# ACI 318 Sub A – General Concrete and Construction

[ACI 318 Chapters 1, 2, 3 (excluding 3.5), 4, 5, 6, and 22]

Chicago Meeting
Tuesday, 23 March 2010, 1:00 PM to 6:30 PM, Illinois Board Room

## DRAFT AGENDA

1. Call to order.

2. Introductions.

3. Approval of Agenda.

4. Approval of Minutes of New Orleans meeting, 10 November 2009.

5. Old Business:

5.1. Review of Sub A Ballot A02-09 (closed 4 September 2009.) Ballot results previously sent out by email and with the New Orleans Agenda (copy enclosed.) There were six CA items on this ballot. Note that all items technically passed, some need significant additional work. The results and actions taken or necessary are shown below. This item was not discussed in New Orleans because of a lack of time. Members were asked to take the appropriate actions as indicated and to return the corrected items to the Chair for the next steps. This item is included in the Chicago agenda to close this ballot.

| CA Item | Description | Responsible | Comments |
|---|---|---|---|
| 093 | Interpolation of Lamda | Bondy/Meyer | Approve 9, Approve with comment 2, Negative 1, Abstain 1, Not returned 1<br><br>Returned to Bondy/Meyer for additional review. On Ballot A06-2009, discussed below. |
| 099 | Clarify us of term f'c | Fiorato | Approve 12, Approve with comment 1, Negative 0, Abstain 0, Not returned 1<br><br>Editorial from Fiorato accepted. Passed Sub A and ready for 318. Will combine with CA 099 for 318 ballot. |
| 100 | Clarify use of 0.85 factor for new concrete | Fiorato | Approve 12, Approve with comment 0, Negative 1, Abstain 0, Not returned 2<br><br>Negative from Fiorato ruled editorial and accepted by Chair. Passed Sub A and ready for 318. On 318 LB09-5, discussed below. |
| 101 | Clarify requirements for measuring air | Hover | Approve 8, Approve with comment 2, Negative 3, Abstain 0, Not returned 1<br><br>Hover has revised. This item will be balloted by Sub A after the New Orleans meeting. On Ballot A06- |

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| | | | 2009, discussed below. |
| 104 | Remove exposure category "Permeability" | Lobo | Approve 7, Approve with comment 3, Negative 3, Abstain 0, Not returned 1<br><br>Returned to Lobo for additional review. Need response from Lobo. |
| 106 | Compliance with C1077; send test reports | Lobo | Approve 10, Approve with comment 2, Negative 1, Abstain 0, Not returned 1<br><br>Returned to Lobo for additional review. Tolles withdrew his negative. On 318 LB09-5, discussed below. |

5.2. Review of Sub A Ballot A06-09 (closed 15 Jan 2010.) Ballot results were previously sent out by email (copy enclosed.) There were four CA items on this ballot. Note that all items technically passed, some need additional work. The results and actions taken or necessary are shown below.

| CA Item | Description | Responsible | Comments |
|---|---|---|---|
| 086 | Definition of Lamda | Meyer/Bondy | Approve 12, Approve with comment 2, Negative 0, Abstain 0, Not returned 0<br><br>Passed Sub A and ready for 318. |
| 087 | Density value for lightweight concrete | Meyer | Approve 8, Approve with comment 1, Negative 3, Abstain 2, Not returned 0<br><br>Additional work required. Probably an additional Sub A ballot required. |
| 093 | Interpolation of Lamda | Bondy/Meyer | Approve 10, Approve with comment 2, Negative 1, Abstain 1, Not returned 0<br><br>Should be able to fix without another ballot. |
| 101 | Clarify requirements for measuring air | Hover | Approve 12, Approve with comment 1, Negative 1, Abstain 0, Not returned 0<br><br>Should be able to fix without another ballot. |

5.3. Review of 318 LB 09-5 (closed 11 January 2009.) Ballot results previously sent out by email (copy enclosed.) There were two CA items on this ballot. Note that additional work is required. The results and actions taken or necessary are shown below.

| CA Item | Description | Responsible | Comments |
|---|---|---|---|
| 100 | Clarify use of 0.85 factor for new concrete | Fiorato | Approve 37, Approve with comment 2, Negative 3, Abstain 0<br><br>Comments returned to Fiorato. Should be relatively |

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| | | | easy to resolve. |
| 106 | Compliance with C1077; send test reports | Lobo | Approve 27, Approve with comment 6, Negative 9, Abstain 0<br><br>Comments returned to Lobo. May take another Sub A ballot to resolve. |

5.4. Review of 318 LB 10-1 (closed 15 March 2010.) Sub A had two chapters from the revised Code on this ballot. Ballot results will be sent out when available.

| CA Item | Description | Responsible | Comments |
|---|---|---|---|
| CR051 | Chapter 5 | | |
| CR221 | Chapter 22 | | |

5.5. Summary of all CA items. An updated list of all CA items as of before the Chicago meeting is enclosed. Please review and continue to work on the items assigned to you.

5.6 CA Items resolved the last meeting meeting.

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|---|---|
| CA 097 | Various changes to Chapter 22. Transferred to Sub D. |
| CA 102 | Harmonize definitions of lightweight concrete – combined with CA 082. |

5.5. Code reorganization. Code reorganization will be discussed in Items 5.4 and 7.

5.6. Recommendations from Dan Falconer. Dan has sent two emails regarding proposed changes (copies are enclosed.) During the St. Louis meeting Kosmatka agreed to review these items and make recommendations to the subcommittee. Steve was not present in San Antonio. This item will be held for the next meeting. Kosmatka to report. . This item was not discussed in New Orleans because of a lack of time.

5.7. 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 b allot item for consideration. This item is assigned CA 105. Steve or Colin will update the committee on where this stands. . This item was not discussed in New Orleans because of a lack of time.

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

5.9. Sustainability. Chair Holland raised the question of whether there may be requirements relating to sustainability that may need to be introduced into the Code. This will remain an open topic during the code cycle. Steve Kosmatka had forwarded a first-pass statement for addition to the Commentary. Steve will be asked to review and edit the item for review in the future. While there is great interest in adding "something" to the Code regarding sustainability, there has been little success in defining what that something is. . This item was not discussed in New Orleans because of a lack of time.

5.10. Exposure class conflicts. A possible conflict between Classes F3 and C2 was brought up during the St. Louis meeting. Can we determine a course of action? Doug Hooton agreed to review this item and bring back a proposal for the committee. Hooton to report. . This item was not discussed in New Orleans because of a lack of time.

5.11. 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. A member of the task group to report. . This item was not discussed in New Orleans because of a lack of time.

5.12. CA 066. This item was to clarify the difference between accredited and inspected laboratories. It was introduced at the New York City meeting and has been languishing ever since. Colin is asked to make a recommendation here. . This item was not discussed in New Orleans because of a lack of time.

6. New Business:

6.1. Question regarding definition of admixtures. Bill Gamble sent the following to Basile:

> It has been a long time since I sent a complaint or comment about the Code, so it must be time.
>
> 318-08 deleted two sub-sections of Sec. 3.6, Admixtures, dealing with fly ash and slag. However, the definition of Admixture is Sec. 2.1 would still call these materials admixtures. I think this definition needs to be modified to include a statement about "other cementitious materials," perhaps referring to the definition of Cementitious materials. There is a sentence in another report, I think by Comm. 211, about "cement, other cementitious materials, and chemical admixtures." Will find the exact section if it will help.
>
> This question has arisen in connection with the revision of the Comm. 543 report, and was raised by one of my super nit-pickers. 318 looks like it is in a state of flux on this question.
>
> Probably see you in San Antonio.
>
> Bill Gamble

Does Sub A need to take action here? . This item was not discussed in New Orleans because of a lack of time.

6.2. Review of ACI 214.4R, Guide for Obtaining Cores and Interpreting Compressive Strength Results. Staff had indicated that this document is being revised. Sub A members were advised and asked to review, if interested. Does anyone have a report? . This item was not discussed in New Orleans because of a lack of time.

