



**international**  
**american concrete institute**

September 8, 1999

From: R. Wollmershauser, Chairman

To: ACI 355 Members

Subject: ACI 355 Committee Business

**Next Committee Meeting:** The next ACI 355 Committee meeting is scheduled to be held on Tuesday November 2, 1999 from 8:30 AM until 1:00 PM at the Fall Convention in the Baltimore Hilton. This is the day the majority of the members requested. I hope to see all of you there. If you are unable to attend please let me know. A preliminary agenda is enclosed.

**Status of ACI 355.2 Provisional Standard:** We are currently preparing draft 9 for ballot by mid-September. It will include, for the first time, a commentary. The attached memorandum for broader distribution gave my latest proposed balloting and processing schedule. I have missed the proposed end of August date for the ballot on Draft 9. If you have any questions or concerns, let me know.

**Technical Session at Spring ACI Convention:** Don Meinheit is currently putting together a proposed technical session on performance of anchors in cracked and uncracked concrete which will be submitted for TAC review. We as a committee will have a chance to review it at the November 2 meeting before TAC review and approval.

*Dick*

Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 5  
FOIA- 2003-329

ACI 355 committee correspondence

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## ACI COMMITTEE 355 - ANCHORAGE TO CONCRETE

1999 Fall Convention • Baltimore, MD

Tuesday, November 2, 1999 • 8:30 AM - 1:00 PM

International Room • Baltimore Hilton and Towers

### AGENDA

- |  |                  |         |
|--|------------------|---------|
| 1. Call to Order - Introduction of All Attendees   |                  | 8:30 AM |
| 2. Approval of Spring 1999 Meeting Minutes   |                  | 8:35 AM |
| 3. Roster/Address Changes  |                  | 8:40 AM |
| 4. Correspondence:   |                  | 8:45 AM |
| 5. Subcommittee Reports:   |                  |         |
| a) Bonded Anchor Subcommittee  | Ron Cook         | 8:50 AM |
| Grouted Anchor Research Status   |                  |         |
| b) Seismic Provisions for Fastening to Concrete  | Pete Carrato     | 9:00 AM |
| c) Terminology and Definitions   | Harry Wiewel     | 9:10 AM |
| 6. Report from ACI 349 Subcommittee 3  | Richard Orr      | 9:15 AM |
| 7. Fastening Programs of Interest:   |                  |         |
| a) PCI Headed Stud Research Project  | Don Meinheit     | 9:25 AM |
| b) Univ. of Stuttgart  | Rolf Eligehausen |         |
| c) Univ. of Texas  | Richard Klingner |         |
| d) U. of Florida   | Ron Cook         |         |
| e) Others  |                  |         |
| 8. Status of ACI 318 Appendix D - IBC2000 Section 1913   |                  |         |
| 9. ACI 355.2 Provisional Test Method - Latest Ballot Comments                                  |                  |         |
| 10. Committee Discussion on Design Guide - Draft and Next Steps                                |                  |         |
| 11. Unfinished Business:   |                  |         |
| a) Spring 2000 technical session on "Performance of Anchors in Cracked and Uncracked Concrete" |                  |         |
| 12. New Business:  |                  |         |
| a) fib TG on Anchorage - Meeting in San Diego March 30/31, 2000                                |                  |         |
| b) Spring 2000 Meeting Date - San Diego - (Proposal of Tuesday March 28, 8:30 AM - 1:00 PM)    |                  |         |
| c) Other   |                  |         |
| 13. Adjournment  |                  |         |

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

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#### Future ACI Conventions:

	<u>Dates</u>	<u>Location</u>
Spring 2000	March 26-31	San Diego, Sheraton Harbor
Fall 2000	October 15-20	Toronto, Westin Harbor Castle
Spring 2001	March 25-30	Philadelphia Marriott
Fall 2001	October 26-Nov. 2	Dallas Wyndham Anatole
2002		Boston Sheraton - Phoenix Pointe Hilton
2003		Vancouver - Albuquerque
2004		Washington, D.C. - San Francisco



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August 18, 1999

**To:** ACI Committee 355 Anchorage to Concrete  
James R. Cagley Chairman ACI 318  
Terence C. Holland Chairman TAC  
Daniel W. Falconer Secretary TAC  
Richard E. Klingner TAC Contact  
David Gustafson Chair ACI 318-B  
John E. Breen University of Texas – CB30

**From :** Richard E. Wollmershauser Chairman ACI 355  
5400 S. 122<sup>nd</sup> E. Avenue  
Tulsa OK 74146  
Email: wollric@us.hilti.com

**Subject:** Status of ACI 355.2 Document – Provisional Standard for  
Prequalification of Post-Installed Fasteners

After the February 20 1999 ballot on the ACI 355.2 Provisional Standard, Committee 355 recommended that a Commentary be added to explain the specific requirements and tests with more clarity. A Technical/Editorial Task Group was established and met in Chicago on April 27, 1999. The task Group proposed several changes and improvements to the standard, as well as areas that needed clarification based on the ballot results. Many of these improvements were to be drafted into a Commentary.

