

MEETING MINUTES

ACI SUBCOMMITTEE 318-J – JOINTS AND CONNECTIONS

2018 ACI Spring Convention

Grand America Hotel

Salt Lake City, UT

Tuesday, March 27th, 2018

1:30p – 6:00p

Room GA – Grand Reception C (Grand America Hotel)

ATTENDANCE

Members Present: John Bonacci, Jim Cagley, Min-Yuan Cheng, Mary Beth Hueste, Jim Jirsa, Gary Klein, Mike Kreger, Jim LaFave, Rémy Lequesne, Gustavo Parra, Jim Wight

Members Absent: None

Visitors: Damon Fick, Jack Moehle (ACI 318 Chair), Greg Zeisler (ACI Staff)

1. Call to order and introductions

- Subcommittee Chair Parra called the meeting to order at approximately 1:35p. All individuals in the meeting room then introduced themselves.

2. Approval of agenda; addition of other items

- Chair Parra presented a meeting agenda, as previously posted to the subcommittee website, for discussion and approval. No additional agenda items were proposed.
- A motion (by Wight, seconded by Klein) was made to approve the meeting agenda; the motion was approved by acclamation.

3. Approval of minutes from the Anaheim (Fall 2017) meeting

- Chair Parra thanked LaFave for preparing minutes from the previous meeting of this subcommittee. A motion (by Klein, seconded by Cagley) was then made to approve the Fall 2017 meeting minutes (from the convention held in Anaheim, CA), which had previously been posted to the subcommittee website. No additional discussion was requested, and so the motion was then approved by acclamation.

4. Resolution of negatives (full-committee ballots)

a) CJ171 – Integrity reinforcement in slab-column connections, balloted by the full committee as part of LB18-01 (Hueste)

- Mary Beth provided everyone with an overall ballot summary from the main committee. The full committee vote on item CJ171 was as follows – 17 affirmative, 9 affirmative with comment, 11 negative, 3 abstain, and 0 not returned. The item therefore meets both the 1/2 rule and the 2/3 rule.
- Before going through the ballot results, Hueste suggested that Cagley could summarize his negative vote, and so he again shared his concerns – what are we really getting with this proposal, as he is unaware of any failure that has occurred since we started putting a couple bars through the column?
- Klein reminded that it is not really just about preventing failure, per se, but rather about preventing (global) collapse in the event of a local (punching shear) failure.
- Kreger questioned about whether the proposal will in some cases increase the amount of steel used in practice. The answer seems to be that yes, it sometimes will, as further elaborated upon by Hueste and Parra through looking in more detail at various specific cases with realistic values used in the proposed relationship.
- The ballot comment summary and subcommittee response / proposed changes were then reviewed at the subcommittee meeting. Hueste led a quick discussion of certain ballot comments (especially negative votes), along with some possible strategies for addressing them, which can be summarized as follows:
 - For a Dolan comment about banded tendon terminology, “banded tendons” can perhaps become “a tendon arrangement”.
 - Various comments about the reduced live load and load combinations can be taken care of by simply using q_s as the service load per unit area.
 - For Anderson and Seguirant comments about the column periphery definition, this concept is already in 318 and so everyone was in favor of keeping it that way; perhaps adding “within the region bounded by column longitudinal reinforcement” could help and/or some commentary or a figure (which would also address a similar concern from Wyllie).
 - With respect to Frosch and Ghosh comments about principal directions (perhaps vs. orthogonal), this approach is already used elsewhere in 318.
 - As far as Dolan’s concerns about this whole matter perhaps only being a construction issue, it can be made even clearer that this is not just only the case. In addition, the proposed sentence in the commentary referring to construction issues has been removed, as suggested by Frosch.
 - In response to a Frosch comment, the duplication of repeatedly using “structural integrity” can be reduced; “in nonprestressed slabs” can also be removed.
 - As Taylor has indicated, “deformed” can be added before “wires”.
 - Per Poston, “column strip” can be deleted.

