

**ACI 318 Sub A – General Concrete and Construction**  
[ACI 318 Chapters 1, 2, 3 (excluding 3.5), 4, 5, 6, and 22  
Reorganized Chapters 5, 22, and 23]

Minneapolis Meeting  
Tuesday, 16 April 2013, 1:30 PM to 6:00 PM, Meeting Room C-M100C

**DRAFT AGENDA**

1. Call to order at 1:30 pm.
2. Introductions. Note that Bruce Suprenant has joined as a member of Sub A.
3. Approval of Agenda.
4. Approval of Minutes. Toronto meeting, 22 October 2012.
5. Old Business:
  - 5.1 Ballot A10-2012. This ballot was for Sub A only members. It covered CA 120, which proposed deletion of wording in 318 regarding calculating lambda. Results for this ballot are **attached**. There were no comments on the Sub A ballot. This ballot was simultaneous with 318 LB 12-10. Results of LB12-10 are discussed below. **No further action required.**
  - 5.2. Ballot A11-2012. This ballot was for all Sub A members. It covered CA 104, which makes changes to exposure class definitions. Results for this ballot are **attached**. There were 54 comments received on this ballot. Comments were resolved and a copy of the final comment responses is **attached**. CA 104 was updated and forwarded to 318 for LB 13-1. Results of LB 13-1 are discussed below. **No further action required.**
  - 5.3. Ballot A12-2102. This ballot was for all Sub A members. It covered Chapter 23 (without inspection) and CA 121, which provided a response to PCA updating referenced standards. Results for this ballot are **attached**. There were 132 comments received regarding Chapter 23. Comments on Chapter 23 were addressed and this chapter was updated and forwarded to 318 for LB 13-2. Results of LB 13-2 are discussed below. There were 12 comments received regarding CA 121. Comments on CA 121 have not been addressed, and this item was put on hold pending further discussion. A copy of the comments for both items, with the responses for items pertaining to Chapter 23, is **attached**. **Future actions regarding CA 121 need to be discussed in Minneapolis.**
  - 5.4. Ballot A01-2013. This ballot was for Sub A only members. It covered CA 065, which deals with reinforcement spacing for aggregate, and CA 104, which makes changes to exposure class definitions. Results for this ballot are **attached**. There were 2 comments on CA 065 and 19 comments on CA 104. This ballot was simultaneous with 318 LB 13-1. Comments from this ballot have been combined with those of LB 13-1 for resolution. Results of LB 13-1 are discussed below. **No further action required.**
  - 5.5. Ballot A02-2013. This ballot was for all Sub A members. It covered five CA proposals as shown below:
    - CA 069, certified technicians. 4 comments received.
    - CA 092, definition of strength test. 8 comments received.
    - CA 118, revisions to ASTM C595. 9 comments received.
    - CA 122, update admixture types. 6 comments received.
    - CA 123, remove term “class of concrete.” 3 comments received.

CA 124, add several definitions. 5 comments received.

The results of this ballot are **attached**. All comments were addressed and the responses were made available to Sub A for comment. Several responses were received and incorporated into the overall list of responses. A copy of the final responses is **attached**. All of the CA proposals were updated to "Approved by Sub A." **Discuss in Minneapolis to determine which of these items should go to 318 and whether definitions that are in the ACI CT need to be repeated in 318.**

5.6. Ballot A03-2013. This ballot was for Sub A only members. It covered the Chapter 23 Code. Results for this ballot are **attached**. There were 85 comments. This ballot was simultaneous with 318 LB 13-2. Comments from this ballot have been combined with those of LB 13-2 for resolution. Results of LB 13-2 are discussed below. **No further action required.**

5.7. Ballot A04-2013. This ballot was for all Sub A members. It covered the items shown below:

Chapter 23, section on inspection. 44 comments.  
CA 104, proposed responses to 318 LB 13-1. 5 comments.  
CA 101, issues related to measuring air. 8 comments.

The results of this ballot are **attached**. The comments received have been distributed and will be addressed in Minneapolis. **Work to resolve comments.**

5.8. 318 LB 12-10. This ballot included CA 120, which removes wording regarding calculating lambda from the Code. One negative was received. This negative was withdrawn during the San Antonio meeting. CA 120 has been adopted. **No further action required.**

5.9. 318 LB 13-1. This ballot included CA 065, which deals with reinforcement spacing for aggregate, and CA 104, which makes changes to exposure class definitions. CA 065 received 14 comments. Sub A decided to put CA 065 on the shelf for the remainder of this code cycle. A task group lead by Ken Bondy and including Bruce Suprenant and Fred Meyer will look at all of the comments and prepare a revised version of this proposal.