6.3. Determining Lamba. Carino had the following comment on Sub A Ballot A02-09:

> I have some questions about the splitting tensile strength. First, $f_{ct}$ is defined as the average splitting tensile strength, so this is not a function of $f'_c$, but a function of the average compressive strength of the concrete. So it is not correct to say that $f_{ct}$ is 6.7 sqrt($f'_c$). Second, I'd like an explanation of how an engineer would determine lambda for the second alternative. The code language is not clear. I think the $f_{ct}$ in the equation should be measured average splitting tensile strength. Maybe Fred or Ken can explain to us how the equation in 8.6.1 is supposed to be used to choose lambda.

Does Sub A need to take action here? . This item was not discussed in New Orleans because of a lack of time.

6.4. Definitions of Exposure Classes F1, F2, and F3. A Code user sent the following email to Basile:

> ACI 318-08 Table 4.3.1 for each exposure class F1, F2 and F3 the maximum w/cm is 0.45 and the minimum concrete strength is 4500 psi. The commentary indicates that F1 and F2 are conditions where exposure to deicing salts is not anticipated.
>
> ACI 201.2R-01 Section 1.4.2 Water-cement ratio. For concrete exposed to deicing salts maximum w/cm ratio Is 0.45 and all other structures maximum w/cm ratio is 0.50.
>
> Can you verify that the values in ACI 318 table 4.3.1 are what ACI 318 intended? I would
> think that freezing and thawing exposure going from "moderate, F1" to "severe, F2" to "very severe, F3" that the maximum w/cm ratio and minimum concrete strength would vary.
>
> We build vertical slip formed concrete structures (grain storage type structures), ACI 313-91
> required a minimum compressive strength of 3000 psi, ACI 313-97 requires a minimum compressive strength of 4000 psi and now it appears that ACI 318-08 is requiring 4500 psi concrete for exposure conditions F1 and F2. ACI 318-08 commentary indicates that F1 is for exterior walls not in direct contact with soil and F2 is for vertical members in contact with soil.

Does Sub A need to take action here? . This item was not discussed in New Orleans because of a lack of time.

6.5. 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?
> >
> >
> >
> > 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 wont 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? . This item was not discussed in New Orleans because of a lack of time.

6.7. 318-11 Supplement: The 2011 supplement to 318-08 is scheduled to be published in April-May, 2011. Sub A has two items (CA 076 and CA 091) that should make it into the supplement. Two additional items (CA 100, CA 106) may make it into the supplement, depending upon resolution of negatives at the Chicago meeting. Information Only.

7. Reorganization of the Code and Commentary. Ann additional discussion necessary regarding reorganization of the Code will be addressed here.

8. Next Meeting/Future Schedule. The next meeting of Sib A will be at the Pittsburg Convention on Tuesday, 26 October 2010.

9. Adjourn.

| Ballot: A03 - 2009 | Due Date: 4 September, 2009 |
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| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
|---|---|---|---|---|---|---|
| 1. | Fiorato | CA 093 | | | N | I agree with the intent of the change, but suggest the proposed Commentary language read something like the following:<br><br>"The designer will not typically know the blends of aggregate that will be used to supply a project. The potential concrete and aggregate suppliers for the project can provide the volumetric fractions of lightweight and normalweight aggregates to achieve the specified design strength and density. These fractions can be used to determine the interpolated value of λ. If λ is determined from splitting tensile strengths, it should be based on mixtures representative of those required to achieve the specified design strength and density." |
| 2. | Barth | CA 093 | | | Y/C | Sub A does recommend that that additional explanation be included in the Commentary.<br><br>Values of λ and concrete density should be available from the concrete and aggregate suppliers at the project location. |
| 3. | Carino | CA 093 | 3 | 24 | Y/C | I don't think the aggregate supplier will know what the concrete mixtures proportions are going to be. I suggest we delete "and aggregate".<br>New Business.<br>I have some questions about the splitting tensile strength. First, $f_{ct}$ is defined as the average splitting tensile strength, so this is not a function of $f'_c$, but a function of the average compressive strength of the concrete. So it is not correct to say that $f_{ct}$ is 6.7 sqrt($f'_c$). Second, I'd like an explanation of how an engineer would determine lambda for the second alternative. The code language is not clear. I think the $f_{ct}$ in the equation should be measured average splitting tensile strength. Maybe Fred or Ken can explain to us how the equation in 8.6.1 is supposed to be used to choose lambda. |
| 4. | Carino | CA 099 | 1 | 526 | Y/C | It should be $f'_{cr}$.. |
| 5. | Carino | CA 100 | 1 | 39 | N | I think we can be a little clearer if we state when these instructions are applicable rather than when they are not applicable. Revise as follows: "These instructions are applicable only for evaluation of in-place strength at time of construction. Strength evaluation of existing structures is covered in Chapter 20." |

| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
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| 6. | Fiorato | CA 101 | | | N | I agree with the intent of the proposal, but suggest the following rewording of the proposed Code and Commentary changes.<br><br>**Replace the following sentences in 4.4.1:**<br><br>"~~When sampling concrete for testing air content at any point other than at the point of discharge is required, such must be stated in Contract Documents, along with the required method for performing such sampling and the acceptance criteria. When tests of air void parameters of hardened concrete are required, such must be stated in Contract Documents, along with the required test method and the acceptance criteria~~."<br><br>**With**:<br><br>"If testing of air content is required at any point other than the point of discharge, procedures for sampling and acceptance criteria for test results shall be specified in the Contract Documents. If tests of air void parameters of hardened concrete are required the test method and acceptance criteria shall be specified in the Contract Documents."<br><br>[*NOTE regarding the above provisions. Would we be better served if these were in the Commentary – changing "shall" to "should"?*]<br><br>**Replace the following sentences in R4.4.1**:<br><br>"~~The Code does not prevent the design professional from setting requirements for hardened concrete or from specifying a method of sampling and testing air content at the point of placement and setting appropriate acceptance criteria when the exposure conditions or criticality of the structure warrant such additional care~~."<br><br>**With**:<br><br>"The Code does not prohibit the design professional from specifying the testing of air content of fresh concrete at the point of placement or from setting requirements for air void parameters in |

| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
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| | | | | | | hardened concrete when unique exposure conditions or criticality of the structure warrant such additional care.” |
| 7. | Lobo | CA 101 | | | N | My preference is not to explicitly state variant conditions and details such as air void parameters in the Code. I do not think its necessary to include a condition for sampling based on time to cover precast. There could be several other conditions that may need to be similarly addressed. Also suggest a simplification to the proposed commentary language.<br>My suggestions:<br>4.4.1<br>Concrete shall be sampled at the point of discharge from the transportation unit arriving at the job site in accordance with ASTM C172, and air content measured in accordance with ASTM C231 or ASTM C173. ~~When sampling concrete for testing air content at any point other than at the point of discharge is required, such must be stated in Contract Documents, along with the required method for performing such sampling and the acceptance criteria. When tests of air void parameters of hardened concrete are required, such must be stated in Contract Documents, along with the required test method and the acceptance criteria.~~ When the LDP desires measurement of air content at alternative sampling locations or to establish requirements for air content in hardened concrete, such requirements shall be stated in Contract Documents, including methods to be used and the acceptance criteria.<br><br>R4.4.1<br>It is not the intent of the Code that the required air contents apply to that measured air content at the point of placement or in hardened concrete, nor are specific values of hardened void parameters required by the Code. The LDP is not prohibited by the Code from establishing these requirements and should state these requirements, including methods and acceptance criteria in Contract Documents. These variations from the Code requirements might be warranted with severe exposure conditions and the criticality of the structure. ~~Where the total transport time between the batch plant and placement is less than 15 minutes, sampling may be done at the batch plant. The Code does not prevent the design professional from setting requirements for hardened concrete or from specifying a method of sampling and testing air content at the point of placement and setting appropriate acceptance criteria when the exposure conditions or criticality of the structure warrant such additional care.~~ |

| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
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| 8. | Hooten | CA 101 | | | Y/C | While I understand the complexities of measuring air after the point of placement, if the concrete then loses significant air during placement, how can the Code be stated to be satisfied, when the structure may then crumble due to freeze/thaw damage?<br>Another dumb part of concrete technology that seems to be defined for contractual reasons(ie. change of ownership at the chute)rather for ensuring long-term structural safety. |
| 9. | Carino | CA 101 | 3 | 16 | Y/C | I suggest we replace "1.0 percent" with "1.0 percentage points". Literally, 1 % reduction can be interpreted to mean that he air content has to be 99 % of the listed values. Make the same change in line 36. |
| 10. | Carino | CA 101 | 3 | 30 | N | We can not use the Commentary to provide an alternative provision. I've never seen this kind of provision in a specification. The air content needs to be measured on the same sample use to make cylinders, so there is nothing to be gained by this proposal. I suggest we not add this sentence. |
| 11. | Holland | CA 101 | 3 | 31 | Y/C | add "licensed" |
| 12. | Carino | CA 101 | 4 | 7 | Y/C | Remove this sentence about San Antonio, it is no longer applicable. |
| 13. | Fiorato | CA 104 | | | N | I agree with the intent of the proposal, but suggest the following changes:<br><br>p. 3, Line 104 – add the word “and” after “ratio”.<br><br>p. 3, Line 114-115 – Suggest revising the words: “and where the other exposure conditions defined in Table 4.2.1 do not apply.” to read: “and where the exposure conditions defined in Table 4.2.1 do not govern.” |
| 14. | Hover | CA 104 | | | Y/C | I agree with proposal, but wonder if this makes it look like we are retreating from our 08 tabular revisions with a return to a text description. |
| 15. | Meyer | CA 104 | | | Y/C | In Section R4.3.1, Line 104, the comma after ratio should be removed and the word "and" inserted to make the sentence read correctly. |
| 16. | Tolles | CA 104 | | | N | I don't see why Exposure Category P is not an exposure and what the advantage is of taking it out of the table and putting it in it's own section at the back of the chapter. The trend at looking at Version 1 code is to use more tables. |

| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
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| | | | | | | Line 34: Concrete strength and w/cm for C1. While this will improve durability, this is a significant change that will increase costs and increased use of cement. I would like to hear discussion and more justification. I would interpret C1 to apply to most foundations, and I'm not sure 4,000 psi and 0.5 w/cm is necessary in every case.<br><br>Line 106: I don't agree with deleting the reference to cover requirements for C1. Section 7.7 requires increased cover for exposure to earth or weather than concrete that is not. |
| 17. | Holland | CA 104 | | 123 | N | not is favor of adding discussion of C 1202 for proxy for testing permeabiity |
| 18. | Carino | CA 104 | 2 | 6 | Y/C | And line 9. I have a reservation about the meaning of "frequent". The real question that should be asked is whether there is a possibility that the concrete will be subjected to cycles of freezing and thawing when it is saturated. I think that was the purpose of using "continuous". I suggest we leave this as is unless we want to come up with something less ambiguous than "frequent." Maybe we should strengthen the Commentary and mention freezing and thawing in a saturated condition. |
| 19. | Carino | CA 104 | 4 | 125 | Y/C | The current version of C1202 has poor precision which affects the results in the laboratory as well as in the field. I think what we are trying to say is that because of its high variability it is not a good acceptance test at this time. I think some of the conductivity tests that are being developed will overcome the high variability of C1202, and we will be able to use them for acceptance testing on saturated cylinders. I suggest we reword the end of the sentence to say something like this: "…ASTM C1202, which is suitable for pre-qualification testing but not for acceptance testing due to its poor precision." |
| 20. | Meyer | CA 106 | | | Y/C | In Section R5.6.1, Line 106, the comma after the word Technician should be removed and the word "or" inserted to make the sentence read correctly. |
| 21. | Tolles | CA 106 | | | N | I support having qualified and approved test labs. However, the question of who approves such labs, not just what the criteria is needs to be defined. As noted in the reason statement, it notes that there are various agencies that verify lab compliance with ASTM 1077. These agencies have no authority by the code- they are given that by recognition in contract requirements and by the authority having jurisdiction. Currently the code requires individual field and lab personnel to be "qualified." The jump here is that the code will require an organization (lab) to meet a given standard. |

| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
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| | | | | | | At this time, it may be better to add a requirement to 5.6.1 such as, "Qualified laboratory technicians shall perform all required laboratory tests at an approved laboratory." Reference to ASTM 1077 and agencies that accredit labs can be in the commentary. |
| 22. | Carino | CA 106 | 2 | 808 | Y/C | This should be $f'_{cr}$. |

| Item # | Member | Aff. | Aff. w/ Com. | Neg. | Abs. | Not Retd. | Comments | Attached Files |
|---|---|---|---|---|---|---|---|---|
| 1 | Barth,Florian | | X | | | | Sub A does recommend that that additional explanation be included in the Commentary.<br><br>Values of λ and concrete density should be available from the concrete and aggregate suppliers at the project location. | |
| | Bondy,Kenneth | X | | | | | | |
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | X | | | | See attached file. | Comment |
| | Fiorato,Anthony | | | X | | | | Comment |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | X | | | | | | |
| | Hooton,R Doug | | | | X | | | |
| | Hover,Kenneth | X | | | | | | |
| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | X | | | | | | |
| | Meyer,Fred | X | | | | | | |
| | Tolles,Eric | X | | | | | | |
| 2 | Barth,Florian | X | | | | | | |
| | Bondy,Kenneth | X | | | | | | |

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|---|---|---|---|---|---|---|---|---|
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | X | | | | See file attached to item 1. | |
| | Fiorato,Anthony | X | | | | | | |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | X | | | | | | |
| | Hooton,R Doug | X | | | | | | |
| | Hover,Kenneth | X | | | | | | |
| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | X | | | | | | |
| | Meyer,Fred | X | | | | | | |
| | Tolles,Eric | X | | | | | | |
| 3 | Barth,Florian | X | | | | | | |
| | Bondy,Kenneth | X | | | | | | |
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | | X | | | See file attached to item 1. | |
| | Fiorato,Anthony | X | | | | | | |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | X | | | | | | |
| | Hooton,R Doug | X | | | | | | |
| | Hover,Kenneth | X | | | | | | |
| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | X | | | | | | |
| | Meyer,Fred | X | | | | | | |
| | Tolles,Eric | X | | | | | | |
| 4 | Barth,Florian | X | | | | | | |

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|---|---|---|---|---|---|---|---|---|
| | Bondy,Kenneth | X | | | | | | |
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | | X | | | See file attached to item 1. | |
| | Fiorato,Anthony | | | X | | | See attachment for CA093 | |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | | X | | | | page 3, line 31, add "licensed" | |
| | Hooton,R Doug | | X | | | | While I understand the complexities of measuring air after the point of placement, if the concrete then loses significant air during placement, how can the Code be stated to be satisfied, when the structure may then crumble due to freeze/thaw damage?<br>Another dumb part of concrete technology that seems to be defined for contractual reasons(ie. change of ownership at the chute)rather for ensuring long-term structural safety. | |
| | Hover,Kenneth | X | | | | | | |
| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | | | X | | | | Comment |
| | Meyer,Fred | X | | | | | | |
| | Tolles,Eric | X | | | | | | |
| 5 | Barth,Florian | X | | | | | | |
| | Bondy,Kenneth | X | | | | | | |
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | X | | | | See file attached to item 1. | |
| | Fiorato,Anthony | | | X | | | See attachment for CA093 | |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | | | X | | | line 123, not is favor of adding discussion of C 1202 for proxy for testing permeabiity | |
| | Hooton,R Doug | X | | | | | | |
| | Hover,Kenneth | | X | | | | I agree with proposal, but wonder if this makes it look like we are retreating from our 08 tabular revisions with a return to a text description. | |