- To address comments from Dolan and Frosch about a provision containing “approximately”, it was agreed to simply get rid of the provision (which also addresses another earlier comment, from Klemencic).
 - In regards to a Frosch comment about the use of “conventional”, this can perhaps instead be changed to “ordinary”, along with giving examples about what’s not included. The final proposal was to change to the following: “The structural integrity reinforcement requirements are for conventional two-way floor and roof slab construction, as opposed to thicker slabs such as podium slabs.”
 - The following commentary was introduced to further clarify the calculation of A_{sb} . “ A_{sb} includes the area of integrity reinforcement that crosses the column periphery. Therefore, the area of continuous bars that pass through a column core is counted twice and the area of reinforcement that terminates within a column core is counted once.”
 - With respect to Anderson’s comment about column support loss being another potential need, it was decided to just leave this scenario to the designer to ensure adequate reinforcement is provided in order to meet the expected demands when a column is removed.
 - In response to a Frosch comment about young / weak concrete not being the only reason, this sentence can simply be removed (with a reference over to a 352 document that addresses other reasons as well).
 - With respect to related comments by Dolan and Moehle, we can just allow conventional bottom integrity steel in both directions for prestressed slabs when the two tendon minimum in each direction is not provided. In this case, Eq. 8.7.4.2.2 will be referenced in lieu of the current equation for minimum nonprestressed reinforcement. This concept was agreed upon as something to take care of and then re-ballot to the main committee.
 - With respect to Wyllie’s comments about “continuous”, perhaps an existing figure can help to take care of this. Much of the related commentary is being returned to original form, for further consideration.
 - In response to a comment from Frosch, “To meet the requirements of ...” can be deleted.
 - And finally, a few different options were considered going forward – two prestressing strands through the column core each way could be fine, or satisfying the equation with conventional bottom steel. A straw vote indicated a preference for having it be either two prestressing strands each way or meeting the equation (similar to the current 318 approach, but referencing the proposed equation for nonprestressed slabs when using conventional bottom integrity steel).
- The entire subcommittee agreed by consensus with the items in the ballot comment summary response / proposed changes, as modified during the meeting, and that after these materials are fully incorporated into an updated version of the ballot and

circulated to the subcommittee, then this item should be re-balloted through the main committee.

ACTION ITEM:

- Hueste will make any necessary final updates to this ballot and ballot summary, based on what transpired at the meeting, which will be circulated to the subcommittee. Chair Parra will then bring this ballot forward to the main committee for their re-balloting consideration, on behalf of our subcommittee.

b) CJ172 – Details for connections between cast-in-place members and foundation, balloted by the full committee as part of LB17-07 (LaFave)

- Jim L. provided everyone with an overall ballot summary from the main committee. The full committee vote on item CJ172 was as follows – 32 affirmative, 5 affirmative with comment, 2 negative, 1 abstain, and 0 not returned. The item therefore meets both the 1/2 rule and the 2/3 rule.
- The ballot comment summary and subcommittee response / proposed changes were reviewed at the subcommittee meeting. LaFave led the presentation and discussion – following is a brief summary of the status of any substantive comments that were discussed at the meeting:
 - Affirmative with comment items from Kelly and Klemencic were found to be persuasive, and so the suggested changes were made (in one case with a minor modification to the wording). Affirmative with comment items from French and Frosch were found to be partially persuasive in conjunction with each other, and so the suggested changes were made to the extent possible. An affirmative with comment item from Schaeffer was found to be non-persuasive, and so the suggested change was not implemented.
 - A negative vote from Anderson was found to be persuasive, and so the requested change was made (with a minor modification in wording). One negative item from Wyllie was found to be persuasive, and so the requested change was made (with minor additions in wording); another negative item from Wyllie was found to be non-persuasive, and so no change was made at the subcommittee meeting.
- The entire subcommittee agreed by consensus with all of the items in the ballot comment summary response / proposed changes, and that it is ready to be presented to the full committee, where the negatives can then formally be withdrawn and/or otherwise further addressed.

ACTION ITEM:

- Chair Parra will present the subcommittee response to this ballot during the main Committee 318 meeting on the following day. LaFave will reach out to the negative voters in the meantime.

5. Resolution of negatives (subcommittee ballots)

a) CJ173 – Reorganization of Chapter 15 (Jirsa; Klein)

- The 1st subcommittee ballot for this item (“Reorganization of Chapter 15 Joints and Clarification of provisions for Joints (Chapter 15) and Connections (Chapter 16)”) was held from 2/19/18-3/19/18. The subcommittee vote on item CJ173 was as follows – 2 affirmative, 3 affirmative with comment, and 6 negative. The item therefore does not meet either the 1/2 rule or the 2/3 rule.
- Jim J. led a high-level discussion about this ballot item and the associated negative votes, assisted in part by Gary. The overall goal had been to ensure that all sorts of joints (e.g., even for culverts) could be taken care of in Chapter 15, while straightening out some other things in Chapter 16. With so many negative votes, they wondered what is really feasible for the next ballot. Klein indicated that the concept of flexure along the diagonal (such as for parking garage barrier walls and the like) could be more clearly treated with such a reorganization. Some aspects of the ballot that resulted in negative votes are relatively easy to fix, whereas others really are not.
- Bonacci expressed serious concerns about what he views as being still another reorganization to these chapters at this time, after so many other changes / additions to them already during this code cycle. On the other hand, it was noted that some on the main committee may expect for something more general to happen in the way of further improvements to Chapter 15 after getting the knee joint provisions through for beam-column connections (i.e., next for wall-to-wall joints, etc.). As a possible “compromise” solution, Bonacci suggested mentioning, at least for now, slab-to-wall joints in the commentary, with then even more to come in the next code cycle (as new business), perhaps in conjunction with simply changing the title of Chapter 15 to “Joints” (which is certainly not really a re-organization).
- Based on all the feedback from the ballot and at the meeting, Jirsa and Klein will consider going back to the drawing board to see if they can come up with a revised subcommittee ballot related to this item.

