



American Concrete Institute®
Advancing concrete knowledge

AGENDA

RESPONSIBILITY IN CONCRETE CONSTRUCTION COMMITTEE

**Park Room
Hyatt Regency Century Plaza
Los Angeles, CA
Sunday, March 30, 2008
2:00 p.m. – 4:45 p.m.**

MEMBERS

Jon Mullarky, Chair
Kenneth Bondy
Ronald Burg
Boyd Clark
Jeffrey Coleman
Peter Emmons
Geoffrey Hichborn, Sr
Brad Inman
Mohammad Iqbal

William M. Klorman
James E. Kretz
Colin Lobo
Thomas Malerk
Christopher Mosley
Ava Shypula
Eldon Tipping
Bert Weinberg

Michael L. Tholen, Staff Liaison

1.0 APPROVAL OF MINUTES AND AGENDA

1.1 Approval of Minutes of 2007 Fall Meeting—Fajardo, PR

The Responsibility in Concrete Construction Committee (RCCC) is asked to approve the minutes of the meeting in Fajardo, PR, held on October 14, 2007.

1.2 Approval of Agenda

RCCC is asked to approve the Los Angeles 2007 Agenda.

2.0 MEMBERSHIP

Chair Jon Mullarky will announce any changes to the RCC Committee and introduce any visitors at the meeting. Members are asked to ensure that the data on the roster (*Exhibit 2.0*) are correct.

3.0 ACTIVITIES OF THE COMMITTEE

3.1 Future Convention Session

In Charlotte, the Committee chose the topic “Use and Misuse of ACI Documents” for a future convention session. In Denver, the Committee decided to move the session from the Fall 2007 Convention in Puerto Rico to the Spring 2008 Convention in Los Angeles. Topics for speakers suggested during discussion of the session included: confusion between guidance and mandatory language documents; varying interpretations of documents; cases studies; and topics that will be covered in the new responsibility document. The Committee also felt that a panel discussion would be an interesting format to pursue if it would fit the topics submitted by the speakers. Jim Kretz volunteered to become the co-moderator and will help Boyd Clark obtain speakers and coordinate the session.

In Puerto Rico, Boyd Clark reported that he had only received two replies to the call for papers published in CI and had therefore not been able to submit the final approval information for the session to be held in Los Angeles. The Committee discussed the issue and decided that it would be better for the Committee members to solicit presentations from likely candidates because the types of presenters we are looking for are not the types that would consistently look in the CI Call for Papers section. After discussion of possible presenters, the following Committee members agreed to present at the session if needed: Eldon Tipping (ACI 117 and tolerances), Ken Bondy (ACI 318), and Jon Mullarky (testing). Committee Member Jeff Coleman was also one of the people that responded to the CI Call for Papers. In addition, the following Committee Members agreed to contact specific individuals to see if they would be interested in presenting at the session: Boyd Clark will contact Cas Bognacki (Freedom Tower project) and Pat Harrison (Slabs); Jon Mullarky will contact Ward Malisch (Contractor hotline); and Colin Lobo will contact Calvin McCall (ACI 301). The Committee also decided to move the convention session to the Fall 2008 Convention in St. Louis, MO.

Action: Boyd Clark and Jim Kretz will update the Committee on the status of the convention session.

3.2 New Responsibility Document

In Washington, DC, RCCC members decided to draft a new responsibility document, with task groups assigned to each of the different entities involved in a construction project: owner, design professional, general contractor, D-B contractor,

subcontractor, specialty subcontractor, material supplier, testing/inspection, and forensic consultants. Scott suggested “Guidelines for Forensic Engineering Practice,” published by ASCE, as a source of good information (*Exhibit 3.5* in the New York Agenda). It was noted that each task group may publish opinion papers as they deal with issues during document development. The following motion was unanimously approved: “RCCC develop a new document, ‘Responsibility in Concrete Design and Construction,’ and to do so, establish nine task groups. Each task group is associated with an entity involved in construction. Each task group will have a chair whose responsibility it will be to draft an outline of each group’s goals 30 days before the San Francisco convention, and to report on these findings at the convention.”

In Charlotte, the outlines for each section were discussed and expanded at the Committee meeting. The expanded outlines were posted to the forum on the Committee website. The Committee was requested to forward any updates to the document to Staff Liaison Tholen, who will update the document and post the new version to the forum.