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| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | X | | | | | | |
| | Meyer,Fred | | X | | | | In Section R4.3.1, Line 104, the comma after ratio should be removed and the word "and" inserted to make the sentence read correctly. | |
| | Tolles,Eric | | | X | | | I don't see why Exposure Category P is not an exposure and what the advantage is of taking it out of the table and putting it in it's own section at the back of the chapter. The trend at looking at Version 1 code is to use more tables.<br><br>Line 34: Concrete strength and w/cm for C1. While this will improve durability, this is a significant change that will increase costs and increased use of cement. I would like to hear discussion and more justification. I would interpret C1 to apply to most foundations, and I'm not sure 4,000 psi and 0.5 w/cm is necessary in every case.<br><br>Line 106: I don't agree with deleting the reference to cover requirements for C1. Section 7.7 requires increased cover for exposure to earth or weather than concrete that is not. | |
| 6 | Barth,Florian | X | | | | | | |
| | Bondy,Kenneth | X | | | | | | |
| | Browning,Dean | X | | | | | | |
| | Carino,Nicholas | | X | | | | See file attached to item 1. | |
| | Fiorato,Anthony | X | | | | | | |
| | Folliard,Kevin | | | | | X | | |
| | Gleich,Harry | X | | | | | | |
| | Holland,Terence | X | | | | | | |
| | Hooton,R Doug | X | | | | | | |
| | Hover,Kenneth | X | | | | | | |
| | Kosmatka,Steven | X | | | | | | |
| | Lobo,Colin | X | | | | | | |
| | Meyer,Fred | | X | | | | In Section R5.6.1, Line 106, the comma after the word Technician should be removed and the word "or" inserted to make the sentence read correctly. | |

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| | Tolles,Eric | | | X | | | I support having qualified and approved test labs. However, the question of who approves such labs, not just what the criteria is needs to be defined. As noted in the reason statement, it notes that there are various agencies that verify lab compliance with ASTM 1077. These agencies have no authority by the code- they are given that by recognition in contract requirements and by the authority having jurisdiction. Currently the code requires individual field and lab personnel to be "qualified." The jump here is that the code will require an organization (lab) to meet a given standard.<br><br>At this time, it may be better to add a requirement to 5.6.1 such as, "Qualified laboratory technicians shall perform all required laboratory tests at an approved laboratory." Reference to ASTM 1077 and agencies that accredit labs can be in the commentary. | |

Download vote and comment files as zip file (Attachments ONLY - Typed in comments cannont be downloaded)

## Preliminary Voting Summary:

There are 14 committee members eligible to vote.

Passage of an item requires resolution of any negative votes. Passage of an item also requires that the number of affirmative votes be at least that given by the 1/2 and 2/3 rules. Please refer to the ACI Technical Committeee Manual for additional information on balloting procedures.

| Item # | Affirmative | Affirmative with Comments | Negative | Abstain | Not Returned | The 1/2 Rule | The 2/3 Rule |
|---|---|---|---|---|---|---|---|
| 1 | 9 | 2 | 1 | 1 | 1 | Item Meets | Item Meets |
| 2 | 12 | 1 | | | 1 | Item Meets | Item Meets |
| 3 | 12 | | 1 | | 1 | Item Meets | Item Meets |
| 4 | 8 | 2 | 3 | | 1 | Item Meets | Item Meets |
| 5 | 7 | 3 | 3 | | 1 | Item Meets | Item Meets |
| 6 | 10 | 2 | 1 | | 1 | Item Meets | Item Meets |

| Ballot: A06 - 2009 | Due Date: 15 January, 2010 |
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| No. | Name | Ballot Item | Pg # | Line # | Y/C or N | Comment |
|---|---|---|---|---|---|---|
| 1. | Barth | CA 086 | | | Y/C | Considering that we have a reorganization to deal with, this is truly an unnecessary change. Current language is clear. |
| 2. | Fiorato | CA 086 | 1 | 5 | Y/C | Editorial: delete the comma in Line 5 of the proposed revision to 2.1. |

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| 3. | Lobo | CA 087 | | | N | Doesn't this definition now overlap and with the definition of "Concrete, sand-lightweight"? |
| 4. | Gleich | CA 087 | | | N | I do not know of any testing that would show the justification for the reduced lambda at 135 pcf concrete. I know I'm splitting hairs, but I would rather it say greater than 90 pcf and less than 135 pcf. |
| 5. | Carino | CA 087 | 1 | | Y/C | The background needs some editorial revision:<br><br>**Background:** ACI 318-08 currently lists a range of lightweight concrete densities from 90 to 115 lb/ft$^3$ in the Code and lists a range of normalweight concrete densities of 135-160 lb/ft$^3$ in the commentary. There are two problems with the current wording. First, the range of densities from 115 to 135 lb/ft$^3$ can be classified neither as lightweight concrete nor normalweight concrete. Second, there is no consistency between the locations of the typical density ranges of lightweight and normalweight concrete. It is inconsistent to have the density range for lightweight concrete in the Code and the range for normalweightconcrete in the Commentary. By redefining lightweight concrete in the Code and moving the typical density range for lightweight concrete to the Commentary, miscellaneous comment 11 and public comments 24, 25 and 28 are resolved. By removing the reference to unit weight from Table 9.5(a), Note "a," public comment 428 is resolved. |
| 6. | Lobo | CA 087 | 1 | | Y/C | Change "specification" to "code" in background statement |
| 7. | Fiorato | CA 087 | 1 | 0 | Y/C | Before this is sent to the Main Committee for ballot, suggest all occurrences of the word "specification" in the Background section of the ballot be changed to "body of the Code". |
| 8. | Lobo | CA 087 | 2 | 19 | N | Is it OK to make this correction for densities between 115 and 135 pcf? R9.5.2.1 limits the correction to 115 pcf (3$^{rd}$ para) |
| 9. | Fiorato | CA 087 | 2 | 2 | N | The proposed wording of the definition could be misinterpreted to imply that ASTM C330 aggregates are not required for "sanded lightweight concrete." Suggest a change to something like the following: "Concrete, lightweight — Concrete made with lightweight aggregate that conforms to ASTM C330. The concrete may contain all lightweight aggregate or a combination of lightweight aggregate and normalweight aggregate that conforms to ASTM C33." |
| 10. | Fiorato | CA 087 | 2 | 54 | N | ACI 213R-03 defines structural lightweight as having an equilibrium density between 70 and 120 pcf. Why not use the same range? I realize this leaves the 120 to 135 range uncovered, but is this an issue since these densities are not common and we are referencing the range in a nonmandatory Commentary? Also, in the proposed revision to R2.2 we do refer to the range as "typical" and densities between 120 and 135 pcf are not typical (whatever "typical" means). |

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| 11. | Lobo | CA 087 | 2 | 54 | N | This is now defining lightweight concrete with a density up to 135 pcf and is likely a conflict with definitions in ACI Terminology and in ASTM C125 that go up to only 120 pcf. |
| 12. | Fiorato | CA 087 | 2 | 56 | N | Is the Commentary wording on the history of ASTM C567 really needed? Suggest the "history" be deleted so it reads as follows: "According to ASTM C567, equilibrium density can be determined by measurement or approximated by calculation using either the measured oven-dry density or the oven-dry density calculated from the mixture proportions. Unless specified otherwise, ASTM C567 requires that equilibrium density be approximated by calculation." |
| 13. | Fiorato | CA 087 | 2 | 69 | N | For clarity does the ballot need to show the following paragraph in R2.2 or is the intent to delete it? Existing paragraph: "By Code definition, sand-lightweight concrete is structural lightweight concrete with all of the fine aggregate replaced by sand. This definition may not be in agreement with usage by some material suppliers or contractors where the majority, but not all, of the lightweight fines are replaced by sand. For proper application of the Code provisions, the replacement limits should be stated, with interpolation when partial sand replacement is used." |

