Bice requested assistance with editing this chapter. Iqbal indicated he would be willing to review the chapter. Bice will forward chapter materials to Iqbal.

Chp 8 Liquid Retaining Structures - Chair West to ask Hedli if he can contribute.

Chp 10 Mass Concrete – Ferraro (will apply for 224 membership)
Ferraro is in the process of revising the chapter.

App. A Temperatures – Rogalla
Rogalla reported that temperature data for Appendix A had been updated and was complete.
8. Technical Sessions

a. **Design to control cracking** (Schokker, Scanlon)
   This session has been put on hold until the Detailing Document goes through a second TAC review.

b. **Effect of micro and macro cracking on durability** (co-sponsored with 201)
   Chair West reported that 8 speakers have been scheduled for a session on Monday afternoon. The chair also indicated that Leistikow cannot be the lead moderator for the session and requested assistance from the committee in filling the role. Rajapour indicated he would assist Larry Valentine as co-moderator.

c. **Cracking and Corrosion** – (Bice, Schokker (130), Hansson (222))
   Bice reported that the call for papers still needs to be put out in Concrete International. Schokker noted that the new session format may require that this session needs two 2-hour sessions and questioned whether or not this session would warrant an SP. Schokker also pointed out that ACI has been videotaping presentations and developing on-line versions of the presentations for use outside of conferences. Schokker will contact EIC about the possibility of incorporating this into the session and noted that authors will have to give their permission to be included in this format. Bice indicated that this would be included in the call for papers.

9. New Business

Nawy discussed with the committee the possibility of adding a chapter on sustainability to 224R. Roberts has drafted a chapter and has forwarded the draft to Chair West and Frosch. Frosch plans to review the draft and determine where the best fit for the chapter is. Frosch stated that it is likely the draft would be added as its own section in 224R.

Adjourn

The meeting was adjourned at 3:45 PM.

Respectfully submitted,

Jacob Bice, 224 Secretary