CA 104 received 94 comments on this ballot. All negatives except two on this ballot have been withdrawn. All comments have been resolved and the proposed responses were balloted on Sub A04-2013. Once the remaining Sub A comments are resolved, this item will be presented for resolution during the Minneapolis 318 meeting. **Address at 318 meeting.**

5.10. 318 LB 13-2. This ballot included CA 119, which deals with updates to ASTM standards, and Chapter 23. CA 119 received 3 comments. Chapter 23 received 663 comments on this ballot in addition to the 85 comments received on Ballot A03-2013. The results of this ballot are **attached**. The comments for CA 119 do not need to be addressed. The combined comments for Chapter 23 have been sent to Sub A, Sub B (Cathy) and Sub G (Steve). There are several global questions raised in the comments that need to be resolved in the 318 meeting. **Results of this ballot will be discussed in Minneapolis.**

5.10.1. Chapter 23, global issues.

1. Ensuring that everyone approached the various embedded changes in the same way -- no vote indicated approval of what was presented.
2. Who to include in the list of users for the information. We have recommendations for adding everyone who might see the construction documents to deleting all users. I agree that we do not need to name any users. **Need Sub A recommendation.**
3. Cleaning up the definitions of design information and compliance requirements. After all of our efforts, the wording can still be improved. **Need Sub A recommendation. Ken Bondy.**
4. How many times to repeat the instructions to the LDP. At Toronto, 318 wanted the instructions repeated throughout the chapter. Now that they have seen the chapter, the necessity of so many repetitions has been questioned. **Need Sub A recommendation.**

5.10.2. Chapter 23, specific issues. Questions to be resolved by Sub A or by 318 will be discussed as necessary. **Tasks groups for specific comments to lead the discussion.**

5.11. Summary of all CA items. An updated list of all CA items is **attached**. This list currently shows 21 active items. Many of these active items have been referred to the Chapter 5 and Chapter 22 Task Groups to be included in the list of potential new business. Following are changes since the Toronto meeting:

CA 002 – Various issues regarding field cured cylinders. Withdrawn because issues have been addressed in the reorganization.

CA 088 – Comments regarding epoxy bar in R4.3 (318-11.) Withdrawn because issue has been addressed in the reorganization.

CA 120 – Delete sections related to calculating lambda. Passed at the San Antonio meeting and incorporated in the reorganized Code.

CA 121 – Address updating of references in general building code. Added before Toronto.

CA 122 – Add new admixture types. Added Toronto.

CA 123 – Remove term “class of concrete.” Added Toronto.

CA 124 – Revise several definitions. Added Toronto.

5.12. Code reorganization.

5.12.1 Task Groups for Code Reorganization. Following are the current Task Groups.

Chapter 5, Material Properties and Durability. **Tony, CH**, Fred, Doug, Jason

Chapter 22, Concrete Materials and Quality Assurance, **Nick, CH**, Ken B., **Brian**

Chapter 23, Construction Documents. **Colin, CH**, Steve, Ken H., Harry, Florian, Dean

**It seems appropriate to reorganize our task groups to concentrate on the completion of Chapter 23.**

5.12.2 Current Status:

Chapter 5 – Code and Commentary are locked down.

Chapter 22 – Code and Commentary are locked down.

Chapter 23 – As discussed above. We need to complete proposed responses to comments, conduct a Sub A ballot, and submit Chapter 23 for a 318 ballot. The last 318 ballot before the summer meeting opens on 31 May. **Action: develop time line.**

5.12.3 New business for adopted chapters:

Chapter 5 – Tony to report.

Chapter 22 – Nick to report. Nick has prepared recommendations for provisions to be transferred from Chapter 22 to Chapter 23. **Discuss if possible to make changes this code cycle.**

**The following items have been carried over for several meetings and will be discussed as time permits.**

5.13. Use of 4 x 8 inch cylinders. Rachel Detwiler sent Sub A a copy of a paper that she has prepared. Mike Bartlett has also provided comments on this paper. Colin Lobo also provided additional information on this topic. The committee agreed that we would like to see data from additional labs before making any

changes to the requirement for testing three 4 x 8 in. cylinders. Harry Gleich reported that the precast industry has converted to testing only two cylinders. Colin Lobo will forward additional test data. The committee agreed to reopen this item. Steve Kosmatka and Colin Lobo were appointed to summarize current data and to prepare a new ballot item for consideration. This item is assigned CA 105. **Steve and Colin will update references in CA 105 and send for a Sub A ballot. Status?**

5.14. Performance specifications and implications for 318. Topic remains open for possible action during this code cycle.

