

ACI COMMITTEE 355 - ANCHORAGE TO CONCRETE

HOUSTON, TEXAS 22 MARCH 1998

**MEETING MINUTES**

Chair Wollmershauser called the meeting to order at 9:30 A.M. Introduction of members and guests followed. A copy of the attendance roster is attached. Also attached is a copy of the meeting agenda. H. Wiewel was not able to attend and sent regrets. R. Eligehausen was unable to attend due to his research schedule. Werner Fuchs represented Rolf at this meeting.

The minutes of the Fall 1997 meeting in Atlanta were reviewed. It was moved by D. Meinheit and seconded by R. Cook to approve the minutes as submitted. Motion passed.

**Membership Changes:** New voting members are H. Graves and R. Ernst. R. Hays resigned. A copy of the committee roster was sent around for corrections. A new committee roster is attached. Please send any additional changes to the committee Chair or Secretary. There are 27 voting members according to committee records.

**Subcommittee Reports :**

**Bonded Anchors :** Ron Cook reported that 60 grouted anchors are being tested at the University of Florida. There are some 400 other anchor compounds available that can be tested. Manufacturers are contributing to the testing program. Those that contribute will have their anchors tested and receive test results. An approval standard for chemical anchors is being developed by R. Cook. A similar standard is being developed in Europe. A proposal for grouted anchor design procedures dated 27 February 1998 is attached. Ron has also done testing on channel anchors in shear and tension and grouted base plate testing. All tests were done in uncracked concrete.

**Seismic Provisions :** P. Carrato reported no additional information for this meeting. R. Wollmershauser reported that NEHRP is updating their seismic design provisions for publication in year 2000.

**Terminology & Definitions:** H. Wiewel was not present and no update was given.

**ACI 349, Sub. B. :** R. Orr reported that ACI-349 Chapter 23 was balloted. There were 30 negatives received. These will be resolved on 23 March 1998 and the revised chapter out for re-ballot as soon as possible.

**Fastening to Concrete Programs:** W. Fuchs represented R. Eligehausen who is in the middle of a research report. He is working on the anchor data base. The main

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effort at this time is on chemical anchor testing procedures. Werner showed transparencies on headed anchor testing. This involved various design rebar anchors with heads tested in shear in cracked and uncracked concrete. Werner also presented data on headed studs in tension as related to the CB-30 formula. Correlation was good. The shear limit  $L/d_o < 8$  in CB-30 was not used in the evaluation of these tests. Discussion followed. Copies of the test transparencies are attached.

Other test programs :

University of Texas : R. Klingner reported that the final document for USNRC tests is now being reviewed by that agency. It should be available in April/May, and includes all typed of anchors in cracked and uncracked concrete. Design recommendations for designing and evaluating concrete connections is being done now and will be given to USNRC in one month. It will be available after their release and will be presented at the Structural Engineers World Congress in San Francisco. Members of 355 are giving a session at that congress on Wednesday 25 July 1998. Bechtel Engineers gave a lot of information to R. Klingner in response to his request for material to be added to the 355 anchor data base. Any material on mechanical anchors should be sent to him.

H. Chambers : Nelson Stud has received ICBO Report ER-5217 on deformed bar anchors showing a lot of design data based on testing by H. Wiewel at Techmar in accordance with ASTM A-488.

Don Meinheit : Don reported that WJE is doing a testing-research report on headed studs for the Precast/Prestressed Concrete Institute. The studs will be tested in tension and shear as typically used in precast connections. Don is now in the literature research phase and currently investigating shear data. Send any information you may have to him. WJE also did a precast industry survey and that report is going to PCI at this time. The report as approved by PCI will be sent by Don to this committee for distribution. Discussion followed.

Other Discussion :

Design Guide : This document is needed quickly. The current draft by R. Klingner is to be revised to CEB format. An editorial committee is needed. Please submit your name to Chairman Wollmershauser if you can serve in this capacity. The time frame for the guide is to have the final draft balloted by mid 1999. It will contain all anchor types except grouted. The document will be sent to TAC by mid-summer 1999.

