

**ACI COMMITTEE 437  
STRENGTH EVALUATION OF EXISTING CONCRETE STRUCTURES**

**Main Committee Meeting  
2012 ACI Fall Convention – Toronto, ON, Canada  
22 October 2012, 10:30 am - 12:30 pm  
Sheraton Centre Toronto – Dufferin**

**MEETING MINUTES**

**1. Call to Order**

Chair Larosche called the meeting to order at 10:40 am.

**2. Attendees Introduction**

The following members and visitors were in attendance. We received regrets from members Nestore Galati, Thomas Nehil, Ernest Rogalla, and Nam Shiu.

Voting Members

Carl J. Larosche (Chair)  
J. Gustavo Tumialan (Secretary)  
Joseph A. Amon  
Nicholas J. Carino  
Dirk Heidbrink

Danielle D. Kleinhans (\*)  
Daniel McCarthy  
Antonio Nanni  
Jeffrey S. West  
Paul Ziehl

Associate Members

Robert Jenkins

Ernest Rogalla (\*)

Visitors

Peter Kokkoros  
Kenneth Meyn  
Mateo DiBenedetti  
Giovanni Loreto  
Aaron Larosche

Mark Lukkarila  
Stephen Foster  
Keith Kesner  
Allyn Luke  
Sean McHugh

(\*) Joined last part of the meeting

**3. Approval of Agenda**

Larosche asked to correct item 7 of the Agenda (Old business-Ballot response to Public Comment). I should be "Comments" instead of "Comment". Amon moved to approve the agenda with the noted modification. Carino seconded the motion. The agenda was approved unanimously by voice vote.

#### 4. Approval of the Dallas Meeting Minutes

Carino asked to make the following correction to the meeting minutes from the 2012 Spring Convention:

- Item 8.1: Correct name of Committee ACI 444. It is “Structural Health and Monitoring”

Nanni moved to approve the meeting minutes with the correction. Heidbrink seconded the motion. The motion passed to approve the corrected minutes.

#### 5. Announcements

There were no announcements from the floor.

#### 6. Chairman’s Report

##### 6.1 Membership

Javeed Munshi asked to change his membership from Voting Member to Consulting Member. ACI has not changed his member category yet.

The following associate members were removed for the committee roster due to lack of ACI membership:

1. Azer Kehnemui
2. Cheng-Ming Lin
3. Matthew A. Mettemeyer
4. Suresh G. Pinjarkar

The membership stands at 21 Voting Members, 3 Consulting Members, and 27 Associate Members.

#### 7. Old Business

##### 7.1 **Task Group: Code Requirements and Commentary for Load Testing of Existing Concrete Structures**

Larosche said that during this meeting the committee will resolve the public comments. He said that the authors of each chapter will present the critical comments, followed by a discussion of all, and finally vote the entire chapter.

Below is a summary of the discussions and resolution of the public comments.

##### **Chapters 1 to 3 – Leader: West**

Larosche asked West to focus on the most critical comments. West focused on the following comments:

|   |
|---|
| <b>Comment No. 2</b>  |
| Author: Richard Reed<br>Page 0, Line 0<br>Mr. Reed is concerned about the emphasis on the two load test procedures in the |

document. It seems to him if we simply want to know the structural capacity of the member being tested, as is often the case, the monotonic loading protocol is adequate and much simpler. It seems to him that the cyclic loading protocol is only necessary if for some reason a more in-depth understanding of the structural behavior is determined to be useful. In his opinion, the results of the cyclic loading protocol are of academic interest only in many instances. He would suggest that the emphasis be reversed so that the monotonic loading protocol is the base procedure and the cyclic loading procedure be available if more detailed information is desired.

Discussion:

West: The Task Group proposes to make the following modifications to address Mr. Reed's comment:

1. Invert the current order in what the loading protocols are presented in the document. We will present the Monotonic Loading Protocol first and then the Cyclic Loading Protocol.
2. Eliminate Cycle G (monotonic loading portion) of the Cyclic Loading Protocol.

Carino: This is a substantial change to the document.

Nanni: Recent load tests performed by the University of Miami using the Cyclic Loading Protocol currently included in our document shows that the Cycle G is not required. No additional worthy information is obtained about the structural performance during the additional 24 hours of testing. This comment offers a good opportunity to modify our document.

Larosche: Agreed with Nanni's comment. It makes sense to modify the document.

**Comment No. 3**

Author: Anthony E. Fiorato

Page 0, Line 0

This comment is not intended to address specific provisions of the proposed ACI 437 Code. Rather it is to point out that Chapter 20 of ACI 318-11 already contains provisions for load testing of existing structures. Mr Fiorato said that perhaps he has missed something here, but it seems to him there can be serious unintended consequences if ACI were to standardize and issue two Codes that have requirements for load tests. And a cursory comparison of the two documents indicates there may be conflicts between ACI 347 and ACI 318 provisions. Any conflicting requirements could place the licensed design professional in a difficult position, and potentially cause unnecessary disputes on projects.

Mr. Fiorato has no preconceived objection to a separate ACI code on load testing of existing structures. However, provisions for such a document should be coordinated with the ACI 318 Code. Presumably, if the Institute were to choose to have a separate code for load testing, it could be normatively referenced in ACI 318 to avoid potential conflicting requirements.