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| 14. | Carino | CA 093 | | | N | This proposal can be improved further. The proposed paragraph relative to concrete and aggregate suppliers should be part of the second paragraph. In addition, the discussion of the second alternative can be clarified. I recommend the following:<br><br>"Factor λ reflects the lower tensile strength of lightweight concrete compared with normalweight concrete of the same compressive strength. This lower tensile strength can reduce shear strength, friction properties, splitting resistance, bond between concrete and reinforcement, and increase development length.<br><br>Two alternative procedures are provided to determine λ. The first alternative is based on the assumption that the tensile strength of lightweight concrete is a fraction of the tensile strength of normalweight concrete.[8.9] This fraction depends on the volumetric proportions of lightweight and normalweight aggregate in the mixture and is based on data from tests of lightweight concrete with many types of lightweight aggregate. The designer will not typically know the blends of aggregate for the lightweight concrete that will be used on the project. The potential concrete and aggregate suppliers for the project can provide the volumetric fractions of lightweight and normalweight aggregates to achieve the specified compressive strength and density. These fractions can be used to determine the interpolated value of λ.<br><br>The second alternative is based on laboratory tests to determine the relationship between average splitting tensile strength $f_{ct}$ and the average compressive strength $f_c$ for the lightweight concrete to be used. The splitting tensile strength and compressive strength of the lightweight concrete are determined in accordance with ASTM C330. For normalweight concrete, the average splitting tensile strength $f_{ct}$ is approximately equal to 6.7 times the square root of compressive strength.[8.9, 8.10] . The value of λ equals the average splitting tensile strength divided by $6.7\sqrt{f_c}$ . If λ is determined from laboratory testing, the test mixture should be representative of that required to achieve the specified compressive strength and density.<br><br>**New business:**<br>The last sentence of 8.6.1 in the Code needs to be changed so that it is clear λ that can be based on test results.<br>"Alternative, the value of λ is permitted to be based on the ratio $f_{ct}/6.7\sqrt{f_c}$ ." |

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| | | | | | | Definitions:<br>$f_{ct}$ = average splitting tensile strength of lightweight concrete measured in accordance with ASTM C330,<br>$f_c$ = average compressive strength of lightweight concrete measured in accordance with ASTM C330. |
| 15. | Gleich | CA 093 | | | Y/C | I disagree with Meyer and Bondy on aggregate supplier. My aggregate supplier would not nor does he care to know this is in my mix. |
| 16. | Lobo | CA 093 | 3 | 25 | Y/C | Should it be "equilibrium" density? On line 28 too |

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| 17. | Carino | CA 101 | 1 | | Y/C | I have a series of editorial comments on the background material |
| 18. | Carino | CA 101 | 1 | 30 | Y/C | Revise as follows:<br>"2. To Remove unnecessary notes from Table 4.4.1 about conduct of air content tests for concrete with aggregate larger than 1-1/2 inch." |
| 19. | Carino | CA 101 | 1 | 44 | Y/C | The "4.9" should be a superscript. |
| 20. | Carino | CA 101 | 1 | 46 | Y/C | Revise as follows:<br>"The Table values have their origin in work by Kleiger who showed that on the basis of freezing and thawing tests, concrete was durable when the total air volume in fresh air-entrained concrete was equal to about 9% of the volume of the mortar." |
| 21. | Carino | CA 101 | 2 | 4 | Y/C | Revise as follows:<br>"First, there is no standard protocol for sampling or testing concrete at any point other than the point of discharge (where ASTM C172 governs), and air content test results are highly sensitive to sampling technique. Questions remain such as how and when to obtain the sample. For example, should the sample be obtained before or after the concrete is placed in the forms, should it be obtained before or after vibration, should the concrete be placed and then excavate a sample? Slowing a concrete pump to obtain a sample will often exacerbate air loss compared with that experienced in normal operations. Many non-standard procedures are used when point-of-placement tests are performed, and there are additional safety concerns for the testing personnel. When tests are required at the point-of-placement, a method must be specified (and someone should determine its reliability and reproducibility)." |
| 22. | Carino | CA 101 | 2 | 17 | Y/C | Revise as follows:<br>"The second issue with measuring air content at point-of-placement is determining acceptance criteria. The air content values in Table 4.4.1 include the volume of the larger or so-called “entrapped” air bubbles that have a far greater contribution to total air volume than they have to resistance to freezing and thawing. These same, coarser air bubbles are the ones most commonly affected by placing and consolidating concrete. Thus, their loss does not typically correspond to an equivalent loss in resistance to freezing and thawing. Total air content acceptance limits at the point of placement would be lower than at the point of discharge, but determining acceptable air content values depends on the average size of the residual bubbles at the point of placement. Satisfactory values of total air content after the loss of coarse air bubbles can be 3% or less when the residual air bubbles in the concrete are small enough. The values in Table 4.4.1 can therefore become considerably more conservative when applied to concrete at the point of placement. Setting air content |

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| | | | | | | requirements at the point of placement that are higher than needed for durability can reduce both compressive strength and elastic modulus. Compensating for these effects typically involves additional cementitious materials, often with associated additional shrinkage." |
| 23. | Carino | CA 101 | 2 | 34 | Y/C | Revise as follows:<br>"In regard to air content in hardened concrete, ACI 318 currently includes no requirements for air-void size or spacing factor. Further, no values of required spacing factor can be uniquely inferred from the air contents in Table 4.4.1 because spacing factor is a function of air content, paste content, and average air-void size. If the Code committee feel that it is appropriate to require values of air content, specific surface, or spacing factor in hardened concrete, as determined either in-place from cores or on specimens sampled in some other manner, such requirements would have to be explicitly stated. Currently, no such requirements are explicitly stated, and it is the position of the subcommittee that none are intended. In setting minimum standards, the Code has thus far chosen not to mandate the expensive and time-consuming hardened air analyses for all concrete exposed to freezing and thawing. Nevertheless, clarification is required to prevent the unintended implication of hardened air requirements via the 318 Commentary link to ACI 211, and ACI 211's link to ACI 201 in which reference is made to hardened air void parameters. (This linkage has been claimed in several recent legal arguments.)" |
| 24. | Carino | CA 101 | 3 | 3 | Y/C | Delete "However" or add a sentence. |
| 25. | Carino | CA 101 | 4 | 3 | Y/C | …two types of additions… |
| 26. | Fiorato | CA 101 | 4 | 13 | Y/C | I remain concerned about the addition of Lines 13-16 to Section 4.4.1 of the Code as I believe it may lead to unintended consequences. However, I understand the need to respond to the Main Committee. If we go ahead with this revision, suggest changing the word "When" to "If" in Line 13 of the proposed revision to 4.4.1. |
| 27. | Fiorato | CA 101 | 4 | 14 | N | The proposed Commentary language indicates tests at point of placement are in addition to the standard air tests. It would seem the wording of 4.4.1 needs to be changed to be explicit on this point. This could be done by replacing the word "alternative" with "additional" in Line 14 of the proposed revision to 4.4.1. |
| 28. | Carino | CA 101 | 4 | 14 | Y/C | The testing at point of placement is not an "alternative" it is "additional".<br>"When the licensed design professional desires measurement of air content at additional sampling locations or to establish requirements for air content in hardened concrete, such requirements shall be stated in Contract Documents, including methods to be used and the acceptance criteria." |
| 29. | Fiorato | CA 101 | 4 | 15 | Y/C | Suggest replacing the word "including" with "and shall include test" in Line 15 of the proposed revision to 4.4.1. |

