



International Code Council

ICC IS-3DACT Committee Meeting Minutes – Meeting #15

March 7, 2025 – 10:00 AM PST

1. Welcome and opening remarks

Staff Co-Secretariat, Aileen Vandenberg called the meeting to order at 10:05 am PST and welcomed all committee members, invited parties, and ICC staff. Ms. Vandenberg noted the committee must adhere to the ICC Code of Ethics, which states that those participating in ICC activity must adhere to the highest ethical conduct, with the purpose of the protection of the health, safety and welfare of the public by creating safe buildings and communities. In addition, Section 5.1.10 in Council Policy #7 is in effect and any committee member with a conflict of interest must withdraw from participating in discussion or vote on the matter in which they have an undisclosed interest. Lastly, Council Policy #50 outlines ICC Antitrust guidelines, which indicates the committee meetings are not intended for discussion of pricing and marketing topics.

2. Quorum and Attendance

Ms. Vandenberg called the roll of the IS-3DACT with the following members registering attendance. Ms. Vandenberg noted there was enough for a quorum.

NAME	2025 IS-3DACT COMMITTEE MEETING					
	#12 9/13/24	#13 10/11/24	#14 2/14/25	#15 3/7/25	#16 3/21/25	#17 TBD
Gabriel Carrera [D]	X	x	x	x		
Bora Gencturk [C]	X	x	x	x		
Rory Hamaoka [H]	-	x	x	x		
Werner Hellmer[H]	-	x	x	x		
Maryam Hojati [D]	-	x	x	x		
Berok Khoshnevis [D]	X	-	x	x		
Doug Mayer [H]	X	x	x	x		
Paul Messplay [H]	X	x	x	-		
Adil Tamimi [D]	X	x	x	-		
Bing Tian [A]	-	x	x	x		
David Langefeld [B]	X	x	x	x		
Eric Kreiger	X	x	x	x		
TOTAL	8/13	11/12	12/12	10/12		

Interested parties in attendance included Greg Black (SEAC NOCO), Matt Carli (Putzmeister), Charbel Ghanem (Dar Sidara Co.), Gaurav Basnet (Univ of FL), Hussain Ashoor (Ab'aad 3D Innovation), Craig Slama (Jablonsky, Ast and Partners), Christopher Kaufmann (Parsons), Atta Ur Rehman (Yonsei University), Larry Stevig (State Farm), Mike Raymond (OPCMIA528), Abdul Peerzada (Quikrete), Pasquale Caccavo (Karlos-3D), Josh Gebelein (Parsons), Stephan Mansour (ACI), Tom Jaleski (Jensen Hughes), Marco Hernandez (SQ4D Print Techs), Mahmut Ekenel (ACI), Randy Wright (Hunt, Guillot, & Assoc.), Babak Zareiyan (Beyond Engineering), Mohsen Khanverdi (Windsor University), Ali Ahmed Aljouri (Ab'aad 3D Innovation), Muhammad Shakeel Akhtar (Parsons), Daniel Bahia Katz (Katz Construções)

3. Approval of Agenda Motion

Chair Mr. Bora Gencturk asked for a motion of approval for the agenda. Mr. Eric Kreiger motioned, and Mr. Werner Hellmer seconded. The agenda was unanimously approved.

4. Approval of Previous Meeting Minutes

Mr. Gencturk asked for a motion of approval for the previous meeting minutes. Mr. Bing Tian motioned, and Mr. Rory Hamaoka seconded. The previous meeting minutes were unanimously approved.

5. Continuation of Public Comments Round 1 Discussion

Mr. Gencturk started the discussion on the public comments with asking Mr. David Langefeld to summarize the Structural Working Group meeting that occurred a week before. Mr. Langefeld presented the document regarding Special Inspections to the committee. The committee discussed the document. The document will be worked on some more within the Structures Working Group and finalized in the next committee meeting.

Next, Mr. Gencturk started the discussion on the public comments, continuing with Chapter 3 and starting Chapter 4. Below are the comments that were addressed during the discussion.

#	Comment Proponent	Section, Comment and Proposed Resolution	Committee Response	Committee Vote
34	Mr. Langefeld	<p>Section 303.2 Compressive Strength.</p> <p>Compressive strength of 3D printed mortars should have the option for using cylinders. Suggest the committee add a reference. This is consistent with Chapter 5.</p> <p>Add "...or cylinder specimens in accordance with ASTM C39."</p>	<p><i>Tabled for additional discussion</i></p> <p>... ASTM C109/C109M or on cylinder specimens in accordance with ASTM C39/C39M.</p> <p>Section 502.4 also modified to include change</p> <p>...For compressive strength, any comparison to results from Chapter 3 shall be made on identical specimen shapes....</p>	<p><i>Roll call vote for cylinder testing for mortar: 8 yes, 4 no.</i></p> <p><i>(2 yes, came via email vote)</i></p>
35	Mr. Langefeld	<p>Section 303.3 Shrinkage ASTM C157 does not consider the benefits of shrinkage-compensating admixtures. Suggest the committee add a means for testing the shrinkage that allows for the benefits of shrinkage-compensating admixtures to be realized.</p> <p>Add a reference to ASTM C878 in addition to C157.</p>	<p><i>Tabled for additional discussion</i></p> <p><i>The Materials Working Group will meet to develop a recommendation for the main committee.</i></p>	<p><i>Mr. Werner Hellmer motioned</i></p> <p><i>Mr. Gabriel Carrera seconded</i></p> <p><i>Vote – Approved unanimously</i></p>