A Commentary Task Group subsequently met in Stuttgart on May 10 and 11, 1999. The proposed changes and needed clarifications were discussed and either drafted or assignments given to draft portions of the Commentary as well as sections of the 355.2 document. Much of that drafting has taken place, and the standard is in the final stages of completion for the next ballot.

Based on the fact that there is insufficient time to ballot and resolve negatives and submit to TAC for their fall meeting, as well as the perceived need to have possibly a second ballot, especially on a new Commentary, I propose the following schedule.

Ballot Draft 9: End of August to end of September  
Ballot Draft 10: If needed, mid-October to Mid November  
Ballot Negatives: Late November to Late December  
Submit to TAC: Late December for March 2000 review  
March 2000: Discuss TAC comments at the Spring 2000 ACI 355  
Committee Meeting  
Ballot Resolution Early April to Early May 2000  
of TAC Comments:

Final version of ACI 355.2 ready to publish June 2000

I would propose that upon completion of ACI 355.2 in mid-2000, both ACI 355.2 and ACI 318 Appendix D be published as ACI Provision Standards to effect as wide a distribution as possible of these new documents.

ACI 355 committee correspondence



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September 28, 1999

To: ACI Committee 355 Members

From: R. Wollmershauser

Subject: ACI 355.2 Letter Ballot

Enclosed is a letter ballot for and copies of draft 9 of ACI 355.2 *Provisional Test Method for Evaluating the Performance of Post-Installed Mechanical Fasteners in Concrete* and draft 1 of a new commentary. Please have your ballots returned to me no later than October 28, 1999 so that I can assemble them in time for discussion at the ACI 355 meeting in Baltimore on November 2, 1999.

A Technical/Editorial Committee met in late April and, after reviewing the ballot results from the February 10, 1999 ballot made several technical change recommendations. A Commentary Committee met in Mid-May to discuss unresolved technical issues from the Technical/Editorial Committee as well as begin preparing a new commentary.

One of the significant changes is in the handling of the variation in the load-displacement curves. Early drafts of the standard proposed curve shifting of the displacements, which was almost impossible to perform. In the last draft a  $\beta$  factor was proposed which calculated the stiffness between the 10 % and 30 % load levels. This also presented serious difficulties. This draft proposes calculating the stiffness,  $\beta$  factor, but only reporting it for use by designers. Draft 9 returns to using limits on the coefficients of variation as a means to determine consistent load-displacement characteristics. This draft proposes 15 % limits on the reference and tests and 20 % on the reliability tests and seismic tests. The reasoning for this is as follows.

Probabilistic studies leading to  $\phi$  factors in ACI 318 are based on 15 %. Scatter in a test series of load-displacement curves of well performing fasteners is usually not large. 15 % is used for the reference tests. 20 % is used in some tests because we have unusual conditions in those tests and a reduced probability of occurrence. With the approval tests, if the coefficients of variation are less than the 15 % and 20 % requirements, then the load-displacement curves requirements are acceptable and no stiffness limitation on the load-displacement curves is needed. Based on experience, this takes into account lower load and higher coefficients of variation, which give about the same probability of failures. It is known that some fasteners have a higher coefficient of variation in reliability and service condition tests. Therefore we need a limit on the scatter of the load-displacement behavior to avoid negative influences on groups of fasteners.

If the coefficients of variation are greater than 20 %, the scatter of the load-displacement curves affects the stiffness of fasteners and groups of fasteners, and thus the  $\phi$  factors. An additional  $\phi$  factor should be required in ACI 318 to account for this reduction. No such  $\phi$  factor, method of analysis, or reduction is available to use in ACI 355.2. Therefore limits of 15 and 20 % are proposed.

Please note that figures 8 and 9 show cast-in-place fasteners. This will be changed.

ACI 355 committee correspondence

Mailed: September 28, 1999

PLEASE RETURN BY October 28, 1999

### ACI Committee 355 Letter Ballot

- Two Items Balloted:
1. *Provisional Test Method for Evaluating the Performance of Post-Installed Mechanical Fasteners In Concrete (ACI 355.2-XX)- Draft 9*
  2. *Commentary for Provisional Test Method for Evaluating the Performance of Post-Installed Mechanical Fasteners In Concrete - Draft 1*

This ballot covers Draft 9 of the test method in its entirety and Draft 1 of the Commentary including all figures.

	Test Method Draft 9	Commentary Draft 1
I approve the above document		
I approve, with editorial comment, the document *		
I do not approve the above document **		
Abstaining		

#### COMMENTS:

Please return the ballots so that I receive them by the due date. Faxed copies are acceptable. If you have more than a few editorials and/or negatives, please e-mail them to me at [wollric@us.hilti.com](mailto:wollric@us.hilti.com). ✓

When voting with editorials, or comments to support your negative vote, please reference the page number and line number of Draft 9 and Draft 1 separately, such as:

Test Method

page 12 line 12 E replace "e.g." with "for example"

and please use the following:

E for editorial comment

N for negative comment

Notes: \* This approval should not be contingent upon committee adoption of the editorial comments.

\*\* Negative votes must be accompanied by a statement of reason and should also have suggested changes which, if adopted, would satisfy the objection.

#### RETURN TO:

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Signature

\_\_\_\_\_  
Name (typed or printed)

\_\_\_\_\_  
Date