b) CJ163 – Transfer of axial force through floor systems (Kreger)

- The 2nd subcommittee ballot for this item (“Transfer of Axial Force through Floor System”) was held from 2/26/18-3/26/18. The subcommittee vote on revised item

CJ163 was as follows – 5 affirmative, 6 affirmative with comment, and 0 negative. The item therefore meets both the 1/2 rule and the 2/3 rule.

- Given the relatively modest number of ballot comments, Mike simply went through the entire ballot response summary document at the meeting (in conjunction with an updated version of the ballot). Some highlights of that process can be summarized as follows:
 - Comments by Cheng, Hueste, and LaFave (about the ballot up through line 13) have primarily been addressed by elaborating on certain aspects of the ballot’s background.
 - Comments by LaFave and Wight on lines 22-30 were found not to be persuasive for various reasons, and so those suggested adjustments have not been made.
 - The remaining 3 comments from Wight were all accepted.
- The entire subcommittee agreed by consensus with all the items in the ballot comment summary response / proposed changes, and that this ballot item is now ready to present to the full committee.

ACTION ITEM:

- Kreger will produce a final version of this ballot and ballot response summary, based on what transpired at the meeting. Chair Parra will then bring this ballot forward to the main committee for their consideration, on behalf of our subcommittee.

c) CJ174 – Treatment of beam-column joints with circular columns (LaFave)

- The 1st subcommittee ballot for this item (“Treatment of beam-column joints with circular columns”) was held from 2/26/18-3/26/18. The subcommittee vote on item CJ174 was as follows – 7 affirmative, 3 affirmative with comment, and 1 negative. The item therefore meets both the 1/2 rule and the 2/3 rule.
- Given the relatively modest number of ballot comments, Jim L. simply went through the entire ballot response summary document at the meeting (in conjunction with an updated version of the ballot). Some highlights of that process can be summarized as follows:
 - Comments by Klein, Kreger, Lequesne, and Wight were generally persuasive and resulted in most of the suggested adjustments being made.
 - The negative vote (from Kreger) was found to be persuasive, and so the commentary sentence in question was re-written (also in conjunction with a comment from Lequesne). As a result of this, the negative vote from Kreger was withdrawn.
- The entire subcommittee agreed by consensus with all the items in the ballot comment summary response / proposed changes, and that this ballot item

(proposing additions to the latest version of the Commentary) is now ready to present to the full committee.

ACTION ITEM:

- LaFave will produce a final version of this ballot and ballot response summary, based on what transpired at the meeting. Chair Parra will then bring this ballot forward to the main committee for their consideration, on behalf of our subcommittee.

6. TAC comments on changes to 318-19 up to December 2017 (Parra)

- Gustavo reminded everyone that TAC has provided comments on changes for ACI 318-19 up through December of 2017, which he had previously circulated to the subcommittee. Parra and Wight agreed to review and address, as applicable, all of these comments in more detail on behalf of the subcommittee. Somewhat related to this, Lequesne noted that we may have missed in Chapter 15 having a pointer to Chapter 21 pertaining to $\phi = 0.85$ for joints of special moment frames.

7. Update of figures (Parra)

- Similar to the previous item above, it was also noted by Gustavo that updated figures for ACI 318-19, which he previously circulated to the subcommittee, are now in need of review and possible adjustment. Cheng and Lequesne agreed to take care of this matter on behalf of the subcommittee.

8. Future business

- Parra and Wight noted that there are likely to be online / conference call meetings of the main 318 committee on both June 6th and August 21st, at 1p Eastern time, and that there may also be an extra face-to-face meeting of the committee down in Texas at some point in December.

9. Next meeting

- The next subcommittee meeting will be held in October at the 2018 ACI Fall Convention in Las Vegas, NV. Chair Parra noted that Subcommittee 318-J may need to meet on Sunday in the event that the main committee ends up meeting on Monday.

10. Adjournment

- A motion (by Cagley, seconded by Lequesne) was made to adjourn the meeting. No additional discussion was requested, and so the motion was approved by acclamation. The meeting was adjourned at approximately 6:00 pm.

Respectfully submitted,

James M. LaFave

Member, ACI Subcommittee 318-J

Gustavo Parra

Chair, ACI Subcommittee 318-J