In Atlanta, the task groups were reviewed to find replacements for outgoing committee members. The new task groups are as follows:

Owner

Jon Mullarky-Chair
Bert Weinberg
Tom Malerk

Design Professional

Jeff Coleman-Chair
Ken Bondy
Eldon Tipping
Chris Mosley

General Contractor

Bill Klorman-Chair
Jim Kretz
Brad Inman

D-B Contractor

Brad Inman-Chair
Bill Klorman
Jim Kretz

Subcontractor

Jim Kretz-Chair
Ken Bondy
Bill Klorman

Specialty Subcontractor

Ken Bondy-Chair
Bill Klorman
Chris Mosley

Material Supplier

Colin Lobo-Chair
Ken Bondy
Jon Mullarky
Geoff Hichborn

Testing/Inspection

Ava Shypula-Chair
Geoff Hichborn
Boyd Clark
Eldon Tipping

Forensic Consultants

Boyd Clark-Chair
Ken Bondy
Bill Klorman
Geoff Hichborn
Eldon Tipping

An expanded outline by Jeff Coleman was discussed at the meeting in Puerto Rico. In Section 1, the definition of standard of care regarding national firms working in several states was questioned. Coleman responded that the definition given in the

outline still applied, with the possible exception of Federal Government and Native American projects. In Section 2, Committee Members questioned the last sentence, noting that loads from wind tunnel testing were an example where the loads may be less than the minimum specified in the applicable building code. In Section 3, the Committee felt that approving and rejecting alternates should be added to the list of design professional responsibilities. In Section 6, clarification is needed regarding the types of materials that must be specified. In Section 8, distinction between inspection and site inspection is needed.

Action: The task groups are asked to update the Committee on the progress made on their sections.

3.3 Committee Assistance with TAC Review Process

In Puerto Rico, Dan Falconer, Managing Director of Engineering at ACI, suggested that TAC may be interested in having RCCC review more documents for responsibility concerns during the TAC review process instead of waiting for public discussion or until the document has been published. The Committee discussed the review process and suggested that it was not necessary for all Committee members to review each of the documents and that task groups could be formed to conduct the reviews. Chair Mullarky suggested that it would probably be best to start with reviewing mandatory language documents only.

Since the Puerto Rico convention, two documents were reviewed by RCCC. Jim Kretz reviewed ACI 117, "Specifications for Tolerances for Concrete Construction and Materials and Commentary," during a special TAC review cycle. Ken Bondy and Mo Iqbal reviewed ACI 313, "Code Requirements for Design and Construction of Concrete Silos and Staking Tubes for Storing Granular Materials," for the Spring TAC review cycle.

Action: Jim Kretz, Ken Bondy, and Mo Iqbal will update the Committee on any issues they found with the documents.

4.0 NEW BUSINESS

4.1 Performance Specifications and Responsibility

Ward Malisch and Bruce Suprenant have asked the Committee to consider new responsibility concerns that may arise with increased use of performance specifications. Their concerns are outlined in the letter in *Exhibit 4.1*.

Action: The Committee will discuss the concerns expressed in *Exhibit 4.1*.

5.0 NEXT MEETING

The RCCC meeting at the St. Louis convention will be held on Sunday, November 2, 2008, from 2:00 to 5:00 p.m.

6.0 ADJOURNMENT

Attachments:

- Exhibit 2.0: RCCC roster
- Exhibit 4.1: Letter from Ward Malisch and Bruce Suprenant

Exhibit 2.0 - 1

Membership Roster

RESPONSIBILITY IN CONCRETE CONSTRUCTION COMMITTEE

Kenneth B. Bondy,
Engineer, contractor
Consulting Structural Engineer
6520 Platt Avenue #651
West Hills, CA 91307-3218
Phone: (818) 883-7853
Fax: (818) 999-4262
Email: ken@kenbondy.com
Comm: RCC, 314, 318, 332, 423, TAC, BOD

Ronald G. Burg
CTLGroup
5420 Old Orchard Rd.
Skokie, IL 60077-1030
Phone: (847) 972-3052
Fax: (847) 965-6541
Email: rburg@ctlgroup.com
Comm: BOD, CPC, RCC, TAC, 209, 213, 216, 363