5.15. Adding alkali-silica reactivity (ASR) to the Code. Of all of the major durability issues with concrete, only ASR is not addressed in the Code. After discussion, a Task Group of Folliard, Hooton, and Fiorato was formed to review this issue and make a recommendation to the committee during the meeting in New Orleans. In Chicago, Tony reported that ASTM C09 is preparing a specification for dealing with ASR. Sub A agreed to put any action on hold until that document is completed. **It was agreed that it is still premature for Sub A to take any action here. This item will remain on the agenda until action is taken.**

5.16. Sulfate resistance: The following email was sent to Cathy French. Colin Lobo responded as shown.

I hope your sabbatical is going well. I had a question for you when  
> you have a minute. On our wind farm projects in some parts of the  
> country we are running into situations where we have severe sulfate  
> exposures and it seems that I am continually at odds with local  
> concrete suppliers over the interpretation of the sulfate resistance  
> portions of chapter 4 of ACI 318. Is this one of your fields of  
> expertise or can you recommend someone I could talk to so I can make  
> sure I am doing the right thing?

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> The issue that I keep running into is that, the way I read section  
> 4.3, for severe sulfate exposures, type V cement is required. Type I  
> or II cement with the addition of class F fly ash can be used if the  
> mixture meets the requirements of section 4.5 when tested according to

> ASTM C1012. The problem is that the test takes 6 months or a year to  
> run and I have yet to run into a concrete supplier who has run it on  
> any of their mixes. The suppliers that I talk to want to offer me a  
> test result from ASTM C452 but I have found multiple references in the

> literature to the fact that this test is not accurate for mixes  
> containing cement blended with pozzolans. I have continued to insist  
> that the C1012 test be run if anything is to be substituted for the  
> type V cement but I seem to be the only engineer that these suppliers  
> are running into that is requiring them to do this.

Colin Lobo:

I will attempt a response. The sulfate provisions in the code are not ideal for compliance in practice.

In the footnote to table 4.3.1 "The amount of the specific source of the pozzolan or slag to be used shall not be less than the amount that has been determined by service record..."

This note permits the LDP to use customary practice on mix composition in lieu of test. It is realized the test duration is too long for mix submittals. It is unlikely that concrete suppliers will have C1012 data. It is more likely that blended cements by C595 or C1157 will have data in their certifications, but S3 requires additional SCM. In CA for instance the use of 25% fly ash in addition to a sulfate resistant cement has been considered adequate for severe sulfate conditions. I think it is accepted by CALTRANS. I am not sure of the area of your projects, but slag as an SCM might be an option too. Slag has been entering the CA market more recently and these suppliers (as with the fly ash people) might have C1012 data but it won't be with the specific cement for the project. What is important in the cement would be the C3A used in the test relative to that used on the project. If that on the project is equal to or less than that used in the test, it should be OK.

ASTM C 452 is not an appropriate test - it is an optional test to qualify Portland cements for sulfate resistance only.

You might consult with Eric Tolles who is a code official for the city of Irvine in CA (if that's where you are operating). Eric is on 318 and aware of these provisions.

Does Sub A need to take action here?

#### 6. New Business:

Note that the following new business items are listed by title only because we will probably not have time to address them. If time is available or if a topic is of interest to a member, we will address these items.

- 6.1. Core waiting period.
- 6.2. Add recycled aggregate to the Code.
- 6.3. Top bar effects in self-consolidating concrete.
- 6.5. Various new work items resulting from review of Version 1 of the reorganized Code. **These items are being incorporated into the possible new work lists as chapters are adopted.**
- 6.6. w/cm versus strength for durability.
- 6.7. Chloride ion restrictions in concrete containing aluminum embedments.
- 6.9. Inquiry regarding appropriate strength for w/cm for durability.
- 6.10. Ward Malish issues regarding brackish water.
- 6.11. Review of EN Durability Classes.

**Note: Except as noted, these items have not been addressed to date because of lack of time.**

#### 7. Adjourn