ACI-355 Provisional Standards : The Provisional Standards for the Performance of Post Installed Anchors in Uncracked and Cracked Concrete were discussed. This committee has 27 voting members. The December 1997 ballot had

11 members not responding to both standards. The January 1998 Work Session combined the documents into one standard: *Provisional Standard for the Performance of Mechanical Post Installed Anchors in Concrete*. There were not sufficient voting members present (17) to resolve or over ride negative ballots or substantive comments. Additional work sessions at this conference were scheduled for 23 March and 24 March to address the editorial comments and discuss the negative ballots with submitters that are present at this committee meeting. This document is critical to the 355/318 Chapter 23 work and the following timeline for resolution of both the provisional standard and 318's work on Chapter 23 is as follows:

<u>Committee</u>	<u>Document</u>	<u>Action Required</u>	<u>Action Date</u>
355	Provisional Std.	Resolve Negatives and Primary Comments	3/22/98
355	Re-ballot Provisional Std.	Committee Letter Ballot	5/18 - 7/1/98
355	Ballot Negatives	Committee Letter Ballot	8/1 - 9/15/98
318-B	CB-30	Resolve Negatives send to 318 Main	3/23, 3/24
318 Main	CB-30	Ballot on CB-30	4/8 - 5/8/98
318 Main	CB-30	Summer 1998 Meeting Resolve any remaining Negatives	6/6 - 6/7/98

Unfinished Business: None

New Business : A request for a Sunday meeting time at the 1998 meeting in Houston was discussed and approved informally by the majority of the committee members present. This request will be submitted by Chair Wollmershauser.

Provisional Standard : The committee reviewed and discussed all ballot comments and negatives and developed a concensus on each item submitted.

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Wollmershauser will re-write the provisional standard and re-ballot by letter ballot in May.

There being no further business, it was moved and approved to adjourn the meeting at 8:49 PM.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Harry A. Chambers".

Harry A. Chambers, Secretary 355

**ACI COMMITTEE 355 - ANCHORAGE TO CONCRETE**  
**1998 Spring Convention • Houston, TX**  
**Sunday, March 22, 1998 • 9:30 AM - 6:30 PM**  
**EHR7 Room • Hyatt Regency**

**Preliminary**  
**AGENDA**

1. Call to Order - Introduction of All Attendees
2. Approval of Fall 1997 Atlanta Meeting Minutes
3. Roster/Address Changes
4. Correspondence:
5. Subcommittee Reports:
  - a) Bonded Anchor Subcommittee Ron Cook  
Grouted Anchor Research Status
  - b) Seismic Provisions for Fastening to Concrete Pete Carrato
  - c) Terminology and Definitions Harry Wiewel
6. Report from ACI 349 Subcommittee 3 Richard Orr
7. Fastening Programs of Interest:
  - a) Univ. of Stuttgart Rolf Eligehausen/Werner Fuchs
  - b) Univ. of Texas Richard Klingner
  - c) U. of Florida Ron Cook
  - d) Others
8. Committee Discussion on Fastening to Concrete Documents Committee Discussion
  - a) Design Guide - Draft and Next Steps
  - b) ACI 355 Provisional Standard - Ballot Comments and Revisions
9. Unfinished Business:
10. New Business:
  - a) Fall 1998 Meeting Date - Los Angeles - Proposal of Sunday Oct. 25 or Monday morning Oct. 26, 1998
  - b) Other
11. Adjournment

**Committee Mission:** "Develop and report information, and develop and maintain standards for anchorage to concrete."

**Future ACI Conventions and Meetings of Note:**

	<u>DATES</u>	<u>LOCATION</u>	<u>THEME</u>
Summer '98	July 19-(20)-23, 1998	San Francisco, CA	SEWC - Anchorage Session
Fall '98	October 25-30, 1998	Los Angeles, Westin Century Plaza	Seismic Constructability
Spring '99	March 14-18, 1999	Chicago, Hyatt Regency	High Performance Concrete
Fall '99	Oct. 31-Nov. 5, 1999	Baltimore, Omni Inner Harbor/Radisson Plaza	



DATE: 22 March 1998

## VISITOR

✓ (Assoc.)

new mailing address: P.O. Box 770000 Mail Code N11D  
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## HOUSTON CONVENTION REGISTRATION FORM

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COMMITTEE: 355 Anchorage To Concrete DATE: 22 March 1998

## NAME AND ADDRESS:

- ★ MEMBERS - PLEASE GIVE ADDRESS AND PHONE NUMBER ONLY IF CHANGED  
★ VISITORS - PLEASE GIVE COMPLETE ADDRESS AND PHONE NUMBER

COMMITTEE  
MEMBER?VISITOR  
ARE YOU INTERESTED  
IN COMM. MEMBERSHIP?

H. Chambers Taw Nelson Stvd

✓

R. WALTERSHAUSER

✓

FOW COOK UNIV OF FLORIDA

✓

RICHARD ORR WESTINGHOUSE

✓

Don Meinheit Miss Jannay Ekstner

✓

Robert McGlohn Raytheon Engineers &amp; Const

✓

BRUCE IRELAND HARPEN Anchorage Systems

✓

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20-Apr-98

Committee: 0000355-00 Anchorage

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