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| 30. | Carino | CA 101 | 4 | 19 | Y/C | I think I made a mistake in my comment on the previous Sub A ballot. In this sentence, "point" should be used rather than "points". |
| 31. | Carino | CA 101 | 4 | 25 | Y/C | Revise as follows:<br>"R4.4.1 — A table of required air contents for freshly mixed concrete to provide resistance to damage from cycles of freezing and thawing is included in the Code, based on guidance provided for proportioning concrete mixtures in ACI 211.1.[4.9] Target values are provided for Exposure Class F1 (moderate) and both Exposure Classes F2 and F3 (severe) exposures depending on the exposure to moisture or deicing salts. Entrained air will not protect concrete containing coarse aggregates that undergo disruptive volume changes when frozen in a saturated condition.<br>It is not the intent of the Code that the required air contents in Table 4.4.1 apply to measured air content at the point of placement or in hardened concrete, nor are specific values of air-void parameters in hardened concrete required by the Code. The Code permits the licensed design professional to specify testing of air content of fresh concrete at the point of placement in addition to testing at the point of discharge, or to set requirements for air-void parameters in hardened concrete when unique exposure conditions or criticality of the structure warrant such additional requirements.<br>Section 4.4.1 permits an air content that is 1.0 percentage point lower than the values in Table 4.4.1 for concrete with $f_c'$ greater than 5000 psi. Such high-strength concretes will have a lower *w/cm* and porosity and, therefore, improved resistance to 4 cycles of freezing and thawing." |

# LB09-5 Sorted Comments

As of January 13, 2010

| Last Name | Submittal # | Page # | Line # | Vote: Y Y/C* N** A | Comments |
|---|---|---|---|---|---|
| Corley | CA100 | 1439 | 0 | N | This has been applied to new and old concrete for decades with no documented problems. Original laboratory data showed member concrete at 85% of cylinder strength. No expectation of strength gain was claimed. |
| Rabbat | CA100 | 1439 | 13 | Y/C | The sentence “Remove the term dogmatic” is not needed for the Reason statement that will be published. It is already noted on Line 9. |
| French | CA100 | 1439 | 16 | N | Lines 16-24.<br>Please change the background statement (remove reference to terms like “my feeble minded reading” etc. Just state something like:<br>This code change proposal is in response to a request by R. Poston to clarify that 5.6.5 is for new concrete to avoid misuse of this provision in applying it to cores taken from existing structures that can be several years old. |
| Frosch | CA100 | 1439 | 20 | Y/C | Strike “than” following “at least” |
| Kopczynski | CA100 | 1439 | 33 | N | My first read of this had me wondering about what is meant by “...at time of construction.” Does this mean the day of construction, week of construction, or ??<br>I propose changing as follows: “These instructions are applicable only for strength evaluation of new structures, at or near the time of construction.”<br>I recognize that “near the time” is a general term. This is the commentary, however, and the goal is to impart understanding. Between the terms “new structures” and “at or near the time of construction”, the idea is clear. |
| Klein | CA106 | 1440 | 0 | Y/C | I would think you should also name the testing agency client as a mandatory recipient of test reports. |
| Rabbat | CA106 | 1440 | 0 | Y/C | Reason statement should be concise since it will be published. This can be accomplished by switching texts under “Basis” to “Reason for Change” and vice versa. |
| French | CA106 | 1440 | 3 | Y/C | R.5.6.1 |
| Seguirant | CA106 | 1440 | 5 | Y/C | Line numbers did not show up on page 1440. Under |

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| | | | | | "**Code Sections**", R.6.1 should be R5.6.1. |
| French | CA106 | 1440 | 6 | Y/C | Modify basis statement. Use of semicolon implies that the second half of sentence is related to the requirements of ASTM C1077. As I understand it, the distribution of the test reports is a separate issue. Also add a period at the end of the sentence.<br>"ASTM C1077~~;~~, and to require…Work~~.~~" |
| French | CA106 | 1440 | 18 | Y/C | Lines 18 and 22<br>Change "labs" to laboratories" |
| French | CA106 | 1440 | 21 | Y/C | Hyphenate "ready-mixed" |
| Klein | CA106 | 1441 | 0 | N | The code change and commentary are inconsistent. The code requires reports to be provided to the concrete contractor and producer. On the other hand, the commentary also lists the owner, licensed designed professional, building official and others as "essential"l recipients of testing reports. Revise commentary to list only the concrete contractor and producer as essential recipients; others should be listed as recommended recipients. |
| Kelly | CA106 | 1441 | 17 | Y/C | Although I agree that it is a good idea to send all test reports to the concrete contractor, I have some hesitancy with making it a requirement of ACI 318. If contractors want these, they should have it written into their contracts with the owner. A contractor can always retain their a testing laboratory to sample and test the concrete to create a history. |
| Kopczynski | CA106 | 1441 | 17 | N | The commentary, beginning on line 73, provides a comprehensive list of parties to whom reports should be sent. The suggested code sentence trims it to two. This is confusing. It's unnecessary to add the sentence in the code beginning on line 17 with "All reports..." . Remove it. |
| Parra | CA106 | 1441 | 17 | N | It is not clear whose responsibility it is to provide the reports to all parties involved. The commentary seems to imply it is the laboratory's responsibility. It should be the responsibility of whoever hires the laboratory to distribute the reports. In my opinion, the laboratory is only responsible of providing the reports to the client. |
| Rogowsky | CA106 | 1441 | 17 | N | While providing the concrete contractor and producer with all reports of acceptance tests is good for them, it is not a minimum requirement necessary for public health and safety. Enshrining this specific contractual communication requirement in the code is not appropriate. Delete the last sentence of 5.6.1 and revise line 75 to read "concrete contractor and producer responsible for the work,". |
| Anderson | CA106 | 1441 | 19 | Y/C | Is the terminology "concrete producer" sufficient enough? It is not defined in Chapter 2 of the Code, or in the Terminology section on the ACI website. Perhaps we should be more specific and use the term "ready-mix |

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| | | | | | concrete producer," as was done in the background statement. This may help avoid any ambiguity in who the "producer" is by the Owner's definition, thus preventing the ready-mix producer from receiving the test results desired by this provision. |
| Gustafson | CA106 | 1441 | 19 | Y/C | Insert "concrete" before "producer". The party "concrete producer" is cited in R5.6.1, Line 79. |
| Wyllie | CA106 | 1441 | 19 | N | I take strong objections to this proposed change. By placing in the Code that reports must be provided to the concrete contractor and producer but leaving in the Commentary the Owner, licensed design professional, contractor, etc. seems to give the concrete contractor (probably really a subcontractor) and the producer (cement producer, admixture producer, ready mix supplier??) a preference in receiving reports. All of these entities must be in the same location. I strongly prefer them to be listed in the Commentary where they are already included. Thus, no change other than putting ASTMC1077 in the Code removes my negative. The sentence beginning on line 17 should require that all tests be promptly provided to all appropriate parties. Putting the whole list of parties in the Code is a possibility but I do not feel it is needed nor appropriate. |
| Rabbat | CA106 | 1441 | 20 | N | I am concerned that the note on Lines 20-21 will be lost when the next edition is typeset. This note also needs to be expanded. Further, indicate clearly that Reference 5.3 should be deleted and subsequent references should be renumbered.<br><br>Insert a blank Line 20. In Line 21 include a heading "Add to 3.8.1". Then list the full citation of ASTM C1077 including the latest year of publication. |
| French | CA106 | 1441 | 54 | N | Lines 54-56.<br><br>Delete:<br><br>"Inspection and accreditation…conform to ASTM C1077."<br><br>I don't think that this sentence adds anything. |
| Wight | CA106 | 1441 | 70 | Y/C | Change comma to period after "Technician". |
| Corley | CA106 | 1441 | 72 | N | Changes would tend to put code requirement in commentary. |
| Kelly | CA106 | 1441 | 72 | N | I do not believe the commentary needs to say: "it is essential that all testing reports are promptly delivered…" The existing language is perfectly valid. |
| Frosch | CA106 | 1441 | 80 | Y/C | Lowercase "w" … future work. |
| Parra | CA106 | 1441 | 80 | Y/C | Replace capital "W" by "w" in word "work". |
| Schaeffer | CA106 | 1441 | 80 | Y/C | Should "work" not be capitalized? |
| Jirsa | CB100 | 1442 | 0 | Y/C | General comment. The addition of all the material on adhesive anchors makes a strong case for Appendix D |