Boyd A. Clark
Technical Director
Construction Materials Services
RJ Lee Group Inc.
350 Hochberg Rd.
Monroeville, PA 15146
Phone: (412) 915-1840
Fax: (724) 733-1799
Email: bclark@rjlg.com
Comm: RCC

Jeffrey W. Coleman
Coleman Hull & Van Vliet
#2110
8500 Normandale Lake Blvd
Bloomington, MN 55437-3813
Phone: (952) 841-0200
Fax: (952) 841-0041
Email: jwcoleman@chvv.com
Comm: RCC, TAC specifications, 301, CLC

Peter H. Emmons
Structural Group Inc.
Ste T
7455 New Ridge Rd.
Hanover, MD 21076-3143
Phone: (410) 850-7000
Fax: (410) 850-4111
Email: pemmons@structural.net
Comm: RCC, TAC R&R, TAC TTC, 364, 546, 562, 563, E706, SDC

Geoffrey Hichborn, Sr., C.E.
Hichborn Consulting Group
1988 N. Tustin Ave.
Orange, CA 92865
Phone: (714) 637-7400
Fax: (714) 637-7488
Email: hichbornsr@hichborn.com
Comm: RCC, 201, 225, 552

Brad D. Inman,
contractor, engineer
P.O. Box 3458
Ashland, OR 97520-0316
Phone: (541) 482-8471
Email: BradDInman@aol.com
Comm: CCRC, CLC, E703, FAC, RCC,

Mohammad Iqbal
Walker Parking Consultants
505 Davis Rd.
Elgin, IL 60123
Phone: (847) 697-2640 x337
Fax: (847) 697-7439
Email: mo.iqbal@walkerparking.com
Comm: RCC, 362, 369, 374, 423

William M. Klorman
Design/Build contractor
W M Klorman Construction Corporation
23047 Ventura Blvd.
Woodland Hills, CA 91364-1133
Phone: (818) 591-5969
Fax: (818) 591-5926
Email: bklorman@klorman.com
Comm: RCC, 301

James E. Kretz
Walbridge Aldinger
613 Abbott
Detroit, MI 48226-2513
Phone: (313) 304-0373
Email: jkretz@walbridge.com
Comm: RCC

Colin L. Lobo
Vice President of Engineering
National Ready Mixed Concrete
Association
900 Spring Street
Silver Spring, MD 20910-4015
Phone: (240) 485-1160
Fax: (301) 585-4219
Email: clobo@nrmca.org
Comm: RCC, 211, 214, 301, 318

Thomas O. Malerk

FL DOT State Materials Office
5007 NE 39th Ave.
Gainesville, FL 32609-2604
Phone: (352) 955-6620
Fax: (352) 955-6623
Email: tom.malerk@dot.state.fl.us
Comm: CPC, EAC, RCC, 610C, 620C, 630C,
301A, EAC Board Task Group

Christopher P. Mosley

14726 Hidden Glen Woods
San Antonio, TX 78249-1466
Phone: (210) 637-0977
Fax: (210) 637-1172
Email: cmosley@cegtex.com
Comm: RCC

Jon I. Mullarky, Chairman

consult. matrl, pavement des.
609 Blenny Lane
Chester, MD 21619
Phone: (410) 604-3502
Email: betelgeux@friend.ly.net
Comm: BOD, CC, FAC, IC, RCC, 120, 211,
325, 330, E702

Ava Shypula

Matrls. consult., testing and inspection
Ava Shypula Consulting, Inc.
24 Commerce Street
Springfield, NJ 07081-3004
Phone: (973) 467-4645
Fax: (973) 467-3777
Email: ashypula@aol.com
Comm: MKT, RCC, 211, 232, 363, 533, 211-D

Eldon Tipping

Structural Services, Inc.
Ste 320
1300 E. Lookout Dr.
Richardson, TX 75082-4126
Phone: (214) 522-6438
Fax: (214) 522-6796
Email: etipping@ssiteam.com
Comm: BOD, CLC, TCC, 117, 302, 360, 544,
E601

Bertold E. Weinberg,

47 Dumbarton Drive
Delmar, NY 12054-3517
Phone: (518) 439-9469
Fax: (518) 439-9469
Comm: ConREF, RCC, 311, 620C, 630C

Exhibit 4.1 – 1

RCC Committee Members,

As performance specifications become more common, we believe that responsibility issues will become more complex. Although this letter discusses two specific examples, the point is that changing to performance specifications may make it necessary to view responsibility issues in a new light.