#	Comment Proponent	Section, Comment and Proposed Resolution	Committee Response	Committee Vote
36	Mr. Langefeld	<p>Section 304 LONG TERM DURABILITY TESTING METHODS AND PERFORMANCE SPECIFICATIONS</p> <p>Suggest the committee consider referring to ACI 318 table for durability and forego the requirements of ASTM C666, which is overly aggressive for exposures consistent with vertical walls.</p> <p>Strike Section 304.1 and 304.3 and refer to ACI 318-19 Tables 19.3.1.1 and 19.3.2.1 for commercial projects and ACI 332-20 Tables 5.1.1 and 5.3.2 for residential projects. Section 304.2 on ASR may remain.</p>	Disapproved	<p>The comment was withdrawn.</p> <p>Unanimously approved.</p>
37	Mr. Langefeld	<p>CHAPTER 4 STRUCTURAL DESIGN</p> <p>Chapter 4 uses the term "3D-ACT Wall Systems," which differs from elsewhere. Suggest the committee align terminology.</p> <p>Suggest "3D-ACT Wall Systems" or "3D-Printed Wall Systems" be used throughout the entire standard.</p>		No vote. Chair will address comment with Chapter 2 comments.
38	Mr. Langefeld	<p>Section 401.3 Construction Systems</p> <p>Add Chapter 5. Suggest the committee require compliance with both Chapter 3 and 5 and reword slightly.</p> <p>Replace "The provisions of this chapter govern the construction of 3D-ACT wall systems. Materials used in the construction shall conform to Chapter 3."</p> <p>With <u>"The provisions of this chapter govern the construction of 3D-ACT wall systems. 3D-Printable Materials used in the construction shall conform to Chapters 3 and 5."</u></p>	<p>Approved for minor editorial edits.</p> <p>...shall conform to Chapters 3 and 5.</p>	No vote. Chair determined this to be editorial and approved the change.
39	Mr. Langefeld	<p>Section 401.3.3.2 Multi-Shell Walls</p> <p>Section mentions that walls w/o integral cores are permitted. Suggest the committee also reference Section 401.3.5.</p> <p>"Multi-shell walls with or without integral cores shall be permitted. <u>See also Section 401.3.5.</u>"</p>	Disapproved	<p>The comment was withdrawn.</p> <p>Unanimously approved.</p>

#	Comment Proponent	Section, Comment and Proposed Resolution	Committee Response	Committee Vote
40	Mr. Langefeld	<p>Section 401.3.4.2 Multi-Shell Walls</p> <p>Add testing as an option also. Suggest the committee add testing language.</p> <p>“Multi-shell walls shall be classified as non-composite unless a rational analysis <u>or physical test results are</u> is provided to verify that cross ties and webbing are adequate to transfer between shells the horizontal shear stresses developed from the design loads being considered.”</p>	<p><i>Disapproved</i></p> <p><i>To be consistent with Section 401.2.2, remove any reference to testing in sections.</i></p>	<p><i>The comment was withdrawn.</i></p> <p><i>Unanimously approved.</i></p>
41	Mr. Langefeld	<p>Section 403.4 Minimum Connections Between Cores and Shells</p> <p>Cross ties need more definition. For example, as written, no hook is required. Suggest the committee add minimum detailing requirements for cross ties.</p> <p>Require cross ties have at least a 90 deg. hook with a 3 in. extension at each end.</p>	<p><i>Tabled for additional discussion</i></p> <p><i>The Structures Working Group will meet to develop a recommendation for the main committee.</i></p>	<p><i>Vote – Approved unanimously</i></p>
42	Mr. Langefeld	<p>Section 403.6 Minimum Connections Between Beads in Multi-Bead Shells</p> <p>Consider adding language that cross ties fulfill this requirement and that effective side face contact negates this requirement. Suggest the committee revise the language.</p> <p>“Where the shell consists of multiple beads that are assumed to be composite, cross ties consisting of 0.01 sq. in. per sq. ft. (69.4 sq. mm per sq. m) of wall area shall connect the two beads. <u>Cross-ties connecting multiple shells as described in Section 403.5 fulfill this requirement. Cross ties shall not be required if a rational analysis shows that the horizontal shear demands between the beads is less than 80 psi (550 kPa).</u>”</p>	<p><i>Approved with minor edits</i></p> <p><i>Underlined statement added to Section 403.6</i></p>	<p><i>Mr. Carrera motioned</i></p> <p><i>Mr. Kreiger seconded</i></p> <p><i>Vote – Approved unanimously</i></p>
43	Mr. Langefeld	<p>Table 403.7.1 Minimum Concrete Cover for Reinforcement</p> <p>The Bar Sizes and “Horizontal Reinforcement” is confusing. Suggest the committee revise the table to ensure clarity.</p> <p>Add callout for vertical reinforcement in some rows.</p> <p>“No. 6 and larger <u>vertical bars</u>”</p> <p>“No. 5 and smaller <u>vertical bars</u>”</p> <p>“All Bar Sizes (<u>vertical bars</u>)”</p>	<p><i>Approved with minor edits</i></p> <p><i>Suggestion added</i></p>	<p><i>Mr. Carrera motioned</i></p> <p><i>Mr. Doug Mayer seconded</i></p> <p><i>Vote – Approved unanimously</i></p>

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6. New Business

There was no new business.

7. Next Meeting

The next meeting will be March 21, 2025, at 10am PDT.

8. Action Items & Summary

The action items from the meeting were summarized as follows:

<i>Materials Working Group meets to discuss Comment #35</i>	<i>Bing Tian</i>
<i>Structural Working Group meets to discuss Comments #8 & #41.</i>	<i>David Langefeld</i>

With no other questions or comments before the committee Mr. Gencturk moved to adjourn the meeting. Mr. Hellmer motioned for adjourning and Mr. Carrera seconded. The meeting adjourned at 12:01pm Pacific Standard Time.

March 7, 2025