Mr. Fiorato suggests that the leadership of ACI 347, 318, and TAC review this situation and determine if two different codes addressing load testing of existing structures will in fact serve the best interests of public safety, owners, the concrete industry, the design profession, and ACI.

Discussion:

Nanni: There were conversations with Mr. Poston, Chairman of ACI 318, about this

issue. Basically it was proposed the following:

Load testing provisions of ACI 318 (Chapter 20) will be used when the governing building code refers to ACI 318.

Load testing provisions of ACI 437 will be used when the governing building code refers to ACI 562.

**Change code references in the document to Existing Code or ACI 562.  
Seek input of ACI.**

#### **Comment No. 40**

Author: Mohamed Nasser Darwish

Page 7, Line 6-8

$l_t$  is defined for the **cantilever** as "**twice**" the distance from the face of the support to the cantilever end, and is used in equation 6.3.4.2 for the maximum deflection limit. The last equation is the same as that of ACI 318-08 Table 9.5.b, (as also stated in the document, page 31 line 1/2). However,  $l$  in ACI 318-08 is defined for the *cantilever* as "clear projection of the cantilever" ACI318-08 Ch 2.1 code notation, (i.e. not twice)

Hence the term "**twice**" for the cantilever should be omitted since the document uses the same equation of ACI 318-08. Besides, the absolute deflection limit seem to be regardless of the member supports, spans and loading type.

Suggest: omit "**twice**" for the cantilever

#### Discussion:

West: The Task Group finds this comment non-persuasive.

The definition of  $l_t$  in this document is correct for its intended use as a deflection acceptance criterion as part of a load test. It is not the same definition or use as the requirements in Table 9.5.b of ACI 318.

No change made.

#### Action:

Motion by Nanni: Vote Chapters 1 to 3 considering the modifications proposed by West (Comment No. 2), and Nanni (Comment No. 3).

Motion seconded by Carino

Vote Count: Affirmative:9 Negative:0 Abstain:0 Passes 40% and 2/3 Rules

**Approve modifications to Chapters 1 to 3.**

#### **Chapter 4 – Leader: Nehil**

Nehil was not present. Larosche addressed the following critical comments.

#### **Comment No. 47**

Author: Jared E. Brewe

Page 12, Line 13

It is unclear why the self-weight dead load is included in the calculation of the TLM. For a load test, the self-weight is already there and should not need to be calculated and included

in the TLM. Section 5.3.1 (Cycles E and F) requires a test load magnitude of “100 percent of TLM”. Clarification should either be provided that this is not in addition to existing dead load or the Dw removed from the TLM.

Discussion:

Larosche: The Task Group finds this comment persuasive. To clarify this issue we will add a definition for applied test load (ATL), and change TLM changed to total test load.

**Comment No. 52**

Author: Jared E. Brewe

Page 14, Line 14-17

As this could be a critical aspect of a load test, this commentary on members without minimum shear reinforcement should be moved to code (likely within 4.1).

Discussion:

Larosche: The Task Group finds this comment non-persuasive. The Licensed Design Professional (LDP) should be able to exercise judgment when evaluating this condition. For New Business consider a more suitable location to the commentary in question.

Action:

Motion by Nanni: Vote Chapter 4 considering the modifications proposed by Larosche (Comment No. 47).

Motion seconded by Amon

Vote Count: Affirmative:10 Negative:0 Abstain:0 Passes 40% and 2/3 Rules

**Approve modifications to Chapter 4**

**Chapter 5 – Leader: Ziehl**

Ziehl said that the majority of the public comments are editorial. Ziehl addressed the following critical comments.

**Comment No. 65**

Author: W. L. Gamble

Page 18, Section 5.5.1

What is the intent of this section? Perhaps it should say that the licensed design professional should decide which loading protocol to follow.

Discussion:

Ziehl: The Task Group finds this comment non-persuasive. The intent is not for the LDP to determine the load test, rather to assess the practicability of the cycling method.

**Comment No. 70**

Author: W. L. Gamble

Page 20, Lines 19-20

If the load is applied by hydraulic jacks and low-capacity pumps, a failure releases nearly all of the load, the remaining load is the structure plus the loading equipment. This requirement (recommendation?) seems over-kill.

Discussion:

Ziehl: The Task Group finds this comment non-persuasive. We feel that this requirement is needed for safety.

Action:

Motion by Nanni: Vote Chapter 5 considering the modifications presented by Ziehl  
Motion seconded by Carino

Vote Count: Affirmative:9 Negative:0 Abstain:0 Passes 40% and 2/3 Rules

**Approve modifications to Chapter 5.**

**Chapter 6 – Leader: Galati**

There was no time to discuss the public comments on Chapter 6. A web meeting will be scheduled to discuss these comments.

**8. Liaison Member’s Reports**

**8.1 ACI Committees**

- ACI 228 – No report
- ACI 364 – No report
- ACI 369 – No report
- ACI 423 – No report
- ACI 444 – No report

**9. New Business**

None

**10. Open Discussion**

None

**11. Adjourn**

Chair Larosche adjourned the meeting at 12:30 pm.

Respectfully submitted,

Gustavo Tumialan

Secretary, ACI Committee 437  
/attachments