The P2P movement (Prescription to Performance specifications) will bring an even closer focus on responsibility in concrete construction. Concrete producers explain that they need to know what final criteria must be met so they can best meet those criteria using their expertise in choosing and using the component materials. To paraphrase Colin Lobo: “Don’t give us the cake recipe. Just tell us how what kind of cake you want.”

An analogous movement might even be forthcoming in the area of construction tolerances. Don’t tell the builders what tolerances we need for the different pieces. Just tell them how you want the pieces to function (no leakage at windows, for instance.) This also brings a closer focus on responsibility—in this case a responsibility not just for one player—the concrete producer—but shared by several members of the construction team.

Let us give you two examples of responsibility that we believe need to be better established. First let’s talk about performance concrete, specifically self-consolidating concrete. ACI 237R-07, “Self-Consolidating Concrete,” describes self-consolidating concrete as “highly flowable, nonsegregating concrete that can spread into place, fill the formwork, and encapsulate the reinforcement **without any mechanical consolidation [we added this emphasis.]**”

Let’s assume SCC is used for the walls in a water-retaining structure. No vibration is used by the contractor. And the results are as follows, in one lift only:



Who is responsible for the cost of repair or replacement? We can imagine this situation resulting in a finger-pointing exercise. The concrete producer may be accused of not supplying a sufficiently self-consolidating concrete. The concrete contractor may be accused of incorrectly installing the reinforcing steel, embeds, or both such that a congestion created dams through

which even self-consolidating concrete couldn't flow. The design professional may be accused of creating too many lap splices in one area, and thus being responsible for congestion and the dam. The testing laboratory may be accused of not running the required on-site tests to ensure that the SCC was capable of being placed without consolidation. How will these responsibility issues be sorted out?

Now let's talk about tolerances. Contractors are asked to place composite concrete floors on metal decking supported by a structural steel frame. This is usually unshored construction. ACI 302.1R-04 contains the following statements:

Section 3.3.2

The levelness of suspended slabs depends on the accuracy of formwork and strikeoff but is further influenced (especially in the case of slabs on metal decking) by the behavior of the structural frame during and after completion of construction. **Each type of structural frame behaves somewhat differently; it is important for the contractor to recognize these differences and plan accordingly [Bold emphasis added].**

The presence of camber in some floor members and the ACI 117 limitation on tolerances in slab thickness **dictate that concrete be placed at a uniform thickness over the supporting steel . When placing slabs on metal decking, the contractor is cautioned that deflections of the structural steel members can vary from those anticipated by the designer. [Bold emphasis added]**

Section 3.3.5.1

Unshored composite construction is the more common method used by designers because it is less expensive than shored construction. In unshored construction, the structural steel beams are sometimes cambered slightly during the fabrication process. This camber is intended to offset the anticipated deflection of that member under the weight of concrete. Ideally, after concrete has been placed and the system has deflected, the resulting floor surface will be level (Tipping 2002). [Bold emphasis added]

Levelness and elevation of the finished floor are affected both by formwork (contractor responsibility) and by dead-load deflection (design professional responsibility). But the statements in this document certainly seem to put most of the responsibility on the contractor to recognize differences in behavior of structural frames and to plan accordingly—even though thickness tolerances require an essentially uniform thickness. It is of little consolation that for cambered steel beams, “Ideally, after concrete has been placed and the system has deflected, the resulting floor surface will be level,” because the ideal is seldom if ever achieved. So who is responsible when the partitions don't fit?

The RCCC responsibility document is silent on these points. But we don't think it should be. And we realize that these are very sticky subjects.

Exhibit 4.1 – 3

Unfortunately, we will be unable to attend the RCC Committee meeting in Los Angeles, but we will plan on attending the meeting in St. Louis. It is our hope that a discussion can be started in Los Angeles regarding these important issues, and continued in St. Louis.

Sincerely,

Ward Malisch and Bruce Suprenant