# SUMMARY OF SUB A ITEMS -- BEFORE CHICAGO MEETING

| | | | |
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| | Total Sub A items | 40 | |
| | Last CA Number Assigned | CA 106 | |
| | | | |
| SOURCES | Carryover from 2008 Code cycle | 16 | |
| | Added from public 2008 comments | 11 | |
| | Added during 2011 Code cycle | 13 | |
| | Total | 40 | |
| | | | |
| RESOLVED | Adopted, 2011 Code | 2 | |
| | Not adopted, 2011 Code | 9 | |
| | Active items | 29 | |
| | Total | 40 | |

# ACTIVE ITEMS

| NUMBER | DESCRIPTION | RESPONSIBLE | COMMENTS |
|---|---|---|---|
| CA 002 | Curing issues, 5.6.4.1 and 5.11 | Hover | See comments for CA 026. This item will be kept open until the results of CA 026 are known |
| CA 021 | Review core evaluations | Fiorato | Wait on recommendations |
| CA 026 | Rewrite of Chapter 5, strength issues | Hover | Sub A ballot A01-2009, DNP, revise and reballot |
| CA 040 | Add reference to CH 1 | Holland | No further action this 2008 cycle |
| CA 044 | Use of "nor" | Carino (edit TG) | Passed Sub A |
| CA 056 | Harmonize chloride limits | Folliard | On hold, coordinate with ACI 201 and ACI 222 |
| CA 065 | Maximum size of aggregate between reinf and forms | Holland | Passed Sub A |
| CA 066 | Accreditied versus inspected labs | Lobo | Wait on recommendations |
| CA 069 | Incorporate certified inspectors into the Code | Holland and Carino | Sub A ballot 10-2006, DNP |
| CA 070 | Cementitious materials for chlorides | Lobo/Folliard | On hold, coordinate with ACI 201 and ACI 222 |
| CA 077 | Rewrite Ch 5, construction issues | Hover | Sub A ballot A01-2009, DNP, revise and reballot |
| CA 079 | Review all of 1.3 | Carino | 2011code cycle |
| CA 083 | 2008 Code, PC 5, Hanskat. 1.1.5, review references to all ACI codes and code-like documents | Holland | Basis material has been supplied |

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| CA 086 | 2008 Code, PC 22, Castrodale. 2.1 and R8.6.1, insure definition of lamda is consistent. | Meyer/Bondy | Passed Sub A |
| CA 087 | 2008 Code, PC 24, 25, 28, and 428, Castrodale. Various locations, including table in 9.5, range of density values for lightweight concrete. | Meyer | Combined with CA 102 for Ballot A06-2009. Need to resolve negatives. DISCUSS CHICAGO |
| CA 088 | 2008 Code, PC 38, Gustafson 318 ballot comment. Table R.4.3.1, second sentence below table. Delete sentence regarding epoxy and zinc coated bars. | Hooton | Basis material has been supplied |
| CA 092 | 2008 Code, PC 69, Cunningham. 2.2 and 5.6.2.4, add definition of strength test to Ch. 2. | Carino | Passed Sub A -- Need to combine with CA 099 for 318 ballot. |
| CA 093 | 2008 Code, PC 414, Green. R8.6.1, give justification for interpolation in values of lamda. | Bondy/Meyer | Ballot A03-2009. Need to resolve negatives. DISCUSS CHICAGO |
| CA 094 | Add equation numbers Table 5.3.2.2 (Misc. #6) | Carino | Passed Sub A |
| CA 095 | Editorial clarification, 4.1.1 (Misc. #13) | Carino | Passed Sub A |
| CA 096 | Editorial clarification of 5.6 (Misc. #12) | Holland | Ballot A03-2008, did not pass. Hold for Ver 2 of reorg, may become moot. |
| CA 098 | Clarify application of 5.5 | Carino | Hold for resolutiopn of CA 026 |
| CA 099 | Clarify use of term f'c, various locations | Fiorato | Passed Sub A -- Need to combine with CA 099 for 318 ballot. |
| CA 100 | Clarify use of 0.85 factor to new concrete | Fiorato | Passed Sub A -- 318 LB 09-05. DISCUSS CHICAGO |
| CA 101 | Clarify requirements regarding measuring air | Hover | Ballot A06-2009. Resolve comments in Chicago. |
| CA 103 | Add "and roofs" to 6.4.4 (misc Item #3) | Holland | Passed Sub A |
| CA 104 | Remove Exposure Cat. "Permeability" from Ch. 4; misc edits to Ch. 4 (misc item # 4) | Lobo | Ballot A02-2009. Passed. Returned to Lobo to resolve negatives. Probably will require an additional Sub A ballot. DISCUSS CHICAGO |
| CA 105 | Number of 4x8 inch cylinders required | Kosmatka | Assigned at San Antonio meeting. |
| CA 106 | Comply with C1077; send test reports | Lobo | Passed Sub A -- 318 LB 09-05. DISCUSS CHICAGO |
| CA 107 | Interpretation of second alternative in 8.6.1 | Meyer/Bondy | |

**Subject:** RE: 4.2.1 question
**From:** "Colin Lobo" <clobo@nrmca.org>
**Date:** Mon, 12 May 2008 08:44:32 -0400
**To:** <Daniel.Falconer@concrete.org>
**CC:** "Tony Fiorato" <fiorato@ctlgroup.com>, "Terence C. Holland" <terry@concreteterry.com>

Terry / SubA can decide and delegate a change proposal if necessary

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**From:** Daniel.Falconer@concrete.org [mailto:Daniel.Falconer@concrete.org]
**Sent:** Monday, May 12, 2008 8:33 AM
**To:** Colin Lobo
**Cc:** Tony Fiorato; Terence C. Holland
**Subject:** RE: 4.2.1 question

All,

Thanks for the prompt replies.

Should the list in 1.2.1 (Drawings and Specifications) include some instructions regarding exposure categories?

Dan

**"Colin Lobo" <clobo@nrmca.org>**

05/12/2008 08:20 AM

To "Terence C. Holland" <terry@concreteterry.com>, <Daniel.Falconer@concrete.org>
cc "Tony Fiorato" <fiorato@ctlgroup.com>
Subject RE: 4.2.1 question

It is my impression that in 4.2.1 the LDP has the responsibility of designating whether an exposure condition applies or not. If it does not apply he should choose the "0" category. This should not be a decision made by a contractor or concrete supplier. So his responsibility would be the same as applies for establishing the specified strength based on anticipated loads. I think 318-08 is clear that this choice should be made by the LDP and designated in contract documents. The code does not need to say how. It can be on the plans or in a schedule of requirements for all structural members (a table)
4.3.1 does not require anything new but in some categories (like S) there are some alternatives. The LDP may select and state the alternative or verify/accept one of the alternatives made in a submittal by the contractor.
301 is sort of struggling how to address these provisions in a specification.

Hope this helps.

Colin

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**From:** Terence C. Holland [mailto:terry@concreteterry.com]
**Sent:** Monday, May 12, 2008 9:06 AM
**To:** Daniel.Falconer@concrete.org
**Cc:** Colin Lobo; Tony Fiorato
**Subject:** Re: 4.2.1 question

Dan:

You have raised a very good question that probably needs to be looked at a little by Sub A. I don't think that the procedure has actually changed -- the LDP has always determined the exposure and developed mixture requirements that are then typically made part of the specifications. Perhaps the 2008 version just makes all of this more explicit.

I have copied Colin and Tony because they have both had an interest in this particular provision.

Terry

Daniel.Falconer@concrete.org wrote:

Terry,

I was asked to speak for an hour to structural engineers on the Code changes from 318-05. What legal responsibility (if any) does the LDP have under the new provision that 318-05 didn't imply? For instance, does the code require the exposure categories listed on the plans? Does 4.3.1 require anything new?

Thanks,

Dan

Dan



If this email is spam, report it here:
http://www.OnlyMyEmail.com/ReportSpam

**Subject:** [Fwd: Re: ACI 318A Ballot A03-2008]
**From:** "Terence C. Holland" <terry@concreteterry.com>
**Date:** Tue, 24 Jun 2008 09:59:51 -0500
**To:** Tony Fiorato <fiorato@ctlgroup.com>, Florian Barth <fb@florian.com>, Ken Bondy <ken@kenbondy.com>, Nick Carino <ncarino@nist.gov>, Fred Meyer <karl.meyer@usma.edu>, Doug Hooton <d.hooton@utoronto.ca>, Ken Hover <kch7@cornell.edu>, Colin Lobo <clobo@nrmca.org>, Dan Falconer <dan.falconer@concrete.org>, Basile Rabbat <brabbat@cement.org>, Kevin Folliard <folliard@mail.utexas.edu>, Dean Browning <dbrowning@pankow.com>, Randy Poston <rposton@wdpa.com>, Harry Gleich <hgleich@metromontusa.com>, Eric Tolles <etolles@ci.irvine.ca.us>, Steve Kosmatka <skosmatka@cement.org>

ACI 318A Members:

Please review the forwarded email from Dan Falconer regarding CA 077, the revision of the second half of Chapter 5. Dan's first point directly applies to the recent ballot and should be considered in the next iteration of this proposal.

The second and third points will be discussed as part of the meeting in St. Louis to determine whether Sub A wants to go forward with these recommendations.

Terry

-------- Original Message --------
**Subject:** Re: ACI 318A Ballot A03-2008
**Date:** Mon, 16 Jun 2008 09:58:49 -0400
**From:** Daniel.Falconer@concrete.org
**To:** "Terence C. Holland" <terry@concreteterry.com>
**CC:** Matthew.Senecal@concrete.org

Terry,

As discussed, here are general comments on the below letter ballot.

1- It is suggested that the committee explicitly make the Licensed Design Professional (LDP) responsible for specifying the appropriate material and construction requirements for a project. The code should revise language so that the parties outside of the LDP (such as the Contractor or his subs) need not interpret ACI 318 requirements. It is suggested that ACI 318 require the LDP to specify all minimum material and construction requirements that the project team must execute.

2- Related to the suggestion that the code speaks only to the LDP, it is suggested that the list of items the code requires the LDP to specify (1.2.1) be expanded and reformatted to include **all** construction-related items the code requires.

3- It is suggested that the committee remove the statement "and are declared to be part of this Code as if fully set forth herein" from the current formula that references Standards of ASTM: "... referred to in this Code are listed below with their serial designations, including year of adoption or revision, and are declared to be part of this Code as if fully set forth herein:" The code need only list the essential requirement of an ASTM standard rather than referring to the whole ASTM standard. In the commentary, the use of ACI 301 or ASTM standards can be endorsed. An sample might be:

CODE

The licensed design professional shall specify the materials for cast-in-place concrete:
(a) Cementitious materials
(b) Aggregates
(c) Water
(d) Admixtures
(e) Steel fiber reinforcement

COMMENTARY
Material specifications for most projects for items (a) through (e) can be satisfied by referring to ACI 301 or equivalent in a project specification.

Dan

**"Terence C. Holland" <terry@concreteterry.com>**

05/08/2008 08:59 AM

To Tony Fiorato <fiorato@ctlgroup.com>, Florian Barth <fb@florian.com>, Ken Bondy <ken@kenbondy.com>, Nick Carino <ncarino@nist.gov>, Fred Meyer <karl.meyer@usma.edu>, Doug Hooton <d.hooton@utoronto.ca>, Ken Hover <kch7@cornell.edu>, Colin Lobo <clobo@nrmca.org>, Dan Falconer <dan.falconer@concrete.org>, Basile Rabbat <brabbat@cement.org>, Kevin Folliard <folliard@mail.utexas.edu>, Dean Browning <dbrowning@pankow.com>, Randy Poston <rposton@wdpa.com>, Harry Gleich <hgleich@metromontusa.com>, Eric Tolles <etolles@ci.irvine.ca.us>, Steve Kosmatka <skosmatka@cement.org>

cc

Subject ACI 318A Ballot A03-2008

Sub A Members:

Just what you were hoping for -- another ballot! Note that many of these items are very simple and should not take any real time.

Also note that CA 077 has been balloted previously. Ken Hover has included the comments from the last ballot and the resulting changes in the wording on this ballot. Please read carefully.

Some of you are printing the ballot, signing it, and then scanning it to have a signature on the form. Please note that I don't require such effort. Just indicate your name on the Word ballot and I will be satisfied. So far, there have been no instances of ballot identity theft.

This ballot almost cleans out the cupboard of ready-to-ballot items. Please work on your assigned CA items as well as the various miscellaneous items that were assigned in LA. I would like to have enough items for another ballot in late June. Remember, we need to make a major dent in the list of CA items to free up Sub A time for reorg issues that will start appearing in the near future.

Happy Spring,

Terry

[attachment "Ballot A03-2008.doc" deleted by Daniel W Falconer/ACI/Notes] [attachment "Ballot A03-2008.pdf" deleted by Daniel W Falconer/ACI/Notes]

# Recommended Response to Falconer Emails of May and June 2008

**Falconer comment May 2008**

What legal responsibility (if any) does the LDP have under the new provision [exposure classes] that 318-05 didn't imply? For instance, does the code require the exposure categories listed on the plans? Does 4.3.1 require anything new?

**Discussion**: As C. Lobo and T. Holland commented, the LDP has always had the responsibility for and has always determined the exposure requirements and mixture requirements. In 4.2.1 the LDP has the responsibility of designating whether an exposure condition applies or not. If it does not apply he should choose the "0" category. This should not be a decision made by a contractor or concrete supplier. So his responsibility would be the same as applies for establishing the specified strength based on anticipated loads. 318 is clear that this choice should be made by the LDP and designated in contract documents. The code does not need to say how. It can be on the plans or in a schedule of requirements for all structural members.

4.3.1 does not require anything new but in some categories (like S) there are some alternatives. The LDP may select and state the alternative or verify/accept one of the alternatives made in a submittal by the contractor.

**Recommended Action**: No action needed.

**Falconer comment June 24, 2008**

Related to the suggestion that the code speaks only to the LDP, it is suggested that the list of items the code requires the LDP to specify (1.2.1) be expanded and reformatted to include **all** construction-related items the code requires.

It is suggested that the committee remove the statement "and are declared to be part of this Code as if fully set forth herein" from the current formula that references Standards of ASTM: "... referred to in this Code are listed below with their serial designations, including year of adoption or revision, and are declared to be part of this Code as if fully set forth herein:" The code need only list the essential requirement of an ASTM standard rather than referring to the whole ASTM standard. In the commentary, the use of ACI 301 or ASTM standards can be endorsed. An sample might be:

CODE
The licensed design professional shall specify the materials for cast-in-place concrete:
(a) Cementitious materials
(b) Aggregates
(c) Water
(d) Admixtures
(e) Steel fiber reinforcement

COMMENTARY
Material specifications for most projects for items (a) through (e) can be satisfied by referring to ACI 301 or equivalent in a project specification.

**Discussion**: 318-14 does not use the same list and places the information in other applicable locations. Applicable sections clearly state the responsibility of the LDP. For example, Chapter 5 clearly identifies that the LDP specify strength, exposure classes, etc.

The recommendation that the statement “are declared to be part of this Code” be removed from referenced standards was addressed in the 318-14 rewrite and was removed.

The suggestion that the code need only list the essential requirement of an ASTM standard rather than the whole standard does not hold true. In most instances we need to refer to the entire standard. For example, Table 5.2.5.4 refers to “Silica fume conforming to ASTM C1240.” Here the code intends to mean that silica fume meet the entire standard, not just part of C1240.

**Recommended Action**: No action is necessary concerning the first item as the conversion of 318-08 to 318-14 has addressed the situation. No action is necessary concerning the second comment.